



How to Use a Pattern of Strengths and Weaknesses in PASS Neurocognitive Processes for SLD Identification and Intervention Planning

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1

1

jacknaglieri.com

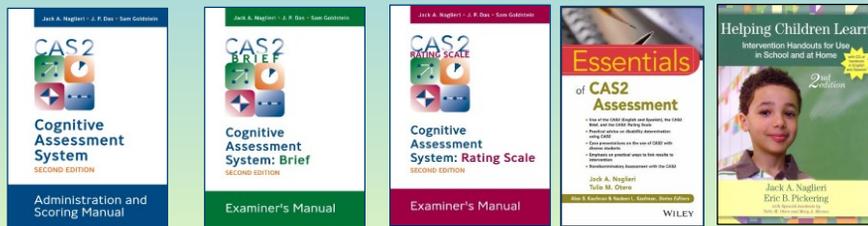
The screenshot shows the homepage of jacknaglieri.com. At the top, there is a navigation menu with links for HOME, ABOUT, TESTS, BOOKS, RESOURCES, ARTICLES, VIDEOS, 10-MINUTE SOLUTIONS, PASS CASE STUDIES, and CONTACT. Below the navigation is a 'WELCOME TO JACKNAGLIERI.COM' section featuring a photo of Jack A. Naglieri and a brief bio. The main content area is divided into two columns. The left column has a 'WHAT'S NEW?' section with a link to 'Essentials of CAS2 Assessment'. The right column has a 'SPOTLIGHT' section for 'NAGLIERI NONVERBAL ABILITY TEST-THIRD EDITION' with a video player showing children working together.

2

2

Disclosures

- Basic psychological processes called PASS (Naglieri & Das, 1997) is used to reinvent the concept of intelligence as measured by the Cognitive Assessment System first (1997) and second (2014) editions



40 or 60 minutes

20 minutes

3

3

Presentation Outline



Introduction

- Using groups to stimulate thinking
- How traditional IQ has influenced us
- A new way of thinking about intelligence
 - PASS theory defines basic psychological processes
 - Each PASS ability, case studies and interventions
 - How to measure PASS neurocognitive processes
- Final thoughts

4

4

Core Groups – Stimulates Thinking

- Groups of 4-6
- Introduce yourself to the group
- Establish roles:
 - Organizer (keep
 - Coach
 - Recorder
 - Energizer



5

5

Traditional IQ and Achievement Tests

- 1975 Charles Champagne Elementary,
Bethpage, NY

- Typical assessment
 - Draw A Person
 - Bender-Gestalt
 - WISC
 - Peabody Individual Achievement Test
 - Sentence Completion Test
 - Developmental history
 - other measures as needed



7

7

Traditional IQ and Achievement Tests

- When I conducted my comprehensive evaluations, I noticed that parts of the WISC were VERY similar to parts of the achievement test I was giving
 - In fact the Peabody Individual Achievement Test (1970) had a General Information and Arithmetic subtests JUST LIKE THE WISC!
- That is still true today...

8

8

Thinking vs Knowing

We should NOT measure intelligence with tests that demand knowledge!

- Scales on IQ tests that are confounded by knowledge
 - WISC-V
 - Verbal Comprehension: Vocabulary, Similarities, Information & Comprehension
 - Fluid Reasoning: Figure Weights, Picture Concepts, Arithmetic
 - WJ-IV
 - Comprehension Knowledge: Vocabulary & General Information
 - Fluid Reasoning: Number Series & Concept Formation
 - Auditory Processing: Phonological Processing

9

9

Cognition or Knowledge?

- 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* – *'basic psychological processes'*
- We must assess ability and achievement separately



10

**WHY DO WE
MEASURE IQ THE
WAY WE DO?**

**THE HISTORY OF
IQ TESTS**



11

11

Evolution of IQ

<http://www.jacknaglieri.com/cas2.html>

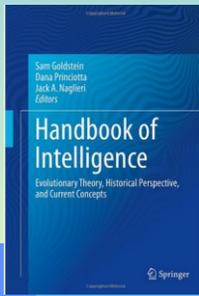
Hundred Years of Intelligence Testing: Moving from Traditional IQ to Second-Generation Intelligence Tests

20

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

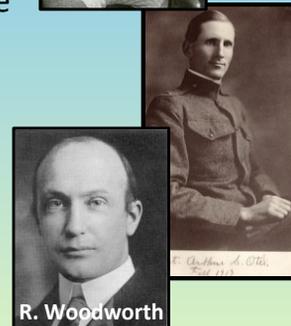
April 6, 1917, is remembered as the day the United States entered World War I. On that same day a group of psychologists held a meeting in Harvard University's Emerson Hall to discuss the possible role they could play with the war effort (Yerkes 1921). The group agreed that psychological knowledge and 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,

Training School in Vineland, New Jersey, on May 28. The committee considered many types of group tests and several that Arthur S. Otis developed when working on his doctorate under Lewis Terman at Stanford University. The goal was to find tests that could efficiently evaluate a wide variety of men, be easy to administer in the group format, and be easy to score. By June 9, 1917, the materials were ready for an initial trial. Men who had some educational background and could speak English were administered the verbal and quantitative (Alpha) tests and those that could not read the newspaper or speak English were given

12

Origins of Traditional IQ

- A group of psychologists met in May of 1917 to construct an ability test to help the military evaluate recruits (WWI)
- By July of 1917 they concluded that the Army Alpha and Beta tests could
 - “aid in segregating and eliminating the mentally incompetent, classify men according to their mental ability; and assist in selecting competent men for responsible positions” (p. 19, Yerkes, 1921).
- What did these test look like?



13

13

From Alpha/Beta to Wechsler IQ

➤ Army Alpha

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

Verbal &
Quantitative

➤ Army Beta

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

Nonverbal

14

14

The First IQ TEST: Alpha (Verbal)

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

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

15

15

The First IQ Test: Beta (Nonverbal)

METHODS AND RESULTS

19

Why Beta?

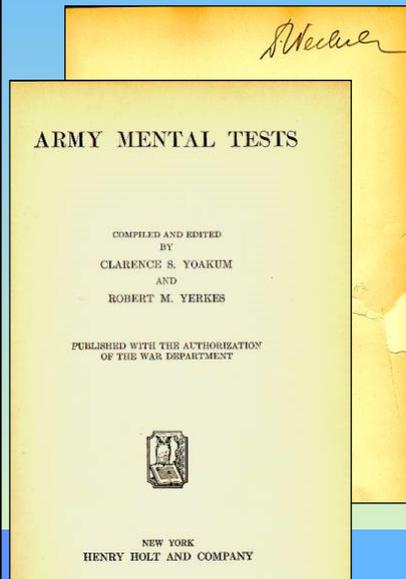
Men who fail in alpha are sent to beta in order that injustice by reason of relative unfamiliarity with English may be avoided. Men who fail in beta are referred for individual examination by means of what may appear to be the most suitable and altogether appropriate procedure among the varied methods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

- There is no mention of measuring verbal and nonverbal intelligences
- Verbal tests posed a **social justice issue**

16

16

From Alpha/Beta to Wechsler IQ



- Yoakum & Yerkes (1920) summarized the methods used by the military to

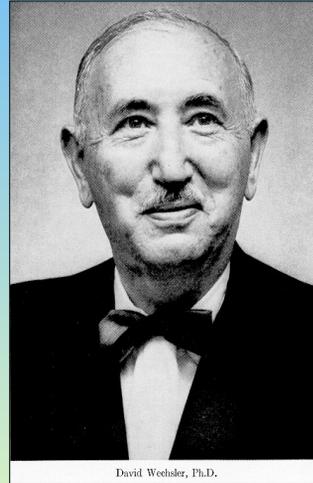
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17

Wechsler's Definition

- Definition of intelligence does not mention verbal or nonverbal *abilities*:

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



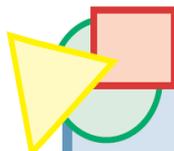
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18

What a Nonverbal Test Measures

(Naglieri, Brulles, & Lansdown, 2008)

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



19

19

Myth of Verbal IQ - Conclusions

- The lack of a clear distinction between ability and achievement tests has corrupted the very concept of “verbal ability”
- A child who does not have an adequately enriched educational experience (ELL, SLD, etc.) will be at disadvantage when assessed with so-called Verbal and Quantitative reasoning “ability” tests
- SOLUTION ? **Re**invent intelligence

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CASE STUDY: ALEJANDRO (C.A. 7-0 GRADE 1)

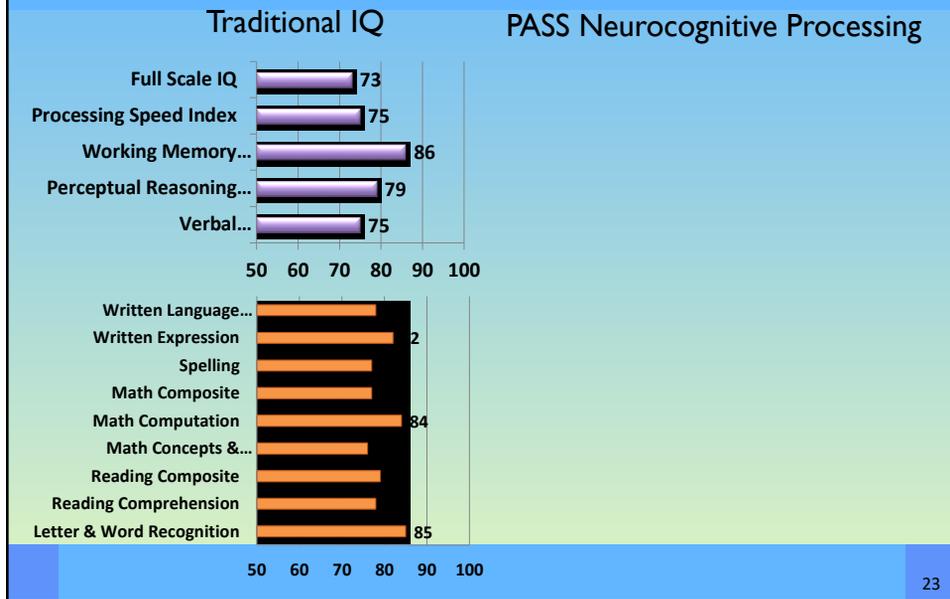
REASON FOR REFERRAL

- Academic:
 - Could not identify letters/sounds
 - October 2013: Could only count to 39
 - All ACCESS scores of 1
- Behavior:
 - Difficulty following directions
 - Attention concerns
 - Refusal/defiance

22

22

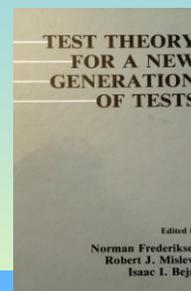
Alejandro's Results



23

Defining basic psychological process

- ▶ How did we identify 'basic psychological processes'?
 - We should use knowledge from cognitive and neuropsychology to construct a model to test
 - A well tested model can evolve into a THEORY of 'basic psychological processes'
 - We should not assign new labels to traditional IQ subtests
- We should recognize the limitations of developing a theory from factor analysis – *“a research program dominated by factor analyses of test intercorrelations is incapable of producing an explanatory theory of human intelligence”* (Lohman & Ippel, 1993, p. 41)



25

25

Defining basic psychological process

- The term 'basic psychological processes' is a modern term for ability (or intelligence)
- 'basic psychological processes' provide us the means to function and acquire knowledge and skills which are measured separately
 - ▶ Tasks like reading decoding, phonological skills, or math calculation, are *not* examples of a cognitive process

26

26

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 theory** is a way to measure neuro-cognitive abilities related to brain function

27

27

PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014; Naglieri, Moreno & Otero (2017))

CAS2 Rating Scale
(4 subtests)

CAS2 Brief
(4 subtests)

CAS2 Core
(8 subtests)

CAS2 Extended
(12 subtests)

CAS2 Spanish
(12 & 8 subtests)

Total Score
Planning
Simultaneous
Attention
Successful

Total Score
Planning
Simultaneous
Attention
Successful

Full Scale
Planning
Simultaneous
Attention
Successful

Full Scale
Planning
Simultaneous
Attention
Successful



Examiner's Manual



Examiner's Manual



Examiner's Manual

Supplemental
Executive Function
Working Memory
Verbal / Nonverbal
Visual-Auditory
Speed/Fluency



Who can use CAS2, CAS2: Brief, & CAS2 Rating Scale

➤ CAS2 Interpretive Manual (Naglieri, et al, 2014, p. 13)

Educational Diagnostician

QUALIFICATIONS OF USERS

We anticipate that the CAS2 will be used by individuals with credentials as psychologists (e.g., clinical, school, developmental, counseling, neuropsychological, rehabilitation), certified specialists (educational diagnosticians, psychometrists), and other trained professionals who are certified to use tests of intelligence. Responsibility for the proper use and interpretation of the results of the CAS2 rests with the practitioner. We assume that each professional who uses this system does so with an appropriate appreciation of the required level of competence and ethical responsibility and a thorough examination of the guidelines presented in this manual.

The Case of Alejandro

Putting everything in perspective

30

30

Alejandro's Results

Traditional IQ

Category	Score
Full Scale IQ	73
Processing Speed Index	75
Working Memory...	86
Perceptual Reasoning...	79
Verbal...	75

PASS Neurocognitive Processing

CAS2

Category	Score
Full Scale	83
Successive	84
Simultaneous	96
Attention	67
Planning	102

Category	Score
Written Language...	82
Written Expression	82
Spelling	82
Math Composite	82
Math Computation	84
Math Concepts &...	84
Reading Composite	84
Reading Comprehension	84
Letter & Word Recognition	85

31

31

Alejandro's Discrepancy Consistency Results

- Alejandro is not a 'slow learner'
- He as a specific learning disability
 - Basic psychological processing disorders in Attention and Successive processing with academic failure
 - He has good scores in Planning and Simultaneous processing
 - He has had adequate educational instruction
- How would we identify his SLD?

