New Approaches to assessment of Intelligence, Specific Learning Disability, ADHD, and Autism

Jack A. Naglieri, Ph.D.
Research Professor, University of Virginia
Senior Research Scientist, Devereux
Emeritus Professor of Psychology
George Mason University
www.jacknaglieri.com
jnaglieri@gmail.com

In order to understand learning and learning problems we must have a brain-based understanding of intelligence.

Introductions

- Introduce yourself to those at your table

- My interest in intelligence and instruction
- Initial degrees in psychology
- Experiences at UGA
- Need for evidence based interpretation
- My personal perspective on being a researcher and test developer
- Why this topic?

Summary of the Workshop

- This workshop is specifically designed to assist psychologists and others who evaluate intelligence to better understand academic and social success and difficulties. **Understanding learning disabilities requires an understanding of learning Abilities**. Traditional IQ (e.g., Wechsler and Binet) has been widely used despite their limitations, especially regarding fair assessment of diverse populations. Alternatives to traditional IQ, and in particular, the Cognitive Assessment System – Second Edition (CAS2; Naglieri, Das & Goldstein, 2014) provides **a neuropsychological approach to intelligence** based on A. R. Luria's view of brain function. Research has shown that the Planning, Attention, Simultaneous, Successive cognitive processes the CAS2 measures detects problems those with **specific learning disability, Autism, and ADHD** have. CAS2 is the most appropriate test for diverse populations and research has shown that PASS constructs are directly related to interventions.
- Psychologists and Guidance Officers can now evaluate learning problems accurately and diverse populations fairly and provide research based interventions related to cognitive processing strengths and needs. In this one day session, Dr. Naglieri will share information about these exciting new opportunities that can greatly enhance the psychologist's ability to **diagnose and recommend interventions**.

Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

The Case of Alejandro– Discrepancy Consistency Model example

From assessment to intervention

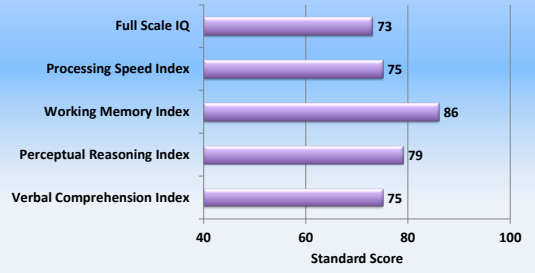
CASE STUDY: ALEJANDRO C.A. 7-0 GRADE 1

REASON FOR REFERRAL

- Academic:
  - Could not identify letters/sounds
  - October 2013: Could only count to 39
  - All ACCESS scores of 1

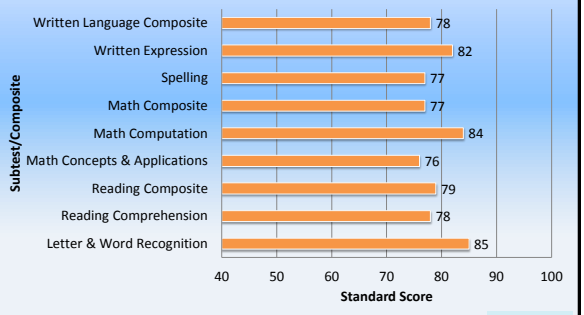
- Behavior:
  - Difficulty following directions
  - Attention concerns
  - Refusal/defiance

WISC-IV ASSESSMENT



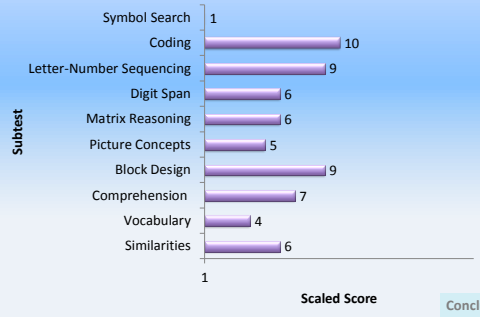
Conclusions

KTEA-II



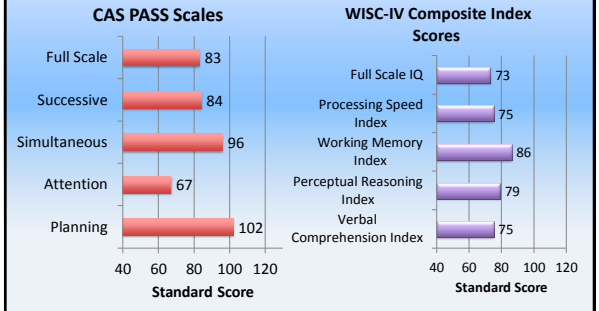
Conclusions

WISC-IV SUBTESTS



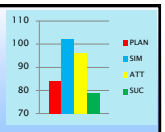
Conclusions

COGNITIVE ASSESSMENT



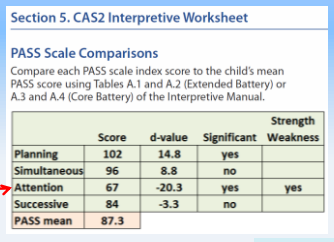
Conclusions

Interpretation of CAS2



Apply Discrepancy/Consistency model for Alejandro

There is a significant difference between the Attention score of 67 and the PASS mean of 87.3 *and* the Attention scores is well below Average range



Section 5. CAS2 Interpretive Worksheet

PASS Scale Comparisons

Compare each PASS scale index score to the child's mean PASS score using Tables A.1 and A.2 (Extended Battery) or A.3 and A.4 (Core Battery) of the Interpretive Manual.

	Score	d-value	Significant	Strength Weakness
Planning	102	14.8	yes	
Simultaneous	96	8.8	no	
Attention	67	-20.3	yes	yes
Successive	84	-3.3	no	
PASS mean	87.3			

Conclusions

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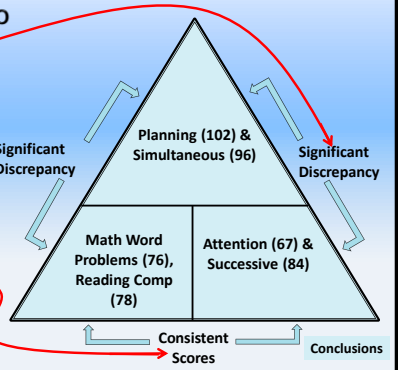
Discrepancy Consistency Model for SLD for Alejandro

- **Discrepancy between high and low processing scores** → Significant Discrepancy
- **Discrepancy** between high processing and low achievement → Significant Discrepancy
- **Consistency** between low processing and low achievement → Consistent Scores



Conclusions

Wechsler Scale

- The Wechsler is the most widely used IQ test
- Is it sufficient?
- Is the Wechsler detecting the cognitive problem that leads to a specific learning disability?
- Is Wechsler useful for instructional planning?
- What DOES it measure?
- Let's review the history of Wechsler…

Conclusions

Origins of Traditional IQ

- April 6, 1917 is remembered as the day the United States entered World War I.


"All the News That's Fit to Print."

The New York Times.

LATE CITY EDITION

U. S. DECLARES WAR, PACIFIC BATTLE WIDENS; MANILA AREA BOMBED; 1,500 DEAD IN HAWAII; HOSTILE PLANES SIGHTED AT SAN FRANCISCO

TURN BACK TO SEA

Two Formations Neared City on Radio Beams, Then Went Astray

ALARM IS WIDESPREAD

Whole Coast Has a Nervous Night—Many Cities Blacked Out

Philippines Pounded All Day As Raiders Strike at Troops

Air Base Near Capitol Among Targets Hit by Japanese—Landing on Lahong With Aid of Fifth Columnists Reported

BATTLESHIP LOST

Capsizes in Pearl Harbor, Destroyer Is Blown Up, Other Ships Hurt

FLEET NOW IS FIGHTING

Ad Rushed to Hawaii—Some Congressmen Shortly Critical

UNITY IN CONGRESS

Only One Negative Vote as President Calls to War and Victory

BOUNDS OF CHEERS

Miss Rankin's Is Sole "No" as Both Houses Act in Quick Time

Origins of Traditional IQ

- On that day same a group of psychologists held a meeting in **Harvard University's Emerson Hall** to discuss the possible role psychologists could play with the war effort (Yerkes, 1921).
  - Yerkes, Thorndike, Seashore, Terman, Otis and others…

Origins of Traditional IQ

- The goal was to find tests that could efficiently evaluate a wide variety of men, be easy to administer and easy to score.
- The tests were tried out in a study and the data analyzed by : Woodworth, Thorndike (Chief Statistician), Otis, and Thurstone


E. L. Thorndike


R. Woodworth

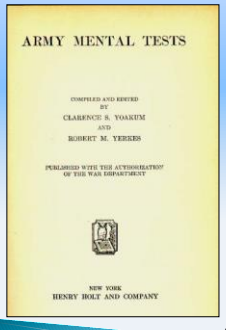
Conclusions

Origins of Traditional IQ

- By July of 1917 they showed that the 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).
- Thus, **July 20, 1917** is the birth date of the verbal, quantitative, nonverbal IQ test format.

Conclusions

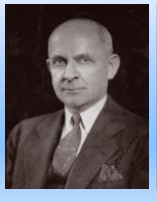
IQ's Origins

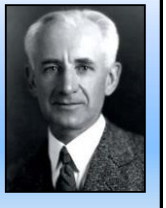

ARMY MENTAL TESTS

COMPILED AND EDITED BY CLARENCE S. YOAKUM AND ROBERT M. YERKES

PUBLISHED WITH THE AUTHORIZATION OF THE WAR DEPARTMENT

NEW YORK HENRY HOLT AND COMPANY





- Yoakum & Yerkes (1920) summarized the methods used by the military to
  - classify people from many backgrounds by mental capacity

Conclusions

1920 Army Testing

- Army Alpha
  - Synonym- Antonym
  - Disarranged Sentences
  - Number Series
  - Arithmetic Problems
  - Analogies
  - Information
- Army Beta
  - Maze
  - Cube Imitation
  - Cube Construction
  - Digit Symbol
  - Pictorial Completion
  - Geometrical Construction

Verbal & Quantitative

Nonverbal

Army Alpha

Verbal and Nonverbal

- Now you will take the ***Information*** subtest from the original Alpha (Verbal) IQ test
- There will be 10 questions
- Write your answers to each question
- You will have 60 seconds…
- Ready?
- BEGIN

The First IQ TEST: Alpha

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. President during the Spanish War Mckinley
10. Fatima is a make of cigarete

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

Army Mental Tests – Vocabulary

SAMPLES
sky—blue : : grass— table green warm big
fish—swims : : man— paper time walks girl
day—night : : white— red black clear pure

In each of the lines below, the first two words are related to each other in some way. What you are to do in each line is to see what the relation is between the first two words, and underline the word in heavy type that is related in the same way to the third word. Begin with No. 1 and mark as many sets as you can before time is called.

