



A Process Oriented Approach for Identifying and Remediating Specific Learning Disabilities

Jack A. Naglieri, Ph.D.
University of Virginia & Devereux Center for Resilient Children
jnaglieri@gmail.com www.jacknaglieri.com

Steven G. Feifer, D.Ed, ABSNP
Monocacy Neurodevelopmental Center
feifer@comcast.net
www.schoolneuropsychpress.com



For Future Reference





Topical Outline

- ➔ Introduction
- NASP SLD Position Paper
- Defining “basic psychological process” (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (FAR)
- Case study of SLD (Successive processing disorder and poor academics on Far)



Why this Session...

- The diagnosis of LD has become too complicated, too time consuming, and too statistically driven for parents and educators .
- There needs to be a more direct line drawn between specific test results and meaningful interventions.
- Most educators know exactly WHERE a student is achieving based upon running records, portfolios, curriculum testing, and weekly assessments. What they crave for is WHY!!!
- Traditional measures struggle to answer the WHY question.....

4



Jacob 6th grade

Presenting Concerns: Reading, Math Word Problems, Text Anxiety

WISCV Domains	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	89	Below Average	23%
Visual Spatial Index	84	Below Average	14%
Fluid Reasoning Index	82	Below Average	12%
Working Memory Index	72	Very Low	3%
Processing Speed Index	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%

- Questions:** #1 Does Jacob qualify for SPED?
 #2 Can you write an IEP based upon this data? 5




The State of Learning Disabilities

National Center for Learning Disabilities (2014)

- Students with LD earn lower grades and experience higher rates of course failure.
- Two-thirds of LD students are males.
- One-third of students with LD have been retained at least once.
- **68%** of LD students leave high school with a regular diploma compared to national average of **82%** graduation rate.
- Young adults with LD attend four year colleges at half the rate of the general population.
- College completion rate of young adults with LD is **41%** compared to **52%** in the general population.
- Only 17% of young adults with LD received supports and accommodations in college.


6




Topical Outline

- Introduction
- NASP SLD Position Paper
- Defining "basic psychological process" (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (Far)
- Case study of SLD (Successive processing disorder and poor academics on Far)

7



www.nasponline.org




2011

Position Statement

IDENTIFICATION OF STUDENTS WITH SPECIFIC LEARNING DISABILITIES


NASP endorses the provision of "effective services to help children and youth succeed academically, socially, behaviorally, and emotionally" (Standards for Graduate Preparation of School Psychologists, 2010b, p. 1). NASP's position is that identification of and service delivery to children identified as having a specific learning disability (SLD) should be based on the outcomes of multitiered, high-quality, research-based instruction. Such instruction best occurs in the least restrictive environment and is accompanied by regular data collection. School psychologists have long had a prominent role as members of school teams that identify students exhibiting SLD. Accordingly, NASP is dedicated to promoting policies and practices that are consistent with scientific research and that yield optimal student outcomes. School psychologists are scientist-practitioners, and, as consumers of and contributors to research, they generally agree on the following statements (LD Roundtable, 2002; National Joint Committee on Learning Disabilities, 2010; Shinn, 2007; Swanson, Harris, & Graham, 2003).

8



NASP 2011 LD POSITION STATEMENT

- Specific learning disabilities ...
 - are characterized by **neurologically** based deficits in cognitive processes.
 - impact a specific cognitive process and
 - result in a specific academic skill weakness
 - Are best identified using *multiple sources of data*
- The great majority (**over 80%**) of children with SLD have a disability in reading.



9



Summary of RtI Delivery Model

➤ *RtI strengths:*

- allows for earlier intervention.
- non-categorical.
- emphasizes progress monitoring.
- utilizes data to make decisions.
- systemic deployment of interventions.



10



Summary of RtI Delivery Model

➤ *RtI weaknesses:*

- not sufficient to diagnose SLD (National Joint Commission on Learning Disabilities, 2005).
- incapable of differential diagnosis (Reynolds, 2008).
- delays delivery of services to special needs children (OSEP, 2010).
- emphasizes a “one-size fits all” interventions (Feifer & Della Toffalo, 2007).




11



Topical Outline

- Introduction
- NASP SLD Position Paper
- Defining “basic psychological process” (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (Far)
- Case study of SLD (Successive processing disorder and poor academics on Far)

12



Hale, Naglieri, Kaufman, & Kavale (2004)

THE SCHOOL PSYCHOLOGIST

Policy Forum


Specific Learning Disability Classification in the New Individuals with Disabilities Education Act: The Danger of Good Ideas

James B. Hale
Children's Evaluation and Rehabilitation Center, Albert Einstein College of Medicine

Jack A. Naglieri
Center for Cognitive Development, George Mason University

Alan S. Kaufman
Yale Child Study Center, Yale University School of Medicine

Kenneth A. Kavale
College of Education, University of Iowa




Abstract

The recently revised IDEA guidelines indicate that a Specific Learning Disability (SLD) can be identified if a child has a disorder in the basic psychological processes. The criteria in the new guidelines for identifying SLD state that, as a severe discrepancy between achievement and intellectual ability shall not be required, and (b) a response to intervention (RTI) may be considered. These criteria are ambiguous regarding how the traditional ability-achievement discrepancy approach should be applied, and they are equally ambiguous about the recently adopted failure to RTI model. Absent from these criteria is any mention of integration. Identifying a child's unique pattern of performance on standardized measures not only assesses compliance with the new IDEA guidelines, but also allows for recognition of both hard cognitive struggles and needs, one of the prerequisites for intervention efficacy.

Specific Learning Disability Classification in the New Individuals With Disabilities Education Act: The Danger of Good Ideas

The National Assessment of Educational Progress (NAEP) recently released the nationwide results of reading and math scores for children in fourth and eighth grades. Averaging across all students, we again see trends in reading scores that


13



Hale, Naglieri, Kaufman, & Kavale (2004)

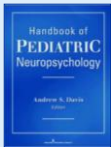
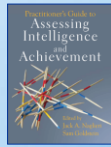
- The IDEA definition of SLD is
 - "... a disorder in 1 or more of the basic psychological processes ... [that results] in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations."
- Neither the IQ/achievement discrepancy model nor RTI evaluates basic psychology processes
- "Establishing a disorder in the basic psychology processes is *essential* for determining SLD"
- But first we have to define "**basic psychology processes**"

14



What is a 'Basic Psychological Process'?

