



A Neuropsychological Approach for Identifying Reading Disabilities and Dyslexia

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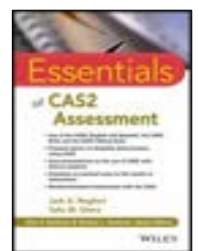
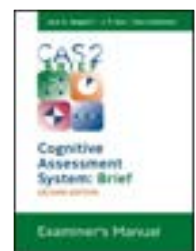
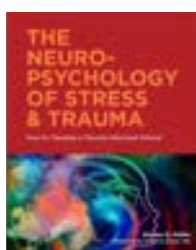
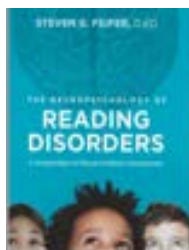
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For Future Reference



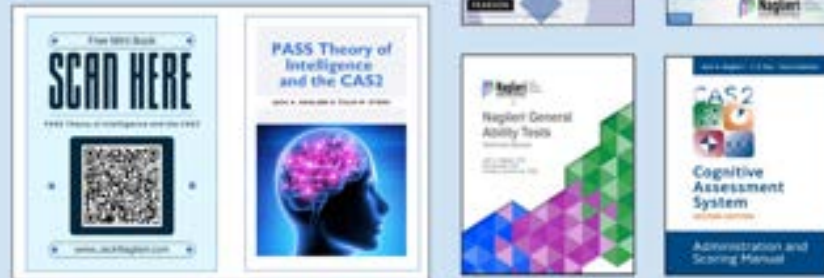
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DISCLOSURES

Disclosures

Jack A. Naglieri is the author of the Cognitive Assessment System: Second Edition, the Naglieri Nonverbal Ability Test and the Naglieri General Ability Tests and books



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DISCLOSURES

Disclosures

Steven G. Feifer is the author of the Feifer Assessment of Reading; Feifer Assessment Of Math; and Feifer Assessment of Writing.



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Topical Outline

- ➔ • 10 Reasons to Adopt a PASS Paradigm
 - The Problem with Traditional IQ Testing
 - Intelligence Conceptualized by Brain Functioning: PASS Theory
 - PASS and Reading Skills
 - Introducing the Discrepancy-Consistency Method
 - Case Studies Using the DCM to Identify SLD for Reading Disabilities and Dyslexia

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10 reasons to use PASS theory and CAS2 along with the FAR, FAM and FAW.

1. The PASS scales on the CAS2 measure **thinking** (i.e. basic psychological processing) rather than **knowing** (e.g., vocabulary, arithmetic word problems), making the test good for assessment of diverse populations and those with limited educational opportunity.
2. PASS scores can be easily obtained in **40 minutes** (using the 8-subtest Core Battery) or **60 minutes** (using the 12-subtest Extended Battery) and scoring and narrative reports are easily obtained using online score and report program.
3. PASS results are easy for teachers, parents and the students themselves to understand because the **concepts can be explained** in non-technical language.
4. The PASS theory and the CAS2 provide a way to both define and assess basic psychological processes so that practitioners can obtain scores that are consistent with **state guidelines**.
5. The PASS scores are strongly correlated to achievement, show distinct patterns of strengths and weaknesses for **diverse populations**.

10 Good Reasons

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10 reasons to use PASS theory and CAS2 along with the FAR, FAM and FAW.

6. Together, the PASS and FAR/FAM/FAW scores provide excellent evidence of a **pattern of strengths and weaknesses** in basic psychological process (PASS) and achievement
7. The FAR, FAM and FAW have **interpretive scoring reports** that generate numerous interventions, learning strategies, websites, and apps to assist educators and parents working with children who have specific learning disorders
8. Using the FAR, FAM AND FAW with the CAS2 an **ecologically sound** approach to identify specific psychological processes directly related to the academic skills in question.
9. The CAS2 and FAR, FAM or FAW are efficient, **cost effective** and easy to administer.
10. The CAS2 in combination with the FAR or FAM provides examiners with a **reliable and defensible** report using the *Discrepancy Consistency Method*.

10 Good Reasons

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First Generation vs. Second Generation Tests

BIG Picture

- The **CAS2** is a 'second generation' intelligence test built on the **PASS theory** and was designed to discover strengths and weaknesses in the kinds of **THINKING** that underlie learning.
- The **FAR, FAM, FAW** are 'second generation' achievement tests that are designed to uncover **WHY** a student has trouble acquiring specific ACADEMIC skills
- Both tests highlight how **brain processes** underscore learning, as opposed to first generation tests which only measure what children know.

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First and Second Generation Automobiles

1916 Ford Model T



Alfred Binet
(1911) and Lewis
Terman (1916)
First Wechsler
was 1939



2025 Lucid Gravity: Luxurious Electric SUV

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Turn and Talk Time

What are your primary goals to get from this session?

Are you ready to embrace a new way of measuring intelligence and achievement?



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Paul 4th grade

Presenting Concerns: Academic Issues with Reading and Anxiety

WISC-V Scales	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	98	Average	45%
Visual Spatial Index	94	Average	34%
Fluid Reasoning Index	88	Below Average	21%
Working Memory Index	78	Low	7%
Processing Speed Index	76	Low	6%
FULL SCALE SCORE	86	Below Average	18%
WIAT IV Reading	80	Below Average	9%
WIAT IV Math	87	Below Average	19%
WIAT IV Writing	94	Average	34%

Questions: #1 Does Paul qualify for SPED?
#2 What interventions would you recommend for Paul?
#3 Do you feel frustrated when you get these results?

We will show you a VERY different picture of Paul

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Traditional IQ and Achievement Tests

- 1975 Charles Champagne Elementary, Bethpage, NY
- Typical assessment
 - Draw A Person
 - WISC
 - Achievement Test
 - And more...

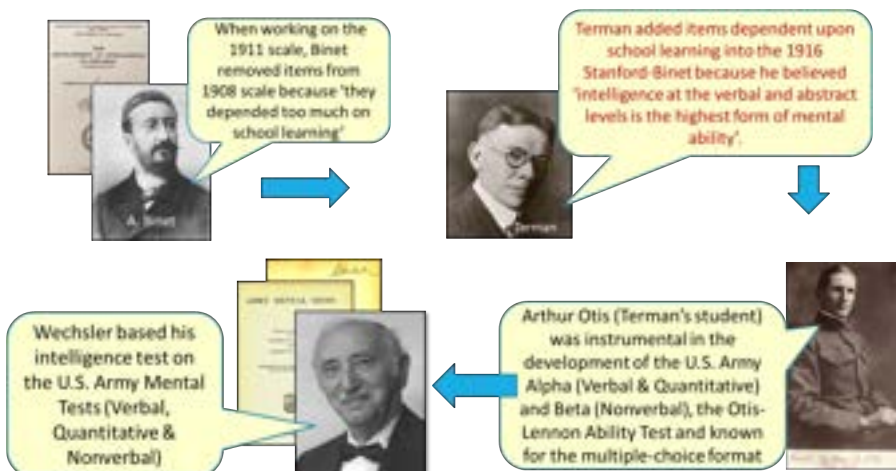


- I noticed that the Achievement Test had a General Information, Vocabulary and Arithmetic subtests JUST LIKE THE WISC!
- HOW DOES THAT MAKE SENSE?
- Did the Wechsler measure Verbal and Nonverbal Intelligences?

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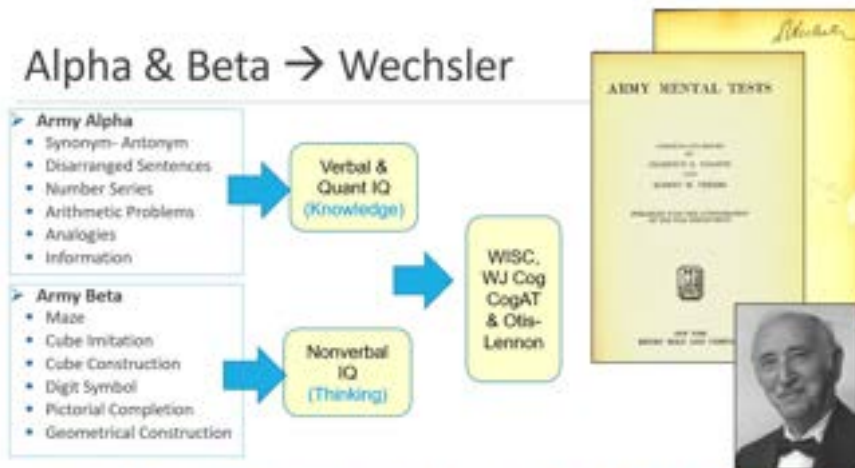
Origin of the Wechsler Scales



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



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Views of General ability

- 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)



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

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



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Does the WISC-R Measure Intelligence?



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The Evolution of the WISC

1981

Test Results and Interpretations:

On the WISC-R, Nanda earned a Performance IQ of 81AP 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 45VP. This score is quite low and indicates that her level of fluency with the English language falls at about the 3rd percentile rank. This score can NOT be considered an estimate of verbal intelligence because Nanda speaks mostly Lupaí and Yinele English. Due to the large difference between these scores, no Full Scale IQ was computed.

Within the WISC-R a clear pattern emerged: Nanda 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				
Block	Block	Block	Block	Block
Verbal	Block	Block	Block	Block
Block	Block	Block	Block	Block
Block	Block	Block	Block	Block
Block	Block	Block	Block	Block
Block	Block	Block	Block	Block



Naglieri, J. A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools*, 29, 438-475.

Naglieri, J. A., & Yazici, C. (1980). Comparison of the WISC-R and PPVT-R with Navajo children. *Journal of Clinical Psychology*, 35, 598-600.

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Tests that Demand Knowledge

Knowledge is Included in "Ability" Tests

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

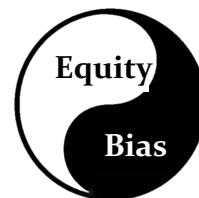
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Differences in Mean Scores = Impact

According to the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014)

... 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.**



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Verbal IQ Tests, Race & Ethnic Differences

Race and Ethnic Differences for Ability Tests that Demand Knowledge and those that require minimal Knowledge



From Briles, D., Landowski, K., & Naglieri, J. A. (2003). Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Free Spirit Publishing.