1 gun—shoots : : knife— run cuts hat bird 1
2 ear—hear : : eye— table hand [illegible] play 2
3 dress—woman : : feathers— bird cock feet bill 3
4 handle—hammer : : knob— key room [illegible] 4
5 shoe—foot : : hat— coat nose head collar 5
6 water—drink : : bread— cake coffee eat pie 6
7 food—man : : gasoline— gas oil automobile spark 7
8 eat—fat : : starve— thin food bread thirsty 8
9 man—home : : bird— fly insect worm nest 9
10 go—come : : sell— leave buy money papers 10
11 peninsula—land : : bay— boats pay ocean Massachusetts 11
12 hour—minute : : minute— man [illegible] short 12
13 abide—depart : : stay— over house play [illegible] 13
14 January—February : : June— July May month year 14
15 bold—timid : : advance— proceed retreat campaign soldier 15

ARMY MENTAL TESTS 216

Army Mental Tests → Arithmetic on WISC

TEST 2

Get the answers to these examples as quickly as you can.
Use the side of this page to figure on if you need to.

SAMPLES
1 How many are 5 men and 10 men? ..... Answer (15)
2 If you walk 4 miles an hour for 3 hours, how far do you walk? .. Answer (12)

1 How many are 40 guns and 6 guns? ..... Answer ([illegible])
2 If you save $6 a month for 5 months, how much will you save? ..... Answer ([illegible])
3 If 32 men are divided into squads of 8, how many squads will there be? .... Answer ([illegible])
4 Mike had 11 cigars. He bought 3 more and then smoked 6. How many cigars did he have left? ..... Answer ([illegible])
5 A company advanced 6 miles and retreated 3 miles. How far was it then from its first position? ..... Answer ([illegible])
6 How many hours will it take a truck to go 48 miles at the rate of 4 miles an hour? ..... Answer ([illegible])
7 How many pencils can you buy for 40 cents at the rate of 2 for 5 cents? .... Answer ([illegible])
8 A regiment marched 40 miles in five days. The first day they marched 9 miles, the second day 6 miles, the third 10 miles, the fourth 9 miles. How many miles did they march the last day? ..... Answer ([illegible])
9 If you buy 2 packages of tobacco at 8 cents each and a pipe for 55 cents, how much change should you get from a two-dollar bill? ..... Answer ([illegible])
10 If it takes 8 men 2 days to dig a 160-foot drain, how many men are needed to dig it in half a day? ..... Answer ([illegible])

ARMY MENTAL TESTS

BUT WAIT ! How do IQ and Achievement Tests Differ?

The TRUTH about IQ and achievement tests…

Slides by: Jack A. Naglieri, Ph.D.
(jnaglieri@gmail.com)

VIQ is Achievement

What does *scared* mean?
(The child answers orally)

Someone who is *glad* is
(a) tall
(b) proud
(c) happy
(d) alone

Wechsler or Binet Vocabulary item presented orally by the examiner:

Stanford Achievement Test Reading Vocabulary

VIQ is Achievement

"A boy had twelve books and sold five. How many books did he have left?"

Stanford-Binet 5th Ed. Quantitative items

Peter counted seventeen lily pads at the pond. There were frogs sitting on five of the lily pads, and the rest were empty. How many lily pads were empty?
(a) 22 (b) 13 (c) 12

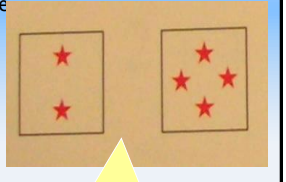
Stanford Achievement Test Math item

Quantitative Ability or Achievement?

- "Neal had five marbles. Then his mother gave him three more marbles. How many marble did he have then?"

Wechsler Individual Achievement Numerical Operations Subtest

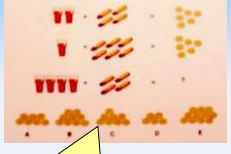
- "How many stars are there all together?"



Stanford-Binet 5 Quantitative Reasoning

Quantitative Ability or Achievement?

- "Drinks and snacks cost money. Show me how much money these drinks and

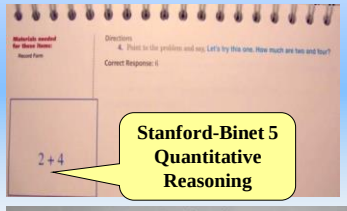


Stanford-Binet 5 Quantitative Reasoning

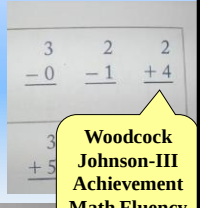
- "If you bought both balls and you had this much money, how much money would you have left?"

WJ-III ACH Applied Problems

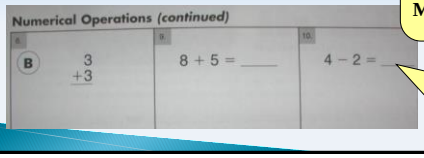
The Same Arithmetic Item!



Stanford-Binet 5 Quantitative Reasoning

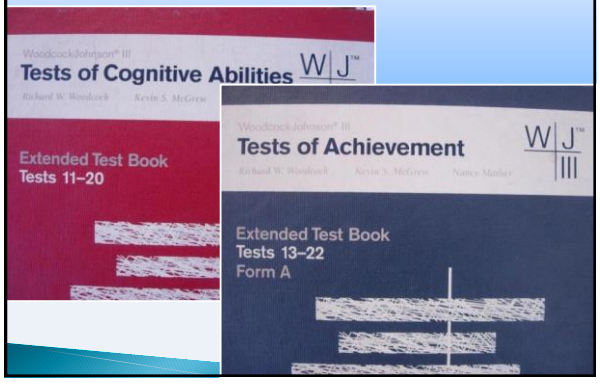


Woodcock Johnson-III Achievement Math Fluency subtest

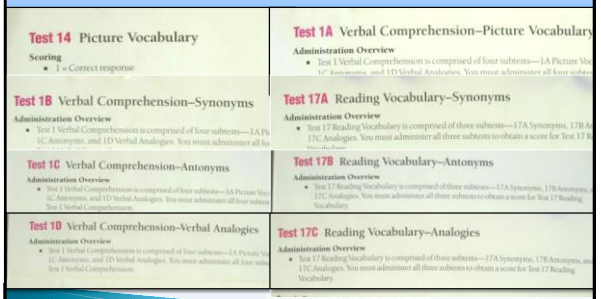


WIAT-II Numerical Operations

Ability or Achievement ?



Which is Ability and which is Achievement?

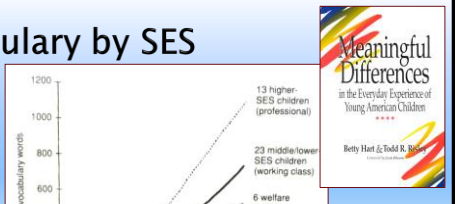


Effect of Achievement in IQ

- There is under-representation of minorities in gifted (Ford, 1998).
  - Black, Hispanic, and Native American students by 50% to 70% (U.S. Department of Education, 1993)
- The over-representation of minorities in special education is a significant problem (Naglieri & Rojahn, 2000).
- This problem must be addressed by elimination of test questions that require verbal (e.g., vocabulary, information, comprehension, similarities) and quantitative knowledge

Conclusions

Vocabulary by SES



Exposure to words increases with educational level of parents.

Conclusions

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Army beta

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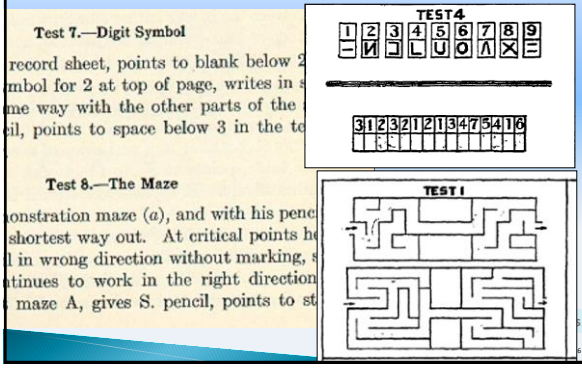
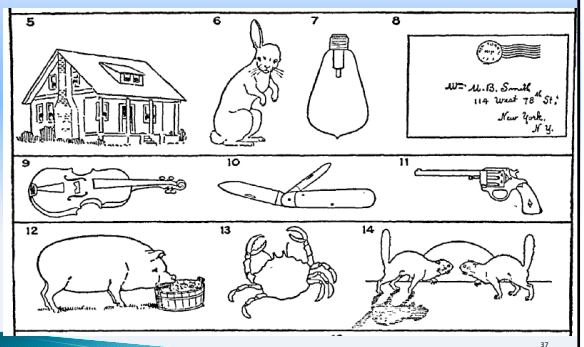
Conclusions

Army Mental Tests → WISC Digit Symbol (Coding) & Mazes



Army Mental Testing → WISC Picture Completion



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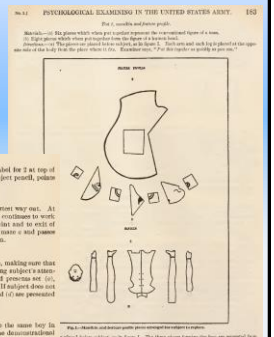
Army Beta

- The Performance tests on the Beta are referred to as nonverbal



PSYCHOLOGICAL EXAMINING IN THE UNITED STATES ARMY. 183

Test 7, digit symbol.

Examiner shows subject the record sheet, points to blank below 2 in the sample, then to symbol for 2 at top of page, writes in symbol, proceeds in the same way with the other parts of the sample, then gives subject pencil, points to space below 1 in the test, and nods affirmatively.

Test 8, the maze.

Examiner shows subject demonstration maze (a), and with his pencil proceeds to trace the shortest way out. At critical points he hesitates, moves pencil in wrong direction without marking, shakes his head, and continues to work in the right direction. He next presents test maze a, gives subject pencil, points to starting point and to exit of maze, and nods affirmatively. If subject fails to understand, examiner demonstrates again with maze a and passes on to (b). Mazes (b), (c), and (d) are presented in the same way, but no more demonstration is given.

Test 9, picture arrangement.

Examiner presents demonstrational set and allows subject to see it for about 15 seconds. Then, making sure that subject is attending, he slowly rearranges the pictures and points to each one in succession, attracting subject's attention especially to the sequence of important details. Next examiner removes these pictures and presents set (a), points to subject, and moves his hand about the pictures to indicate that they are to be arranged. If subject does not understand, examiner shows him the proper arrangement and then goes on to set (b). Sets (b), (c), and (d) are presented in the same way as (a), except that no further demonstration is given if subject fails.

Test 10, picture completion.

Examiner places material before subject as previously described. He then slowly points to the same boy in each of the pictures in succession to indicate the proper sequence of events. He next returns to the demonstrational picture, points to dressed and undressed foot, and to empty space. Next he looks leisurely over the small blocks, tries the slipper or the low shoe in the space, points to dressed foot, and shakes his head negatively. Then he parrels the correct piece showing satisfaction with result. Finally, he points in order to picture 1, to subject, to small blocks, and to the empty space in the picture, and nods affirmatively. If subject does not understand, examiner repeats.

Fig. 1.—Manikin and human profile pieces arranged for subject to explore.