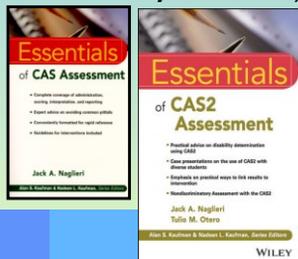
32

32

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Discrepancy Consistency Method (DCM)

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



Pattern 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 Fiorello in 2004, and by Flanagan, Ortiz, and Alfonso in 2007. These 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 achievement test scores, which has

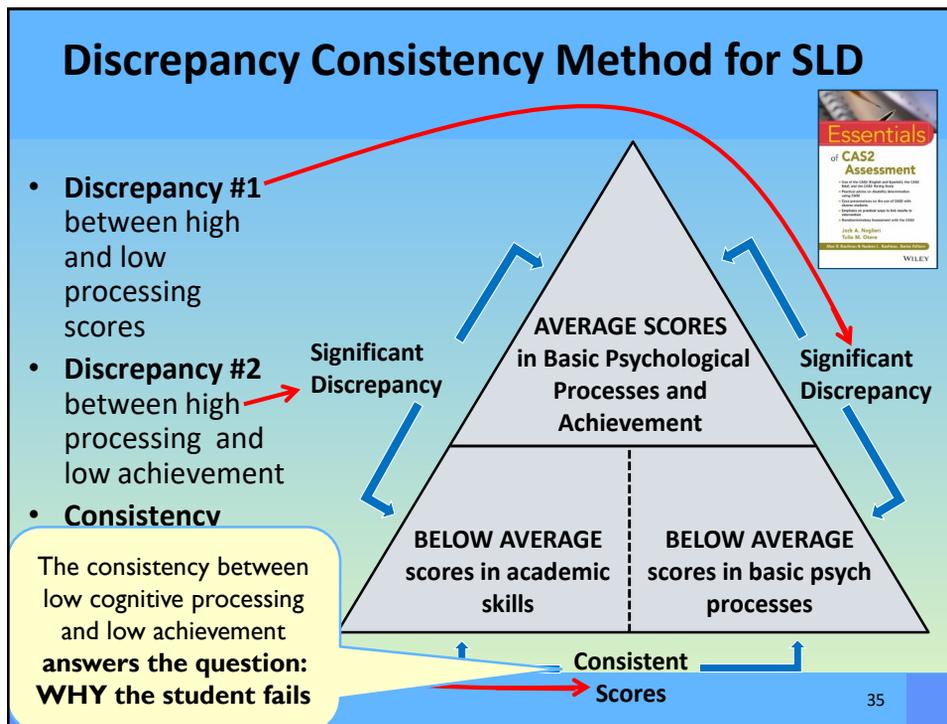
33

Discrepancy Consistency Method

- The Discrepancy Consistency Method is used to determine if there is evidence of “a disorder in 1 or more of the basic psychological processes ... which manifests itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.”
- The disorder in 1 or more basic psychological processes is found when a student shows a pattern of strengths and weaknesses in basic psychological processes, **and...**
- The imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations is found when a student shows a pattern of strengths and weaknesses in achievement
- The result is two discrepancies and a consistency

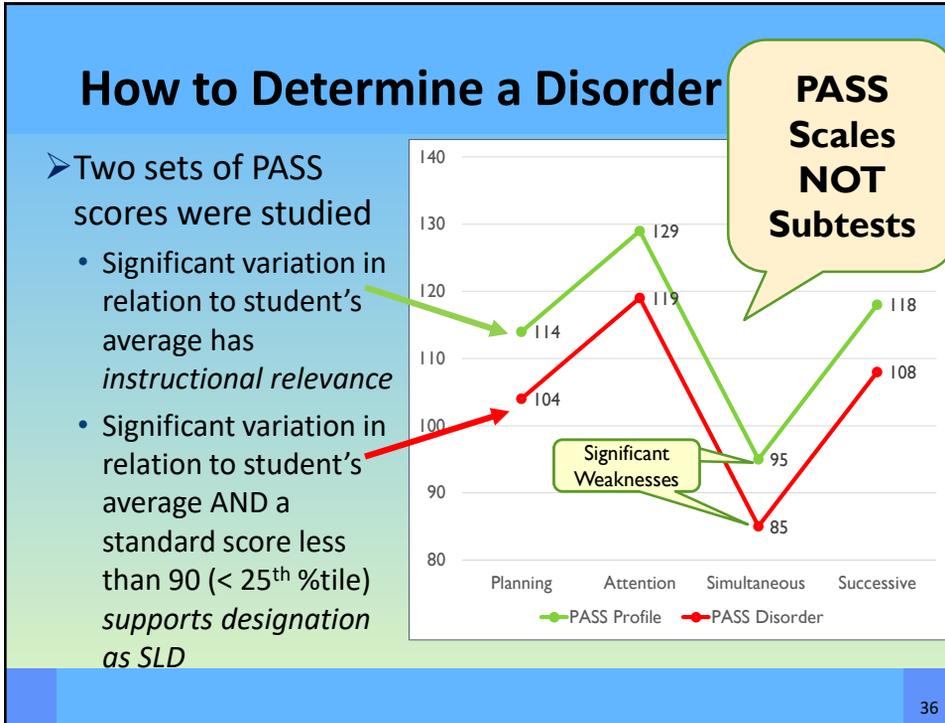
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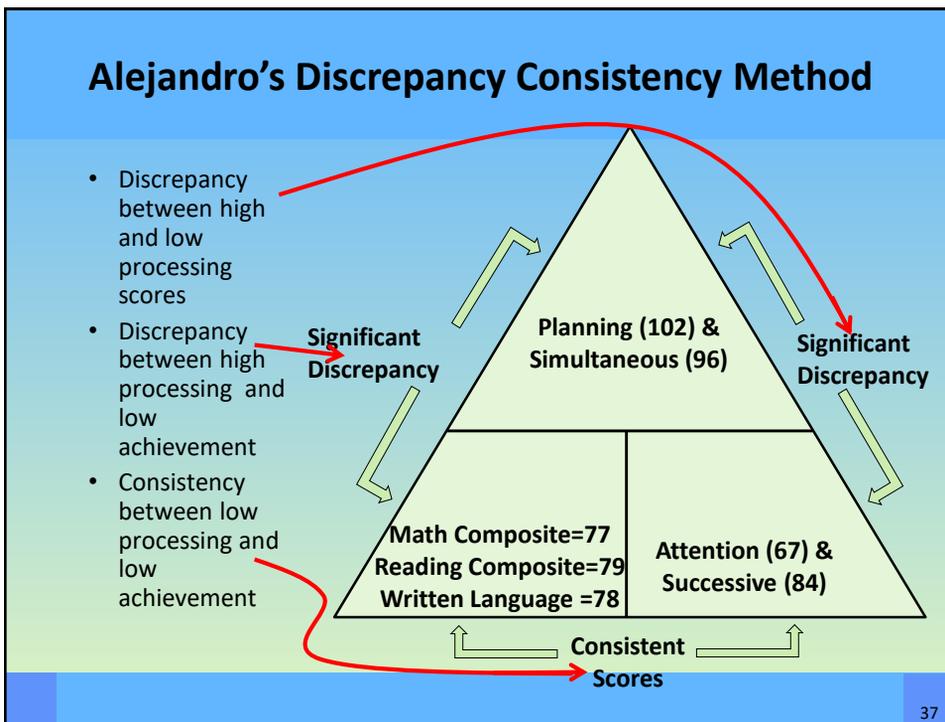


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36



37

IDEA 2004

“(3) ADDITIONAL REQUIREMENTS.—Each local educational agency shall ensure that—

“(A) assessments and other evaluation materials used to assess a child under this section—

non
discriminatory
assessments

“(i) are selected and administered so as not to be discriminatory on a racial or cultural basis;

“(ii) are provided and administered in the language and form most likely to yield accurate information on what the child knows and can do academically, developmentally, and functionally, unless it is not feasible to so provide or administer;

valid and
reliable
assessment

“(iii) are used for purposes for which the assessments or measures are valid and reliable;

“(iv) are administered by trained and knowledgeable personnel; and

“(v) are administered in accordance with any instructions provided by the producer of such assessments;

“(B) the child is assessed in all areas of suspected disability;

“(C) assessment tools and strategies that provide relevant information that directly assists persons in deter-

38

38

PASS scores – English and Spanish

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

Jack A. Naglieri

George Mason University

School Psychology Quarterly

Tulio Otero

Columbia College, Elgin Campus

2007, Vol. 22, No. 3, 432–448

Brianna DeLauder

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 used during test administration. Small mean differences were noted between the means of the English and Spanish versions for the Simultaneous and Successive processing scales; however, mean Full Scale scores were similar. Specific subtests within the Simultaneous and Successive scales

39

39

English & Spanish CAS

Means, *SDs*, *d*-ratios, Obtained and Correction Correlations Between the English and Spanish Version of the CAS (*N* = 55).

	CAS English		CAS Spanish		<i>d</i> -ratio	Correlations	
	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>d</i>	Obtained	Corrected
Planning	92.6	13.1	92.6	13.4	.00	.96	.97
Simultaneous	89.0	12.8	93.0	13.7	-.30	.90	.93
Attention	94.8	13.9	95.1	13.9	-.02	.98	.98
Successive	78.0	13.1	83.1	12.6	-.40	.82	.89
Full Scale	84.6	13.6	87.6	13.8	-.22	.96	.97



40

40

Otero, Gonzales, Naglieri (2012)

➤ SLD
and
PASS
scores

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

Psychology Press
Taylor & Francis Group

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

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Lauren Gonzales

George Mason University, Fairfax, Virginia

Jack A. Naglieri

University of Virginia, Fairfax, Virginia

This study examined the performance of referred Hispanic English-language learners (*N* = 40) on the English and Spanish versions of the *Cognitive Assessment System* (CAS; Naglieri & Das, 1997). The CAS measures basic neuropsychological processes based on the Planning, Attention, Simultaneous, and Successive (PASS) theory (Naglieri & Das, 1997; Naglieri & Otero, 2011c). Full Scale (FS) scores as well as PASS processing scale scores were compared, and no significant differences were found in FS scores or in any of the PASS processes. The CAS FS scores on the English (*M* = 86.4, *SD* = 8.73) and Spanish (*M* = 87.1, *SD* = 7.94) versions correlated .94 (uncorrected) and .99 (corrected for range restriction). Students earned their lowest scores in Successive processing regardless of the language in which the test was administered. PASS cognitive profiles were similar on English and Spanish versions of the PASS scales. These findings suggest that students scored similarly on both versions of the CAS and that the CAS may be a useful measure of these four abilities for Hispanic children with underdeveloped English-language proficiency.

41

Naglieri, Rojahn, Matto (2007)

Hispanic White
difference on
CAS Full Scale
of 4.8 standard
score points
(matched)

Available online at www.sciencedirect.com

Intelligence 35 (2007) 568–579

Hispanic and non-Hispanic children's performance on PASS cognitive processes and achievement^{2*}

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^b Virginia Commonwealth University, United States

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

Abstract

Hispanics have become the largest minority group in the United States. Hispanic children typically come from working class homes with parents who have limited English language skills and educational training. This presents challenges to psychologists who assess these children using traditional IQ tests because of the considerable verbal and academic (e.g., quantitative) content. Some researchers have suggested that intelligence conceptualized on the basis of psychological processes may have utility for assessment of children from culturally and linguistically diverse populations because verbal and quantitative skills are not included. This study examined Hispanic children's performance on the Cognitive Assessment System (CAS; [Naglieri, J.A., and Das, J.P. (1997). Cognitive Assessment System. Itasca, IL: Riverside]) which is based on the Planning, Attention, Simultaneous, and Successive (PASS) theory of intelligence. The scores of Hispanic ($N=244$) and White ($N=1956$) children on the four PASS processes were obtained and the respective correlations between PASS and achievement compared. Three complementary sampling methodologies and data analysis strategies were chosen to compare the Ethnic groups. Sample size was maximized using nationally representative groups and demographic group differences were minimized using smaller matched samples. Small differences between Hispanic and non-Hispanic children were found when ability was measured with tests of basic PASS processes. In addition, the correlation between the PASS constructs and achievement were substantial for both Hispanic and non-Hispanic children and were not significantly different between the groups. Published by Elsevier Inc.

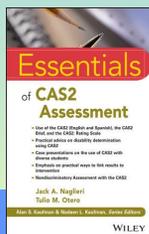
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Race Differences

Table 1.6 Standard Score Mean Differences by Race on Traditional and Nontraditional Intelligence Tests

Test	Difference
Traditional IQ Tests	
SB-IV (matched samples)	12.6
WISC-IV (normative sample)	11.5
WJ-III (normative sample)	10.9
WISC-IV (matched samples)	10.0
Nontraditional Tests	
K-ABC (normative sample)	7.0
K-ABC (matched samples)	6.1
KABC-II (matched samples)	5.0
CAS2 (normative sample)	6.3
CAS (demographic controls of normative sample)	4.8
CAS2 (demographic controls of normative sample)	4.3

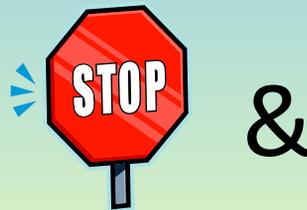
Note: The data for these results are reported for the Stanford-Binet IV from Wasserman (2000); Woodcock-Johnson III from Edwards and Oakland (2006); Kaufman Assessment Battery for Children from Naglieri (1986); Kaufman Assessment Battery for Children II from Lichenberger, Sotelo-Dynega, and Kaufman (2009); CAS from Naglieri, Rojahn, Matto, and Aquilino (2005); CAS2 from Naglieri, Das, and Goldstein (2014a); and Wechsler Intelligence Scale for Children IV (WISC-IV) from O'Donnell (2009).



43

Think and Talk in CORE group

- Did PASS scores change your mind about Alejandro? How?
- What big “Ah Ha” did you have?
- Your thoughts...