Race and Ethnic Standard Score Differences Across Intelligence Tests	By Race	By Ethnicity
Tests that require knowledge	Mn = 11.5	Mn = 9.2
Oris-Lennon School Ability Test (district wide)	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WI-III (normative sample)	10.9	10.7
CogAT7 (Nonverbal scale)	11.8	7.6
WISC-V (statistical controls normative sample)	8.7	
Tests that require minimal knowledge	Mn = 4.1	Mn = 2.6
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
CAS-2 (normative sample)	6.3	4.5
CAS (statistical controls normative sample)	4.8	4.8
CAS-2 (statistical controls normative sample)	4.3	1.8
CAS-2 Brief (normative samples)	2.0	2.8
NIAT (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

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Numbers of Gifted Students Missed = 1,266,708

Gifted Enrollment by Race and Ethnicity as of 2020 (updated 2024).				
	N in Public Education K-12 in 2020	N Potentially Gifted (8%, 92 percentile)	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 Americans	748,000	59,840	26,700	-33,140
Two or More Races	1,641,817	131,345	105,371	-25,974
Total Non-Whites	24,481,790	1,958,543	1,063,343	-895,200

1. Representative State Statistics: N in Public Education / Potential N in Gifted Education
 2. Total enrollment data from U.S. Dept. of Education (2020-21). Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and state of residence. Data from the 2020-21 school year. <https://nces.ed.gov/ipeds/data/ipedsreports/2020-21/>
 3. Gifted enrollment data from U.S. Dept. of Education (2020-21). Enrollment and percentage distribution of enrollment in gifted and talented programs, by state, race/ethnicity, and state of residence. <https://nces.ed.gov/ipeds/data/ipedsreports/2020-21/>
 4. From Briles, D., Landowski, K., & Naglieri, J. A. (2003). Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Free Spirit Publishing.
 5. Naglieri, J. A. (2003). Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Free Spirit Publishing.

Percent of Schools that do not identify	41.5%
Additional non-white gifted students = 41.5% of 895,200	N = 371,508
Total non-white gifted students missed	N = 1,266,708

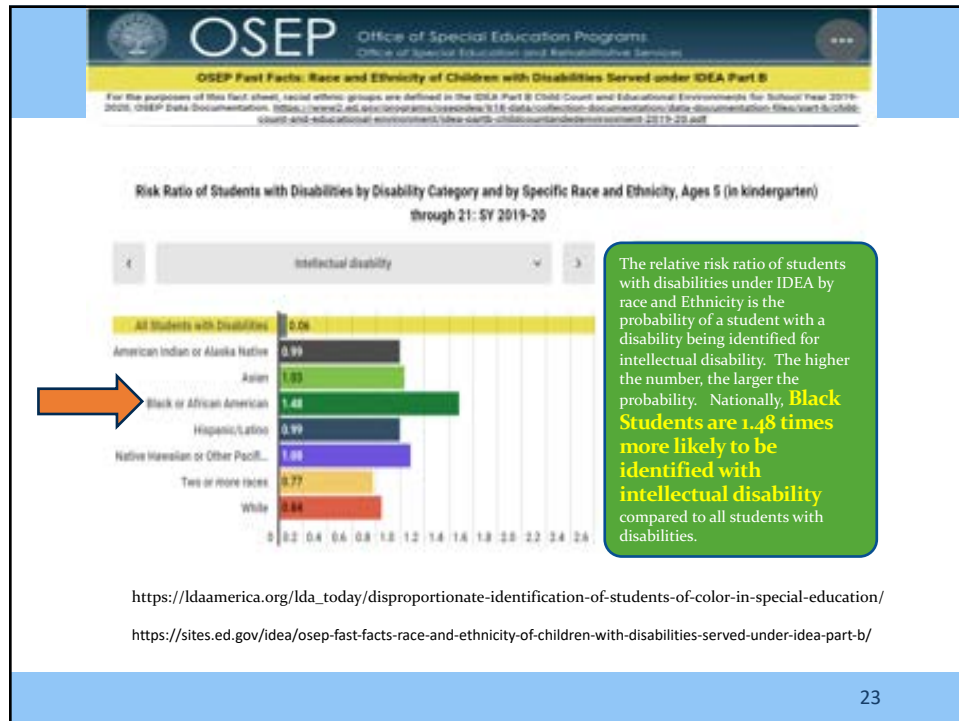


895,200

371,508

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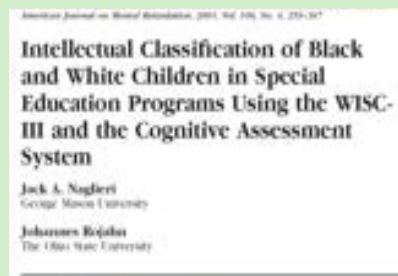
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Measuring Thinking using CAS

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



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NASP Professional Standards 2020



GUIDING PRINCIPLE 1.3 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 1.3.2 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 intrinsically 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.

Domain 8: Equitable Practices for Diverse Student Populations

Standard II.1.3 Continuing Professional Development

School psychologists engage in continuing professional development. They remain current regarding developments in research, continuing professional development, and professional practices that benefit children and youth, families, and schools.

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.

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The Case of Paul

- Why do we measure intelligence this way?
- Why does the WISCV have these scales?
- Do the scales and subtests have enough specific variance to be interpreted?
- Does the WISCV measure 'basic psychological processes' - a key part of the definition of a SLD in IDEA
- Which scores on the various editions of Wechsler's test have the most validity and interpretability?
- TRADITION !
- Marketing
- NO !
- NO !
- ONLY THE FULL SCALE

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Words of Wisdom



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Turn and Talk Time

What limitations do you have with the current cognitive tests you are administering?



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What is a Learning Disability

- **IDEA:** Specific learning disability means a disorder in one or more of the basic **psychological processes** involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, **read**, write, spell, or to do mathematical calculations.
- Specific learning disability **does not** include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage

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Intelligence in the 21st Century Conceptualized as brain function

Our Amazing
Brains !



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Intelligence as Neurocognitive Abilities

- In Das and Naglieri's first meeting (February 11, 1984) they proposed that intelligence was better REinvented as PASS processes and began development of the **Cognitive Assessment System** (CAS; Naglieri & Das, 1997).
- The CAS was the first intelligence *test* to be built on a specific *theory* of intelligence; and one defined as brain function
- CAS is an innovation in intelligence testing

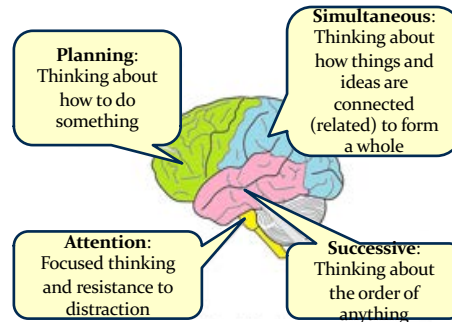
April 2018



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A Way to Understand Learning and Specific Learning Disabilities

- PASS Theory of brain function describes the abilities that underlie all learning
- This includes everything – from learning to walk, talk, think, interact with others, cope with the demands of life...etc.



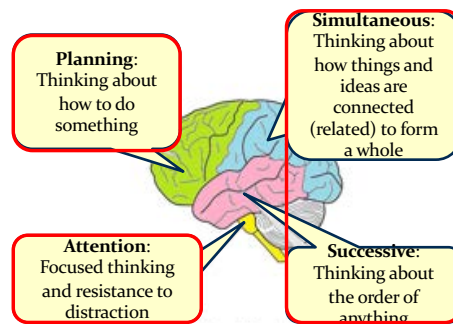
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017 Figure 1.2 Functional Units from A. R. Luria

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A Way to Understand Learning and Specific Learning Disabilities

- The first step is being alert and focused
- The second step is deciding how to achieve a goal
- The third step is applying different ways to solving various tasks



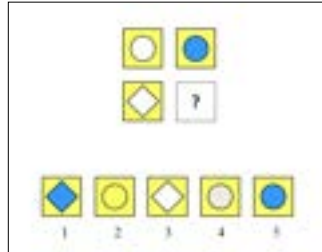
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017 Figure 1.2 Functional Units from A. R. Luria

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Thinking vs Knowing

Solving these analogies demands the same kind of thinking



Girl is woman as boy is to ____?

3 is to 6 as 4 is to ____?

C⁷ is to F as E⁷ is to ____?

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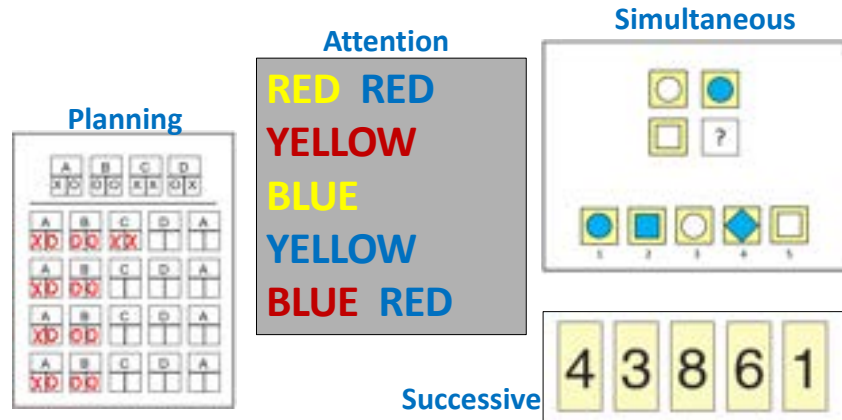
Thinking and Knowing

- What does the student have to **know** to complete a task?
 - This is dependent on *instruction*
- How does the student have to **think** to complete a task?
 - This is dependent on the *brain* – **PASS**
- We must assess ability and achievement separately



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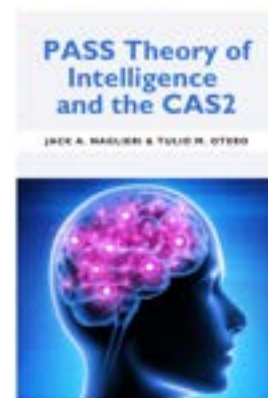
PASS Theory: Four Ways of Thinking



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PASS Neurocognitive Theory

- Download a free e-book (Naglieri & Otero, 2024) on PASS theory as measured by the CAS2 and CAS2: Brief



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PASS Comprehensive System

(Naglieri, et al., 2014)

Six 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



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PASS: Across the Three Measures

	CAS2 Rating Scale	CAS2	CAS2 Brief
	Items ask how well the child...		
Planning	thinks before acting, creates plans, uses strategies to achieve a goal.	Planned Codes Planned Connections Planned Number Matching	Planned Codes
Attention	can focus attention to one thing at a time and resists distractions.	Expressive Attention Number Detection Receptive Attention	Expressive Attention
Simultaneous	understands how parts combine to make a whole and see the big picture.	Matrices Verbal-Spatial Relations Figure Memory	Simultaneous Matrices
Successive	works with numbers, words or ideas that are arranged in a specific series.	Word series Sentence Repetition/Questions Visual Digit Span	Successive Digits

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CAS2 for (Ages 5-18 yrs.) English & Spanish



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CAS2 Online Score & Report


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

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




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CAS2 Online Score & Report

- Narrative report can be obtained in Word or PDF







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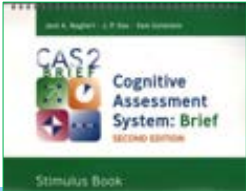

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CAS2: Brief for Ages 4-18 years

For special educators and others with some assessment training


- 4 subtests (20 minutes)
- PASS and Total Scales provided

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Cognitive Assessment System: Brief
Examiner's Manual

CAS2: Brief

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- Administered in 20 minutes
- Yields PASS and Total standard scores (Mn 100, SD 15)
- All items are different from CAS2
 - Planned Codes
 - Simultaneous Matrices
 - Expressive Attention
 - Successive Digits (forward only)





Figure 2.1. Example of page 1 of the CAS2 Brief Examiner Record Form, completed for testing.