Connecting the Army Alpha & Beta with Wechsler

»

Conclusions

Back to the Origins of Traditional IQ

- One of the Enlisted men in the Medical Corps trained in the School for Military Psychology was the 22 year old **DAVID WECHSLER** (Jan 12, 1896 – May 2, 1981)

Ward, Emerson C.	April, 1918	do	S. G. O.
Watkins, Clarence P.	November, 1918	do	Upton.
Weber, Chris O.	April, 1918	Corporal	Cody.
Wechsler, David.	May, 1918	do	Logan.
Wells, Cornelius L.	November, 1918	Private	Hoboken.
Werner, Helmuth C. J.	May, 1918	do	Dix.
West, Robert W.	June, 1918	Corporal	Wheeler.
Westcott, Ralph W.	May, 1918	Private	Upton.
Whitehead, Guy.	April, 1918	Corporal	Jackson.

Conclusions

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Origins of Traditional IQ

- In May of 1918 a 22 year-old David Wechsler arrived at Camp Logan in Texas to use the newly developed Alpha and Beta (Yerkes, 1921, p. 40)

Conclusions

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Army Testing Program?

- David Wechsler got an idea…make a version of th Army tests for use by clinical psychologists

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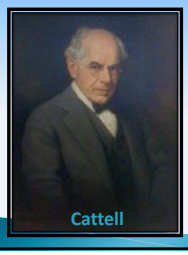
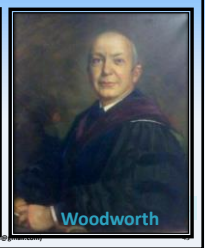
The Psychological Corporation

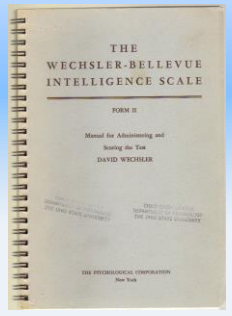
Cattell, Thorndike and Woodworth all have portraits at corporate headquarters of The Psychological Corporation (now Pearson) in San Antonio, Texas. They were on the board of the and instrumental in the formation of the company.


Cattell


Thorndike


Woodworth

Wechsler-Bellevue (1939)

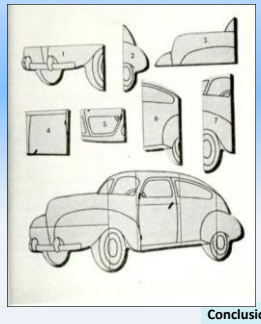

THE
WECHSLER-BELLEVUE
INTELLIGENCE SCALE

FORM II

Manual for Administering and
Scoring the Test

DAVID WECHSLER

THE PSYCHOLOGICAL CORPORATION
New York



Conclusions

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1952

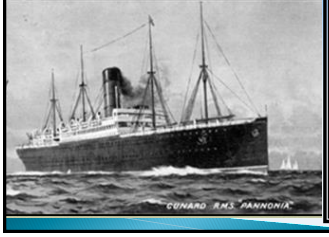
- 1941 Chevy
- Sam Naglieri age 26
- Jack Naglieri age 2

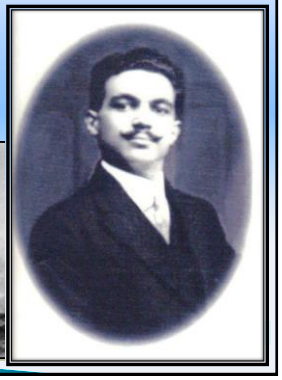
Verbal Nonverbal Intelligence?

- Verbal / Nonverbal is a practical division
- Advantages of Verbal tests
  - they correlate with achievement because they have achievement in them
    - Information, Vocabulary, Arithmetic
- Advantages of Nonverbal Tests
  - they correlate with achievement without having achievement in them
- **Why NONVERBAL** ?

Conclusions

Antonino Mirenda - 1906





Antonino Mirenda - 1907

Conclusions

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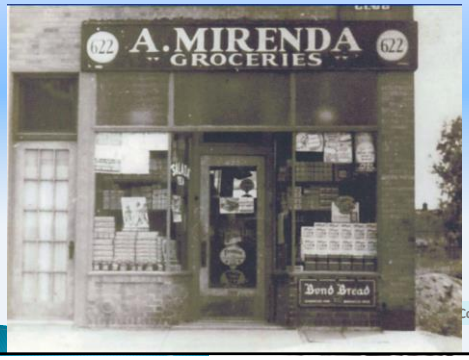
A. Mirenda Groceries
622 Ave X, Brooklyn, NY



Conclusions

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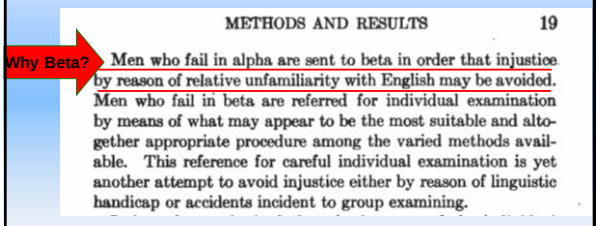
1927 Army Testing



METHODS AND RESULTS 19

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.

Why Beta?

- Nonverbal (beta) tests were intended to avoid injustice by reason of limited educational background

Conclusions

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What a Nonverbal Test Measures

- nonverbal assessment describes the content of the tests used to measure *general intelligence* not a theoretical construct of "nonverbal ability" (Bracken & McCallun, 1998)
- There is no assumption that nonverbal, as opposed to verbal, *abilities* are being measured

Conclusions

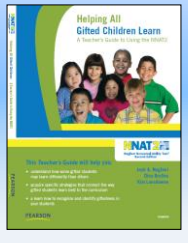
General Intelligence

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

Conclusions

General ability (Naglieri, Brulles & Lansdowne, 2009)

- General ability is what allows us to solve many different kinds of problems
- The problems may involve
  - reasoning, memory, sequencing, verbal and math skills, patterning, connecting ideas across content areas, insights, making connections, drawing inferences, analyzing simple and complex ideas.



Conclusions

Army Alpha and Beta

- The *Army Alpha* – Verbal and Quantitative tests became the Verbal IQ scale
- The *Army Beta* became the Performance IQ scale (AKA Nonverbal)
- Did this mean Wechsler believed in Verbal and Nonverbal intelligences?

Conclusions

Slides by Jack A. Naglieri, Ph.D.
(jnaglieri@gmail.com)

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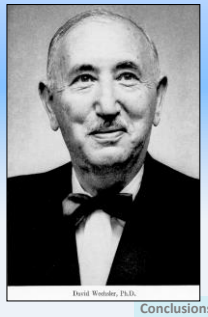
Wechsler's Definition

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



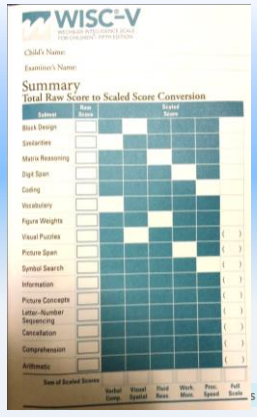
What a Nonverbal Test Measures

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).

Wechsler (1975) included all of his intelligence tests under the umbrella term called general ability. He wrote "... the attributes and factors of intelligence, like the elementary particles in physics, have at once collective and individual properties" (p. 138). Even though a test may have questions that are verbal, quantitative, or nonverbal, they can be combined under the concept of general ability.

97 years later...

- WISC-V still has the same Alpha subtests
  - Similarities
  - Vocabulary
  - Information
  - Arithmetic
  - Comprehension
- These tests pose a problem for those with limited knowledge



Group Think...

- What is most surprising about this information?
- What thoughts do you have?
- Your questions?

Take Away Message

- It is time to consider options other than traditional IQ
  - Wechsler Scales
  - Stanford-Binet
  - Woodcock-Johnson
  - Differential Ability Scales
  - OLSAT
  - COGAT
- It is time to consider a view of ability that is based on how the brain functions

Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

A Brain-based view of ability called PASS

And their instructional implications

Learning and Intelligence (PASS)

- Teachers know a lot about instructional methods
- But to help children learn, we have to know HOW CHILDREN LEARN
  - Difference instructional methods have different learning demands
- We have to understand how the brain functions to understand learning, and the role of PASS learning styles

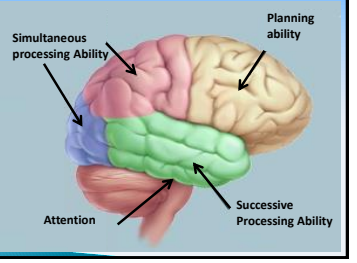
IQ defined by BRAIN function

- **PASS** theory is a modern way to define 'ability' based on measuring neurocognitive abilities
- **P**lanning = THINKING ABOUT THINKING
- **A**ttention = BEING ALERT
- **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.



A Theory of Learning

28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

Jack A. Naglieri and Tulio M. Otero

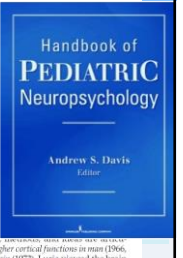
INTRODUCTION

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 o
cesses necessary for effi
also provide for the de
tions and address the qu

FROM NEUROPSYCH
TO ASSESSMENT

Luria's theoretical accou
perhaps one of the most
2008). Luria conceptual
of brain–behavior relati
orders that the clinician
the brain, the functional
syndromes and impairm
and clinical methods of
theoretical formulations
lated 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-



More on PASS and its Assessment

The Cognitive Assessment System

Jack A. Naglieri, Cara Conway

THEORY UNDERLYING THE CAS

The *Cognitive Assessment System (CAS)* (Naglieri & Das, 1997a) is a multidimensional measure of ability based on a cognitive and neuropsychological processing theory called *Planning, Attention, Simultaneous, and Successive (PASS)* (Naglieri, 1999a, 2005). The PASS theory described by Naglieri and Das (1997b, 2005) is a reconceptualization of intelligence largely, but not solely, based on the neuropsychological work of A. R. Luria (1966, 1973, 1980, 1982). The four processes that make up the PASS theory represent a blend of cognitive and neuropsychological constructs, such as executive functioning (Planning) and selective attention (Attention), including tests that in the past were often arguably described as nonverbal/visual-spatial (Simultaneous) and sequencing/memory (Successive) (Naglieri & Das, 2002).

The PASS theory is a different approach to understanding intelligence that not only the theory may have its roots in neuropsychology, "its branches are spread over developmental and educational psychology" (Varnhagen & Das, 1986, p. 130). Thus, with its connections to developmental and cognitive processing, the PASS theory offers an advantage in explanatory power over the notion of traditional general intelligence (Naglieri & Das, 2002).

PASS Defined

The four cognitive processes that make up the PASS theory are each associated with different brain regions, cognitive abilities, and behaviors (Naglieri, Conway, & Goldstein, 2007). The four processes of the PASS theory are described more fully below.

Planning is a mental activity that provides cognitive control, intentionality, organization, self-regulation and use of processes, knowledge, and skills. This includes self-monitoring and impulse control as well as generation, evaluation, and execution of a plan. This process may involve control over the other three processes, as well as

What is a Cognitive 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

What is a Cognitive Process?