- How are the processes identified?
 - Use factor analysis to discover ability?
 - Assign new labels to traditional IQ test subtests
 - Use the experimental literature to define the constructs of interest?
 - Rely on neuropsychological constructs!

15



What is a Cognitive Process?

- The term cognitive process is a modern term for concepts like ability or intelligence
- Cognitive processes lead to the acquisition of knowledge and skills
- Skills, like reading decoding or math calculation, are *not* examples of cognitive process
 - these are sets of specific knowledge and skills acquired and/or performed by the application of cognitive processes



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 - PASS*
- We must assess ability and achievement separately






What is a Cognitive Process?

- We must assess ability and achievement separately
- Assess achievement with tests that adequately evaluate the domain of interest (e.g., reading, math, etc.)
- Assess cognitive abilities using questions that are as free of academic content as possible



Topical Outline

- Introduction
- NASP SLD Position Paper
- Defining "basic psychological process" (IDEA)
-  Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (Far)
- Case study of SLD (Successive processing disorder and poor academics on Far)

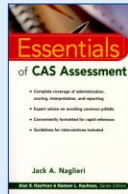


PASS & Discrepancy Consistency Model

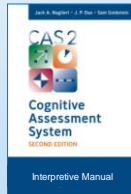
1997



1999



2014



Naglieri, J. A. (2011). The discrepancy/consistency approach to SLD identification using the PASS theory. In D. P. Flanagan & V. C. Alfonso (Eds.), *Essentials of Specific Learning Disability Identification (145-172)*. Hoboken, NJ: Wiley.

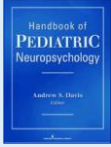


PASS Neurocognitive Theory

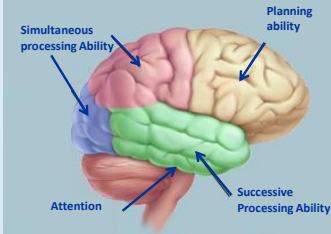
- **P**ASS theory is a modern way to define 'ability' based on measuring neurocognitive abilities
- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
- **A**ttention = BEING ALERT AND RESIST DISTRACTIONS
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE

Brain, Cognition, & Intelligence

- The brain is the seat of abilities called PASS
- These neurocognitive processes are the foundation of learning (Naglieri & Otero, 2011)

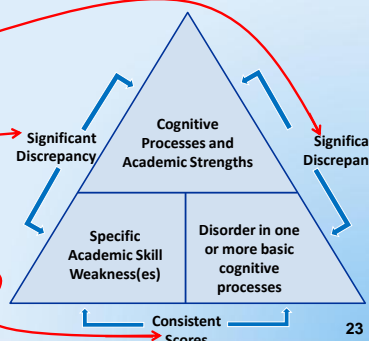


Naglieri, J. A. & Otero, T. (2011). Cognitive Assessment System: Redefining Intelligence from A Neuropsychological Perspective. In A. Davis (Ed.), *Handbook of Pediatric Neuropsychology* (320-333). New York: Springer Publishing.



Discrepancy Consistency Model for SLD

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



23

The Case of Larry Illustrates How to use Discrepancy Consistency Model with PASS

Linda M. Einhorn-Marcoux, M.A.,
Examiner & Intervention Instructor

Naglieri, J. A. (2006). *Best Practices in Linking Cognitive Assessment of Students with Learning Disabilities to Interventions* in A. Thomas and J. Grimes (Eds.) *Best Practices in School Psychology* (Fifth Edition). Bethesda: NASP. 24

Larry's PASS scores

	Standard Score	Difference from Mean	
Planning	100	-0.25	-
Simultaneous	119	18.75	Strength
Attention	98	-2.25	-
Successive	84	-16.25	Weakness
Mean	100.25		

A 'disorder in basic psychological process' = PASS Score is different from student's average AND below 90

Discrepancy Consistency for Larry

Low achievement test scores

- Letter Word Recognition 83
- Written Expression 81
- Word Attack 86
- Decoding Fluency 81

Meets the definition of SLD

"... a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations."

26

Discrepancy Consistency for Larry

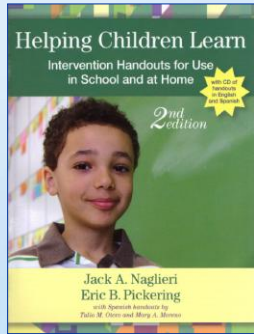
- Discrepancy between high and low processing scores
- Discrepancy between high processing and low achievement
- Consistency between low processing and low achievement

27



Teach Children about PASS

- 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.





Larry's Problem with Successive

- Step 1 – Inform the student of PASS
- Give the student hope: We know where you are strong (seeing the big picture) and that you are weak in sequencing

Four Ways to Think Smart!

<p>Think smart and use a plan!</p> <p>"I figured out how to do it!"</p> <p>Use a plan.</p>	<p>Think smart and look at the details!</p> <p>LOOK at the details.</p>
<p>Think smart and put the pieces together!</p> <p>See how things fit together.</p>	<p>Think smart and follow the sequence!</p> <p>1 2 3 Follow the order.</p>

29




Larry's Problem with Successive

- Teach him to recognize sequences

How to Teach Successive Processing Ability

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

Larry's Problem with Successive



➤ Use your strength in Simultaneous processing to see how things go together instead of sequencing

How to Be Smart: Simultaneous

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

What Does Being Smart Mean?

Simultaneous ability is what you use to see how things fit together. This ability helps you see the big picture. The ability to what helps you understand the meaning of a sentence and a story. It is also very important for recognizing numbers, word patterns, or themes in a story. It also lets you judge distance. For example, when you throw a ball you have to judge the distance to your target and how high you have to aim to get there.

How Can You Be Smarter?

You can be smarter if you look to see how things are connected. Sometimes people say, "Get the big picture." This means to look at the whole situation. When you do this, you think about how things fit together to make the "big picture." You are using your simultaneous ability.

You will be able to learn more if you remember to see patterns and themes in all you do. An easy way to remember to do this is to look at the picture "Think smart and put the pieces together!" (Figure 7). You should always use your ability to see how parts go together to make a whole when reading, studying vocabulary, spelling, or science, and solving math problems.


Think smart and put the pieces together!