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Cognitive Assessment System: Brief
Examiner's Manual

CAS2: Brief

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- Successive Digits uses numbers (not words as in CAS2)
- NOTE: "Provide additional help if necessary" →



Successive Digits

Administration:
Age-related entry points, apply using (only of 4 total of 3, if needed).

Materials:
All items.

Objective:
The examinee's task is to repeat a series of digits in the same order in which the examiner says them. The examiner should say the digits in a uniform pitch at the rate of one digit per second. The examiner should stop when the last digit of the series is spoken so that the examinee knows it is the end of the series.

Entry Points: Begin with item 1 for ages 4-7 and item 3 for ages 8-10.

Discontinue Rule: Discontinue after the examinee misses four consecutive items.

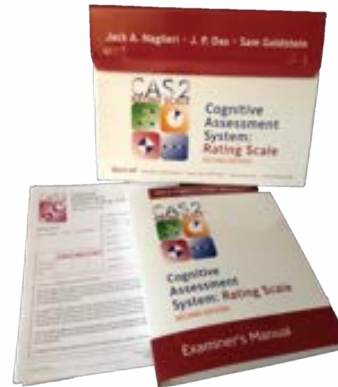
Directions for All Ages:
Use the table below to administer the series of digits and to record responses. Record a score of 1 in the Score column if the examinee recalls the series in the correct order. Record a score of 0 in the Score column if the examinee recalls incorrect or out-of-order digits.
(Example—Say: I'm going to say some numbers. Listen carefully. When I finish, I want you to say them just as I did (pause). Say "3, 5, 1" if the examinee's response is correct; say "That's right." If the response is incorrect, say "I said '3, 5, 1' so you should say '3, 5, 1'." Provide additional help if necessary.)

Directions for Examinees Ages 4-7:
Item 1—Say: Listen again. Say "3, 5, 1" forward and score the examinee's response. If the response is correct, say "That's right." If incorrect, say "I said '3, 5, 1' so you should say '3, 5, 1'." Provide additional help if necessary.
Items 2 to 28—Use the following directions as needed for items 2 to 28: Say: Say what I said. Provide no additional help.

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CAS2 Rating Scales (Ages 4-18 yrs.)

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



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CAS2 Rating Scales

- The CAS2: Rating form contains 40 items
- 10 items for each PASS scale
- PASS and Total scales are set to have a mean of 100 and standard deviation of 15

 The image shows a sample of the CAS2 Cognitive Assessment System: Rating Scale form. It is a detailed form with multiple sections for recording scores and observations. The form includes a header with the title 'CAS2 Cognitive Assessment System: Rating Scale' and a section for 'PASS Scales' with columns for 'PASS Scale' and 'Score'. There are also sections for 'Total Score' and 'Comments'.

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PLANNING

Intelligence
Conceptualized as
brain function -
PLANNING

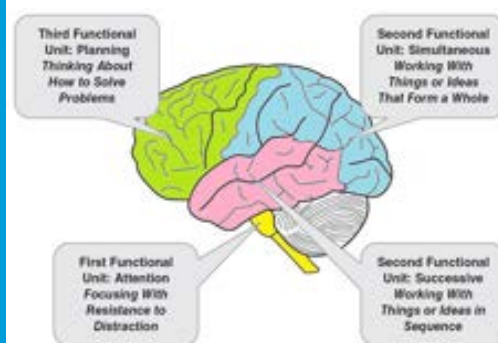


Figure 1.2 Three Functional Units and Associated Brain Structures
From: *Essentials of CASz Assessment*. Naglieri & Otero, 2017

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PASS Theory: Planning

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

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Planned Codes

A	B	C	D
X O	O O	X X	O X

A	B	C	D	A
X O	O O	X X		
X O	O O			
X O	O O			
X O	O O			

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

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Planned Codes Page 2 Jack Jr age 10

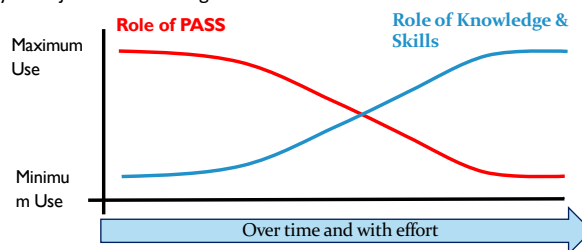


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Planning Learning Curves

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



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

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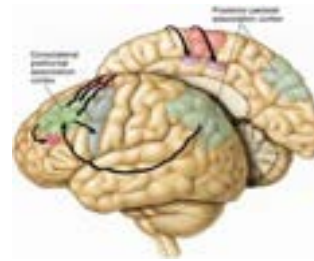
Planning (EF) and Skills

- 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'
- Your thoughts?

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Planning & Reading Comprehension

➤ **Planning** – provides the ability to apply knowledge, use a strategy, and self-monitor performance while working toward a solution




➤ **Planning & Reading** - read with a specific question or purpose in mind when seeking specific information. In other words, plan a strategy!!



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Planning & Reading: Word Recall



far™
online assessment of reading™

PK-Grade 2

Item
1. chain
2. drum
3. pepper
4. wheel
5. guitar
6. celery
7. brake
8. trumpet
9. tomato

Trial 2: Bicycle words

Item	Number correct	Repetitions	Intrusions
chain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wheel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
brake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3+ items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Trial 2: Musical instruments

Item	Number correct	Repetitions	Intrusions
drum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
guitar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
trumpet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3+ items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Grades 3+

Item
1. chain
2. drum
3. pepper
4. wheel
5. guitar
6. celery
7. brake
8. trumpet
9. tomato
10. handbell
11. potato
12. carrot

Trial 2: Fruits and vegetables

Item	Number correct	Repetitions	Intrusions
pepper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
celery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tomato	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3+ items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

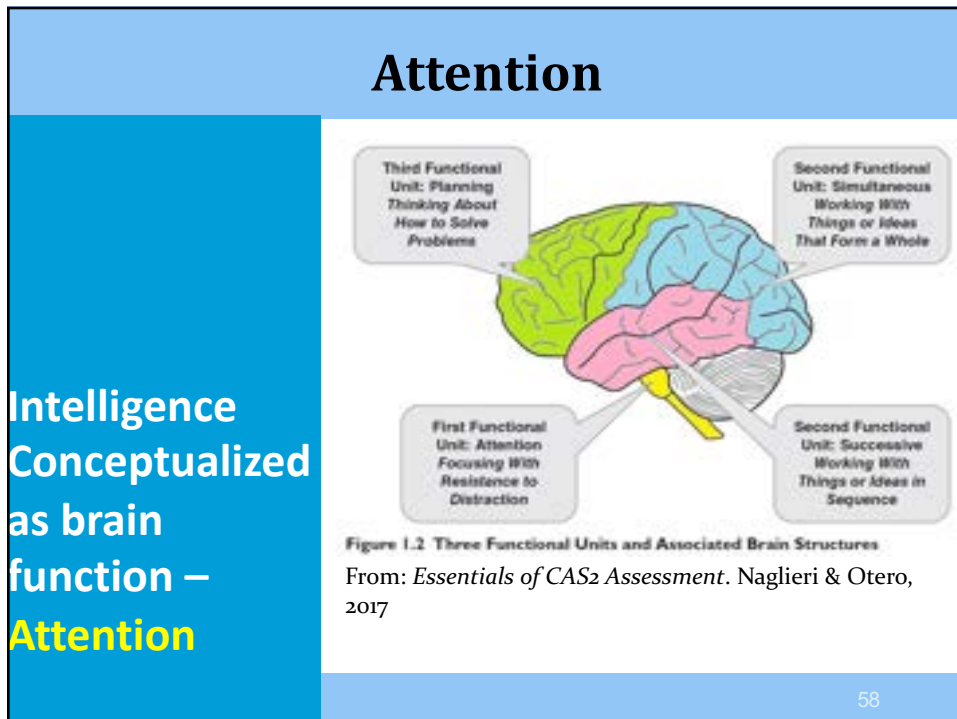
Trial 2: Subtotals

Number correct	Repetitions	Intrusions
Trial 1 subtotal		
Trial 2 subtotal		
Word Recall (WR) total		

To calculate the Word Recall total, transfer the Trial 1 and Trial 2 subtotals to the appropriate space below. Sum the number correct subtotals and record that value in the space provided.