44

44

Presentation Outline

- Introduction
 - Using groups to stimulate thinking
 - How traditional IQ has influenced us
- ➔ A new way of thinking about intelligence
 - PASS theory defines basic psychological processes
 - Each PASS ability, case studies and interventions
 - How to measure PASS neurocognitive processes
- Final thoughts

45

45

From IQ to Brain Function



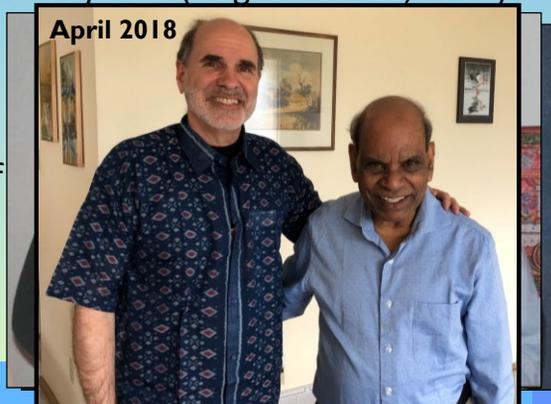
- Learning is based on BRAIN function
 - Wechsler (traditional IQ) was not based on the brain
 - We can now view intelligence as neurocognitive processes based on brain function (A. R. Luria)
- REinvent understanding of intelligence based on the brain
 - Measure brain function, not IQ
 - Do not include achievement test questions
 - Measure thinking not knowledge

46

46

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 (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



47

Intelligence as Neurocognitive Abilities

28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

Jack A. Naglieri and Tulio M. Otero

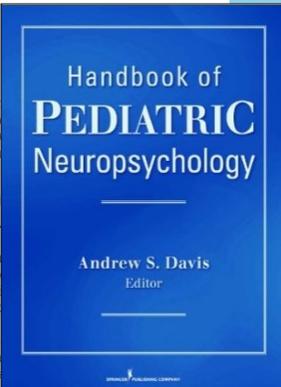
INTRODUCTION

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 provide for the diagnosis and address the qu

FROM NEUROPSYCHOLOGY TO ASSESSMENT

Luria's theoretical account perhaps one of the most influential 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 & BRAIN FUNCTION

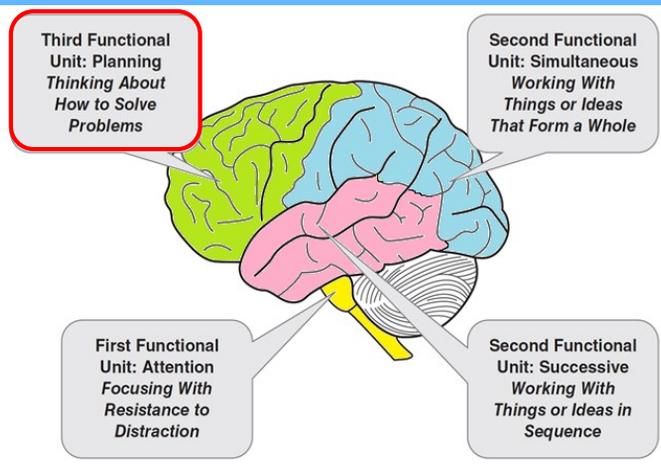
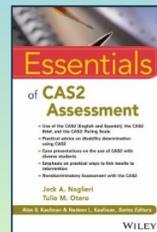


Figure 1.2 Three Functional Units and Associated Brain Structures

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



PASS Theory: Planning

- ▶ **Planning** is a neurocognitive process 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
- These can also be described as executive function, metacognition, strategy use

50

50

CAS2: Rating Scale Planning

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

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

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

— + — + — + — + — =
 Planning Raw Score

52

Planned Codes 1

- ▶ Jack jr at age 5
- ▶ Child fills in the codes in the empty boxes
- ▶ Children are encouraged to think of a good way to complete the page

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

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

Math Strategies

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.

Name _____

Doubles and Near Doubles

double How many are there? near double

$8 + 8 = 16$ $8 + 9 = 17$

Ring the double. Add.

1. $6 + 6 = 12$
 $6 + 7 = 13$

2. $5 + 5 = 10$
 $5 + 6 = 11$

3. $7 + 7 = 14$
 $7 + 8 = 15$

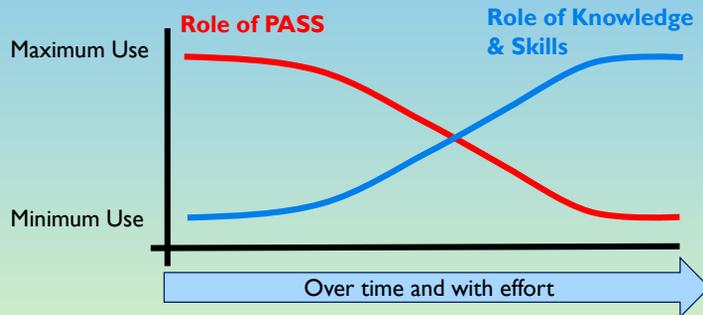
4. $4 + 4 = 8$
 $4 + 5 = 9$

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

three hundred thirty-five 335

Planning Learning Curves

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



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

59

The case of Rocky

- ▶ Rocky¹ is a real child with a real problem
- ▶ He lives in a large middle class school district
 - a wide variety of services are available
- ▶ In first grade Rocky was performing significantly below grade benchmarks in reading, math, and writing.
 - He received group reading instruction weekly and six months of individual reading instruction from a reading specialist
 - He made little progress and was retained

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

61

61

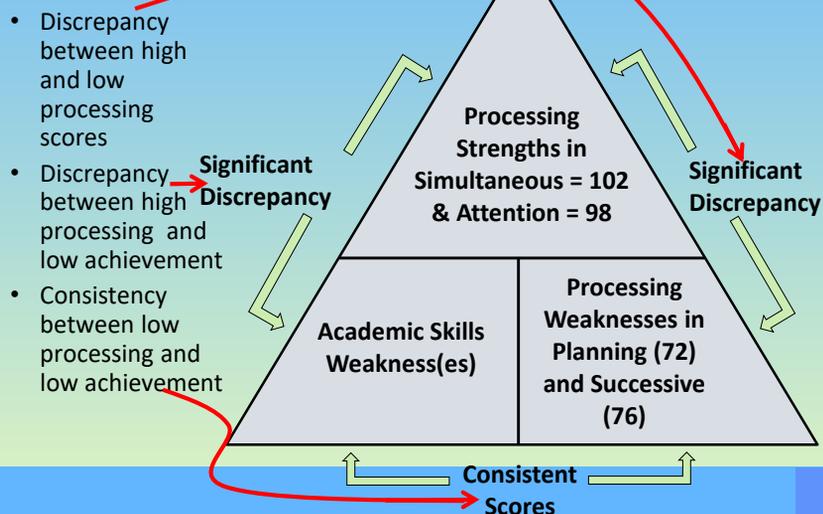
The case of Rocky

- ▶ By the middle of his second year in first grade Rocky was having difficulty with
 - decoding, phonics, and sight word vocabulary;
 - math problems, addition, fact families, and problem solving activities;
 - and focusing and paying attention.”
- After two years of special team meetings and special reading instruction he is now working two grade levels below his peers and is having difficulty in reading, writing, and math
- A comprehensive evaluation was conducted

62

62

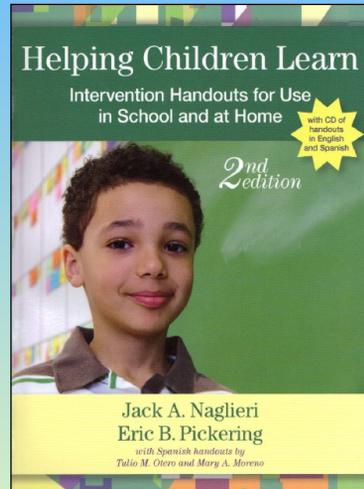
Discrepancy Consistency Method for Rocky



63

Interventions

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



64

64

Interventions for Rocky

Using Plans to Overcome Anxiety

Graphic Organizers for Connecting and Remembering Information

Remembering and relating information is a common part of learning and daily life. Students are

Segmenting Words for Reading/Decoding and Spelling

Decoding a written word requires the person to make sense out of printed letters and words and

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

65

65

Intervention Plan for Rocky – K Kryza

➤ Be Intentional and Transparent

- Explain his PASS scores to him

➤ Build on His Strengths

- Help him use his Attention and Simultaneous Strengths to support his learning challenges with Planning and Successive.

➤ Develop Effective Skill Sets to remediate his weaker skills

- Offer and encourage the use of strategies that can improve his planning and successive processing.

➤ Encourage a Growth Mindset and Self Efficacy



66

66

Intervention Plan for Rocky – K Kryza

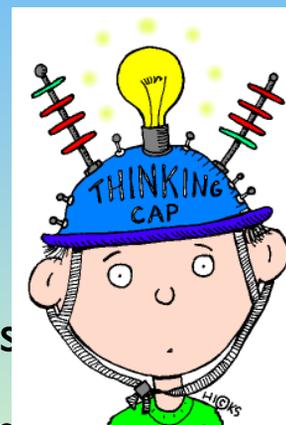
Stop and THINK

Make a PLAN

Take **A**ction!

Revise/Reflect/Revis

Ta da! (or) Try Again



Developed by Naglieri and Kryza, 2014

67

Learning & the Brain Summer Institute 2019

July 8-12 by Naglieri & Kryza

- <https://www.learningandthebrain.com/Event-395/Neuroscience-and-the-Learning-Brain/>
- In this highly interactive Institute, you will learn about the four PASS neurocognitive abilities that are critical to students' academic and social-emotional success and how to match those abilities to specific instructional methods. You will leave with readily implementable strategies to teach students to effectively self-regulate their own academic and social-emotional lives.

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Neuroscience and the Learning Brain

Developing the Pre-Frontal Cortex for Academic and Social-Emotional Success

July 8-12, 2019
Santa Barbara, CA

Jack A. Naglieri & Kathleen M. Kryza

68

68

Think and Talk Time

- In your group, discuss how you might help students with low planning learn better
- Consider how he could self-assess his own needs and increase his use of strategies
- Your thoughts...



&



70

70

PASS & BRAIN FUNCTION

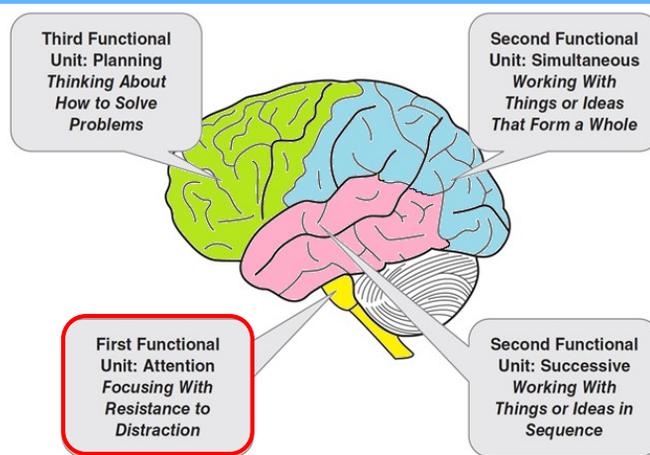


Figure 1.2 Three Functional Units and Associated Brain Structures
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

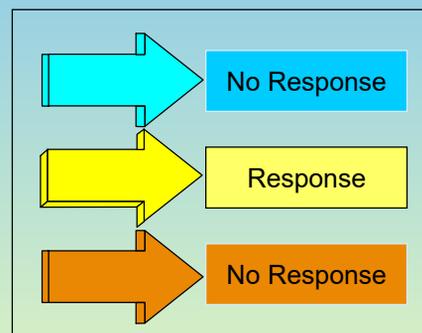
72

72

PASS Theory

- ▶ **Attention** is a basic psychological process we use to selectively attend to some stimuli and ignores others
 - focused cognitive activity
 - selective attention
 - resistance to distraction

RED
BLUE



73

73

CAS2: Rating Scale 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

74

74

CAS2 Expressive Attention

n The child says the color not the word

n Score is time and number correct

RED	BLUE	GREEN	YELLOW
YELLOW	GREEN	RED	BLUE
RED	YELLOW	YELLOW	GREEN
BLUE	GREEN	RED	BLUE
GREEN	YELLOW	RED	YELLOW

75

75

Expressive Attention - Italiano

ROSSO	BLU	VERDE	GIALLO
GIALLO	VERDE	ROSSO	BLU
ROSSO	GIALLO	GIALLO	VERDE
BLU	VERDE	ROSSO	ROSSO
VERDE	GIALLO	BLU	GIALLO

78

Number Detection

- Items 1 - 4 have 180 numbers on each page
- Each child is given two pages
- Targets appear at the top of the page
- Score for targets found and false detections

Find the numbers that look like this: 1 2 3

5	<u>2</u>	1	2	<u>3</u>	6	4	<u>3</u>	6	3	<u>3</u>	4
5	2	3	1	6	4	<u>1</u>	4	4	6	<u>1</u>	5
4	5	<u>2</u>	2	3	4	1	<u>2</u>	8	<u>3</u>	2	<u>3</u>
6	5	2	3	6	3	1	4	1	5	<u>1</u>	

that look like this:

<u>1</u>	4	<u>2</u>	6	4
3	<u>3</u>	<u>1</u>	2	6
<u>1</u>	<u>5</u>	<u>6</u>	<u>2</u>	<u>3</u>

false detections

79

Attention

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.

11. 3:15 P.M.

12. 6:22 P.M.

13. 3:50 P.M.