It is smart to use your ability to see the big picture when doing all schoolwork. When you read, you should have a picture of the structure and story line. Use a series of drawings that shows what happens in the story. Creating a story by using pictures is an excellent way to organize the information. Simultaneous ability is used when you do that, and it is a good way to be smarter about your work!

You can improve your math skills if you use simultaneous ability. First, draw the problem. Use what information is needed and what is not. Next, use what is needed to solve, and use what is not.

Source: Adapted from *How to Be Smart*, copyright 2007 by Linda Ward Beech, Scholastic Teaching Resources.

Step 1 – Talk with Students




How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Step 1 – Talk with Students



How Can You Be Smarter?

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


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

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

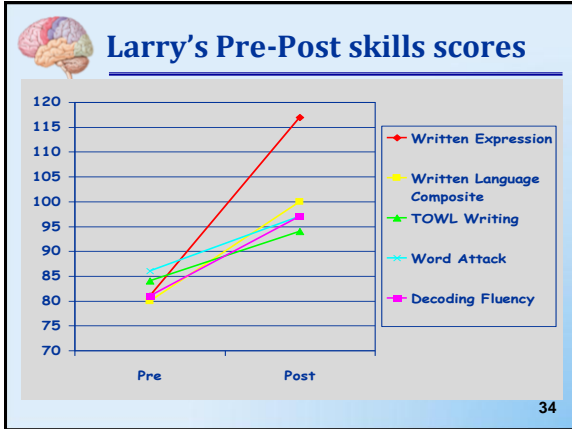
Think smart and use a plan!

I figured out how to do it!

Use a plan.



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



- ### Topical Outline
- Introduction
 - NASP SLD Position Paper
 - Defining "basic psychological process" (IDEA)
 - Discrepancy/consistency Model for SLD
 - ➔ Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (Far)
 - Case study of SLD (Successive processing disorder and poor academics on Far)
- 35

- ### Which test correlate highest with Achievement?
- IQ scores correlate about **.5 to .55** with achievement Intelligence (Brody, 1992)
 - But traditional tests have achievement in them
 - Naglieri (1999) summarized the correlations between several tests and achievement
 - The median correlation between each test's overall score and all achievement variables was obtained
-
- 36

Ability & Achievement (Naglieri, 1999)

	Tests require much knowledge		Little knowledge needed		
	WISC-III FSIQ	DAS GCA	WJ-R Cog	K-ABC MPC	CAS FS
Median r	.590	.600	.625	.630	.700
% of Var	35%	36%	39%	40%	49%
Increase over					
WISC-III	-	3%	12%	14%	41%
N	1,284	2,400	888	2,636	1,600

WISC-3: WIAT Manual Table C.1 ages 6-16; WJ-R Technical Manual; CAS Interpretive Handbook; K-ABC Interpretive Manual; DAS Handbook. Increase = $(r^2_2 - r^2_1) / r^2_1$, where r^2_1 = WISC-3 WIAT correlation

37

Correlations with Achievement

- Next, a summary of ability test correlations with achievement EXCLUDING the scales that clearly require knowledge
- The average correlations of the SCALES with achievement and those without achievement were obtained to avoid **critierion contamination**...

38

Correlations with Achievement

Correlations between ability and achievement

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

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

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


39

Which Ability Tests have Useful Profiles?

CHAPTER 1

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

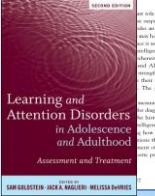
Jack A. Naglieri



CHAPTER 6

Assessment of Cognitive and
Neuropsychological Processes

Jack A. Naglieri
Sean C. Grayson



40

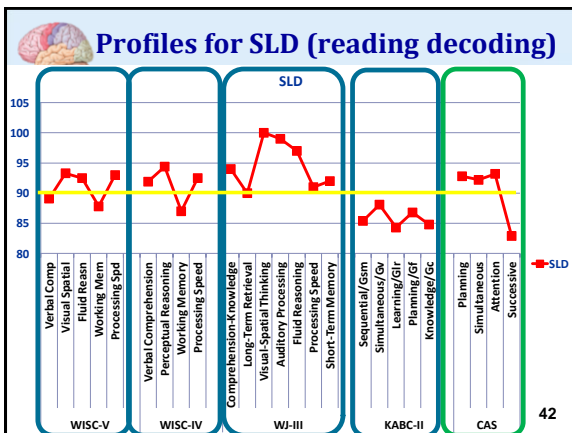
Naglieri & Goldstein (2011)

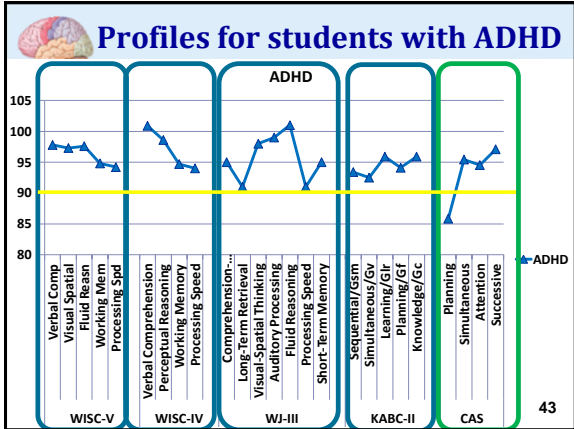
GROUP PROFILES BY ABILITY TEST

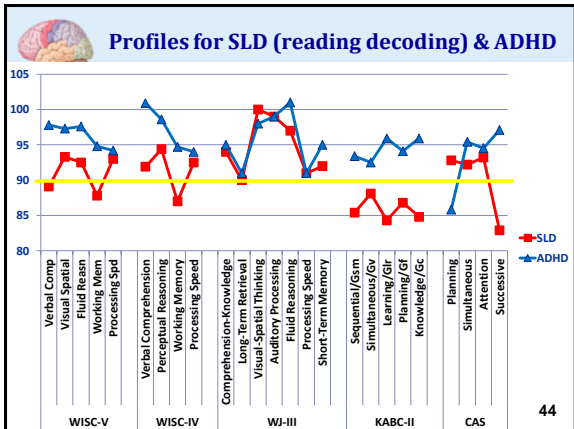
Because ability tests play such an important role in the diagnostic process, it is crucial to understand the sensitivity each test may have to any unique characteristics of those with an SLD or attention deficit. Clinicians need to know if an adolescent or adult has a specific deficit in ability that is related to a specific academic learning problem. There has been considerable research on, for example, Wechsler subtest profile analysis, and most researchers conclude that no profile has diagnostic utility for individuals with SLD or ADHD (Kavale & Forness, 1995). The failure of subtest profiles has led some to argue (e.g., Naglieri, 1999) that scale, rather than subtest, variability should


1. We need to know if intelligence tests yield distinctive profiles

2. Subtest profile analysis is UNSUPPORTED so use scale profiles instead









Evidence for Discrepancy Consistency Model using PASS

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. 419-431

**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 ipsated PASS scores, called Relative

45



Which Ability tests are Non-Discriminatory?