Number correct	Repetitions	Intrusions
Trial 1 subtotal		
Trial 2 subtotal		
Word Recall (WR) total		

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- Focus on one thing and ignore others
- Resist distractions in the learning environment

- Trouble focusing on what is important
- Difficulty resisting distractions
- Difficulty working on the same task for very long
- Unable to see all the details
- Providing incomplete or partially wrong answers

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Attention Subtests

Expressive Attention

Number Detection

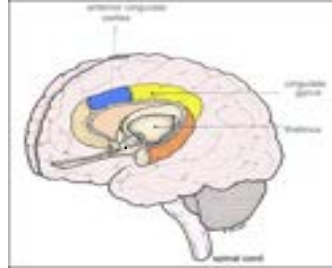
Receptive Attention



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Attention and the Brain: Anterior Cingulate Cortex (Goldberg, 2013)

- **Anterior Cingulate Cortex** – allows us to shift our focus from the outside world of objects and events toward the inside world of thoughts and ideas (*self awareness*).
- Linked to effortful control, task motivation, reward based decision making, and cognitive flexibility



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Attention & Reading: Text Perception

One 30-second Trial; Letters (PK-2nd) or Words (3rd +)

Letters

b i y w a v o q
t q t e x n i o

Words

shady tired telephone assist calendar

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Attention & Reading Comprehension: Silent Reading Fluency

- 2 passages and sets of comprehension questions based on grade level; 60 seconds to read each passage
 - Story is removed before asking questions.
 - 4 questions are literal from story (**Text Attention**)
 - 4 questions are inferential from story (**Text Abstraction**)

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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 comp
 - geometry
 - math word problems
 - whole language
 - verbal concepts

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

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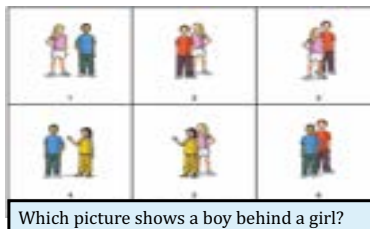
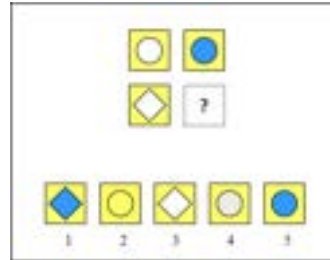
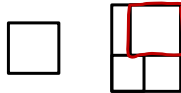
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Simultaneous Subtests

Matrices

Verbal Spatial Relations

Figure Memory

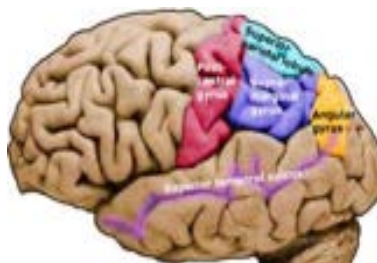


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Simultaneous Processing and Reading Fluency

Angular Gyrus– a **heteromodal** association region of the posterior temporal lobes that ascribes meaning to spatial arrays and symbols. Educators often refer to this as **orthographic processing**.



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Simultaneous Processing & Reading

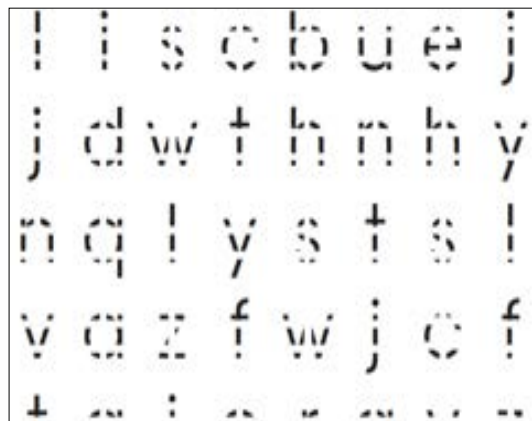
- **Simultaneous Processing**– the ability to integrate separate elements into a conceptual whole, and often requires visual-spatial problem solving skills.
- **Simultaneous & Reading** -the ability to automatically and instantaneously recognize words in print without sounding out each individual phoneme. An extremely important skill in developing reading fluency.



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Simultaneous Processing and Reading: Rapid Automatic Naming



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Simultaneous Processing and Orthography

Orthographical Processing

The student chooses which letters
appeared in presented word

Initial Presentation for 1 sec


epiphany

Response Options

eph phi pip iny

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Simultaneous Processing and Reading: Irregular Word Reading Fluency

FAR: Irregular Word Reading Fluency: (60 seconds)

yacht
debt
answer
seizure
gnome
malign
conscience
plaque



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Successive Processing

Intelligence
Conceptualized as brain
function – **Successive
Processing**

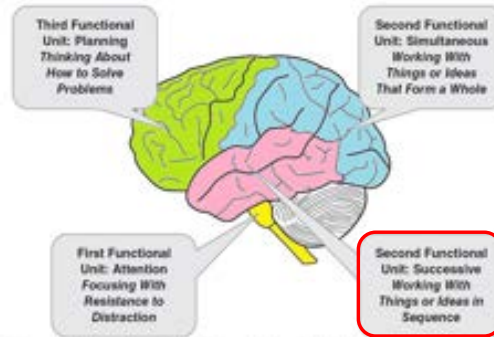


Figure 1.2 Three Functional Units and Associated Brain Structures
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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PASS Theory: Successive

• Sentence Repetition

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

Recall of Numbers in Order
Successive Processing

4 3 8 6 1

• 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?***

Word Series

High imagery single syllable words

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Successive Processing & Reading

- **Successive** – the ability to put information into a serial order or particular sequence.
- **Successive Processing & Reading** -the ability to sequence and stitch multiple sounds together to identify a word in print.



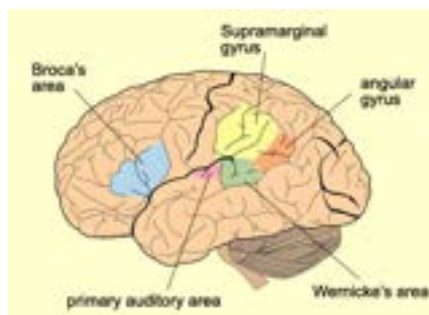
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Successive Processing & Reading Decoding

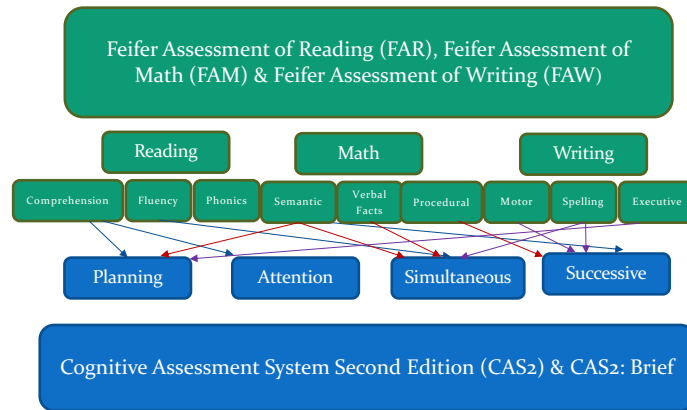
Supramarginal Gyrus – the ability to stitch together sounds in a sequential manner.



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Summary: LD Subtypes and PASS Processes



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Turn and Talk Time

Do you feel these tests help you connect PASS cognitive processes with academic performance?



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Topical Outline

- 10 Reasons to Adopt a PASS Paradigm
- The Problem with Traditional IQ Testing
- Intelligence Conceptualized by Brain Functioning: PASS Theory
- PASS and Reading Skills
- • Introducing the Discrepancy-Consistency Method
- Case Studies Using the DCM to Identify SLD for Reading Disabilities and Dyslexia

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3 Models of SLD Assessment

1. Discrepancy Model – SLD is derived from a significant discrepancy between a student's IQ and their overall score on an achievement test.

Criticisms: *There is too much academic achievement representing a Full Scale score, the statistical impreciseness of the method, inability to identify young learners (Feifer, 2018), and bias towards culturally different backgrounds (Naglieri & Otero, 2017).*

2. Response to Intervention (Rtl) – SLD is derived by **default**, and determined when a student fails to adequately respond to interventions delivered with fidelity over time using a multi-tiered model of support services.

Criticisms: *Rtl method lacks reliability to consistently identify specific learning disabilities in children (Maki et al., 2017). In addition, much of the research on Rtl involves basic reading skills only.*

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3 Models of SLD Assessment

3. Patterns of Strengths and Weaknesses (PSW) – SLD determination involves a comprehensive assessment of all cognitive processes as defined by the CHC paradigm, as well as academic achievement. A pattern of cognitive and academic strengths and weaknesses should emerge.

Criticisms: *Excessive time, huge testing battery required, statistical impreciseness of crossing batteries with different samples to derive constructs, and over-relying on computer programs to interpret tests and not the test publisher (McGill et al. 2018).*

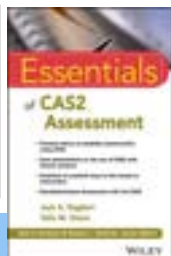
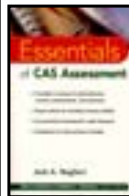
***SOLUTION:** A modified version of PSW based upon a neuropsychological paradigm examining both cognitive skills and academic skills ➡ **DCM!!!**

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Discrepancy Consistency Method (DCM)

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



Patterns of Strengths and Weaknesses Using the Discrepancy/Consistency Method for SLD Determination

Three methods for detecting a pattern of strengths and weaknesses (PSW) that can be used as part of the process of identifying a student with a specific learning disability (SLD) have been suggested by Naglieri in 1999, Hale and Fionello in 2004, and by Flanagan, Ortiz, and Alfonso in 2007. Those authors share the same goal: to present a procedure to detect a PSW in scores that can be used

DON'T FORGET 3.5

The essence of the Discrepancy/Consistency Method is two discrepancies and one consistency.

Discrepancy 1:

Significant variability among the PASS scores indicating a weakness in one or more of the basic psychological processes

Discrepancy 2:

Significant difference between high PASS scores and low achievement test scores

Consistency:

No significant difference between low PASS scores and low achievement

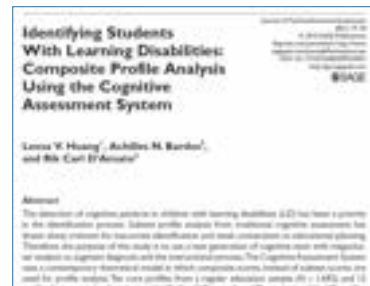
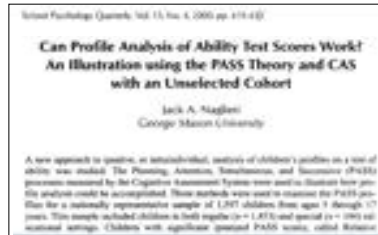
to identify an SLD (sometimes referred to as a third option; Zirkel & Thomas, 2010). Despite differences in the composition of the scores used and the definitions of what constitutes a basic psychological process, these methods all rely on finding a combination of differences as well as similarities in scores across academic and cognitive tests. Our approach to operationalizing a PSW is called the Discrepancy/Consistency Method (DCM) for the identification of SLD. Determining SLD is essentially based on the combination of PASS and achievement test scores. The method involves a systematic examination of variability of PASS and academic

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Research on PASS Profiles

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

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

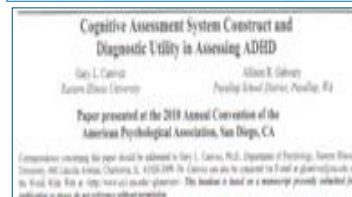
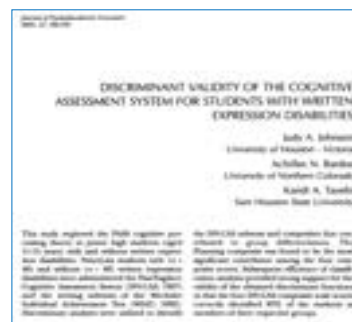


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Research on PASS Profiles

- “this study suggests that the CAS...yields information that contributes to the differential diagnosis of students suspected of having a learning disability in writing”
- “the present study demonstrated the potential of the CAS to correctly identify students who demonstrated behaviors consistent with ADHD diagnosis.”