- The term cognitive process is a modern term for concepts like ability or intelligence
- The term cognitive process describes a foundational neuropsychologically identified ability
- 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

What is a Cognitive Process?

- A specific cognitive process provides a unique kind of function (ability)
- A variety of cognitive processes is needed to meet the many demands of our complex environment
- A variety of cognitive processes gives us away of achieving the same goal using different types of or different combinations of processes (this is important for intervention planning).

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

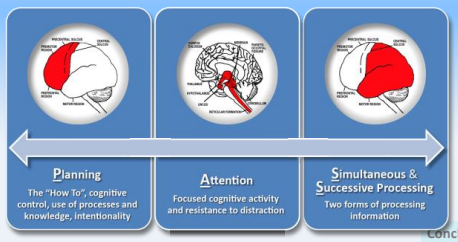
Ask Two questions

- What does the student have to know to answer that question?
  - That means knowledge (i.e. academic skills) is required
- What kind of thinking is required to answer the question?
  - This is neurocognitive processing required to determine the answer
    - A pure neurocognitive test requires little knowledge

PASS For Teachers (www.kathleenkryza.com)

The Brain and Intelligence as PASS

PASS: A neuropsychological approach to intelligence based on three Functional Units described by A. R. Luria (1972)



PASS Theory: Planning

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

Directions for Items 1–10. These questions ask how well you decide how to do things to achieve a goal. They also ask how well you think before acting and avoid impulsivity. Rate how well you create plans and strategies to solve problems.

During the past month, how often did you...	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

The average 18 year old as rated by a teacher gets a raw score of 30

Time to do a test of Planning

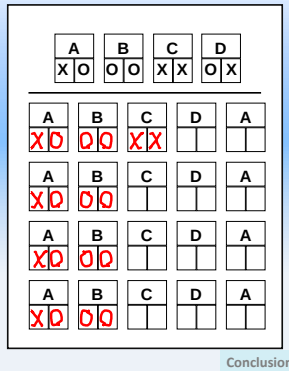
- You have a page called PC1 in your packet, please find it.
- **Look at the boxes at the top of the page. The letter A has XX, the letter B has OX, the letter C has XX** (point to the XX)**, and the letter D has OO. These are the codes that correspond to each letter**
- **Now look at the rest of the page where there are the letters A, B, C, and D, but there are no codes written under them. There are many boxes for you to complete. Fill in as many of these as you can, as fast as you can, using the answers shown at the top of the page.**
- **You will have 60 seconds. Ready? Begin.**

Time to do a test of Planning

- Now turn to the second page (PC2) in your packet.
- **Look at this page. We're different answers for each letter. boxes at the top of the page. The letter A has OX, the letter B has XO, the letter C has OO** (point to the XX)**, and the letter D has XX.**
- **Fill in as many of the boxes on the rest of the page as fast as you can, using the answers shown at the top of the page**
- **You can do it any way you want. Let's see how many you can do. You will have 60 seconds.**
- **Ready, begin.**

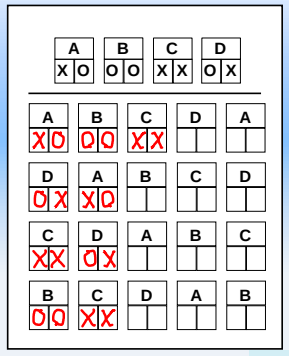
Planned Codes

- Child fills in the codes in the empty boxes
- Children are encouraged to think of a good way to complete the page



Planned Codes

- Page 2
- What is a good plan to complete this page?
- Note orientation



Conclusions

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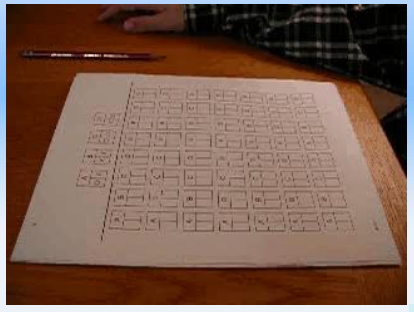
Planned Codes 1



Conclusions

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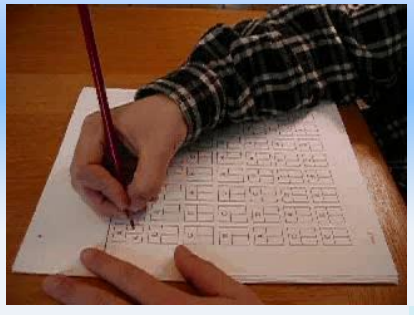
Planned Codes Page 2



Conclusions

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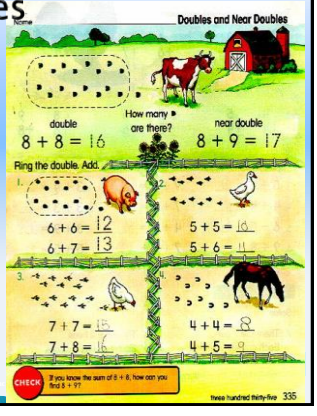
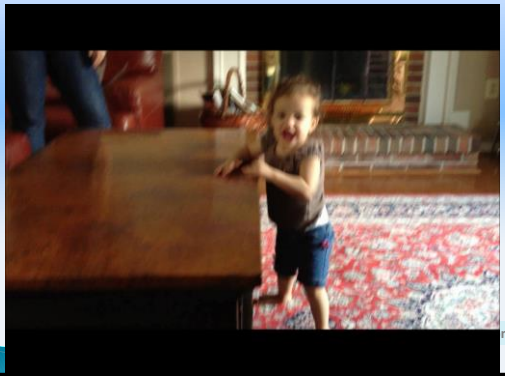
Math Strategies

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.



Can a 13 month old Plan?



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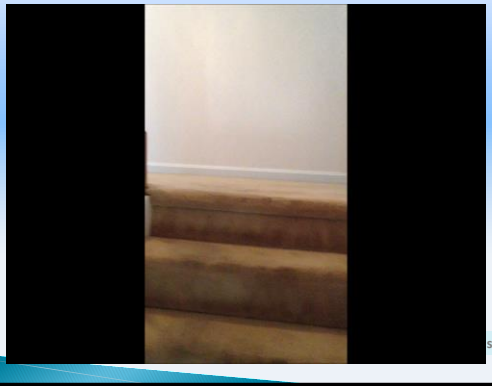
Age 19 mos: Knowledge & Planning



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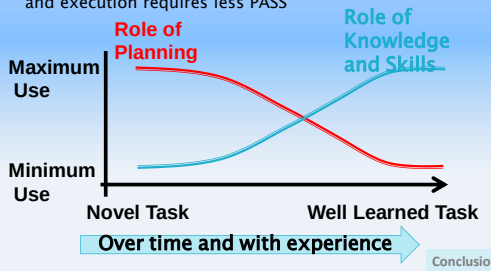
Knowledge and Planning Learning Curves

- Learning depends upon instruction and intelligence (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

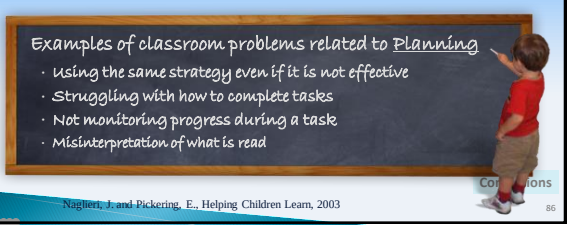


Conclusions

PASS Theory: Planning

Planning

- Evaluate a task
- Select or develop a strategy to approach a task
- Monitor progress during the task
- Develop new strategies when necessary



Naglieri, J. and Pickering, E., Helping Children Learn, 2003

Conclusions

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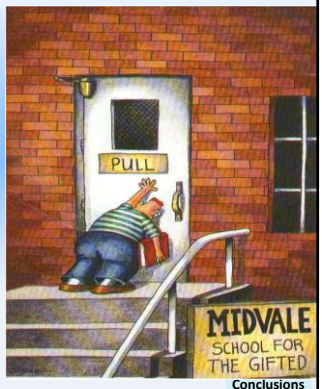
POOR PLANNING



Conclusions

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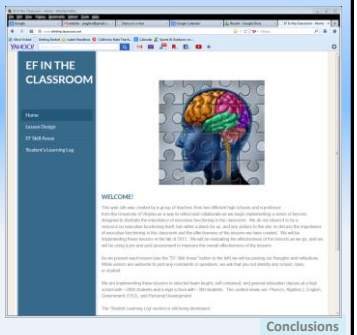
www.efintheclassroom.net

- **Start with Awareness of thinking about thinking**



Conclusions

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Instructions: This page has questions about how you think and feel. The answers you give can help you understand if you have a Fixed or Growth Mind Set. Please read every question carefully and circle the number under the word that tells how often you feel or think a certain way.

		Never	Sometimes	Often	Always
1	I am excited when I try something new.	0	1	2	3
2	I don't give up easily	0	1	2	3
3	Working hard will pay off	0	1	2	3
4	When things get hard I say "I CAN DO IT"	0	1	2	3
5	I never give up	0	1	2	3
6	When things are hard I keep trying	0	1	2	3
7	Effort makes all the difference	0	1	2	3
8	When my school work is hard, I keep trying.	0	1	2	3
9	I believe that I can learn from making mistakes	0	1	2	3
10	effort is more important than natural ability	0	1	2	3
11	I believe that I should be able to learn easily.	0	1	2	3
12	I give up when something is hard to learn.	0	1	2	3
13	I don't like to work on hard assignments	0	1	2	3
14	Hard work does not make a difference.	0	1	2	3
15	when things get hard I give up	0	1	2	3
16	I give up easily	0	1	2	3
17	If I am not good at something from the start, I will never be good at it.	0	1	2	3
18	When I don't understand something I get frustrated and give up	0	1	2	3
19	You are born with certain talents and can't change that.	0	1	2	3
20	If I get stuck I quit.	0	1	2	3

Conclusions

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Dweck's Mindsets

Fixed mindset:

- Effort will not make a difference
- You either get it or you don't

Growth mindset:

- Enjoy effort and process of learning
- You can always grow and learn

Conclusions

Our Goal…

- EMPOWER

NOT

A Nation of Adults Like This?

www.efintheclassroom.net

- Start with Awareness of thinking about thinking

Antwerp train Station (2009)

STEP 3 – Share your ideas

Planning Lesson

Phrase of the week: What is your plan?

http://www.youtube.com/watch?v=bQLCZOG202k

1. What had to happen so that the people could dance together in this video?
2. What are the parts of a good plan?
3. How do you know if a plan is any good?
4. What should you do if a plan isn't working?
5. How do we use planning in this class?

Go to student learning log and create a plan for the week.