Reading comprehension is difficult because of the similarity of the options

80

80

Frankie at age 11 years

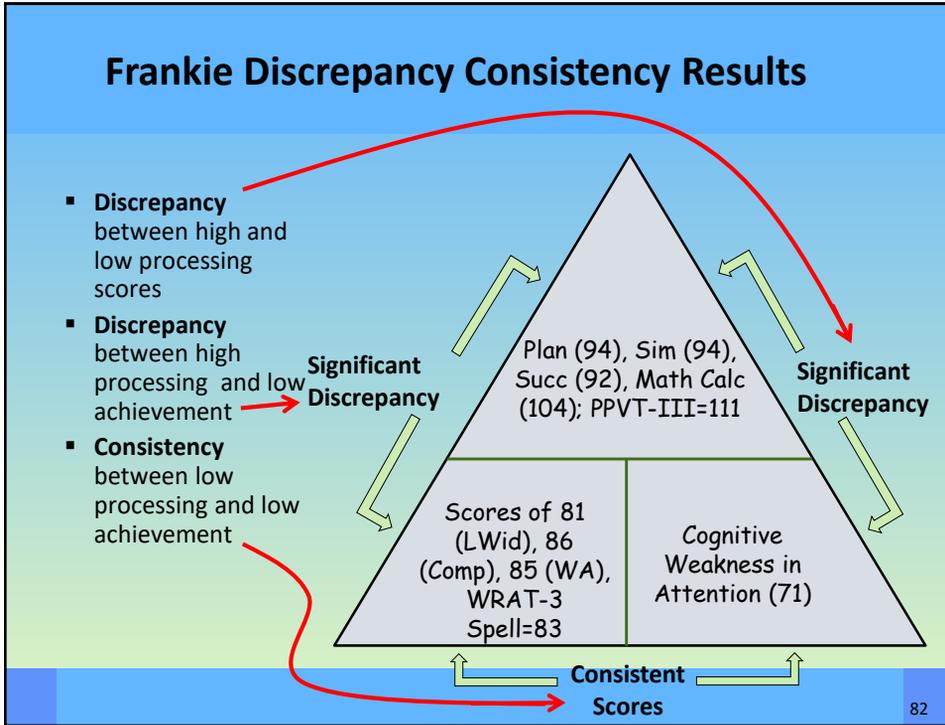
- Referred by parents (at age 11) after a history of reading and self esteem problems
- High level of anxiety
 - he was too anxious to look closely at the words, and he would rather get the task completed and move on.
 - Frankie could not attend to the details of the sequence of letters for correct spelling, and the order of sound-symbol associations



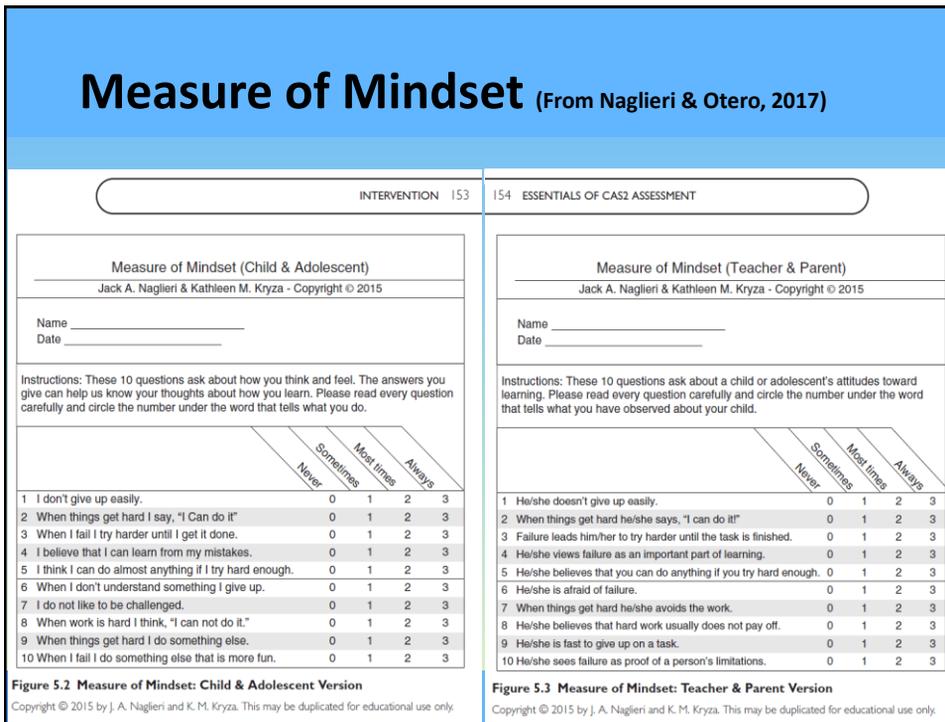
Figure 3.4. Frankie's self-portrait.

81

81



82



83

Intervention Plan for Frankie (K. Kryza)

- **Be Intentional and Transparent**
 - Explain his PASS scores to him
- **Build on His Strengths**
 - Help him use his Planning, Simultaneous and Successive strengths to support his learning challenges with Attention
- **Develop Effective Skill Sets** to remediate his weaker skills
 - Offer and encourage the use of metacognitive strategies that can improve his attention.
- **Encourage a Growth Mindset** and Self Efficacy



84

84

Frankie - Use Planning Strength

Strategies for Spelling

Spelling is an activity that requires the recall of specific letters in order and combining sounds with letter groups so that words can be recognized. Good spellers are skilled at memorizing how to correctly spell words even when the words are difficult or unpredictable. Often, spelling lists are given and students write the words over and over or rewrite them alphabetically. In order to make spelling easier for these students, give them a plan or strategy that includes various rules for spelling. A child who knows or has access to various spelling rules is likely to be able to spell many words correctly, rather than just the few that have been memorized. This intervention is intended to help students use certain rules or plans to spell words, particularly ones that are commonly misspelled or are spelled in a way other than how they sound.

When a child uses a rule or plan to spell, the answer is obtained by thinking (using the plan or rule), rather than just relying on remembering the string of letters. For example, a student may want to spell scientist but may not be sure of the order of the letters. If the child is taught the rule "i before e except after c," then he or she is more likely to spell the word correctly. This strategy changes the task from one that demands Successive processing to one that involves Planning.

How to Teach Strategies for Spelling

Following are a number of rules and strategies for spelling words. This list is not intended to be exhaustive, but it includes many of the major rules used for spelling. These rules may be varied, and the more memorable they are for the student, the more likely they are to be used (see the Mnemonics for Spelling handout (p. 101) for additional interventions). Students also need to understand that these are rules of thumb, and in some cases the rules do not work for every word.

- Write i before e except after c (e.g., receive, perceive, field, believe, niece, stage).
- The letter q is always written with u and sounds like "k."
- The vowel y, not i, is used at the end of English words (e.g., my).
- The majority of nouns in English form their plural by simply adding a final s.
- Nouns that end with -s, -z, -x, -ch, and -o form their plural by adding -es (e.g., glasses, buzzes, boxes, bushes, switches, potatoes, horses). Some exceptions include station, planes, kangaroos, and tocs.
- To form plurals for nouns that end in a consonant and -y, change -y to -i and add -es (e.g., babies, spies, pizzas).
- To form plurals for nouns that end in -f or -fe, change the -f to -v and add -es (e.g., shelves, wives, knives, wives).
- When a one-syllable word ends with one short vowel and one consonant, double the final consonant before adding a vowel suffix (e.g., hopping, hopped).

Page 1 of 2

Helping Children Learn: Intervention Handouts for Use in School and at Home, Second Edition, by Jack A. Naglieri & Eric B. Pickering
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Helping Children Learn

Intervention Handouts for Use
in School and at Home

with CD of
handouts
in English
and Spanish

2nd
Edition

Jack A. Naglieri
Eric B. Pickering
with Spanish handouts by
Tulio M. Otero and Mary A. Moreno

85

85

Frankie – Metacognitive (Planning) Interventions

- Discourage passivity / encourage independence
 - Teacher should only provide as much assistance as is needed
 - Discourage exclusive use of teacher's solutions
 - Child needs to correct own work
 - Child needs to learn to be self-reliant (Scheid, 1993).

86

86

Frankie

Help
Frankie
better
manage his
attention
problem

Overcoming Problems with Inattention

Attention is the process a person uses to focus thinking on a particular stimulus while ignoring others. Throughout a school day, a student must pay attention to the teacher, the instructions being given, what must be done, and what specific materials are needed, while ignoring other students talking, students playing outside the window, and a cart rolling by in the hall. Attention processes allow a child to selectively focus on things heard or seen and resist being distracted by irrelevant sights and sounds. Focused attention is direct concentration on something, such as a specific math problem. Selective attention involves the resistance to distraction, such as listening to the teacher and not the cart in the hall. Sustained attention is continued focus over time.

Some children have difficulty with focused thinking and resisting distractions. These children fit the description of attention-deficit/hyperactivity disorder (ADHD), predominantly inattentive type (American Psychiatric Association, 2000). Children with the inattentive type of ADHD are different from those with the predominantly hyperactive-impulsive type of ADHD, which is described by Barkley and Murphy (1998) as a delay in the development of inhibition, disturbed self-regulation, and poor organization over time. Children with ADHD, hyperactive-impulsive type cannot control their behavior and have inattention problems that are related to a failure in the process of planning on the Cognitive Assessment System (CAS; Naglieri, 1999).

How to Help a Child Overcome Problems with Inattention

The first step is to help the child understand the nature of his or her Attention problems, including

1. Concepts such as Attention, resistance to distraction, and control of Attention
2. Recognition of how Attention affects daily functioning
3. Recognition that the deficit can be overcome
4. Basic elements of the control program

Second, teachers and parents can help the child improve his or her motivation and persistence:

1. Promote success via small steps.
2. Ensure success at school and at home.
 - Allow for oral responses to tests.
 - Circumvent reading whenever possible.
3. Teach rules for approaching tasks.
 - Help the child to define tasks accurately.
 - Assess the child's knowledge of problems.
 - Encourage the child to consider all possible solutions.
 - Teach the child to use a correct test strategy (Pressley & Woloshyn, 1995).

87

87

Frankie - Interventions

- Teach rules for approaching tasks
 - Define tasks accurately
 - Assess child's knowledge of the problem
 - Consider ALL possible solutions
 - Evaluate value of all possible solutions
 - Checking work carefully is required
 - Correct your own test strategy (see Pressley & Woloshyn, 1995, p. 140).

88

88

What Should Teachers & Parents do?

How to Teach Students to Attend



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

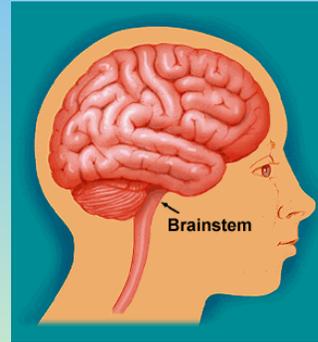
The first step in teaching children about their own abilities is to explain that they have many different types of abilities and that Attention is one of them. They also need to be aware of when their attention is focused and they are resisting distractions, as well as when it is divided among too many things, which leaves them unfocused and overloaded. In Figure 1 (which also appears in the PASS poster on the CD), we provide a fast and simple message: "Think smart and look at the details!" During appropriate times during the day, remind students to closely attend to information being discussed. We need to teach children to approach *all* their work with an understanding of how well they are focused on the details and resisting distractions in their environment. Throughout the day, the teacher should

1. Teach children to be aware of their level of attention and resistance to distraction.
2. Encourage children by asking: "Are you able to focus?" or "Are you getting distracted?"
3. Remind the students that Attention is necessary for reading, writing, and arithmetic, as well as in sports, playing a musical instrument, driving a car, and so forth.
4. Teach children that they may have to modify their environment so that they can attend better.
5. Remind students that learning requires attention to detail and resisting distractions.

89

Pay Attention

- Intentionally and Transparently Teach Students...
 - **Focus** and know what to focus on
 - Learn to **Resist** distractions
 - **Sustain** attention over time
 - From K. Kryza (2018)

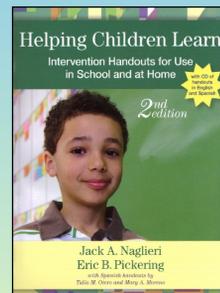


90

90

Frankie and Successive Processing

- **Spelling**
 - Strategies for Spelling (pp.102–103)
 - Segmenting Words for Reading/Decoding and Spelling (p. 89)
- These are designed to help him perform better when tasks require a lot of Successive processing.



91

91

Think and Talk



&



- Thoughts about Attention
- Have you seen students like Frankie?
- Your reactions...

NOTE: STOP AND TALK is important because the brain retains 50% through talk.

www.kathleenkryza.com

92

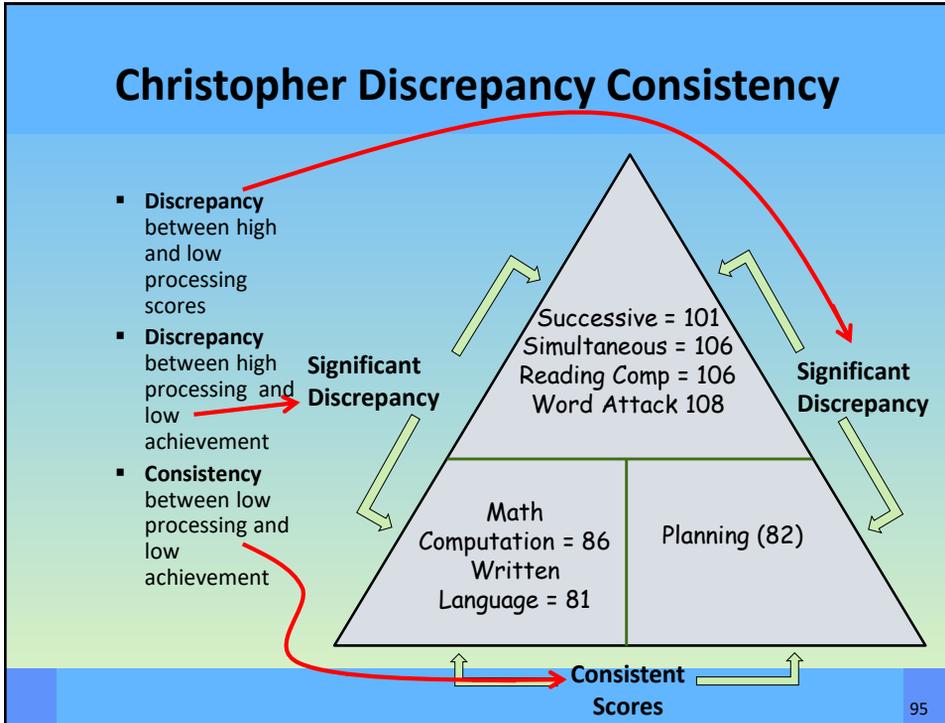
Case of Christopher - Is He ADHD?

- Problems
 - behavior problems
 - impulsive & disorganized
 - forgets assignments
 - can't stay on task
 - poor grades
- Clinical Observations
 - anxious about testing
 - used simple strategies
 - did sloppy work
 - control problems (threw pencil when frustrated)
 - impulsive choices made



94

94



95

ADHD Profiles by Ability Test

Learning and Attention Disorders in Adolescence and Adulthood
Assessment and Treatment

EDITED BY
SAM GOLDSTEIN · JACK A. NAGLIERI · MELISSA DeVRIES

CHAPTER
6

Assessment of Cognitive and Neuropsychological Processes

JACK A. NAGLIERI
SAM GOLDSTEIN

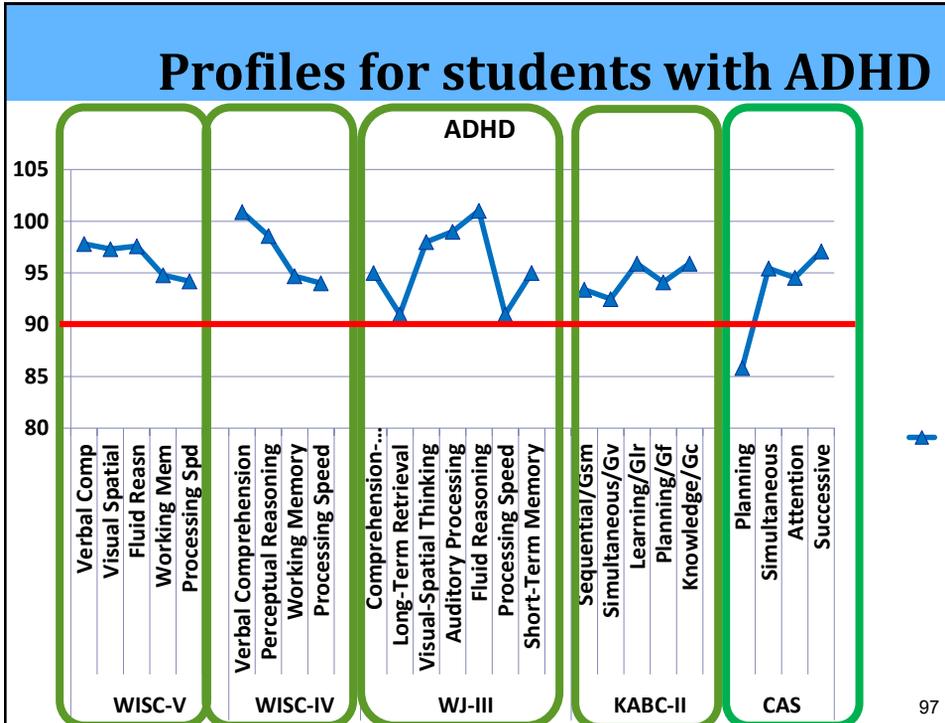
INTRODUCTION

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.