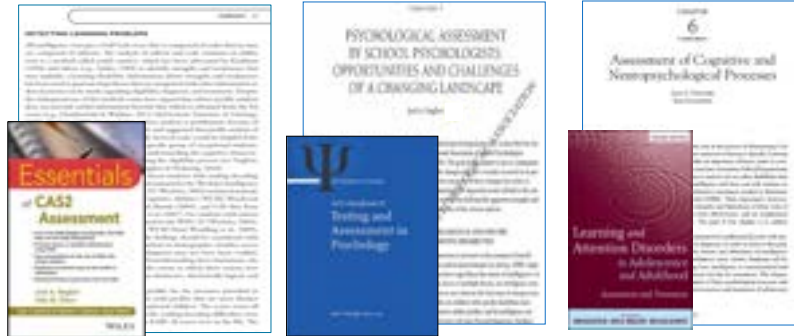


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Patterns of Strengths & Weaknesses

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

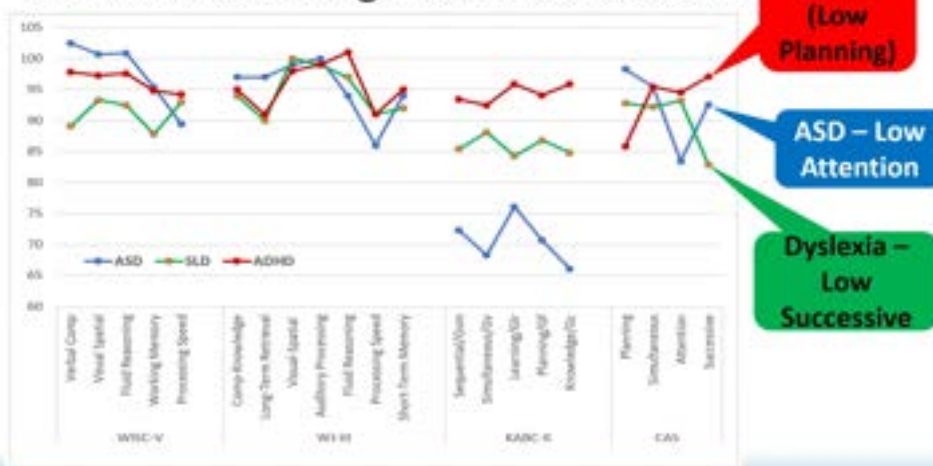


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These profiles across tests suggests PASS works

Patterns of Strengths & Weaknesses



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Correlations: We can do better!

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



Correlations Between Ability and Achievement		Average Correlation	
Test Scores		All Scales	Scales without achievement
WISC-V	Verbal Comprehension	.74	
WISC-III	Visual Spatial	.48	
N = 200	Fluid Reasoning	.40	
	Working Memory	.63	
	Processing Speed	.34	
WI-IV CDS	Comprehension Knowledge	.58	
WI-IV ACH	Fluid Reasoning	.71	
N = 825	Auditory Processing	.52	
	Short Term Working Memory	.55	
	Cognitive Processing Speed	.55	
	Long-Term Retrieval	.43	
	Visual Processing	.45	
BABC	Sequential/Gsm	.43	
WI-III ACH	Simultaneous/Gs	.41	
N = 287	Learning/Glr	.50	
	Planning/Glr	.39	
	Knowledge/GC	.70	
CAS	Planning	.57	
WI-III ACH	Simultaneous	.47	
N = 1,800	Attention	.58	
	Successive	.46	

Note: WI-IV Scales Comprehension Knowledge and General Information, Number Series and Concept Formations, Auditory Processing + Phonological processing.

Note: All correlations are reported in the ability (left) column. Scales were averaged within each ability test using Fisher's transformations.

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Research on PASS & Achievement

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

George G. Georgiou¹, Rui Guo², Naveen Kumar³, Ana Paula Aires Vieira⁴, J.P. Das⁵

¹University of North Carolina, ²University of North Carolina, ³University of North Carolina, ⁴University of North Carolina, ⁵University of North Carolina

ABSTRACT

Intelligence, memory, fluid reasoning, and executive functions (EFs) are key predictors of academic achievement. This meta-analysis examines the relationship between these cognitive constructs and academic achievement. The results show that fluid reasoning is the strongest predictor of academic achievement, followed by working memory and EFs. The meta-analysis also found that the relationship between intelligence and academic achievement is mediated by working memory and EFs. The meta-analysis also found that the relationship between intelligence and academic achievement is mediated by working memory and EFs.

KEYWORDS

Intelligence, memory, fluid reasoning, executive functions, academic achievement, meta-analysis.

Georgiou, G., Guo, K., Naveen Kumar, N., Vieira, A. P. A., & Das, J. P. (2019). PASS theory of intelligence and academic achievement: A meta-analytic review. *Intelligence*, 79.

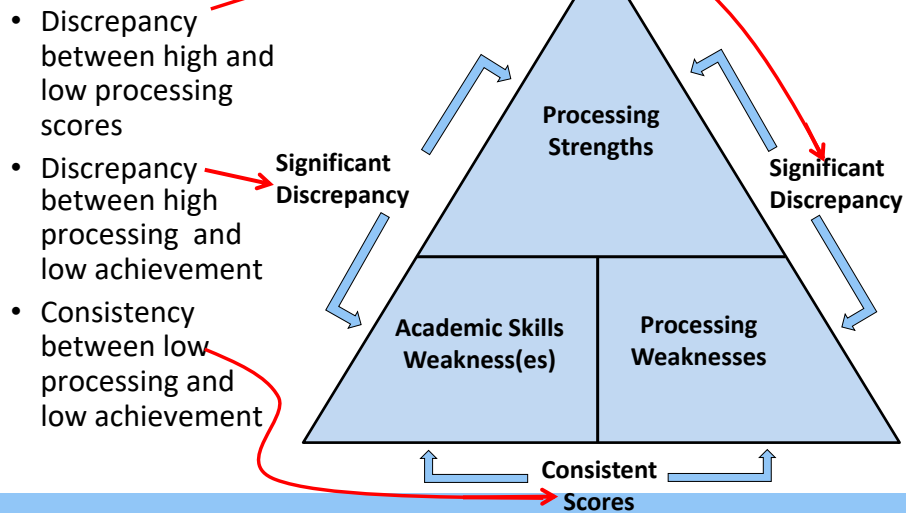
PASS Research

- "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..."

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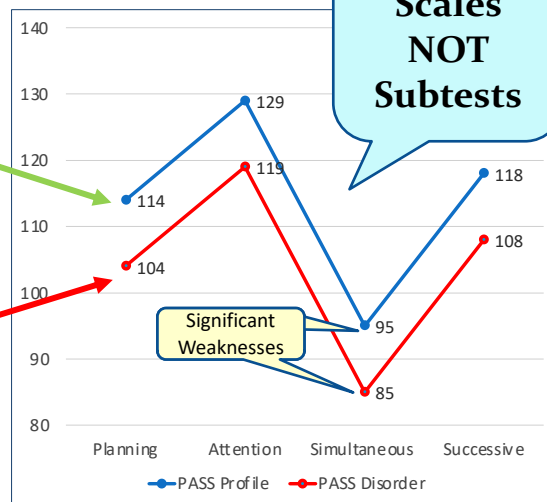
Discrepancy Consistency Method for SLD



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How to Determine a Disorder

- Two sets of PASS scores were studied
 - Significant variation in relation to student's average has *instructional relevance*
 - Significant variation in relation to student's average AND a standard score less than 90 (< 25th %tile) *supports designation as SLD*



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CAS2, FAR, FAM, FAW PSW Analyzers

- Naglieri and Feifer have developed a **free** excel worksheet that analyzes the relationships between the CAS2, FAR, FAM, and FAW – available from www.jacknaglieri.com



CASE STUDY WORKBOOK
PASS SCORE ANALYZERS
10-MINUTE SOLUTIONS
SPEED/FLUENCY SCALE



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FREE CAS2, FAR, FAM, FAW PSW Analyzers

- Instructions tab Page 1

Discrepancy Consistency Method (DCM) for comparing PASS scores from the Cognitive Assessment System (CAS2; Extended & Core battery) with the Feifer Assessment of Reading (FAR) and Feifer Assessment of Math (FAM)
Jack A. Naglieri & Steve Feifer 9.18.18

HOW TO USE THIS WORKBOOK:

- Click on tab for the CAS2 Extended (12-subtests) or Core (8-subtests) with the FAR or FAM.
- Enter the PASS scores in the column labeled "Standard Scores" in BOX #1.
- Enter the FAR and/or FAM standard scores in BOX #2.

Note: Once the PASS and FAR or FAM scores are entered the discrepancies and consistencies between neurocognitive and achievement scores will be noted. Follow the Flow-Chart (see Figure 3.2 included here which is from Essentials of CAS2 Assessment) for more guidance.