Planning Lesson Student responses

- Q: What would you have to plan out?
  - They had to learn the dance steps (knowledge)
  - Someone had to start dancing (initiation)
  - Permission from train station (planning)
- Q: What are the parts of a good plan?
  - Think of possible problems (strategy generation)
  - Organize the dance (organization)
  - Practice the dance steps (initiation)
  - Have a good idea of what to do (knowledge)

Planning Lesson Student responses

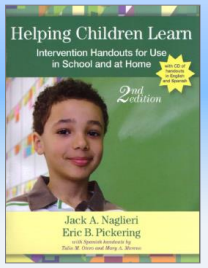
Q3: How do you know if a plan is any good?
- Put the plan in action and see if it works (self-monitoring)
- Give it a try (perhaps learn by failing)

Q4: What should you do if a plan isn't working?
1. Fix it. (self-correction)
2. Go home ! (a bad plan)

Q5: How do you use planning in this class?
1. We don't plan in this class
2. Mrs. XXX does all the planning in this class so you don't have to think about planning

Encourage Planning

- 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.



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.

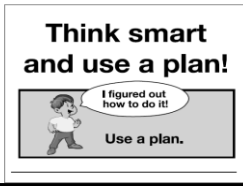
Step 1 – Talk with Students

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.



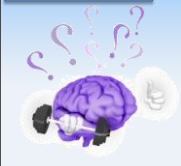
It is smart to have a plan for doing all schoolwork. When you read, you should have a plan. One plan is to look at the questions you have to answer about the story first. Then read the story to find the answers. Another plan is to make a picture of what you read so that you can see all the parts of the 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!

Mindsets = Planning from PASS

- Planning is about how we do what we decide to do
- We can decide to have a growth mind set and **think smart!**
- **Does teaching students to Think Smart and use a Plan work?**

Winning Formula for Success

A Planning Mindset + Knowledge & Skill Sets = RESULTS!

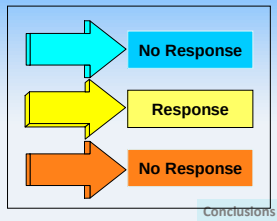


Group Think…

- Discuss children you have seen or worked with who were good and/or bad in Planning as just defined
  - What methods helped them
  - What methods did not help
- Your thoughts
- Report to the audience

PASS Theory

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



Directions for Items 21–30. These questions ask how well you pay attention and resist distractions. The questions also ask about how well someone attends to one thing at a time. Please rate how well you pay attention.

During the past month, how often did you…	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
	___ +	___ +	___ +	___ +	___ =

The average 18 year old as rated by a teacher gets a raw score of 26

CAS2 Expressive Attention

- The child says the color not the word
- 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

READY ?

BLUE!

Expressive Attention – Italiano

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

Conclusions

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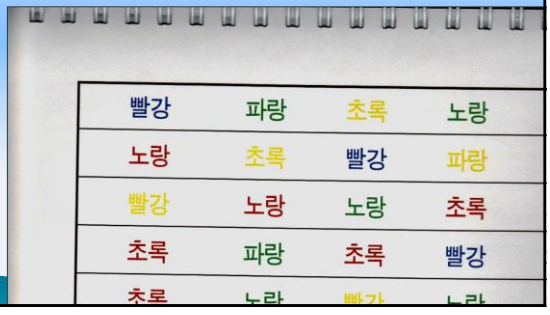
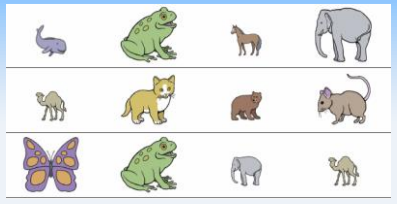
Expressive Attention – Korean CAS

- The child says the color not the word



Expressive Attention: 5-7 years

The child tells if the animal is large or small, regardless of the relative size on the page.



Conclusions

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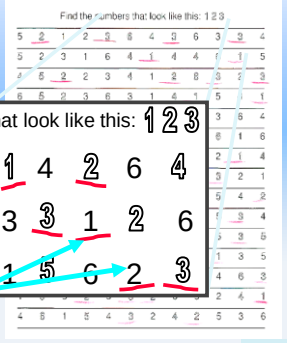
Number Detection

- 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



Conclusions

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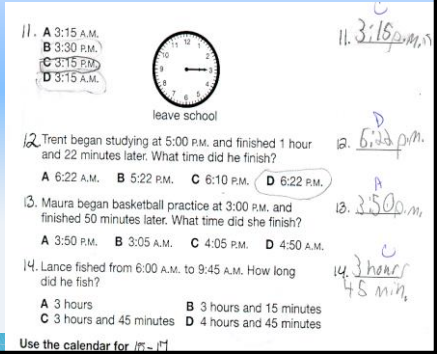
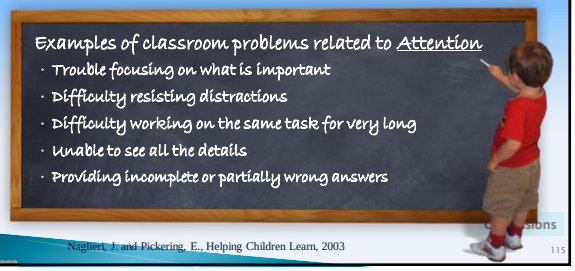
Attention

This sheet has a strong Attention demands because of the similarity of the options



PASS Theory: Attention

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



Naglieri, J. and Pickering, E., Helping Children Learn, 2003

Frankie

- Severe Attention Problem with poor academics and anxiety

Inattentive Type of ADHD

Frankie – Attention CW

- Referred by parents (at age 11) after a history of reading difficulties and self esteem problems
- Cognitive Assessment System
- WJ-R, WRAT-3, PPVT-III
- Behavioral/Emotional
  - Devereux Scales of Mental Disorders
- Self Concept
  - Bracken Multidimensional Self Concept Scale

Frankie

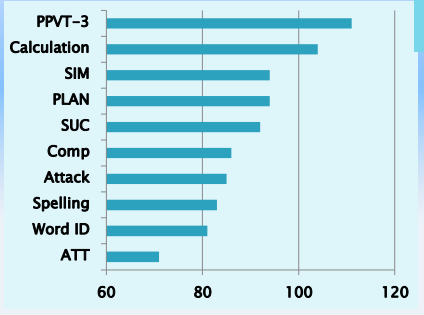
- High level of anxiety
  - he was too anxious to look closely at the words, and he would rather get the task completed and move on.
  - Frankie could not attend to the details of the sequence of letters for correct spelling, and the order of sound-symbol associations

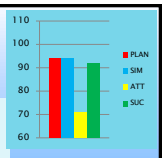
Figure 3.4. Frankie's self-portrait.

Frankie

Tests	Score	%tile
Letter-Word Id	81	10
Passage Comp	86	17
Word Attack	85	16
Spelling	83	13
Calculation	104	60
PPVT-III	111	82

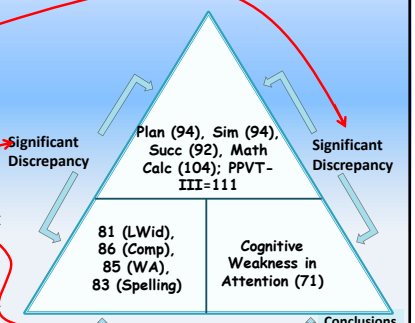
Frankie



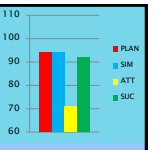


Frankie Discrepancy Consistency Results

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



Frankie



- Frankie has weaknesses in PASS & achievement which are consistent with a *Specific Learning Disability*
  - "… a disorder in one or more of the basic psychological processes (Attention from CAS)…[with an] impaired ability to…read, write, spell…" (IDEA, 1997).
- Also – Inattentive Type of ADHD

Conclusions

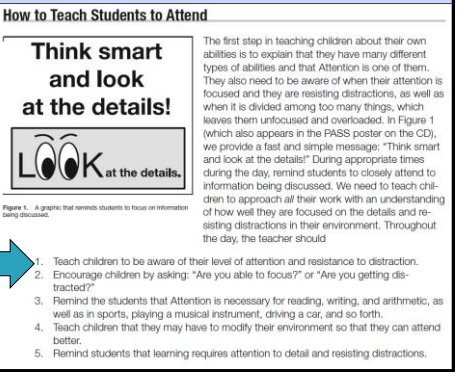
Frankie

- **Attention Handouts**
  - Teaching Students About Attention (p.58)
  - Overcoming Problems with Inattention (p. 67)
  - Improving Attention (p. 76)
- These handouts encourage the teacher and Frankie's parents to help him understand him options for overcoming his attention weakness

Conclusions

Slides by Jack A. Naglieri, Ph.D. (jnaglieri@gmail.com)

What Should Teacher s& Parents do?



How to Teach Students to Attend

Think smart and look at the details!

LOOK at the details.

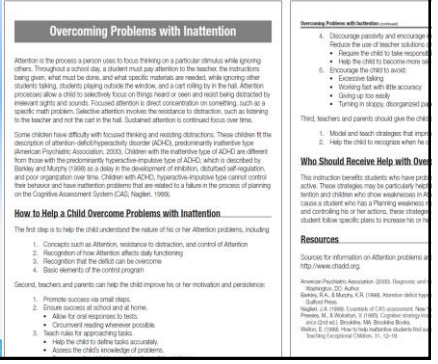
Figure 1. A graphic that reminds students to focus on information being discussed.

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.

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 wherever possible.
3. Teach rules for approaching tasks.
   - Help the child to define tasks accurately.
   - Assess the child's knowledge of problems.

Who Should Receive Help with Over

Resources

Frankie – Intervention

- Level I: Help child understand the deficit
  - Attention, resistance to distraction,
  - Recognition of how the deficit affects daily functioning
- Level II: Improve Motivation & Persistence
  - Promote success via small steps
  - Ensure success at school and at home
  - Allow for oral responses to tests to circumvent reading when possible

Conclusions

Frankie – Intervention

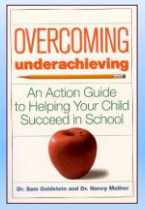
- Teach rules for approaching tasks
  - Define tasks accurately
  - Assess child's knowledge of the problem
  - Consider ALL possible solutions
  - Evaluate value of all possible solutions
  - Checking work carefully is required
  - Correct your own test strategy (see Pressley & Woloshyn, 1995, p. 140).

Frankie – Intervention

- 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).

Frankie – Intervention

- Improve resilience and self-esteem – see Goldstein & Mather's book for suggestions
- Measure resilience in all students who are experiencing learning problems
  - 72-item *DESSA* to find specific areas of need
  - Universal screening with 8-item *DESSA-mini*

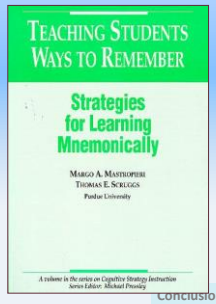


Frankie – Intervention

- Level III: Problem-Solving Strategies
  1. Teach strategies that increase inhibition and organization
     - encourage the use of date books
     - teach the child to count to 10 before answering
  2. Teach strategies to increase the level of alertness
  3. Teach other relevant strategies
     - mnemonic devices (Mastropieri & Scruggs, 1991)
     - reading or math strategies (Pressley & Woloshyn, 1995)

Mastropieri & Scruggs (1991)

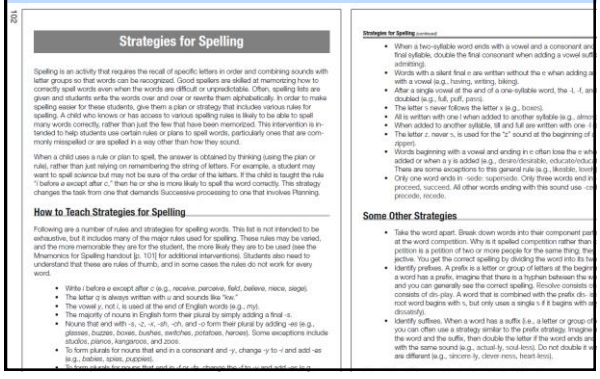
- Mnemonics are strategies:
  - for learning
  - for improving memory
- Topics include:
  - vocabulary, science, reading, spelling, math



Frankie

- **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.