96

96



97

Canivez & Gaboury (2010)

➤ “the present study demonstrated the potential of the CAS to correctly identify students who demonstrated behaviors consistent with ADHD diagnosis.”
 glcanivez@eiu.edu

Cognitive Assessment System Construct and Diagnostic Utility in Assessing ADHD

Gary L. Canivez
Eastern Illinois University

Allison R. Gaboury
Puyallup School District, Puyallup, WA

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

Correspondence concerning this paper should be addressed to Gary L. Canivez, Ph.D., Department of Psychology, Eastern Illinois University, 600 Lincoln Avenue, Charleston, IL 61920-3009. Dr. Canivez can also be contacted via E-mail at glcanivez@eiu.edu or the World Wide Web at <http://www.aei.edu/~glcanivez>. This handout is based on a manuscript previously submitted for publication so please do not reference without permission.

The Das-Naglieri Cognitive Assessment System (CAS; Naglieri & Das, 1997) is a test of cognitive abilities or intelligence based on the Planning, Attention, Simultaneous, and Successive Theory (PASS; Das, Naglieri, & Kirby, 1994). Studies of CAS performance by children with attention deficit hyperactivity disorder (ADHD) generally show lowest performance on Planning, deficits in Attention, but normal Simultaneous and Successive processing (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Jettana, & Schwabach, 2003; Naglieri, Salter, & Edwards, 2004; Paulino, 1999; Pottinger, 2002; Van Laet, Krosberg, & Naglieri, 2005). To date no studies have been conducted on the diagnostic utility of the CAS in correctly identifying individual children with ADHD from those without ADHD or from those with other disruptive behavior disorders. The present study examined the construct validity of the CAS by examining distinct group differences and the diagnostic utility of CAS in correctly differentiating individuals with ADHD symptoms from those within a normal control group.

The Das-Naglieri Cognitive Assessment System (CAS; Naglieri & Das, 1997) is a test of cognitive abilities or intelligence based on the Planning, Attention, Simultaneous, and Successive Theory (PASS; Das, Naglieri, & Kirby, 1994) which itself is based on Luria's Functional System of neuropsychology (Luria, 1966; Luria, 1973). PASS theory (Das, Naglieri, & Kirby, 1994; Naglieri & Das, 1997) proposes that children with attention deficit hyperactivity disorder (ADHD) would, as Barkley (2003, 2006) suggests, be more impulsive and less reflective) in their cognitive processing, which in turn would impact planning processing. Attentional difficulties would affect attention processing. Studies of CAS performance of children with ADHD typically show lowest performance on Planning with deficits in Attention but normal Simultaneous and Successive processing (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Jettana, & Schwabach, 2003; Naglieri, Salter, & Edwards, 2004; Paulino, 1999; Pottinger, 2002; Van Laet, Krosberg, & Naglieri, 2005). While these group differences studies provide support for the construct validity of the CAS via distinct group differences, such support is inadequate for determining the utility of the CAS in individual diagnostic decision-making (McIntire, Swartz, & Willauer, 2005). **Planned**

Specificity = 95, Negative Predictive Power = 88). While a number of CAS studies regarding students with ADHD have examined distinct group differences and found support (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Jettana, & Schwabach, 2003; Naglieri, Salter, & Edwards, 2004; Paulino, 1999; Pottinger, 2002; Van Laet, Krosberg, & Naglieri, 2005), to date no studies have been conducted on the diagnostic utility of the CAS in correctly identifying individual children with ADHD from those without ADHD or from those with other disruptive behavior disorders. The present study examined the construct validity of the CAS by examining distinct group differences and the diagnostic utility of CAS in correctly differentiating individuals with ADHD symptoms from those within a normal control group.

Method

Participants
 Informed parental consent was obtained for a final sample of 40 students from elementary schools in suburban Pierce County, Washington, ranging from kindergarten to second grade. Groups consisted of children meeting diagnostic criteria for ADHD (n = 20) and a group of children who were randomly selected and matched (to the extent possible) on key

98

Intervention Plan (K. Kryza)

➤ Be Intentional and Transparent

- Explain his PASS scores to him

➤ Build on His Strengths

- Help him use his Attention, Simultaneous and Successive Strengths to support his learning challenges with Planning

➤ Develop Effective Skill Sets to remediate his weaker skills

- Offer and encourage the use of metacognitive strategies that can improve his planning. Think Smart!

➤ Encourage a Growth Mindset and Self Efficacy

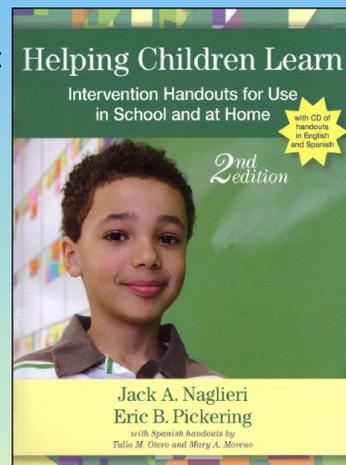


99

99

Helping Children Learn Resources

- Planning Facilitation
- Strategies for Learning Basic Math Facts
- Touch Math for Calculation
- Seven Step Strategy for Math Word Problems
- Chunking Strategy for Multiplication



100

Instructional Sessions

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

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

103

103

Planning (Metacognitive) Strategy Instruction

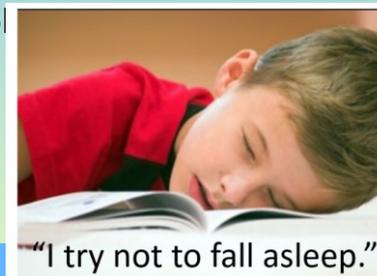
- ▶ Teachers *facilitated* discussions to help students become more self-reflective about use of strategies
- ▶ Teachers asked questions like:
 - What was your goal?
 - Where did you start the worksheet?
 - What strategies did you use?
 - How did the strategy help you reach your goal?
 - What will you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

104

104

Student Plans

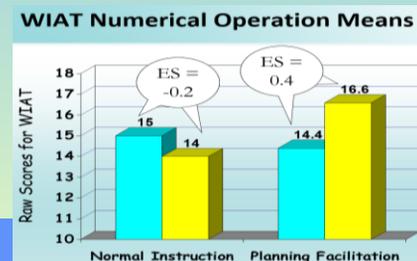
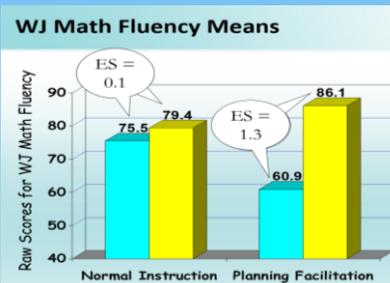
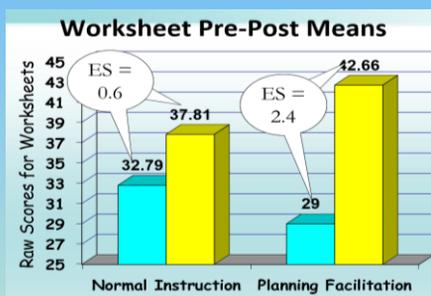
- “My goal was to do all of the easy problems on every page first, then do the others.”
- “I do the problems I know, then I check my work.”
- “I do them (the algebra) by figuring out what I can put in for X to make the problem work.”
- “I did all the problems I knew first.”



105

105

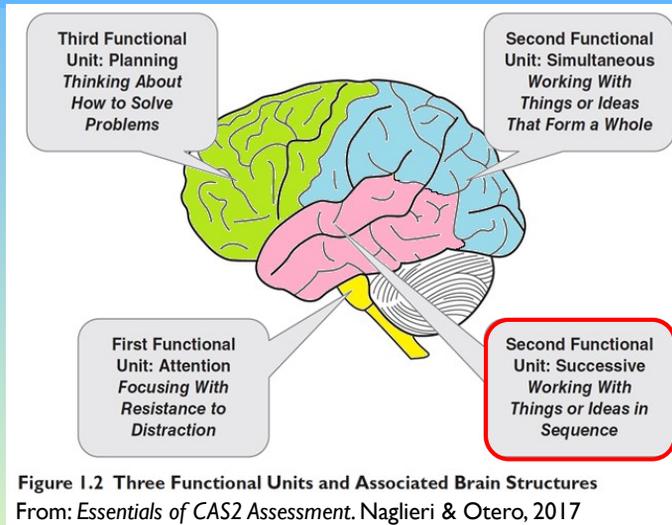
Pre-Post Means and Effect Sizes for the Students with LD and ADHD



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 ($M = 3.21$, $SD = 18.21$, $d = 0.09$).

106

PASS & BRAIN FUNCTION

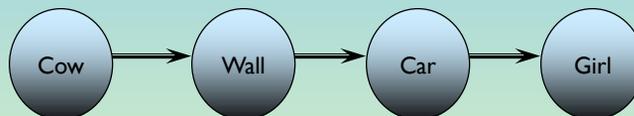


107

107

Modern 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
 - Word Series



108

108

CAS2: Rating Scale Successive

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

109

109

A Successive processing test using WORDS

110

110

Let's Take a TEST !

- First a word repetition test
- I will say some words. AFTER I finish saying the words you need to write them in order
- **DO NOT ADVANCE SLIDE**

111

111

- Man Cow Key
- Book Shoe Girl Dog Car
- Girl Book Dog Car Wall
Cow Key Shoe

112

112

Now a Successive processing test using numbers

113

113

Insights...

- Even though tasks were different in content (numbers and words) and modality (auditory and visual), they required the same kind of thinking – Successive processing



117

117

PASS Theory: Successive

- ▶ **Successive** processing is used when information is in a specific serial order
 - Decoding words
 - Letter-sound correspondence
 - Phonological tasks
 - Understanding the syntax of sentences
 - Comprehension of written instructions
 - Sequence of words, sentences, paragraphs
 - Remembering the sequence of events in a story that was read

119

119

Successive and Syntax

- | | |
|---|---|
| <ul style="list-style-type: none"> ➤ Sentence Repetition <ul style="list-style-type: none"> ▪ Child repeats sentences exactly as stated by the examiner such as: <ul style="list-style-type: none"> ▪ <i>The red greened the blue with a yellow.</i> | <ul style="list-style-type: none"> ➤ Sentence Questions <ul style="list-style-type: none"> ▪ Child answers a question about a statement made by the examiner such as the following: <ul style="list-style-type: none"> ▪ <i>The red greened the blue with a yellow. Who got greened?</i> |
|---|---|

120

120

Successive Reading Practices

The sequence of the sounds is emphasized in this work sheet

-A-a--

Ants accept award

Active ants applaud

Annie ate apples

121

Phonemic Awareness = Successive

“Now I am going to say parts of words. I want you to put the parts together to make a whole word.”

Blending: Advantage

Item	Correct response	# of syllables	Score
ad : van : tage	advantage	3	0 1

From the Feifer Assessment of Reading (2016)

122

122

Successive Processing & Reading Decoding

- The ability to sequence and sequence multiple sounds together to identify a word in print is critical for reading decoding