Discrepancy Consistency Method (DCM)

Discrepancy #1: Difference between high and low achieving scores

Discrepancy #2: Difference between high and low achieving scores

Discrepancy #3: Difference between high and low achieving scores

Discrepancy #4: Difference between high and low achieving scores

Discrepancy #5: Difference between high and low achieving scores

Discrepancy #6: Difference between high and low achieving scores

Discrepancy #7: Difference between high and low achieving scores

Discrepancy #8: Difference between high and low achieving scores

Discrepancy #9: Difference between high and low achieving scores

Discrepancy #10: Difference between high and low achieving scores

Discrepancy #11: Difference between high and low achieving scores

Discrepancy #12: Difference between high and low achieving scores

Discrepancy #13: Difference between high and low achieving scores

Discrepancy #14: Difference between high and low achieving scores

Discrepancy #15: Difference between high and low achieving scores

Discrepancy #16: Difference between high and low achieving scores

Discrepancy #17: Difference between high and low achieving scores

Discrepancy #18: Difference between high and low achieving scores

Discrepancy #19: Difference between high and low achieving scores

Discrepancy #20: Difference between high and low achieving scores

Discrepancy #21: Difference between high and low achieving scores

Discrepancy #22: Difference between high and low achieving scores

Discrepancy #23: Difference between high and low achieving scores

Discrepancy #24: Difference between high and low achieving scores

Discrepancy #25: Difference between high and low achieving scores

Discrepancy #26: Difference between high and low achieving scores

Discrepancy #27: Difference between high and low achieving scores

Discrepancy #28: Difference between high and low achieving scores

Discrepancy #29: Difference between high and low achieving scores

Discrepancy #30: Difference between high and low achieving scores

Discrepancy #31: Difference between high and low achieving scores

Discrepancy #32: Difference between high and low achieving scores

Discrepancy #33: Difference between high and low achieving scores

Discrepancy #34: Difference between high and low achieving scores

Discrepancy #35: Difference between high and low achieving scores

Discrepancy #36: Difference between high and low achieving scores

Discrepancy #37: Difference between high and low achieving scores

Discrepancy #38: Difference between high and low achieving scores

Discrepancy #39: Difference between high and low achieving scores

Discrepancy #40: Difference between high and low achieving scores

Discrepancy #41: Difference between high and low achieving scores

Discrepancy #42: Difference between high and low achieving scores

Discrepancy #43: Difference between high and low achieving scores

Discrepancy #44: Difference between high and low achieving scores

Discrepancy #45: Difference between high and low achieving scores

Discrepancy #46: Difference between high and low achieving scores

Discrepancy #47: Difference between high and low achieving scores

Discrepancy #48: Difference between high and low achieving scores

Discrepancy #49: Difference between high and low achieving scores

Discrepancy #50: Difference between high and low achieving scores

Discrepancy #51: Difference between high and low achieving scores

Discrepancy #52: Difference between high and low achieving scores

Discrepancy #53: Difference between high and low achieving scores

Discrepancy #54: Difference between high and low achieving scores

Discrepancy #55: Difference between high and low achieving scores

Discrepancy #56: Difference between high and low achieving scores

Discrepancy #57: Difference between high and low achieving scores

Discrepancy #58: Difference between high and low achieving scores

Discrepancy #59: Difference between high and low achieving scores

Discrepancy #60: Difference between high and low achieving scores

Discrepancy #61: Difference between high and low achieving scores

Discrepancy #62: Difference between high and low achieving scores

Discrepancy #63: Difference between high and low achieving scores

Discrepancy #64: Difference between high and low achieving scores

Discrepancy #65: Difference between high and low achieving scores

Discrepancy #66: Difference between high and low achieving scores

Discrepancy #67: Difference between high and low achieving scores

Discrepancy #68: Difference between high and low achieving scores

Discrepancy #69: Difference between high and low achieving scores

Discrepancy #70: Difference between high and low achieving scores

Discrepancy #71: Difference between high and low achieving scores

Discrepancy #72: Difference between high and low achieving scores

Discrepancy #73: Difference between high and low achieving scores

Discrepancy #74: Difference between high and low achieving scores

Discrepancy #75: Difference between high and low achieving scores

Discrepancy #76: Difference between high and low achieving scores

Discrepancy #77: Difference between high and low achieving scores

Discrepancy #78: Difference between high and low achieving scores

Discrepancy #79: Difference between high and low achieving scores

Discrepancy #80: Difference between high and low achieving scores

Discrepancy #81: Difference between high and low achieving scores

Discrepancy #82: Difference between high and low achieving scores

Discrepancy #83: Difference between high and low achieving scores

Discrepancy #84: Difference between high and low achieving scores

Discrepancy #85: Difference between high and low achieving scores

Discrepancy #86: Difference between high and low achieving scores

Discrepancy #87: Difference between high and low achieving scores

Discrepancy #88: Difference between high and low achieving scores

Discrepancy #89: Difference between high and low achieving scores

Discrepancy #90: Difference between high and low achieving scores

Discrepancy #91: Difference between high and low achieving scores

Discrepancy #92: Difference between high and low achieving scores

Discrepancy #93: Difference between high and low achieving scores

Discrepancy #94: Difference between high and low achieving scores

Discrepancy #95: Difference between high and low achieving scores

Discrepancy #96: Difference between high and low achieving scores

Discrepancy #97: Difference between high and low achieving scores

Discrepancy #98: Difference between high and low achieving scores

Discrepancy #99: Difference between high and low achieving scores

Discrepancy #100: Difference between high and low achieving scores

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CAS2, FAR, FAM, FAW PSW Analyzers

- Enter PASS and FAR standard scores in the yellow boxes

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CAS2, FAR, FAM, FAW PSW Analyzers

- PASS scores are analyzed for Strengths and Weaknesses
- PASS and Achievement scores instantly compared

FREE – on www.jacknaglieri.com

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Correspondence of PASS and FAR scores

Correspondence of FAR and PASS	Planning	Attention	Simultaneous	Successive
Phonemic Awareness - measures rhyming, blending, segmenting, and manipulating sounds				X
Positioning Sounds - a phonemic localization task determining sound positions				X
Nonsense Word Decoding - the student decodes a series of nonsense words				X
Isolated Word Reading Fluency - the student reads a list of words in 60 seconds			X	X
Oral Reading Fluency - the student reads a passage composed of the same words as the Isolated Word Reading Fluency task			X	X
Rapid Automatic Naming - the student names either objects, letters, or sounds			X	
Visual Perception - the student identifies letters or words printed backwards from an array		X	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	X	
Irregular Word Reading Fluency - the student reads a list of phonologically irregular words			X	
Semantic Concepts - the student identifies the correct antonym or synonym of a target word	X		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				X
Silent Reading Fluency - the student answers questions after reading a passage silently	X	X	X	X

NOTE: The correspondence of PASS with FAR and FAM needs to be carefully examined for each student. The table above is a starting point, and should be used flexibly. For example, whereas Planning is anticipated to play a key role for some subtests on the FAR and FAM, it could also have a greater influence on many of these measures if the student's reaction when having difficulty is to withdraw or impulsively choose an answer (i.e., see a fast Plan).

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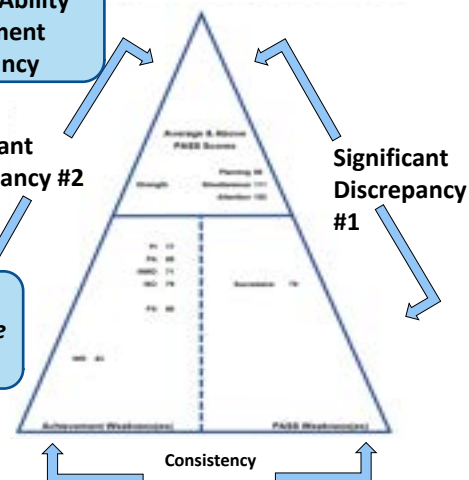
CAS2, FAR, FAM, FAW PSW Analyzers

- Discrepancy #1 Successive processing is a weakness
- Discrepancy #2 between good PASS and poor FAR scores
- Consistency between Successive and FAR achievement scores

Note: This is a traditional Ability Achievement Discrepancy

Significant Discrepancy #2

The Consistency tells you *WHY* the student fails



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CAS2, FAR, FAM, FAW PSW Analyzers

- Other free CAS2 Analyzers are available for the WIAT-3, WJ-4, and KTEA-3 on www.jacknaglieri.com
- But WHY do I suggest the combination of PASS scores from CAS2 with the FAR and FAM?
 - FAR, FAM and FAW are elegantly inter-related to the CAS2 because PASS processes underlie reading, math and writing skills
 - If a student is using a strategy when doing reading comprehension on the FAR - tie that to the CAS2 Planning score
 - When a student struggles with decoding words - connect that to the CAS2 Successive processing score
 - The connection between low scores on the FAR, FAM and FAW with PASS is so important because it explains WHY student struggles AND what to do about it AND it is consistent with IDEA SLD DEFINITION

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PASS and DCM for Eligibility and Intervention

From a practitioner perspective:

- DCM provides clarity for SLD eligibility
- PASS shines light on strengths that would go unnoticed via knowledge-based cognitive assessment
- Better understanding for using strengths to mitigate weaknesses
- Simple explanations for parents, teachers *AND* students
- Process approach to developing strategies and interventions for learning challenged students

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Naglieri & Otero (2014)

- Neither the IQ/achievement discrepancy model nor RTI evaluates basic psychology processes
- CAS2 is ideal for meeting the IDEA definition of SLD "... a disorder in 1 or more of the basic psychological processes ... [that results] in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations."
- Evidence of a PASS weakness and its connection to academic weakness is the key to identifying SLD
- Establishing a disorder in the basic psychology processes is *essential* for determining SLD
- Use an equitable test explicitly developed to measure basic psychological processes
- The intelligence and achievement tests should explain learning

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Turn and Talk

Do you feel this method explains learning and learning problems more clearly?



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Topical Outline

- 10 Reasons to Adopt a PASS Paradigm
- The Problem with Traditional IQ Testing
- Intelligence Conceptualized by Brain Functioning: PASS Theory
- PASS and Reading Skills
- Introducing the Discrepancy-Consistency Method
- ➔ • Case Studies Using the DCM to Identify SLD for Reading Disabilities and Dyslexia

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Defining Dyslexia

- *“Dyslexia is characterized by difficulties with **accurate** and / or **fluent** word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.”*

- International Dyslexia Association

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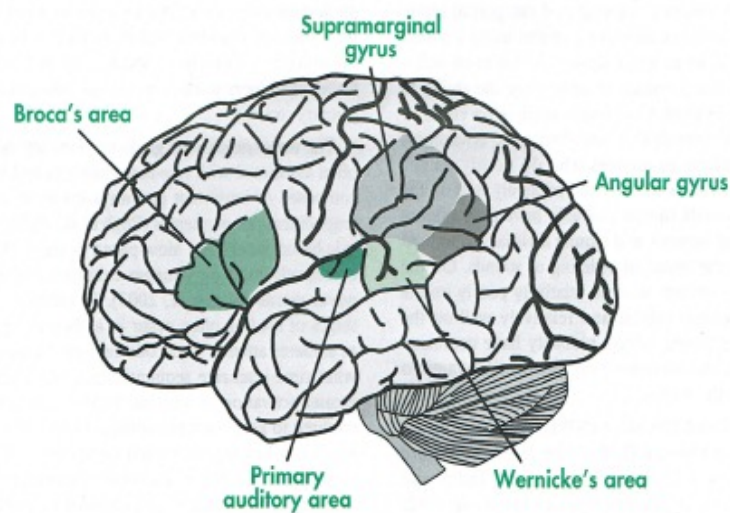
SUBTYPES OF READING DISORDERS

- (1) Dysphonetic Dyslexia – difficulty sounding out words in a phonological manner.
- (2) Surface Dyslexia – difficulty with the rapid and automatic recognition of words in print.
- (3) Mixed Dyslexia – multiple reading deficits characterized by impaired phonological and orthographic processing skills. Most severe form of dyslexia.
- (4) Comprehension Deficits – mechanical side of reading is fine but difficulty persists deriving meaning from print.