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 *science* 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, siege*).
- The letter *q* is always written with *u* and sounds like "kw."
- 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*, *-sh*, *-ch*, and *-o* form their plural by adding *-es* (e.g., *glasses, buzzes, boxes, bushes, switches, potatoes, heroes*). Some exceptions include *studios, pianos, kangaroos,* and *zoos*.
- To form plurals for nouns that end in a consonant and *-y*, change *-y* to *-i* and add *-es* (e.g., *babies, spies, puppies*).

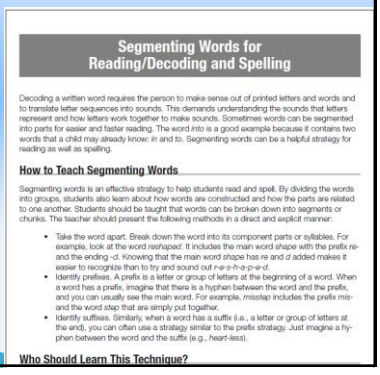
Strategies for Spelling (continued)

- When a two-syllable word ends with a vowel and a consonant and final syllable, double the final consonant when adding a vowel suff admitting).
- Words with a silent final *e* are written without the *e* when adding a with a vowel (e.g., having, writing, biking).
- After a single vowel at the end of a one-syllable word, the *-l*, *-f*, an doubled (e.g., full, puff, pass).
- The letter *s* never follows the letter *x* (e.g., boxes).
- All is written with one *l* when added to another syllable (e.g., almo
- When added to another syllable, till and full are written with one *-l*
- The letter *z*, never *s*, is used for the "z" sound at the beginning of zipper).
- Words beginning with a vowel and ending in *e* often lose the *e* wh added or when a *y* is added (e.g., desire/desirable, educate/educa There are some exceptions to this general rule (e.g., likeable, lovel
- Only one word ends in *-sede*: supersede. Only three words end in proceed, succeed. All other words ending with this sound use *-ce* precede, recede.

Some Other Strategies

- Take the word apart. Break down words into their component part at the word competition. Why is it spelled competition rather than petition is a petition of two or more people for the same thing; the jective. You get the correct spelling by dividing the word into its tw
- Identify prefixes. A prefix is a letter or group of letters at the beginn a word has a prefix, imagine that there is a hyphen between the w and you can generally see the correct spelling. Resolve consists o consists of *dis-play*. A word that is combined with the prefix *dis-* is disability).
- Identify suffixes. When a word has a suffix (i.e., a letter or group of you can often use a strategy similar to the prefix strategy. Imagine the word and the suffix, then double the letter if the word ends an with the same sound (e.g., *actual-ly, soul-less*). Do not double it w are different (e.g., *sincere-ly, clever-ness, heart-less*).

- This strategy helps him organize the sequence of sounds and letters thereby focus is achieved



Segmenting Words for Reading/Decoding and Spelling

Decoding a written word requires the person to make sense out of printed letters and words and to translate letter sequences into sounds. This demands understanding the sounds that letters represent and how letters work together to make sounds. Sometimes words can be segmented into parts for easier and faster reading. The word *into* is a good example because it contains two words that a child may already know: *in* and *to*. Segmenting words can be a helpful strategy for reading as well as spelling.

How to Teach Segmenting Words

Segmenting words is an effective strategy to help students read and spell. By dividing the words into groups, students also learn about how words are constructed and how the parts are related to one another. Students should be taught that words can be broken down into segments or chunks. The teacher should present the following methods in a direct and explicit manner:

- Take the word apart. Break down the word into its component parts or syllables. For example, look at the word *reshaped*. It includes the main word *shape* with the prefix *re-* and the ending *-d*. Knowing that the main word *shape* has *re* and *d* added makes it easier to recognize than to try and sound out *r-e-s-h-a-p-e-d*.
- Identify prefixes. A prefix is a letter or group of letters at the beginning of a word. When a word has a prefix, imagine that there is a hyphen between the word and the prefix, and you can usually see the main word. For example, *misstep* includes the prefix *mis-* and the word *step* that are simply put together.
- Identify suffixes. Similarly, when a word has a suffix (i.e., a letter or group of letters at the end), you can often use a strategy similar to the prefix strategy. Just imagine a hyphen between the word and the suffix (e.g., *heart-less*).

Who Should Learn This Technique?

Group Think…

- Discuss children you have seen or worked with who were good and/or bad in **Attention** as just defined
  - What methods helped them
  - What methods did not help
- Your thoughts
- Report to the audience

PASS Theory

- **Simultaneous** processing is a basic neurocognitive ability which we use to integrate stimuli into groups
  - Stimuli are seen as a whole
  - Each piece must be related to the others
  - Wechsler Nonverbal Scale
  - KABC Simultaneous Scale

Directions for Items 11–20. These questions ask how well you see 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 you visualize things as a whole.

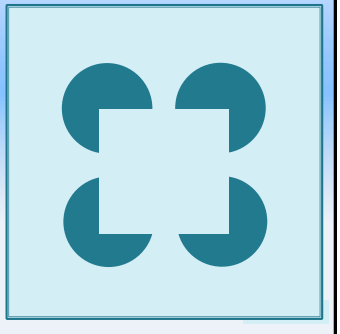
During the past month, how often did **you…**	Never	Rarely	Sometimes	Frequently	Always
11. like to draw designs?	0	1	2	3	4
12. figure out how parts of a design go together?	0	1	2	3	4
13. classify things into groups correctly?	0	1	2	3	4
14. work well with patterns and designs?	0	1	2	3	4
15. see how objects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

___ + ___ + ___ + ___ + ___ = ___

The average 18 year old as rated by a teacher gets a raw score of 31

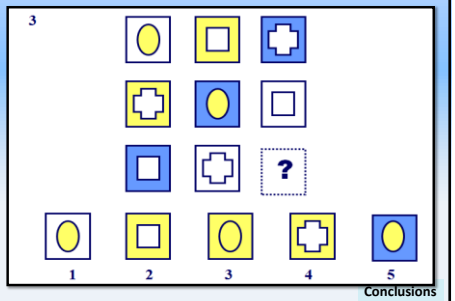
PASS Theory

- **Simultaneous** processing is what Gestalt psychology was based on
- Seeing the whole



CAS2 Matrices

Child selects one of the options that best completes the matrix



Conclusions

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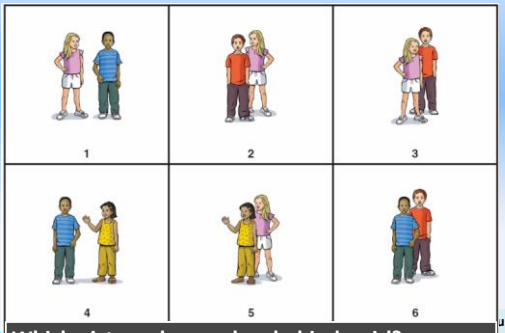
CAS2 Verbal-Spatial Relations



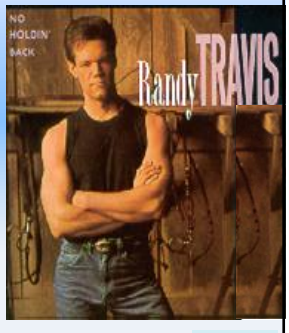
Which picture shows a boy behind a girl?

usions

Simultaneous Verbal Task

- Simultaneous processing using verbal content
- Who is this song about?

My momma's daddy was his oldest son.



Conclusions

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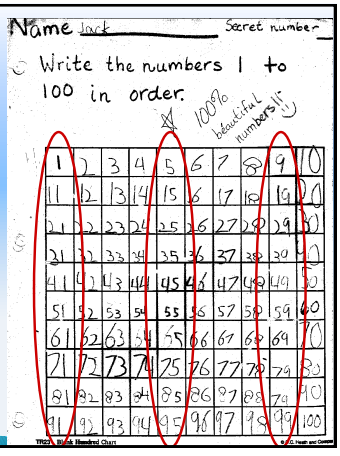
Numbers from 1 to 100

How is … Simultaneous processing facilitated by this work sheet?



Simultaneous Processing at Work!

ons

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Simultaneous Processing at Work!

Conclusions

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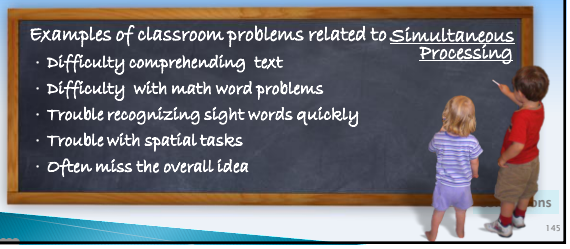
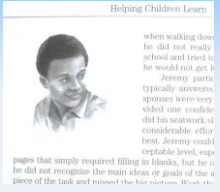
PASS Theory: Simultaneous

Simultaneous Processing

- Relate separate pieces of information into a group
- See how parts related to whole
- Recognize patterns



Jeremy



Low Simultaneous Processing from Helping Children Learn

Jeremy

- Likable social fifth grade student
- Paid attention, worked hard
- Sometimes he got confused
  - Had problems finding his way at school
  - Missed the main idea
  - Integration of ideas was difficult
  - Trouble grasping new concepts
  - Couldn't pick out important parts of problems
  - Did not use context cues

Jeremy

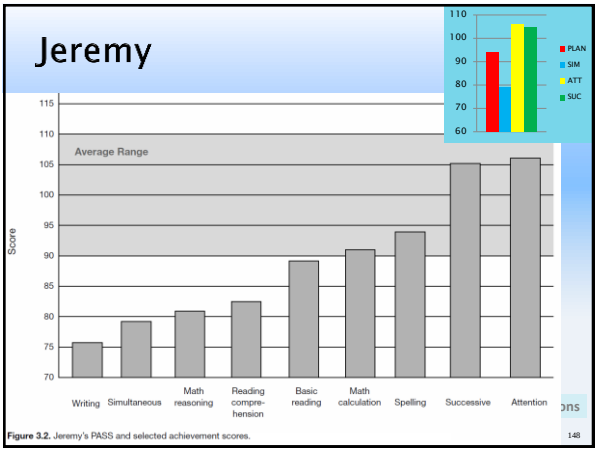


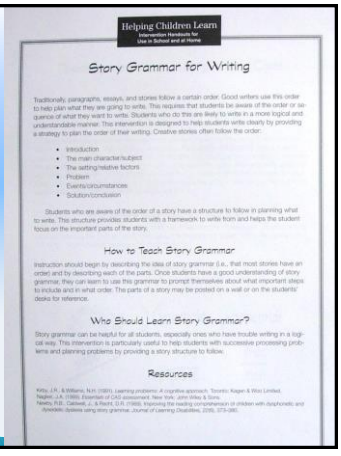
Figure 3.2. Jeremy's PASS and selected achievement scores.