“(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;
- “(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;

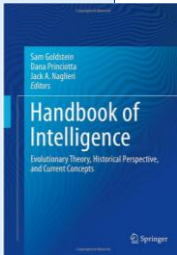
“(B) the child is assessed in all areas of suspected disability;

“(C) assessment tools and strategies that provide relevant information that directly assists persons in determining the educational needs of the child are provided.”

46



Which Ability tests are Non-Discriminatory?



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

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 the Beta tests (today described as nonverbal). The Alpha tests were designed to measure general information (e.g., how many months are

47





Table 20.1 Mean score differences in standard scores by race on traditional IQ and second-generation intelligence tests

Test	Difference
<i>Traditional</i>	
SB-IV (matched)	12.6
WISC-IV (normative sample)	11.5
WJ-III (normative sample)	10.9
WISC-IV (matched)	10.0
<i>Second generation</i>	
KABC (normative sample)	7.0
KABC (matched)	6.1
KABC-2 (matched)	5.0
CAS2 (normative sample)	6.3
CAS (demographic controls)	4.8
CAS2 (demographic controls)	4.3

PASS psychological processes measured by CAS and CAS2 is most fair



Naglieri, Rojahn, Matto (2007)

Available online at www.sciencedirect.com
ScienceDirect
Intelligence
Intelligence 35 (2007) 568–579

Hispanic and non-Hispanic children's performance on PASS cognitive processes and achievement[☆]

Jack A. Naglieri^{a,*}, Johannes Rojahn^a, Holly C. Matto^b


^a Center for Cognitive Development, George Mason University, Department of Psychology, MSF 2C4, United States
^b Virginia Commonwealth University, United States

Received 10 May 2006; received in revised form 8 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 (i.e., 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=240) and White (N=196) 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 increased 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.


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



Topical Outline

- Introduction
- NASP SLD Position Paper
- Defining “basic psychological process” (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
- Which achievement test to use?
 - Measure PASS and specific academic skills (Far)
- Case study of SLD (Successive processing disorder and poor academics on Far)


50



Why Pair CAS2 with Far?

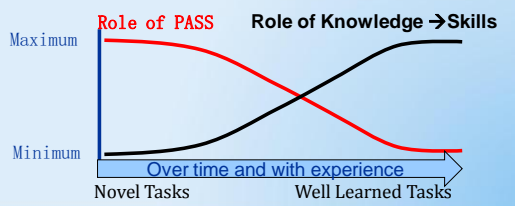
- *The cognitive component* of a **specific** learning disability can be identified by a ‘disorder in one or more of the basic psychological processes’ – PASS on the CAS2.
- *The academic component* of a **specific** learning disability should be determined by an assessment of the academic skill, along with an explanation of how a specific psychological process (CAS2) undermines the acquisition of the academic skill (Far).
- Completes the discrepancy-consistency model.


51



EF's Learning Curves

- > Learning depends on instruction & cognition (PASS)
- > At first, PASS plays a major role in learning
- > When a new task is learned and practiced it becomes a skill and execution requires less PASS






Why Pair CAS2 with Far?

- > **WIAT III Reading Comprehension:** Each passage read silently; story stays in front of student while answering free recall questions. *Examiner assumes an EF deficit.*
- > **GORT V:** Each passage is read out loud, and then the story is taken away. Questions are multiple choice. *Examiner assumes a Working Memory deficit.*

53



Why Pair CAS2 with Far?

- > **WJ IV Passage Comprehension:** A closed procedure where the student reads a short passage and identifies a missing key word that makes sense in the context of the passage. *More a measure of semantic and syntactic knowledge than true comprehension.*
- > **KTEA III:** Can read silently or out loud. Student reads each question and story remains in view when answering. *Examiner is unsure of what strategy is implemented to derive a response.*

54



Feifer Assessment of Reading

- A neurodevelopmental assessment of reading
- Pre-K to College (Ages 4-21)
- Normative sample included 1,074 students
- 15 subtests in complete battery
- Diagnoses 4 subtypes of reading disorders
- Includes the FAR-S dyslexia screening battery
- Total Far index score and 4 Reading index scores



55



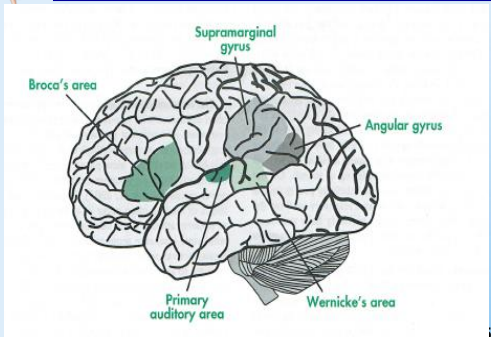
Four Subtypes of Reading Disorders

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


56



Four Subtypes of Reading Disorders




57




Structure of the Far


Index	Subtest	Grade range	Approximate administration time in minutes
Phonological Index (PI)	Phonemic Awareness (PA)	PK to college	5 to 10
	Nonsense Word Decoding (NWD)	Grade 2 to college	2
	Isolated Word Reading Fluency (ISO)	K to college	1
	Oral Reading Fluency (ORF)	K to college	2 to 3
	Positioning Sounds (PS)	PK to college	3 to 4
Fluency Index (FI)	Rapid Automatic Naming (RAN)	PK to college	2
	Verbal Fluency (VF)	PK to college	2
	Visual Perception (VP)	PK to college	1
	Orthographical Processing (OP)	K to college	8
	Irregular Word Reading Fluency (IRR)	Grade 2 to college	1
Comprehension Index (CI)	Semantic Concepts (SC)	PK to college	5 to 8
	Word Recall (WR)	PK to college	4
	Print Knowledge (PK)	PK to Grade 1	4
	Morphological Processing (MP)	Grade 2 to college	7
	Silent Reading Fluency (SRF)	Grade 2 to college	8