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SUBTYPES OF READING DISORDERS

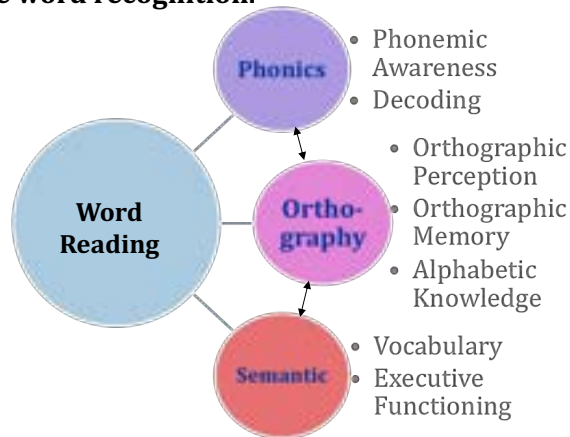


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Multiple Cueing Systems of Reading

- Recognizes that both **phonological** (*Successive Processing*) and **orthographic** (*Simultaneous*) and **semantic cues** (*Planning*) can facilitate word recognition.



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SKILLED READERS USE MULTIPLE PROCESSES:

SUCCESSIVE & SIMULTANEOUS TOGETHER

- *"Aoccdrnig to a rscheearch at an Elingsh uinervtisy, it deosn't mtttaer in what oredr the ltteers in a word are, the olny iprmoetnt tihng is that frist and lsat ltteer is at the rghit pclae. The rset can be a toatl mses and you can still raed it wouthit porbelm. This is bcuseae we do not raed ervey lteter by it slef but the word as a wlohe."*

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USING PASS-FAR TO IDENTIFY READING DISORDERS



Reading Subtype	Description	PASS Process
Dysphonetic Dyslexia	Measures a student's ability to stitch together sequences of sounds to identify words in print. Dependent upon phonemic awareness and decoding skills.	Successive
Surface Dyslexia	Measures a student's ability to rapidly and automatically identify words in print. Dependent upon orthographic perception and orthographic memory skills.	Simultaneous and Successive
Mixed Dyslexia	Measures a student's ability to use both phonological and orthographical cues to accurately and fluently identify words in print.	Simultaneous and Successive
Reading Comprehension	Measures a student's ability to answer decipher meaning from print.	Planning Attention Simultaneous

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Case #1: Paul 4th grade Reading & Anxiety

Presenting Concerns: Academic Issues with Reading and Anxiety

WISCV Scales	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	98	Average	45%
Visual Spatial Index	94	Average	34%
Fluid Reasoning Index	88	Below Average	21%
Working Memory Index	78	Low	7%
Processing Speed Index	76	Low	6%
FULL SCALE SCORE	86	Below Average	18%
WIAT IV Reading	80	Below Average	9%
WIAT IV Math	87	Below Average	19%
WIAT IV Writing	94	Average	34%

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Case #1: Paul – 4th grade

Reading & Anxiety


CAS-2	STANDARD SCORE	Classification
Planning	92	Average
Simultaneous	92	Average
Attention	110	Average
Successive	75	Very Low
Full Scale is not reported		

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

Cognitive Assessment System - 2	PASS Scales	Standard Score	Difference from PASS Mean of: 92.3	Significantly Different (at $p < .05$) from	Strength or Weakness
AGES 8-18 YEARS	Planning	92	-0.3	no	
	Simultaneous	92	-0.3	no	
	Attention	110	17.8	yes	Strength
	Successive	75	-17.3	yes	Weakness

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Case #1: Paul – 4th grade:


Reading & Anxiety

FAR index	Standard score (95% CI)	Percentile	Qualitative descriptor
Phonological Index	75	5%	Moderately Below Average
Fluency Index	92	30%	Average
Mixed Index	81	10%	Below Average
Comprehension Index	97	42%	Average
FAR Total Index	84	14%	Below Average

KEY INTERPRETATION	Score	Percentile	Descriptor
Nonsense Word Decoding – requires the student to decode a series of nonsense words presented in order of increasing difficulty.	71	3%	Moderately Below Average
Irregular Word Reading Fluency – the student reads a list of phonologically irregular words arranged in order of increasing difficulty in 60 seconds.	95	37%	Average

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Case #1: Discussion Questions with CAS2 and FAR Data

1. Does Paul qualify for special education services as a learning disabled student?
2. What additional tests would you recommend for Paul?
3. What interventions can be generated from the testing data presented?
4. What does the testing data tell you about how Paul learns or the subtype of learning disability he may have?

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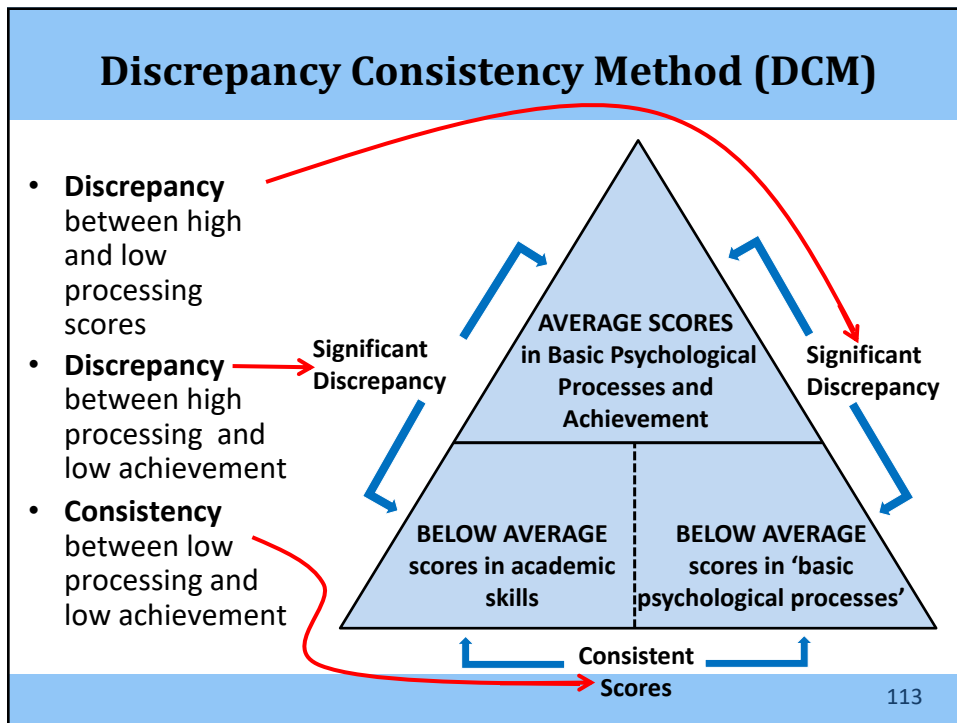
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SLD Eligibility: We can do better!

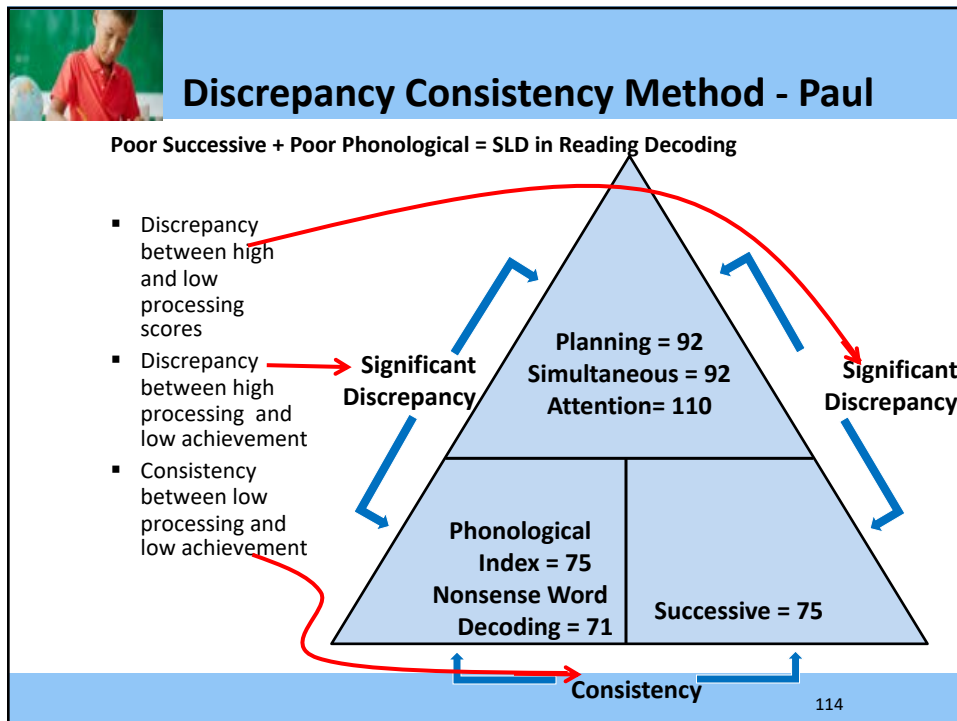
- Identify Specific Learning Disabilities (SLD) using the **Discrepancy/Consistency Method** (*Essentials of CAS2 Assessment* by Naglieri & Otero, 2017)
 - based on theoretically defined measures of neurocognitive processes rather than traditional IQ achievement discrepancy
 - The Pattern of Strengths and Weaknesses (PSW) will be based on basic psychological processing scores combined with academic test scores

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CAS2 FAR Analyzer Results for Paul

- Discrepancy Consistency Results show a PSW



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CAS-2 Successive Processing and Reading

- **Successive Processing**– the ability to put information into a serial order or a particular sequence.
- **Successive & Reading** – underscores the ability to stitch together or sequence sounds to accurately identify words in print.
- **Successive & Anxiety** – anxiety disrupts learning by wreaking havoc on working memory. Most working memory tasks (i.e. *WISCV Digit Span*) require a heavy emphasis on **successive processing**.