Jeremy

- Story Grammar for Reading Comprehension (p. 77)
- Story Grammar for Writing (p. 101)
- Seven Step Strategy for Math Word Problems (p. 121)

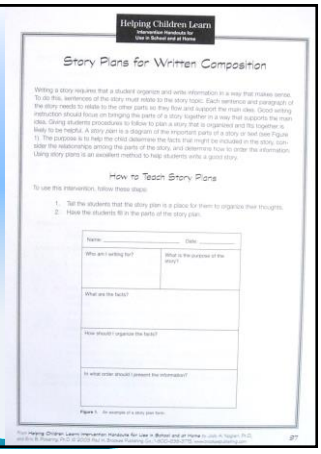
Jeremy

- Story maps give Jeremy a graphic way of organizaing relevant information



Jeremy

- Story plans also help Jeremy see how text is or can be organized


Helping Children Learn

Story Plans for Written Composition

How to Teach Story Plans

Jeremy

- Story maps also help Jeremy see how information is organized


Helping Children Learn

Story Grammar for Reading Comprehension

How to Teach Story Grammar

Who Should Learn Story Grammar?

Group Think…

- Discuss children you have seen or worked with who were good and/or bad in **Simultaneous processing** as just defined
  - What methods helped them
  - What methods did not help
- Your thoughts
- Report to the audience

Conclusions

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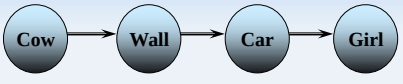
PASS Theory: Successive

- **Successive** processing is a basic neurocognitive ability which we use to manage stimuli in a specific serial order
  - Stimuli form a chain-like progression
  - Stimuli are not inter-related



Conclusions

154

Directions for Items 31–40. These questions ask how well you remember 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. Rate how well you work with things in a specific order.

During the past month, how often did you…	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

___+___+___+___+___=___

The average 18 year old as rated by a teacher gets a raw score of 27

Conclusions

Jack A. Naglieri, Ph.D.

155

Word Series

- The child repeats a series of words in the same order the examiner says them

1. Wall-Car
2. Shoe-Key

…

10. Cow-Wall-Car-Girl
11. Dog-Car-Girl-Shoe-Key

…

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

Conclusions

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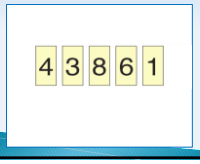
Sentence Repetition (Ages 5-7) or Sentence Questions (Ages 8-17)

- Sentence Repetition
  - Child repeats sentences exactly as stated by the examiner such as:
  - The red greened the blue with a yellow.
- Sentence Questions
  - Child answers a question about a statement made by the examiner such as:
  - The red greened the blue with a yellow. Who got greened?

CAS2

- Visual Digit Span subtest allows for a Visual Auditory comparison

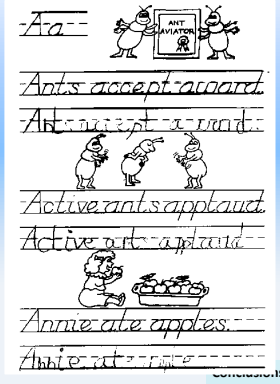


Visual–Auditory Comparison

	Scaled Score
Word Series	_____
Visual Digit Span	_____
Difference (ignore sign)	_____
Circle one: .05 .10 NS	

Successive

The sequence of the sounds is emphasized in this work sheet



Learning Math Facts

8 + 9 = 17

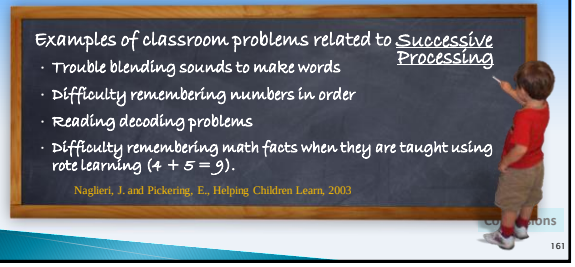
8 + 9 = 17

8 + 9 = 17

PASS Theory: Successive

Successive Processing

- Use information in a specific order
- Follow instructions presented in sequence



The Case of Larry – Age 8 Years 8 months

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.

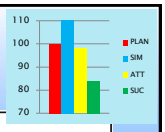
Case of Larry

- Larry is a third grader who was evaluated at the request of his parents because of their concern about his chronic problems with spelling and written language
- Larry likes to read but he has spelling problems
- Larry frequently confused the letters b and d and often writes his numbers backwards and reads words backwards (mop as pom)
- Larry says certain words within his sentences out of order

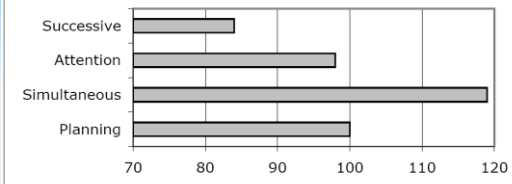
Conclusions

163

Larry's PASS scores



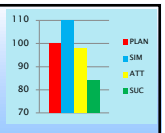
	Standard Score	Difference from Mean	
Planning	100	-0.25	-
Simultaneous	119	18.75	Strength
Attention	98	-2.25	-
Successive	84	-16.25	Weakness
Mean	100.25		



isions

164

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."

Conclusions

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PREP Intervention

- Larry attended nine one-hour sessions three times a week over the course of approximately 3 weeks
- During this time Larry received individualized instruction designed to improve the use of Successive processing strategies.
- Larry completed several homework assignments as a way of practicing the various rules and skills being taught

Conclusions

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Larry's Problem with Successive

- Teach him to use his strength in Planning

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.

Larry's Problem with Successive

- Teach him to recognize sequences

How to Teach Successive Processing Ability

The first step in teaching children about their own abilities is to explain what Successive processing ability is. In Figure 1 (which is included in the PASS poster on the CD), we provide a fast and simple message: "Think smart and follow the sequence!" We should begin by helping children realize that they have many different types of abilities and that Successive processing is one of them. During appropriate times during the day, remind students to closely attend to the sequence of information—when reading, presenting information in written text, examining the sequence of letters when doing spelling, solving math equations, and so forth. We need to teach children to approach *all* of their work with an understanding of how the information is sequenced. Throughout the day, the teacher should do the following:

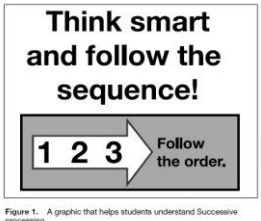

Figure 1. A graphic that helps students understand Successive processing.

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.

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Ben's Problem with Successive

Using Plans to Overcome Anxiety

Graphic Organizers for Connecting and Remembering Information

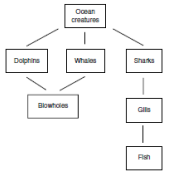

Figure 1. One kind of graphic organizer.

Another type of graphic organizer is a Venn diagram, which uses circles to demonstrate how concepts are related. Figure 2 shows the same information as Figure 1, but in the form of a Venn diagram.

How to Teach Graphic Organizers

Graphic organizers are fairly simple to create. They need not be reserved for factual information. They can be used for activities such as exploring creative concepts, organizing writing, and developing language skills. The following four steps can be used to create a graphic organizer:

1. Select information that you need to present to the child

clusions

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Larry's Problem with Successive

- Teach him to use strategies

Chunking for Reading/Decoding

Segmenting Words for Reading/Decoding and Spelling

Readi stand quenc more easily units

Decoding a written word requires the person to make sense out of printed letters and word to translate letter sequences into sounds. This demands understanding the sounds that let represent and how letters work together to make sounds. Sometimes words can be segm into parts for easier and faster reading. The word *into* is a good example because it contain words that a child may already know: *in* and *to*. Segmenting words can be a helpful strateg reading as well as spelling.

How

Teach be rei

Pla

Look Find t Sounc

How to Teach Segmenting Words

Segmenting words is an effective strategy to help students read and spell. By dividing the

Chunking & Spelling

usions

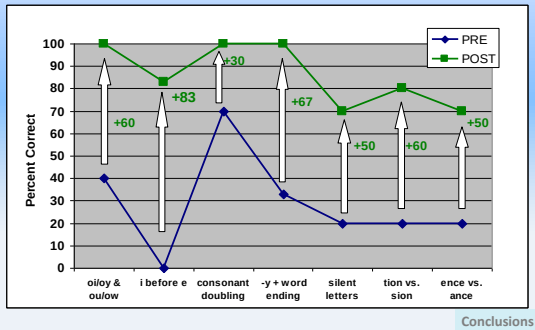
172

Chunking & Spelling

usions

173

Larry's Pre-Post skills scores



Conclusions

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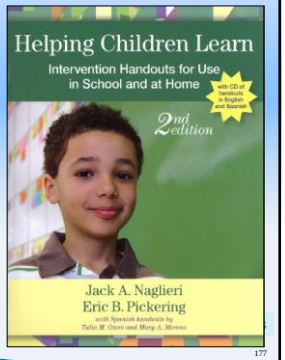
Larry's Pre-Post skills scores

Group Think...

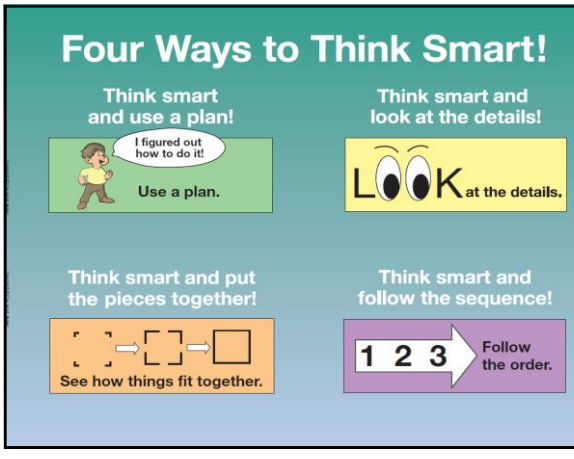
- Discuss children you have seen or worked with who were good and/or bad in **Successive processing** as just defined
  - What methods helped them
  - What methods did not help
- Your thoughts
- Report to the audience

Teach Children about their Abilities

- 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.



Four Ways to Think Smart!



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.

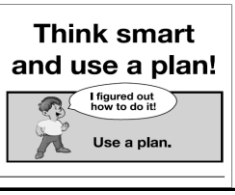
Step 1 – Talk with Students

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.



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!

Step 1 – Talk with Students

How to Be Smart: Attention

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?

Attention is a very important ability that everyone has. Everything we do requires the ability to focus on some things and ignore others. The ability to pay attention is what makes us able to focus our thoughts on one thing and resist distractions. No one can learn without the ability to attend. We cannot attend to *all* the information our brain is receiving. In order to focus, we must resist attending to some things so we can focus on others. In school there is much to attend to and many things that are distracting. Students hear others talking, a noise in the hallway, or the beep of a computer; they see a flash of light from the window; and so forth. Schoolwork requires a lot of focus of attention.