12
3

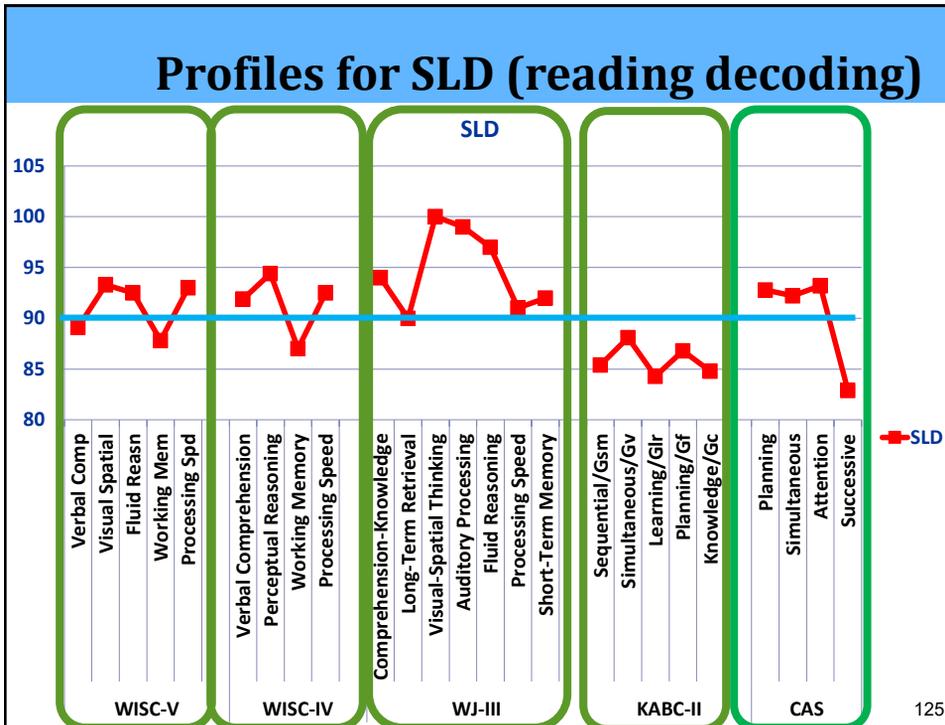
123

PASS - ADHD and SLD weaknesses

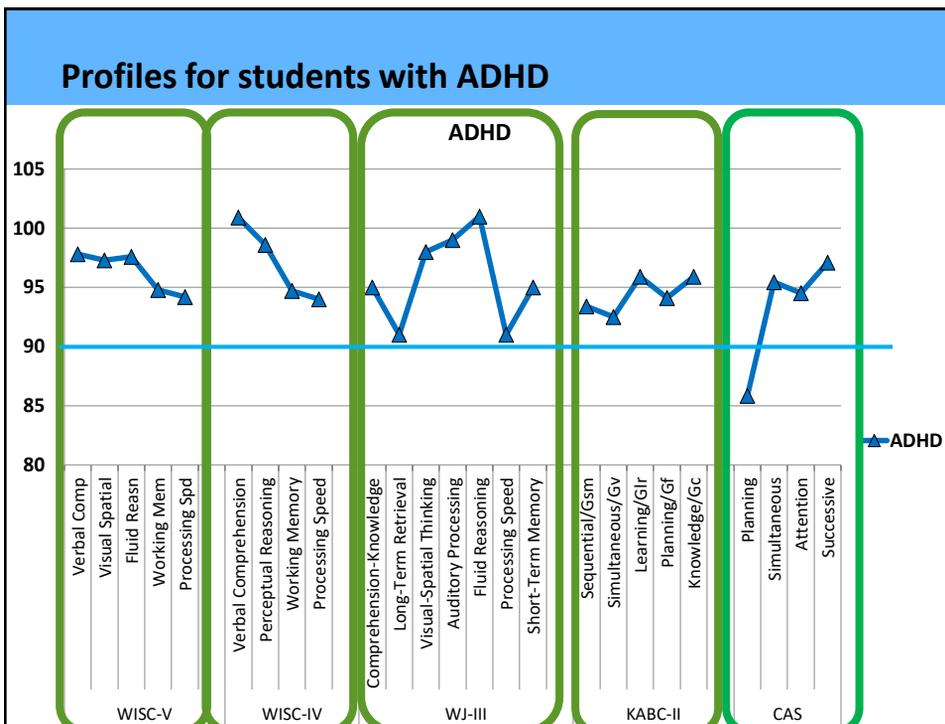
- Students with SLD in Reading Decoding, Spelling, phonological skill deficits and related problems have difference PASS profiles from those with ADHD

124

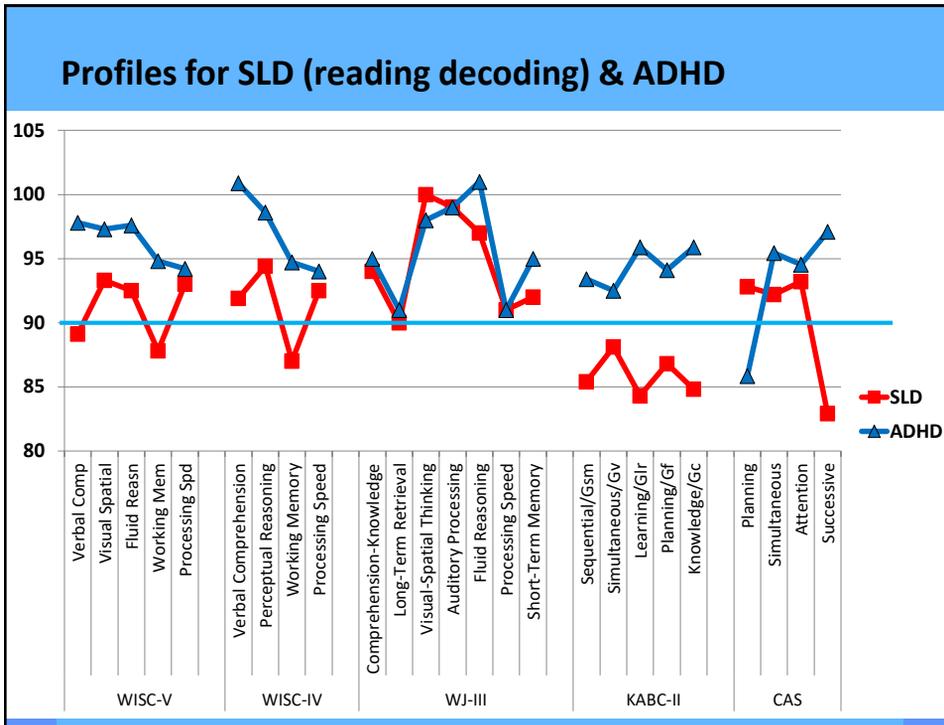
124



125



126



127

PASS Profiles and Educational Placement

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

School Psychology Quarterly, Vol. 15, No. 4, 2000, pp. 419-433

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

Jack A. Naglieri
George Mason University

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

128

128

CAS2, FAR & FAM PSW Analyzer

CAS2 Extended and FAR analysis on Page 2

- Enter PASS and FAR standard scores in the yellow

CAS2 12-Subtest Extended Battery

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

Differences Between PASS Scale Standard Scores and the Student's Average PASS Score (p < .05 for the CAS2 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		
Planning	98	0.5	no
Simultaneous	111	3.5	yes
Attention	102	4.5	yes
Successive	79	-18.5	yes

Notes:

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

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

PASS Scores from CAS2				
	Planning	Simultaneous	Attention	Successive
77	98	111	102	79

Fuller Assessment of READING

Standard Scores

Standard Score	PI	PA	NWD	ISD	ORF	PI	VF	VP	IRR	OP	MI	CI	SC	WR	PK	MP	MP
77	Discrepant																
98	Discrepant																
111	Discrepant																
102	Discrepant																
79	Discrepant																

131

PASS: A new way to think about and measure intelligence

CAS2, FAR & FAM PSW Analyzer

CAS2 Extended and FAR analysis on Page 2

- Enter PASS and FAR standard scores in the yellow

CAS2 12-Subtest Extended Battery

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

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Fuller Assessment of READING

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Standard Score	PI	PA	NWD	ISD	ORF	PI	VF	VP	IRR	OP	MI	CI	SC	WR	PK	MP	MP
77	Discrepant																
98	Discrepant																
111	Discrepant																
102	Discrepant																
79	Discrepant																

Average & Above PASS Scores

Strength: Planning 98, Attention 102

Successive: 79

WR 83

Achievement Weakness(es)

PASS Weakness(es)

132

CAS2, FAR & FAM PSW Analyzer

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

Note: This is a traditional Ability Achievement Discrepancy

The Consistency tells you WHY the student fails

PASS: A better way to think about and measure intelligence

133

FAR Phonological Index Subtests

- Phonemic Awareness
 - rhyming, blending, segmenting & manipulation of sounds
- Positioning Sounds
- Nonsense Word Decoding
- Isolated Word Fluency
- Oral Reading Fluency (accuracy)

Phonemic Awareness: Blending

All grades

"Now I am going to say parts of words. I want you to put the parts together to make a whole word."

Blending (9th+): Advantage

Item	Correct response	# of syllables	Score
ad · van · tage	advantage	3	0 1

Phonemic Awareness: Segmenting

"Now I am going to say a word. I want you to say the word back to me one part at a time and tap the table for each part you hear."

Item	Correct response	Correct # of taps	Score
PK-2nd 1. toothpaste	tooth · paste	2	0 1

Phonemic Awareness: Manipulation

"I am going to say a word and then take of its sounds away."

9. Say "band" without the /b/ sound.	end	0 1
10. Say "card" without the /d/ sound.	core	0 1

Phonemic Awareness: Rhyming

All grades

"I'm going to say two words, and I would like you to tell me if they rhyme (sound the same)."

Rhyming (PK-2nd): Fish, dish

Positioning Sounds Sample Item

"I'm going to say a word. I want you to tell me which sounds are missing in the word."

All grades

d | ll

Nonsense Word Decoding

2nd + Only

"I want you to read each of these words out loud without skipping any. Ready? Begin."

conving magip pibstat canians

134

134

Thoughts on intervention

JN and KK

135

135

Case of Paul: 4th grade referral

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



136

136



Paul - age 9 years

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

137



Paul - age 9 years

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

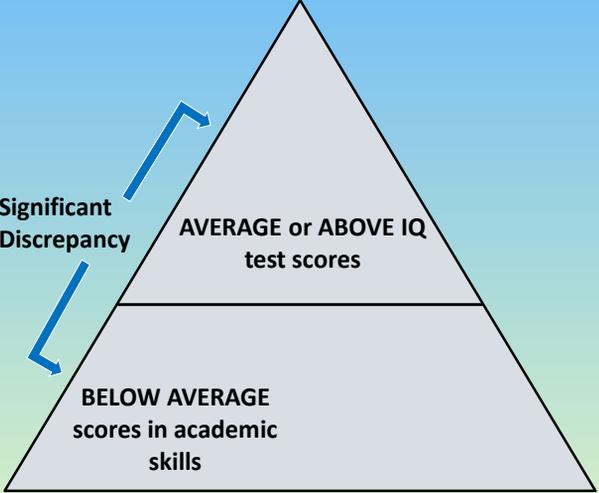
138



Traditional Discrepancy Approach

- Discrepancy between high IQ and low achievement test scores

Significant Discrepancy



AVERAGE or ABOVE IQ test scores

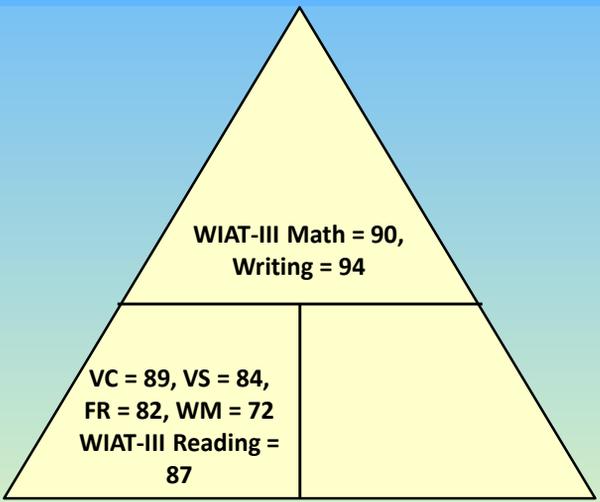
BELOW AVERAGE scores in academic skills

139

139



Traditional Discrepancy Approach



WIAT-III Math = 90,
Writing = 94

VC = 89, VS = 84,
FR = 82, WM = 72
WIAT-III Reading =
87

Paul's WISC and Achievement
data make no sense !

140

140

Discrepancy Consistency Method - Paul

Poor Successive + Poor Phonological = SLD in Reading Decoding

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

141

141

Types of Dyslexia

JACKNAGLIERI.COM
ASSESSMENT TOOLS FOR PSYCHOLOGISTS AND I

HOME
ABOUT
TESTS
BOOKS
HANDOUTS & RESEARCH
ARTICLES
VIDEOS
10-MINUTE SOLUTIONS
PASS CASE STUDIES
PASS SCORE ANALYZERS
CONTACT

10-MINUTE SOLUTIONS

Short published papers that describe applications of PASS theory to identify disabilities such as SLD and Dyslexia.

SPECIFIC LEARNING DISABILITIES

Naglieri, J.A., & Feifer, S.G. (2017). Identification of Specific Learning Disabilities using a Pattern of Strengths and Weaknesses. *School Psychology in Virginia: The Newsletter of the Virginia Academy of School Psychologists*, Fall 2017/Winter 2018, 7-11.

Naglieri, J.A., & Feifer, S.G. (2018). Identification of Specific Learning Disabilities using a Pattern of Strengths and Weaknesses. *CASP Today*, Summer 2018 68.3, 6-17.

Naglieri, J.A., & Feifer, S.G. (2017). Identification of Specific Learning Disabilities using a Pattern of Strengths and Weaknesses. *New York School Psychologist*, 36.1, 9-12.

Guttenberg, S., & Naglieri, J.A. (2017). Goodbye Discrepancy Model. Hello PSW: Using Science and Best Practice to Assess for Specific Learning Disabilities. *CASP Today*, 67.3, 6-16.

DYSLEXIA

Naglieri, J.A., & Feifer, S.G. (2018). Using PASS Processes to Identify Developmental Dyslexia Pamphlet. Schoolhouse Educational Services, Inc. Find it on [Amazon](#) or [Schoolhouse Educational Services, LLC](#)

142

142

Using CAS2 and Far for Dyslexia

- Naglieri & Feifer provide an 8-page summary of how to use CAS2 and FAR to identify four subtypes of Dyslexia using the Discrepancy Consistency Method

Using PASS Processes to Identify Developmental Dyslexia

Feifer Assessment of Reading (FAR) Subtests and PASS Processes

SUBTEST	P	A	Sim	Soc.
Phonemic Awareness - a series of four tasks arranged in a hierarchy of increasing difficulty measuring rhyming, blending, segmenting, and manipulating sounds.				X
Positioning Sounds - a phonemic localization task requiring the student to determine the missing sound located either in the beginning, middle, or ending position of a word using a visual cue.				X
Nonsense Word Decoding - the student decodes a series of individual nonsense words presented in order of increasing difficulty.				X
Isolated Word Reading Fluency - the student reads a list of words of increasing difficulty 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 in 60 seconds.			X	X
Rapid Automatic Naming - a series of timed tasks requiring the student to name as many objects, letters, or stencils in 30 seconds.				X
Visual Perception - the student must identify letters printed backward from an array of letters or words in 30 seconds.		X	X	
Verbal Fluency - requires the student to name as many items that start with a particular category, or items that start with a particular letter, in 60 seconds.	X	X		
Orthographic Processing - the student is required to recall a letter, or group of letters, from a previously seen target word.		X	X	
Irregular Word Reading Fluency - the student reads a list of phonologically irregular words of increasing difficulty in 60 seconds.				X
Semantic Concepts - a multiple choice test requiring the student to select the correct antonym or synonym of a target word.	X	X		
Word Recall - requires the student to repeat back a list of words over a series of two trials. The second trial requires the student to recall a word from a selected list.	X	X		
Morphological Processing - a multiple-choice test requiring students to choose the correct prefix, suffix, or stem that best completes an incomplete target word.				X
Silent Reading Fluency - requires the student to silently read a passage and then answer a series of literal and inferential questions about the story. Reading rate is also recorded.	X	X	X	X

Method for SLD

Category	Score	Interpretation
Reading Rate	75	Moderately Below Average
Accuracy	85	Below Average
Comprehension	85	Below Average

Order From:
 Schoolhouse Educational Services
 P.O. Box 397
 Sparta, WI 54656
 SchoolhouseEducationalServices.com
 Phone: 608-487-8282

CAS2 DCM with WJ-IV Achievement

Discrepancy Consistency Method DCM

1. Click on the CAS2 Extended (Leadmeets) or Core (Baseline) with the Woodcock Johnson IV Tests of Achievement (WJ-IV ACH)

2. Enter the PASS scores in the column labeled "Standard Score" in BOX #1.

3. Enter the WJ-IV ACH standard scores in BOX #2.

Now, once the PASS and WJ-IV scores are entered, the discrepancy and consistencies between neurocognitive and achievement scores will be noted. Follow the Flow-Chart (see Figure 2.2 included here) for a complete discussion of this method and related issues see Essentials of CAS2 Assessment.