Topical Outline

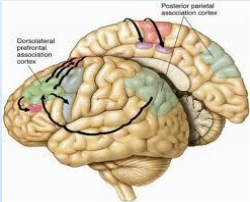
- Introduction
- NASP SLD Position Paper
- Defining “basic psychological process” (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
-  Measure PASS and specific academic skills (Far)
- Case study of SLD (Successive processing disorder and poor academics on Far)

59




CAS-2 Planning & Reading Comprehension

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



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

60



Far Word Recall: Word Planning

PK-Grade 2

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

Grades 3+

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


Trial 2: Bicycle words			Intrusions		
chain	<input type="checkbox"/>	R			
wheel	<input type="checkbox"/>	R			
brake	<input type="checkbox"/>	R			
3+ handlebars	<input type="checkbox"/>	R			

Trial 2: Musical Instruments			Intrusions		
drum	<input type="checkbox"/>	R			
guitar	<input type="checkbox"/>	R			
trumpet	<input type="checkbox"/>	R			
3+ piano	<input type="checkbox"/>	R			

Trial 2: Fruits and vegetables			Intrusions		
pepper	<input type="checkbox"/>	R			
celery	<input type="checkbox"/>	R			
tomato	<input type="checkbox"/>	R			
3+ carrot	<input type="checkbox"/>	R			

To calculate the Word Recall total, transfer the Trial 1 and Trial 2 subtotals to the appropriate spaces below. Then the number correct.


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



Silent Reading Fluency: Text Planning

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

62



How to Pair Far & CAS2

➤ **CAS2** - determine if there is a cognitive processing weakness (i.e. **Planning**) and whether that particular weakness directly impacts the academic skill in question (Reading Comprehension) on the FAR.

➤ **Far**: The **Silent Reading Fluency** has individual stories followed by sets of questions. The story is removed, and followed by 4 literal and 4 inferential questions. Pair with **Word Recall** to determine the extent of poor planning on text comprehension.

Poor Planning (CAS-2) + Poor Comprehension Index (FAR) = SLD in Reading Comprehension

63



Planning Interventions

1. **Directional Questions** – ask questions at the beginning of the text instead of the end.
2. **Multiple Exposures**– encourage students to skim the material prior to reading, with emphasis on chapter and text headings.
3. **SOAR to SUCCESS** - A comprehension program for grades 3-6 to help students develop a reading plan.
 - 30-35 minute lessons...18 weeks.
 - 4 Key Strategies: Summarize, Clarify, Question, Predict

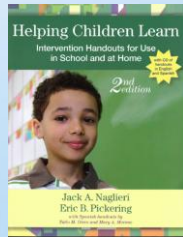
64



Planning Interventions

4. **Story Maps** – pre-reading activity where graphic organizers are used to outline and organize the information.
5. **Planning Facilitation** – encourages students to use strategies in reading (and math)

These interventions along with reproducible teacher, parent and student *handouts* are included in **Helping Children Learn-Second Edition**



65



Planning Intervention for Reading Comprehension

- The 45 4th graders reading comprehension test pre & post
- Three groups
 - Planning WK
 - Successive WK
 - No WK

Journal of Psychoeducational Assessment
2008, 21, 282-293

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

Frederick A. Haddad
Kyrene School District, Tempe, Arizona


Y. Evie Garcia
Northern Arizona University

Jack A. Naglieri
George Mason University

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

The purpose of this study was to evaluate whether instruction designed to facilitate planning would have differential benefits on reading comprehension depending on the specific Planning, Attention, Simultaneous, and Successive (PASS) cognitive characteristics of each child. A sample of 45 fourth-grade general education children was sorted into three groups based on each PASS scale profile from the Cognitive Assessment System (CAS). The groups did not differ by CAS Full Scale standard score, chronological age, gender, or pretest reading comprehension scores. After each child's pretest reading comprehension instructional level was determined, a cognitive strategy instruction intervention was conducted. The children completed a reading comprehension passage at their respective instructional levels after the intervention. Results showed that children with a Planning weakness (n = 19) benefited substantially (effect size of 1.32) from the instruction designed to facilitate planning. Children with no weakness (n = 21; effect size = .32) or a Successive weakness (n = 11; effect size of .89) did not benefit as much. These results support previous research suggesting that PASS profiles are relevant to instruction.


66



Planning Facilitation & Reading

➤ These probes were used ...

- How did you complete the reading questions?
- Why did you do it that way?
- What can be done to get more correct?
- What did you notice about the questions?
- What will you do next time?




Group	Pre	Post
Low Succ (Red)	~7.9	~8.1
No Wk (Yellow)	~7.9	~8.3
Low Plan (Green)	~7.8	~9.2

67


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

Jackie S. Iseman¹ and Jack A. Naglieri¹

Abstract
The authors examined the effectiveness of cognitive strategy instruction (Successive) given by special education teachers to students with ADHD. The experimental group were exposed to a brief cognitive strategy instruction, development and application of effective planning for mathematical computation, standard math instruction. Standardized tests of cognitive processes as students completed math worksheets throughout the experimental period. Johnson Tests of Achievement, Third Edition, Math Fluency and Wechsler Numerical Operations) were administered pre- and postintervention, at follow-up. Large pre-post effect sizes were found for students in the experimental group (0.85 and 0.26), Math Fluency (1.17 and 0.09), and Numerical Operations (1.17 and 0.09). At 1 year follow-up, the experimental group continued to outperform the comparison group. Students with ADHD evidenced greater improvement in math worksheets (which measured the skill of generalizing learned strategies to other situations) when provided the PASS-based cognitive strategy instruction.



HAMMILL INSTITUTE ON DISABILITIES
Journal of Learning Disabilities
46(2) 184-195
© Hammill Institute on Disabilities 2011
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0022214114309190
http://jld.sagepub.com
SAGE



Design of the Study

```

    graph TD
      A[Experimental and Comparison Groups  
7 worksheets with Normal Instruction] --> B[Experimental Group  
19 worksheets with Planning Facilitation]
      A --> C[Comparison Group  
19 worksheets with Normal Instruction]
  
```

69



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

70



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?