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Intervention Plan for Paul

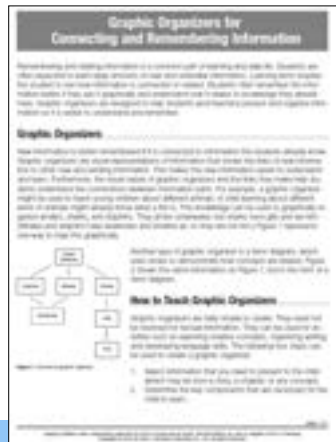
- Explain his PASS scores to engage the student in the solutions and build confidence
- Build on His **Strengths**
 - Help him use his Planning, Attention, Simultaneous and Strengths to support challenges with Successive processing
- Encourage the use of metacognitive strategies (P) that can him perform better when tasks demand Successive processing
- See Naglieri and Pickering's book

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Interventions related to PASS

- *Helping Children Learn Intervention Handouts for Use in School and at Home, Second Edition* (Naglieri, & Pickering 2011)




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FAR INTERPRETIVE REPORT WRITER

Fundations	FAR INTERPRETIVE REPORT WRITER: Targeted Reading Programs
Alphabetic Phonics	A multisensory phonological approach to reading that is an extension of the traditional Orton-Gillingham model. There are 11 fast-paced activities embedded within each lesson to develop automaticity with phonics skills.
Read Well	A top-down reading and language arts solution that emphasizes a mixture of instruction to the class as a whole, smaller groups, and individual student practice.
Lexia Primary Reading	A self-paced computer-based program that helps students develop reading skills. The program identifies when students would benefit from additional support, and automatically notifies the teacher with individualized feedback and recommendations.
Fast Forward Language to Reading	A scientifically-based 8-12 week reading intervention that boosts students' reading levels by one or two grades. Focuses on phonemic awareness, phonics, fluency, comprehension, and vocabulary.
Voyager Time Warp Plus	A summer reading intervention that encompasses 80 hours-worth of material. Phonemic awareness, phonics and word analysis, fluency, vocabulary, and comprehension are covered thoroughly through daily practice.
System 44	Teaches foundational reading skills to students Grades 3+. This computer-based platform encourages students to think critically and interact with the text as they learn phonics and comprehension.
Academy of Reading	An intervention program that helps students with phonemic awareness, phonics, fluency, vocabulary, and comprehension. This online program includes real-time reading assessments and progress monitoring.
Words Their Way	A developmental spelling, phonics, and vocabulary program with numerous activities geared toward developing orthographic knowledge. Sorting, constructing a word wall, and creating a word study notebook are essential components of the program.

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 <h3 style="text-align: center;">Case #2: Nelson 6th grade: Reading Fluency</h3>			
WISCV Domains	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	103	Average	58%
Visual Spatial Index	84	Below Average	14%
Fluid Reasoning Index	79	Very Low	8%
Working Memory Index	91	Average	27%
Processing Speed Index	82	Below Average	12%
FULL SCALE SCORE	81	Below Average	10%
WIAT IV Reading	80	Below Average	9%
WIAT IV Math	90	Average	25%
WIAT IV Writing	86	Below Average	18%
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Case #2: Nelson 6 th grade: Reading Fluency			
CAS-2	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Planning: the ability to apply a strategy, and self-monitor and self-correct performance while working toward a solution.	94	Average	35%
Attention: the ability to selectively focus on a stimulus while inhibiting responses from competing stimuli.	98	Average	45%
Simultaneous Processing- is the ability to reason and problem solve by integrating separate elements into a conceptual whole, and often requires strong visual-spatial problem solving skills.	74	Very Low	4%
Successive Processing- is the ability to put information into a serial order or particular sequence.	90	Average	25%
CAS-2 COMPOSITE SCORE	89	Below Average	23%

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Case #2: Nelson 6 th grade: Reading Fluency			
FAR index	Standard score (95% CI)	Percentile	Qualitative descriptor
Phonological Index	90 (+/-5)	25%	Average
Fluency Index	73 (+/-7)	3%	Moderately Below Average
Mixed Index	81 (+/-5)	10%	Below Average
Comprehension Index	97 (±8)	42%	Average
FAR Total Index	84 (±5)	14%	Below Average

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Case #2: Nelson 6th grade: Reading Fluency

KEY INTERPRETATION	Score	Percentile	Descriptor
Isolated Word Reading Fluency – the student reads a list of phonologically regular words arranged in order of increasing difficulty in 60 seconds.	86	18%	Below Average
Irregular Word Reading Fluency – the student reads a list of phonologically irregular words arranged in order of increasing difficulty in 60 seconds.	71	3%	Moderately Below Average

➤ Nelson can apply decoding skills to familiar words, but lacks an effective strategy when reading phonologically irregular words.

KEY INTERPRETATION	Score	Percentile	Descriptor
Rapid Automatic Naming – requires the student to rapidly identify shapes and partially drawn letters. A timed measure of text perception.	75	5%	Moderately Below Average
Orthographic Processing – the student must recall a group of letters in the correct order that are embedded within a target word presented for 1 second. A measure of orthographic working memory skills.	72	4%	Moderately Below Average

➤ Nelson struggles with both text perception, as well as orthographic processing, both of which are hindering his reading pace and fluency

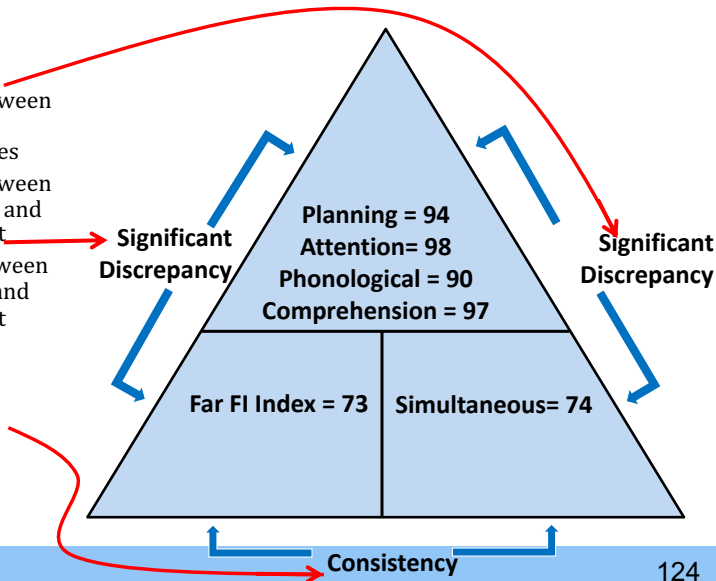
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Discrepancy Consistency for Nelson

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



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Nelson 4th grade: Reading Interventions

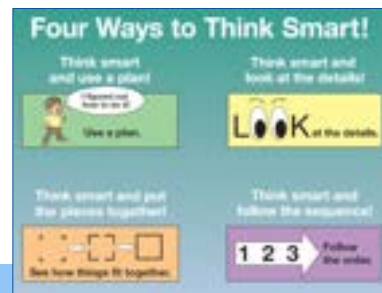
- Fluency based program such as *Read Naturally or Great Leaps* to improve his automaticity when reading.
- Nelson's orthographic processing skills were inconsistent, so **color coding** important syllable subtypes may be helpful as well.
- Specific activities such as identifying which of three sight words is spelled correctly (*i.e. "wuz", "whas", or "was"*) may help to develop automaticity recognizing vowel patterns in words.
- Nelson needs to read a minimum of **20 minutes** per night to develop greater text familiarity and more consistent text perception skills.

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Intervention Protocol (Kryza & Naglieri, 2019)

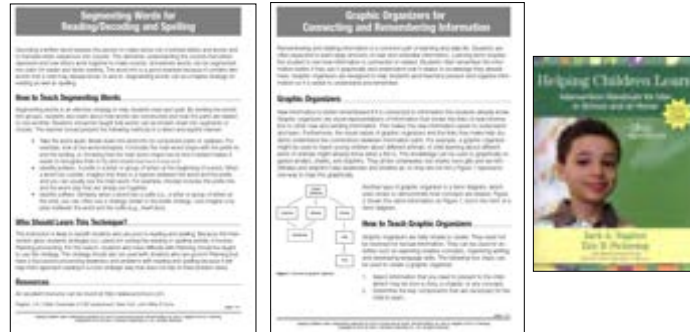
- Be Intentional and Transparent
 - Explain his PASS scores to the students
 - Ask them if your results make sense
- Build on the Strengths
 - Help students use any PASS (and academic) strengths to support learning challenges
- Encourage the use of metacognitive strategies that can increase success
- Encourage a Growth Mindset and Self Efficacy
- Teach students about their AMAZING BRAIN



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Interventions Related to PASS:

*Helping Children Learn Intervention Handouts for Use in School and at Home,
Second Edition (Naglieri, & Pickering 2011)*



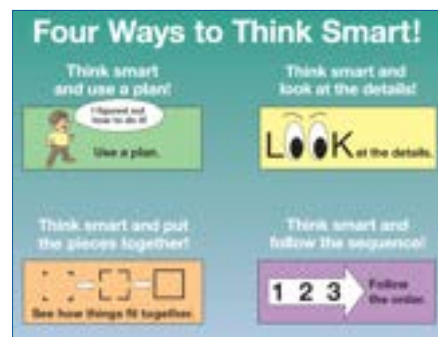
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Intervention Protocol (Kryza & Naglieri, 2019)

- Be **Intentional and Transparent**
 - Explain his PASS scores to the students
 - Ask them if your results make sense to them
- **Build on the Strengths**
 - Help students use any PASS (and academic) **strengths** to support learning challenges
- **Encourage the use of** metacognitive strategies that can increase success in all areas
- **Encourage a Growth Mindset** and Self Efficacy
- **Teach students about their AMAZING BRAIN**



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From IQ to Brain Function (PASS)



Learning is based on BRAIN function.

- Wechsler (traditional IQ) was not based on the brain
- We can now redefine intelligence as neurocognitive processes based on brain function (A. R. Luria)

Reinvent understanding of intelligence based on the brain.

- Measure brain function, not IQ
- Do not include achievement test questions
- Measure thinking not knowledge (*less cultural bias*)
- Remember, **CHC** is not the same as **neuropsychology**.

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CAS2 & FAR Summary



- These instruments are based upon a neurocognitive theory of **brain functioning**.
- Using these measures is a **time-efficient** way to measure basic psychological processes and their influence of academic skill acquisition and execution
- Detect a pattern of cognitive and academic strengths and weaknesses using the Discrepancy Consistency Method (DCM) to diagnose SLD
- DCM explains **WHY** a student is having math difficulty, by showing **HOW** a student thinks about reading or math
- Directly informs intervention decision making
- This approach puts the "I" back into IEP's!!!

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Final Questions

What lingering thoughts do you have?



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**Maybe It's
Time to Let the
Old Ways Die**

**NYASP 2022 Legends
in School Psychology
Award Interview**

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