CAS2 Subtest Scores

Subtest	Score
Phonemic Awareness	75
Positioning Sounds	75
Nonsense Word Decoding	75
Isolated Word Reading Fluency	75
Oral Reading Fluency	75
Rapid Automatic Naming	75
Visual Perception	75
Verbal Fluency	75
Orthographic Processing	75
Irregular Word Reading Fluency	75
Semantic Concepts	75
Word Recall	75
Morphological Processing	75
Silent Reading Fluency	75

PASS Scores from CAS2

Process	Score
Phonological	75
Orthographic	75
Lexical	75
Semantic	75
Morphological	75
Fluency	75
Comprehension	75

K. Kryza's Intervention Plan for Paul

- Be **Intentional and Transparent**
 - Explain what PASS scores mean 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 his learning challenges with Successive Processing
- Offer and encourage the use of metacognitive strategies that can improve his Successive Processing skills.
- **Encourage a Growth Mindset** and Self Efficacy

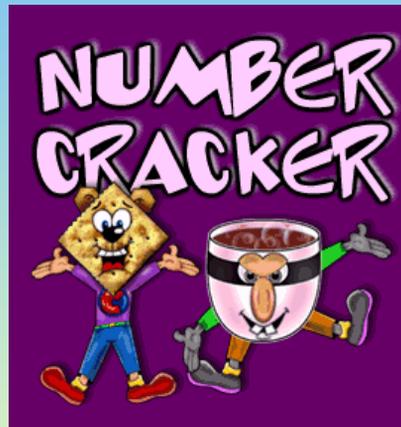
147

147

Math Sequencing

- Encouraging students to write out the steps for solving problems. (For example: Steps for solving addition and subtraction problems that include regrouping)
- Use a simple sheet of paper folded into four squares. Ask students to write the steps in order in the squares.

Sequencing Games



148

148

Using Digital Storytelling in the Classroom

- Load pictures from a story out of order, and then save the file as a project.
- Have students rearrange the pictures to assess them for their understanding of sequencing.



149

PASS & BRAIN FUNCTION

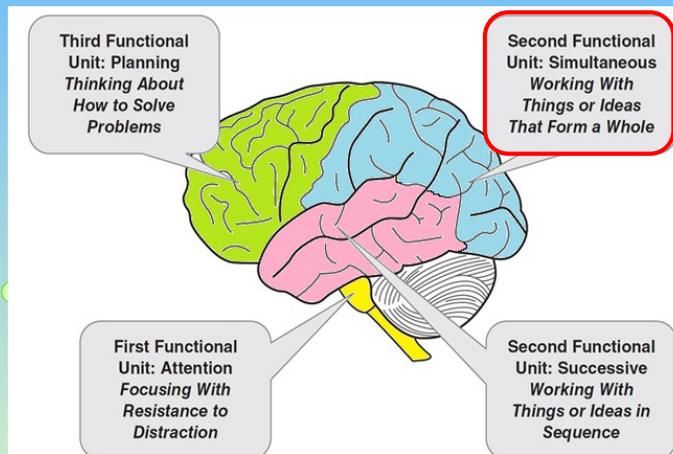


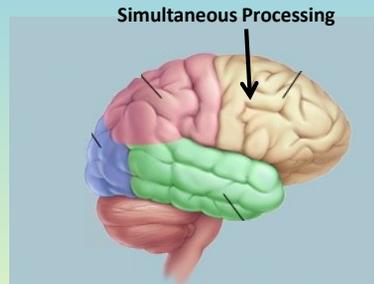
Figure 1.2 Three Functional Units and Associated Brain Structures
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

150

150

PASS Theory

- **Simultaneous** processing is used to integrate stimuli into groups
 - Stimuli are seen as a whole
 - Each piece must be related to the other
 - Whole language
 - Seeing word as a whole
 - Verbal concepts
 - Geometry, math word problems



151

151

CAS2: Rating Scale Simultaneous

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.

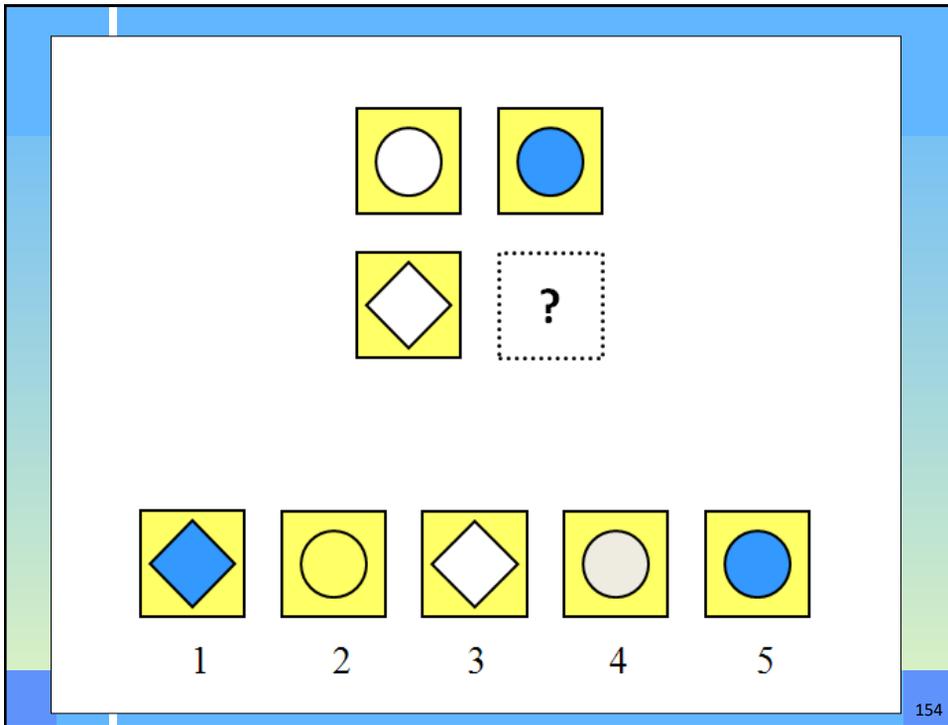
During the past month, how often did the child or adolescent ...

	Never	Barely	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

152

152



154

Test Yourself !

Solve these analogies:

Girl is woman as boy is to _____?

C⁷ is to F as E⁷ is to _____?

155

155

CAS2 Verbal-Spatial Relations

 <p>1</p>	 <p>2</p>	 <p>3</p>
 <p>4</p>	 <p>5</p>	 <p>6</p>

Which picture shows a boy behind a girl?

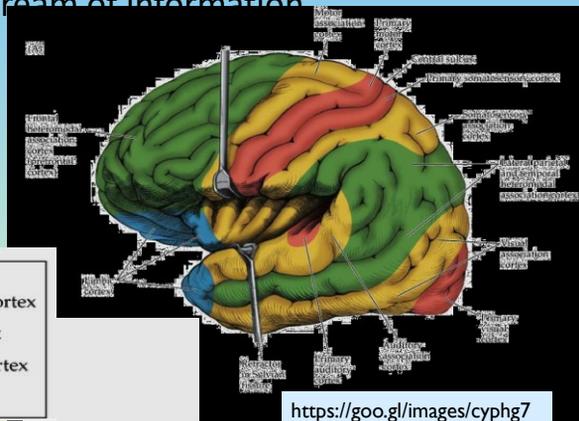
157

Heteromodal Association Cortex

(Goldberg, 2006)

- Our brains merge stimuli coming in from the senses into one stream of information.
- This helps us understand the relationship between modality and processing

Key	
	Primary motor or sensory cortex
	Unimodal association cortex
	Heteromodal association cortex
	Limbic cortex



158

Numbers from 1 to 100

Simultaneous processing facilitated by this work sheet

Name Jack Secret number _____

Write the numbers 1 to 100 in order.

100% beautiful numbers!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

TR22 Blank Hundred Chart © J.C. Heun and Company

159

Case Study – Let’s do it together...

- The case of Nelson
- We will determine if he has a PASS weakness?
- What interventions are appropriate?

1

Detecting a Pattern of Strengths and Weaknesses Using the PASS Theory as Measured by CAS2

Jack A. Naglieri, Ph.D.
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Contents

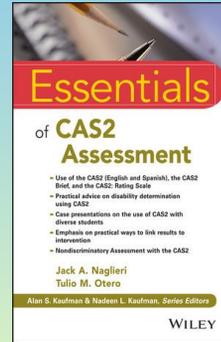
PASS Theory and its Measurement	2
Measurement of PASS Neurocognitive Processes	3
Interpretation of the CAS2, CAS2: Brief and CAS2: Rating Scale	3
CAS2 Scoring Example	4
SLD Eligibility Determination	5
PASS Variability on the CAS2: Brief and CAS2: Rating Scale	7
Case #1 – Paul PASs (Feller)	8
Worksheet for Paul	10
Case #2 – Nelson (Based on Naglieri & Feller, 2017) PaSS	11
Worksheet for Nelson	16
Case #3 Clark (from T. M. Otero) PaSS	17
Worksheet for Clark	19
Case #4 – Anthony (From T. M. Otero, 2017) paSS	20
Solutions to CAS2 Brief and Rating Scale PASS Analysis	26
Suggestions for the Case #1 Paul	27
Suggestions for Case #2 - Nelson	28
Suggestions for Case #3 of Clark	31
Suggestions for Case #4 - Anthony	34

160

160

Case of Nelson (Naglieri & Feifer, 2017, Intervention Chapter 5)

- Nelson (9 year-old 4th grader) for 3 years
 - difficulty with spelling and written language math facts, and inconsistent with reading comprehending skills.
 - difficulty keeping pace with his peers and often failed to complete his work in a timely manner.
 - The Child Development Team (CDT) recommended a comprehensive psychological evaluation.



161

161

Case of Nelson (Naglieri & Feifer, 2017)



INTERVENTION 171

Table 5.2 Nelson's CAS2 Scoring

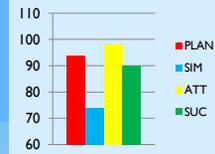
PASS Scales	Scaled Score	Percentile	Ability Range
CAS2 Planning: The ability to apply a strategy and self-monitor performance while working toward a solution	94	34	Average
CAS2 Attention: The ability to selectively focus on a stimulus while inhibiting responses from competing stimuli	98	45	Average
CAS2 Simultaneous Processing: The ability to reason and problem-solve by integrating separate elements into a conceptual whole, often involving visual-spatial tasks	74	4	Very low
CAS2 Successive Processing: The ability to put information into a serial order or particular sequence	90	25	Average
CAS2 Total Composite Score	89	23	Below average



162

162

Case of Nelson (Naglieri & Feifer, 2017)



CAS2 12-Subtest Extended Battery

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

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

Cognitive Assessment System?	PASS Mean & Differences	Significantly Different (at p = .05) from PASS Mean?	Strength or Weakness
Planning	94 5.2	no	
Simultaneous	74 -14.8	yes	Weakness
Attention	96 9.2	yes	
Successive	89 0.2	no	

Notes

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

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

PASS Scores from CAS2			
Planning	Simultaneous	Attention	Successive
94	74	96	89

Kaufman Test of Educational Achievement 3rd Edition

Standard Scores			
83	LWR Letter & Word Recognition		
	RC Reading Comprehension	Consistent	Discrepant
	NWD nonsense Word Decoding		
	PP Phonological Processing		
	WRF Word Recognition Fluency		
	DF Decoding Fluency		
80	SRF Silent Reading Fluency	Consistent	Discrepant
	RV Reading Vocabulary		
	MCA Math Concepts and Applications		
87	MCA Math Computation		
89	MF Math Fluency		
	WE Written Expression		
86	SP Spelling		
88	WF Writing Fluency		
	LC Listening Comprehension		
	OE Oral Expression		
	AF Associational Fluency		
	ONF Object Naming Facility		
	LNFF Letter Naming Facility		

163

Case of Nelson (Naglieri & Feifer, 2017)

Table 5.6 Nelson's Scores on the Feifer Assessment of Reading (FAR)

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



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

Reading	Age Norms	Percentile	Range
Reading Comprehension: The student reads a word and points to its corresponding picture or reads a simple instruction and responds by performing the action.	83 ± 10	13	Below average
Silent Reading Fluency: The student is required to read as many statements as possible in 2 minutes and must respond either "yes" or "no" as to whether each statement is valid.	80 ± 11	9	Below average
KTEA-III Reading Composite Score	81 ± 6	10	Below average



164

Case of Nelson (Naglieri & Feifer, 2017)

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

Math	Age Norms	Percentile	Range
<p>→ Math Computation: The student solves math equations in the response booklet including addition and subtraction.</p>	87 ± 10	19	Below average
<p>→ Math Fluency: This is a timed task requiring the student to solve as many single-digit addition, subtraction, multiplication, and division problems in a minute.</p>	89 ± 11	23	Below average
KTEA-III Math Composite Score	90 ± 6	25	Average
<p>→ Spelling: The student is required to spell words of increasing difficulty dictated by the examiner.</p>	86 ± 5	18	Below average
<p>→ Writing Fluency: The student has 5 minutes to write as many sentences as possible describing various pictures.</p>	88 ± 14	21	Below average
KTEA-III Written Language	87 ± 6	19	Below average

165

165

Case of Nelson (Naglieri & Feifer, 2017)

- Nelson's history of reading problems and interventions to address this, slower reading speed, difficulty reading phonetically irregular words, and poor **Simultaneous**

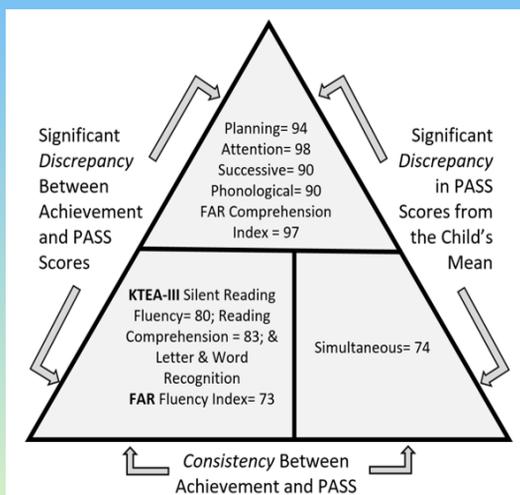


Figure 5.5 Nelson's Discrepancy/Consistency Method of SLD Results

166

166

Presentation Outline

- Introduction
 - Using groups to stimulate thinking
 - How traditional IQ has influenced us
- A new way of thinking about intelligence
 - PASS theory defines basic psychological processes
 - Each PASS ability, case studies and interventions
- How to measure PASS neurocognitive processes
- Final thoughts

167

167

CAS2 for (Ages 5-18 yrs.)