71



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 in order first.”
- “I try not to fall asleep.”



72

Student Strategies

Jemman and Naglieri 189

Table 3. Students' Comments During Planning Facilitation Sessions

Goals:

- "My goal was to do all of the easy problems on every page first, then do the others."
- "To get as many correct as I can."
- "To get as many right as quickly as possible."
- "To take time and make sure I get them correct."

Starting place:

- "I started on the first one."
- "I skipped around."
- "I do the easy ones first."
- "I look at the type of problem and the number of steps and decide which problems to do first."

Overall plan:

- "I did all the easy problems on a page and went onto the next one."
- "I do all the addition first, then the easy minus, and then I move onto the harder ones."
- "I do the problems I know, then I check my work."

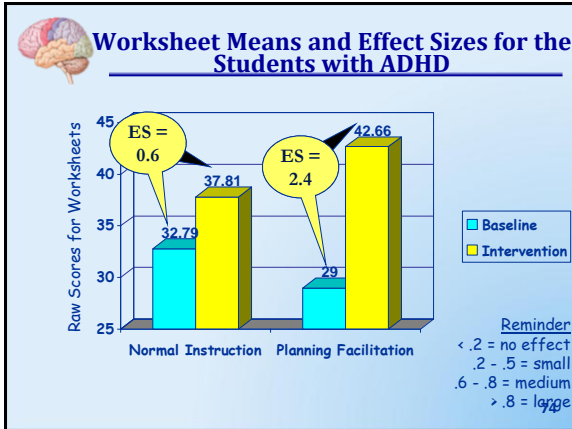
Specific strategies:

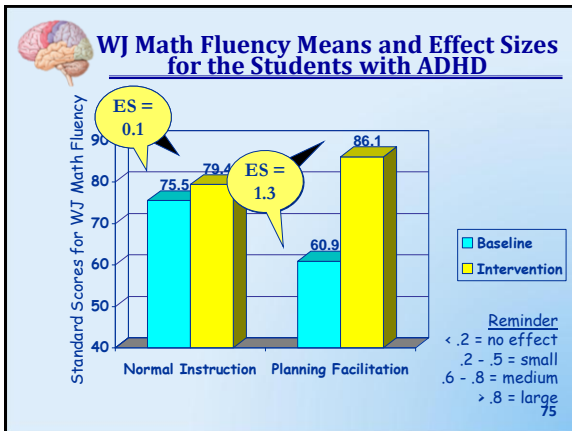
- "I simplify fractions first."
- "Skip the longer multiplication questions."
- "The problems that have lots of steps take more time, so I skip them."
- "I do them [the algebra] by figuring out what I can put in for X to make the problem work."
- "I draw lines so I don't get my columns confused [on the multiplication]."
- "I stopped drawing lines because it slowed me down."
- "If a problem is taking a long time I skip it and come back to it if I have time."
- "I did the ones that take the least time."
- "Remember that anything times 0 is 0."

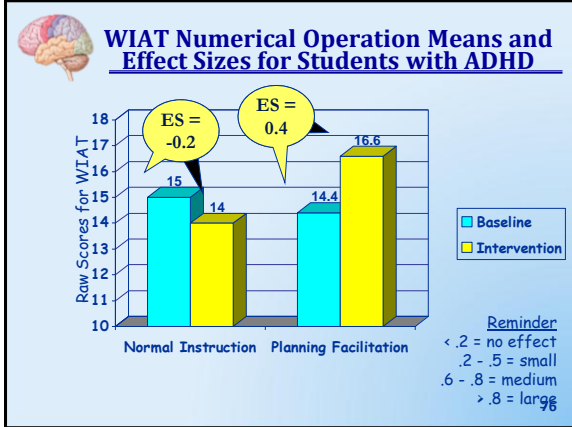
Noticing patterns in the worksheets:


- "I did all the problems in the brain-dead zone first."
- "I started in the middle of the page, the problems on top take longer."
- "Next time I'll skip the hard multiplication at the top of the first page."

73





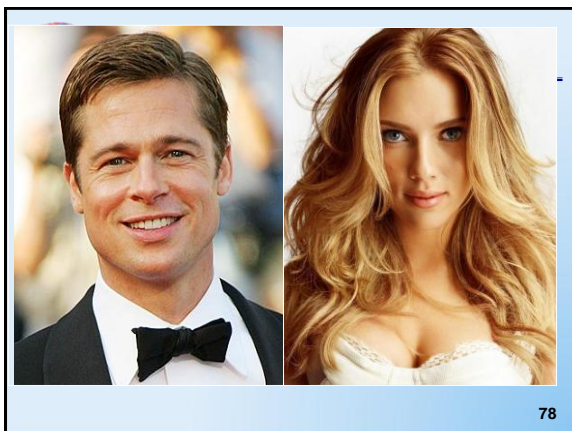




One Year Follow-up

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

77





CAS-2 Attention & Reading Accuracy

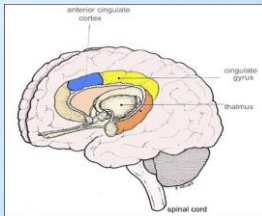
- **Attention** – the ability to selectively focus on a stimulus while inhibiting responses from competing stimuli.
- **Attention & Reading** - the ability to stay focused on the text for prolonged periods of time and resist distractions. Attention is important in:
- **Cognitive Flexibility** – shifting patterns of thought processes to the organizational parameters of the text being read, and not just perseverating on the same material over again.