168

CAS2 in English & Spanish

- Same 8 (40 minutes) or 12 (60 minutes) subtest versions
- PASS and Full Scales provided (100 & 15) subtests (10 and 3)
- Supplemental Scales

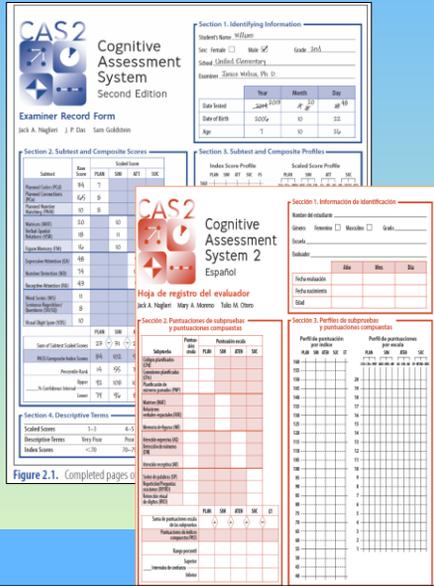


Figure 2.1. Completed pages

169

CAS2

- Supplementary Scales: Executive Function, Working Memory, Verbal, Nonverbal,
- A Visual and Auditory comparison
- Speed/Fluency scale is new

Supplemental Composite Scores

Subtest	Scaled Score				
	EF w/o WM	EF w/ WM	WM	VC	NvC
Planned Codes					7
Planned Connections	8	8			
Matrices					10
Verbal-Spatial Relations		11	11	11	
Figure Memory					10
Expressive Attention	9	9			
Receptive Attention				9	
Sentence Repetition/Questions		7	7	7	
	EF w/o WM	EF w/ WM	WM	VC	NvC
Sum of Subtest Scaled Scores	17	35	18	27	27
Composite Index Scores	91	91	94	93	92
Percentile Rank	27	27	34	32	30
Upper ___% Confidence Interval	101	99	101	101	99
Lower	84	85	88	87	86

Note: EF w/o WM = Executive Function without Working Memory; EF w/WM = Executive Function with Working Memory; WM = Working Memory; VC = Verbal Content; NvC = Nonverbal Content.

170

170

CAS2 Online Score & Report

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

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

CAS2: Online Scoring and Report System (1-Year Base Subscription) (14311)
 This product requires a check of customer qualifications. Click [here](#) to download qualifications form. TO ORDER, CALL: 800-897-3202.
 Price: \$199.00

NEW
NOW AVAILABLE!

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

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

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.

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**



171

171

CAS2 Online Score & Report

- ▶ Narrative report can be obtained in Word or PDF

CAS2 Cognitive Assessment System
 Second Edition

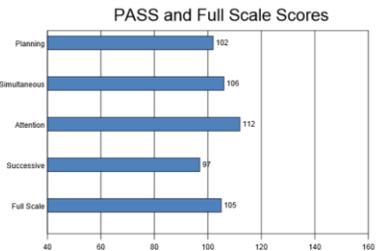
Scoring and Interpretive Report
 Jack A. Naglieri

Name: Jack Nag
 Age: 8
 Gender: Male
 Date of Birth: 07-12-2005
 Grade: 5
 School: East Lake

This computerized report is intended for use by qualified individuals. Information can be found in the CAS2 Interpretive Manual.

FULL SCALE

Jack earned a Cognitive Assessment System, Second Edition (CAS2) Full Scale score of 105, which is within the Average classification and is a percentile rank of 63. This means that his performance is equal to or greater than that of 63% of children his age in the standardization group. There is a 90% probability that Jack's true Full Scale score falls within the range of 101 to 109. The CAS2 Full Scale score is made up of separate scales called Planning, Attention, Simultaneous, and Successive cognitive processing. Because there was significant variation among the PASS scales, the Full Scale will sometimes be higher and other times lower than the four scales in this test. The Attention Scale was found to be a significant cognitive strength. This means that Jack's Attention score was a strength both in relation to his average PASS score and when compared to his peers. This cognitive strength has important implications for instructional and educational programming.



172

172

Provide Help

The examiner can explain the demands of the task in any manner deemed appropriate and in any language

Item Set 1

Expose Item Set 1 and say,

Look at this page. There are many boxes for you to fill in (point to the portion of the page with the empty boxes, but do not point in a sweeping motion to the rows or columns). Fill in as many of these as you can, as fast as you can, using these answers (point to the coded boxes, and pause for 3-5 seconds to allow the examinee to look at the page). You can do it any way you want. Let's see how many you can do.

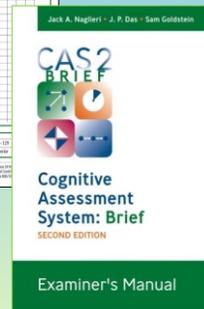
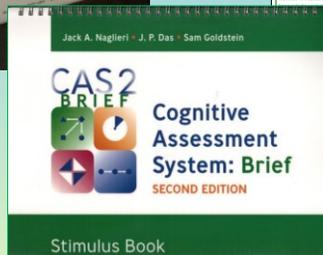
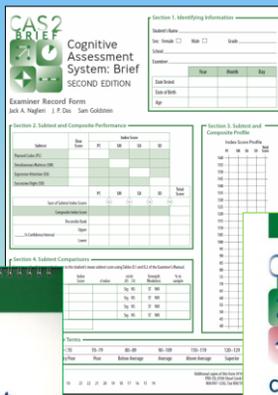
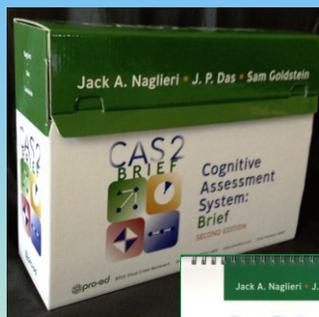
Ready? (Provide a brief explanation if necessary.)

Begin. Start timing. Allow 60 seconds (1:00 minute). Record the time to completion and strategy use.

If the examinee stops or spends more than 1 or 2 seconds erasing, immediately say, **Keep going.**

If the examinee is still working after the time limit expires, say, **Stop.** Record the time in seconds. Note strategy use.

CAS2: Brief for Ages 4-18 years



CAS2: Brief

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

CAS2 BRIEF Cognitive Assessment System: Brief SECOND EDITION

Section 1. Identifying Information
 Student's Name: Tommy
 Sex: Female Male Grade: 1st
 School: Parkview Elementary
 Examiner: R. Durham, PhD
 Date Tested: 2014, Mar 8, 2:31
 Date of Birth: 2008, 11, 22
 Age: 6, 6, 9

Section 2. Subtest and Composite Performance

Subtest	Raw Score	Index Score				
		PC	SM	EA	SD	Total
Planned Codes (PC)	16	112				
Simultaneous Matrices (SM)	16		100			
Expressive Attention (EA)	33			96		
Successive Digits (SD)	7				82	
Sum of Subtest Index Scores		112	100	96	82	390
Composite Index Score						
Percentile Rank		74	50	40	12	40
90% Confidence Interval		118	111	107	96	104
Lower		105	84	86	72	88

Section 3. Subtest and Composite Profile

Section 4. Subtest Comparisons

Subtest	Index Score	z-score	90% CI	Strength	% in sample
Planned Codes (PC)	112	14.5	90% CI	SI	15.1
Simultaneous Matrices (SM)	100	2.5	90% CI	SI	82.8
Expressive Attention (EA)	96	-1.5	90% CI	SI	87.8
Successive Digits (SD)	82	-15.5	90% CI	SI	16.2
Subtest mean	97.5				

Section 5. Descriptive Terms

Index Scores	< 70	70-79	80-89	90-109	110-119	120-129	≥ 130
Descriptive Terms	Very Poor	Poor	Below Average	Average	Above Average	Superior	Very Superior

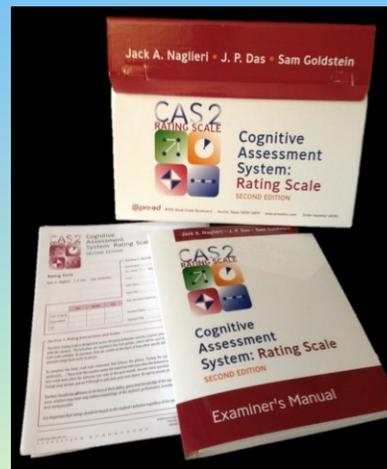
Figure 3.1. Example of page 1 of the CAS2: Brief Examiner Record Form, completed for Tommy.

175

175

CAS2 Rating Scales (Ages 4-18 yrs.)

- The CAS2: Rating measures behaviors associated with PASS constructs
- Normed on a nationally representative sample of 1,383 students rated by teachers



176

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

CAS2
Rating Scale
Cognitive Assessment System: Rating Scale
SECOND EDITION

Section 1. Identifying Information

Student's Name: _____
 Sex: Female Male Grade: _____
 School: _____
 Rater's Name: _____
 Rater's Title: _____
 Ratee Has Known Subject for _____ (year/month)
 Examiner's Name: _____
 Examiner's Title: _____

Section 2. Rating Instructions and Scales

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

To complete the form, read each statement that follows the phrase "During the past month, how often did the child or adolescent..." then circle the number under the word that tells how often the behavior was seen. Read each question carefully, then mark how often the behavior was seen in the past month. Answer every question without skipping any. If you want to change your answer, put an X through it and circle your new choice. Do not skip any questions.

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

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

Additional copies of this form (K-12021) may be purchased from
 PAR, 3750 Riverchase Blvd., Suite 100, Hoover, AL 36038
 1-800-393-3333 or www.parinc.com

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14. see how objects and ideas are alike?
 15. work well with physical objects?
 16. like to use physical materials?
 17. use the links among several things?
 18. show interest in complete objects and patterns?
 19. recognize faces easily?

Additional copies of this form (K-12021) may be purchased from
 PAR, 3750 Riverchase Blvd., Suite 100, Hoover, AL 36038
 1-800-393-3333 or www.parinc.com

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177

CAS2 Rating Scales

- The rater is given a description of what each scale is intended to measure.
- This informs teachers about PASS

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.

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.

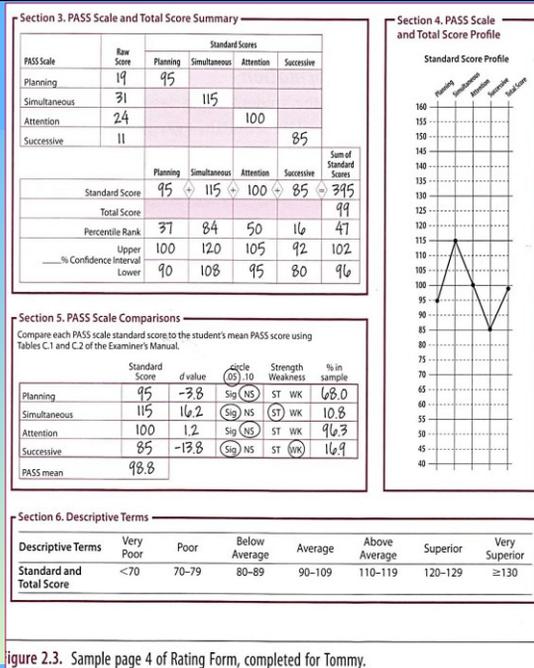
Directions for Items 21–30. These questions ask how well the child or adolescent pays attention and resists distractions. The questions also ask about how well someone attends to one thing at a time. Please rate how well the child or adolescent pays attention.

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.

178

CAS2 Rating Scales

- The CAS2: Rating Scale scores can be used as part of a larger comprehensive evaluation or for instructional planning



179

Reactions...

- Are you comfortable with the PASS approach to psychological processes and its measurement using the various CAS2 measures?
 - Does it... make sense?
 - help you justify an SLD determination?
 - give you ideas for intervention?
- Your questions and reactions?

180

Presentation Outline

- Introduction
 - Using groups to stimulate thinking
 - How traditional IQ has influenced us
- A new way of thinking about intelligence
 - PASS theory defines basic psychological processes
 - Each PASS ability, case studies and interventions
 - How to measure PASS neurocognitive processes
- Final thoughts



181

181

PASS theory and CAS

- Does it work?
 - PASS scores are strongly correlated with achievement test scores
 - PASS profiles are different for SLD, ADHD, ASD, etc. supporting the Discrepancy Consistency Method
 - DCM answers the question: WHY does the student fail?
 - PASS theory is the fairest way to test diverse groups
 - PASS scores are strongly related to regular and special educational instructional decisions
 - PASS is easily measured in 40-60 minutes

182

182

Correlations: We can do better

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

Note: All correlations are reported in the ability tests' manuals. Values per scale were averaged within each ability test using Fisher z transformations.

Correlations Between Ability and Achievement Test Scores			Average Correlation	
			All Scales	Scales without achievement
WISC-V WIAT-III N = 201	Verbal Comprehension	.74	.53	.47
	Visual Spatial	.46		
	Fluid Reasoning	.40		
	Working Memory	.63		
WJ-IV COG WJ-IV ACH N = 825	Processing Speed	.34	.54	.50
	Comprehension Knowledge	.50		
	Fluid Reasoning	.71		
	Auditory Processing	.52		
	Short Term Working Memory	.55		
	Cognitive Processing Speed	.55		
KABC WJ-III ACH N = 167	Long-Term Retrieval	.43	.53	.48
	Visual Processing	.45		
	Sequential/Gsm	.43		
	Simultaneous/Gv	.41		
CAS WJ-III ACH N=1,600	Learning/Glr	.50	.59	
	Planning/Gf	.59		
	Knowledge/GC	.70		
	Planning	.57		
	Simultaneous	.67		
	Attention	.50		
	Successful	.60		

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

183

183

THANK YOU !

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184

184