79



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

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



80



Far Visual Perception: Text Attention

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

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

Words

shady tired telephone assist calendar

81



Silent Reading Fluency: Text Attention

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

82



How to Pair Far & CAS2

- **CAS-2:** Determine if there is a cognitive processing weakness in **Attention** and weakness in **Accuracy** or **Comprehension** on the Far.
- **Far:** The Silent Reading Fluency has passages followed by sets of comprehension questions based on grade level with 4 literal and 4 inferential items
 - Literal questions tell about text attention
- **Poor Attention (CAS-2) + Poor text attention in reading(FAR) = SLD in Reading Accuracy or Comprehension**

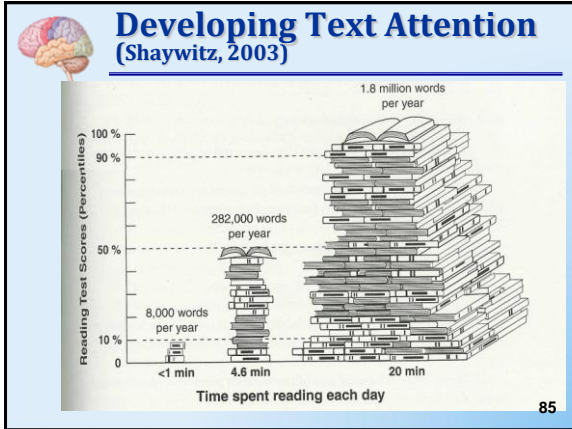
83



Text Attention Interventions

- 1. Active Participation** – encourage active, not passive reading, by having children take notes or putting an asterisk next to important information. Also, multiple colors for highlighting.
- 2. Medication Management** – ADHD students in particular can better focus and sustain their attention if appropriately medicated.
- 3. Classroom Discussions** – introduce new topic areas with a discussion aimed at capturing a student's interest, providing them with background knowledge, and engaging an emotional connection with the text.
- 4. Read, Read, Read!!**


84



CAS-2 Simultaneous Processing & Reading Fluency

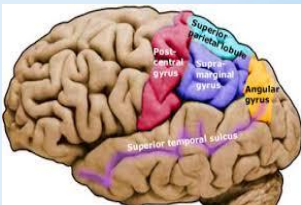
Simultaneous Processing- the ability to integrate separate elements into a conceptual whole, and often requires visual-spatial problem solving skills.

Simultaneous & Reading -the ability to automatically and instantaneously recognize words in print without sounding out each individual phoneme. An extremely important skill in developing reading fluency.



Simultaneous Processing and Reading Fluency

Angular Gyrus- the ability to ascribe meaning to spatial arrays and symbols. Educators often refer to this as **orthographic processing**.





Rapid Automatic Naming: Simultaneous Perception

Far Rapid Naming of Stencils

l	i	s	c	b	u	e	j
j	d	w	t	h	n	h	y
n	q	l	y	s	t	s	l
v	a	z	f	w	j	c	f
t	a	i	a	r	a	v	n



Text Orthography: Simultaneous Processing

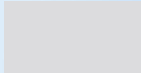
Orthographical Processing

The student chooses which letters
appeared in presented word

Initial Presentation for 1 sec

Response Options

epiphany



eph phi pip iny



Irregular Word Fluency: Simultaneous Processing

Far Irregular Word Reading Fluency:

(60 seconds)

yacht

debt

answer

seizure

gnome

malign

conscience

plaque



How to Pair the Far with CAS2

➤ **CAS-2:** Determine if there is a cognitive processing weakness (i.e. Simultaneous) and whether that particular weakness directly impacts the academic skill in question (Reading Fluency) by utilizing the Far as well.

➤ **Far:** The Fluency Index is a measure of reading efficiency based upon both orthographical processing tests (i.e. *Irregular Word Reading Fluency*) and rapid automatic naming tasks.

Poor Simultaneous (CAS-2) + Poor Fluency Index (FAR) = SLD in Reading Fluency



Fluency Intervention: Read Naturally

- A fluency based program designed to develop speed, accuracy, and proper expression.
- Designed to be used 3 times per week...30 minutes, mainly for students between 2nd (51wpm) through 8th (133 wpm) grades.
- Each level of the program has 24 non-fiction stories.
 - a) Student placed in level and goal is set.
 - b) Cold read for one minute graphing wpm and identifying difficult words.
 - c) Read with tape three times consecutively.
 - d) Hot read is attempted.
 - e) Comprehension questions involve main idea, details, vocabulary, inferences, & short answers.



CAS-2 Successive Processing & Reading Decoding

➤ **Successive** - the ability to put information into a serial order or particular sequence.

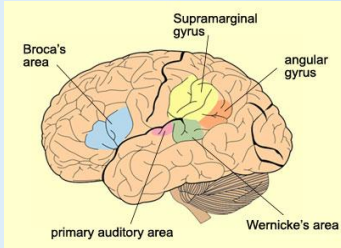
➤ **Successive Processing & Reading** - the ability to sequence and stitch multiple sounds together to identify a word in print.





Successive Processing & Reading Decoding

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



94



Far Phonemic Awareness: Successive

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

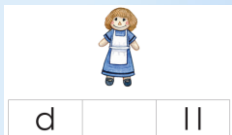
95



Far Positioning Sounds: Successive

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

Pre-K to 1st: doll



96



How to Pair the Far with CAS2

> **CAS-2:** Determine if there is a cognitive processing weakness (i.e. Successive) and whether that particular weakness directly impacts the academic skill in question (Reading Accuracy) by utilizing the FAR as well.

> **FAR:** The Phonological Index is a measure of decoding skills and accurate word reading based upon phonological processing tests (i.e. *Phonemic Awareness or Positioning Sounds*).

Poor Successive (CAS-2) + Poor Phonological Index (FAR) = SLD in Reading Accuracy



Successive Processing Interventions

- Alphabetic Phonics (Orton-Gillingham)
- Recipe for Reading
- SRA Corrective Reading
- Earobics II
- SIPPS
- Lindamood Seeing Stars Program
- LEXIA
- Horizons
- Read Well
- DISTAR (*Reading Mastery*)
- Fast Forward II(Tallal)
- Earobics I
- Phono-Graphix
- Saxon Phonics Program
- Success for All
- Ladders to Literacy
- Foundations
- Road to the Code
- Scott Foresman Early Intervention Reading




Topical Outline

- > Introduction
- > NASP SLD Position Paper
- > Defining “basic psychological process” (IDEA)
 - Discrepancy/consistency Model for SLD
 - Which ability test to use?
 - Which achievement test to use?
 - Measure PASS and specific academic skills (FAR)



Case study of SLD (Successive processing disorder and poor academics on Far)




Jacob 6th grade

Presenting Concerns: Reading, Math Word Problems, Text Anxiety

WISC-V Domains	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	89	Below Average	23%
Visual Spatial Index	84	Below Average	14%
Fluid Reasoning Index	82	Below Average	12%
Working Memory Index	72	Very Low	3%
Processing Speed Index	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%


100



Jacob 6th grade

CAS-2	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Planning: the ability to apply a strategy, and self-monitor and self-correct performance while working toward a solution.	92	Average	30%
Attention: the ability to selectively focus on a stimulus while inhibiting responses from competing stimuli.	98	Average	45%
Simultaneous Processing- is the ability to reason and problem solve by integrating separate elements into a conceptual whole, and often requires strong visual-spatial problem solving skills.	90	Average	25%
Successive Processing- is the ability to put information into a serial order or particular sequence.	72	Very Low	3%
CAS-2 COMPOSITE SCORE	86	Below Average	18%

101

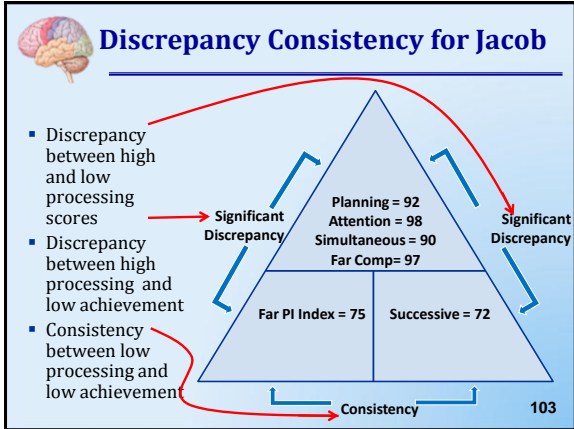


Jacob 6th grade

FAR index	Standard score (95% CI)	Percentile	Qualitative descriptor
Phonological Index	75(+/-5)	5%	Moderately Below Average
Fluency Index	92(+/-7)	30%	Average
Mixed Index	81(+/-5)	10%	Below Average
Comprehension Index	97 (+8)	42%	Average
FAR Total Index	84 (+5)	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

102




Nelson 4th grade

Presenting Concerns: Reading, Writing, Math Fluency

WISCV Domains	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension Index	103	Average	58%
Visual Spatial Index	84	Below Average	14%
Fluid Reasoning Index	79	Very Low	8%
Working Memory Index	91	Average	27%
Processing Speed Index	82	Below Average	12%
FULL SCALE SCORE	81	Below Average	10%
WIAT III Reading	80	Below Average	9%
WIAT III Math	90	Average	25%
WIAT III Writing	86	Below Average	18%

Nelson 4th grade


CAS-2	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Planning: the ability to apply a strategy, and self-monitor and self-correct performance while working toward a solution.	94	Average	35%
Attention: the ability to selectively focus on a stimulus while inhibiting responses from competing stimuli.	98	Average	45%
Simultaneous Processing- is the ability to reason and problem solve by integrating separate elements into a conceptual whole, and often requires strong visual-spatial problem solving skills.	74	Very Low	4%
Successive Processing- is the ability to put information into a serial order or particular sequence.	90	Average	25%
CAS-2 COMPOSITE SCORE	89	Below Average	23%



Nelson 4th grade

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

106



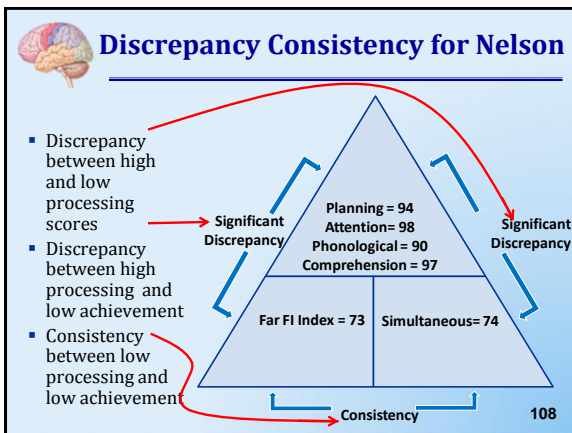
Nelson 4th grade

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

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

KEY INTERPRETATION	Score	Percentile	Descriptor
Visual Perception – requires the student to identify letters printed backwards that are embedded within an array of words. A timed measure of text perception.	75	5%	Moderately Below Average
Orthographic Processing – the student must recall a group of letters in the correct order that are embedded within a target word presented for 1 second. A measure of orthographic working memory skills.	72	4%	Moderately Below Average

➤ Nelson struggles with both text perception, as well as orthographic processing, both of which are hindering his reading pace and fluency. 107





Nelson 4th grade: Reading Interventions

- Nelson's overall reading fluency skills need to be improved. Consideration should be given to adding a fluency based program such as **Read Naturally** or **Great Leaps** to improve his automaticity when reading.
- Nelson's orthographic processing skills were inconsistent, so **color coding** important syllable subtypes may be helpful as well.
- Specific activities such as identifying which of three sight words is spelled correctly (i.e. "wuz", "whas", or "was") may help to develop automaticity recognizing vowel patterns in words.
- Nelson's reading progress should be frequently monitored using curriculum based measurement (*number of words read accurately in a minute*). There should be particular emphasis on reading accuracy between phonologically consistent vs. inconsistent words.
- Nelson needs to read a minimum of 20 minutes per night to develop greater text familiarity and more consistent text perception skills.

109



Rowan 4th grade: ADHD & Reading

CAS-2	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Planning: the ability to apply a strategy, and self-monitor and self-correct performance while working toward a solution.	85	Below Average	16%
Attention: the ability to selectively focus on a stimulus while inhibiting responses from competing stimuli.	77	Poor	6%
Simultaneous Processing- is the ability to reason and problem solve by integrating separate elements into a conceptual whole, and often requires strong visual-spatial problem solving skills.	105	Average	63%
Successive Processing- is the ability to put information into a serial order or particular sequence.	100	Average	50%
CAS-2 COMPOSITE SCORE	87	Below Average	18%

110



Rowan 4th grade: ADHD & Reading

FAR COMPREHENSION INDEX	Score	Percentile	Descriptor
Semantic Concepts — a multiple choice test requiring the student to select the correct antonym or synonym of a target word.	95	37%	Average
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.	82	11%	Below Average
Morphological Processing — a multiple choice test requiring students to choose the correct prefix, suffix, or stem that best completes an incomplete target word.	90	25%	Average
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 as well.	75	5%	Moderately Below Average
FAR COMPREHENSION INDEX	84+/-8	14%	Below Average
WIAT III Reading Comprehension	96	39%	Average

111