Step 1 – Talk with Students

How Can You Be Smarter?

You can be smarter if you carefully use your ability to attend. Remember to be aware of how well you are attending. Be sure to notice if you are being distracted. If you are having a problem, do something to help you pay attention. You will be able to do more if you remember to "Think smart and look at the details!" (see Figure 1). Remember to think about how well you are attending when you do your work.

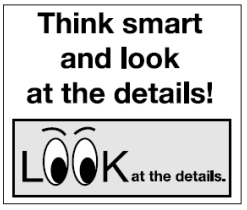


Figure 1. Picture reminder to attend to the details.

It is smart to be aware of your level of attention. Also remember to notice if you are being distracted. Ask yourself, "Am I losing my ability to focus?" or "Am I getting distracted?" If so, change your seat, take a short break, stand up and stretch, or do something to help you attend better. Remember that you can't learn if you can't pay attention.

You should remember that Attention can be disrupted by loud noises or seeing something distracting. It is important to notice when your ability to attend is good or bad. If you are having trouble attending, figure out what you need to do to attend better.

Step 1 – Talk with Students

How to Be Smart: Simultaneous

When we say someone is smart, we usually mean that they know a lot of information. Yet, 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. This ability is what helps you understand the meaning of a sentence and a story. It is also very important for seeing patterns in numbers, word spellings, or themes in a story. It also lets you judge distances. 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 it 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 saying is about using your Simultaneous ability. When you stop and think about *how things fit together to make the "big picture,"* you are using your Simultaneous ability.

Step 1 – Talk with Students

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 1). 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.

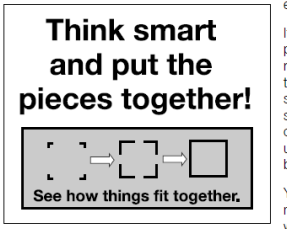


Figure 1. Picture for remembering to see the big picture.

It is smart to use your ability to see the big picture when doing all schoolwork. When you read, you should draw a picture of the characters 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. Think about the problem, see what information is needed and what is not, figure out what is related to what, and use esti-

Step 1 – Talk with Students

How to Be Smart: Successive

When we say people are smart, we usually mean 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?

Successive ability is what you use to put *information in order.* It is what you use when you have to remember the *sequence* of information, such as a telephone number. When you tie your shoe you have to do all the steps in the right *order*. When you are sounding out a word you haven't seen before, you are using your Successive ability to say the sounds in the correct *order*. When you repeat a word you have never heard before, especially if it is in a different language, you are using Successive ability. This ability also helps you put sounds together to say words, and words together to make sentences. Sequential ability is very important for reading, math, and all of your subjects.

Step 1 – Talk with Students

How Can You Be Smarter?

You can be smarter if you pay attention to the sequences in which things must be done. There are ways of making the sequence easier to remember. For example, group letters when spelling words. Find out if writing the words 10 times each helps you. Do flashcards work better for you? It is smart to find out how you learn sequences best and then to use what works best for you. Thinking about the sequences of things is a good way to be smarter about your work!

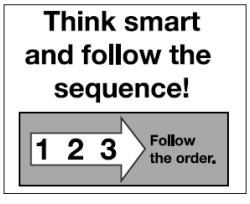
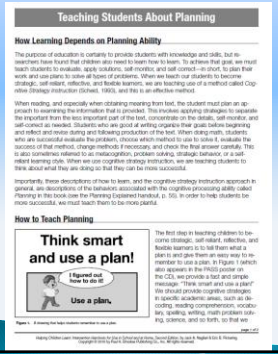


Figure 1. Picture for remembering to follow the sequence.

Remembering to Follow the Sequence

Remember that sometimes when you are anxious, tired, or just doing too many things at one time, you might forget to look at the order in which information is presented. When you see that you are not using your Successive ability, say to yourself, "Think smart and follow the sequence!" (see Figure 1). Looking closely at the sequences of things will make you smarter!

Step 1 – How to Teach about Planning


Teaching Students About Planning

How Learning Depends on Planning Ability

The purpose of education is certainly to provide students with knowledge and skills, but researchers have found that children also need to learn how to learn. To achieve that goal, we must teach students to evaluate, apply solutions, self-monitor, and self-correct—in short, to plan their work and use plans to solve all types of problems. When we teach our students to become strategic, self-reliant, reflective, and flexible learners, we are teaching use of a method called Cognitive Strategy Instruction (Schied, 1993), and this is an effective method.

When reading, and especially when obtaining meaning from text, the student must plan an approach to examining the information that is provided. This involves applying strategies to separate the important from the less important part of the text, concentrate on the details, self-monitor, and self-correct as needed. Students who are good at writing organize their goals before beginning and reflect and revise during and following production of the text. When doing math, students who are successful evaluate the problem, choose which method to use to solve it, evaluate the success of that method, change methods if necessary, and check the final answer carefully. This is also sometimes referred to as metacognition, problem solving, strategic behavior, or a self-reliant learning style. When we use cognitive strategy instruction, we are teaching students to think about what they are doing so that they can be more successful.

Importantly, these descriptions of how to learn, and the cognitive strategy instruction approach in general, are descriptions of the behaviors associated with the cognitive processing ability called *Planning* in this book (see the Planning Explained handout, p. 55). In order to help students be more successful, we must teach them to be more planful.

How to Teach Planning

Think smart and use a plan!

I figured out how to do it!

Use a plan.

The first step in teaching children to become strategic, self-reliant, reflective, and flexible learners is to tell them what a plan is and give them an easy way to remember to use a plan. In Figure 1 (which also appears in the PASS poster on the CD), we provide a fast and simple message: "Think smart and use a plan!" We should provide cognitive strategies in specific academic areas, such as decoding, reading comprehension, vocabulary, spelling, writing, math problem solving, science, and so forth, so that we

Teaching Students About Planning (continued)

teach children to approach all of their work with a plan (Pressley & Woloshyn, 1995). The parent or teacher should facilitate the use of strategies so that the student learns self-regulated strategy development and use.

Parents and teachers should only provide as much help to the child as needed and avoid teaching the child to rely on the adult for the solution. Because our goal is self-reliance, we have to carefully guide and encourage the child so that he or she can figure out how to solve problems without always depending on the teacher for the answers. Throughout the day, the teacher should:

1. Teach children that a plan is a way to do something.
2. Encourage children by asking, "What is your plan?" or "Did you use a plan?"
3. Remind students to think of a strategy. If needed, provide one and explain when and where to use it.
4. Teach a limited number of strategies and encourage students to develop their own.
5. Teach strategy use in all areas of the curriculum.
6. Teach children that using a plan is also important in social situations, especially in sports, on the playground, and when playing many kinds of games.
7. Remind students that using a plan requires thoughtful examination of the problem, not rapid task completion.
8. Teach students to examine each problem carefully and always use a plan.

Resources

Pressley, M.P., & Woloshyn, V. (1995). *Cognitive strategy instruction that really improves children's academic performance* (2nd ed.). Brookline, MA: Brookline Books.

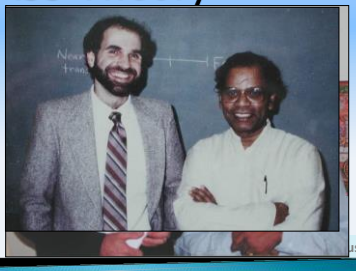
Schied, S. (1993). *Helping students become strategic learners*. Brookline, MA: Brookline Books.

Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

Conclusions

Opearationalizing Basic Psycholgoical Processes using PASS Theory



CAS2 (Ages 5–18 yrs.)

Conclusions

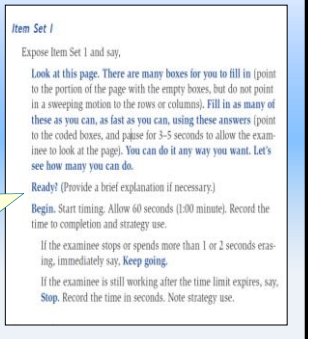
CAS2 Development Goals

- **CAS2**
  - New norms
  - Strengthen reliability of the scales by modifying subtest formats
  - Improve factor structure
  - Add/delete items
  - Add a visual Successive subtest
  - Add new scales beyond PASS
  - Retain Administration format of
    - Examiner demonstrates,
    - Child does a sample
    - Directions for remaining items is given
    - And opportunity to Provide Help is given

Conclusions

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.

Conclusions

CAS2

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

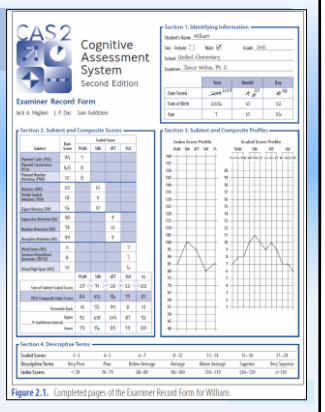


Figure 2.1. Completed pages of the Examiner Record Form for William.

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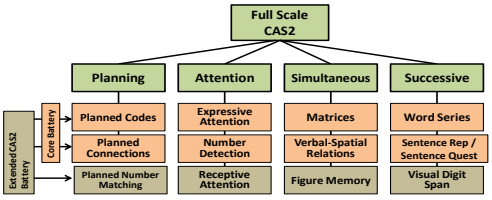
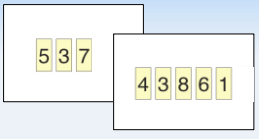
CAS2 Scale and Subtest Structure



CAS2

- All subtests modified
- Planning subtests have more items
- Speech Rate deleted
- New: Visual Digit Span subtest



Section 2. Subtest and Composite Scores

Subtest	Raw Score	Scaled Score PLAN	SIM	ATT	SUC
Planned Codes (PCd)	34	7			
Planned Connections (PCn)	165	8			
Planned Number Matching (PNM)	10	8			
Matrices (MAT)	20		10		
Verbal-Spatial Relations (VSR)	18		11		
Figure Memory (FM)	16		10		
Expressive Attention (EA)	48			9	
Number Detection (ND)	74			10	
Receptive Attention (RA)	43			9	
Word Series (WS)	11				7
Sentence Repetition/ Questions (SR/SQ)	8				7
Visual Digit Span (VDS)	10				6
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		23	31	28	20	102
PASS Composite Index Scores		84	102	96	79	87
Percentile Rank		14	55	39	8	19
90% Confidence Interval	Upper	92	108	104	87	92
	Lower	79	96	89	74	83

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CAS2

- Supplementary Scales: Executive Function, Working Memory, Verbal, Nonverbal
- Added: A Visual and Auditory comparison

Visual–Auditory Comparison

	Scaled Score
Word Series	
Visual Digit Span	
Difference (ignore sign)	
Circle one: .05 .10 NS	

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
90% Confidence Interval Upper	101	99	101	101	99
90% Confidence Interval 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.

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CAS2 Online Score & Report

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

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

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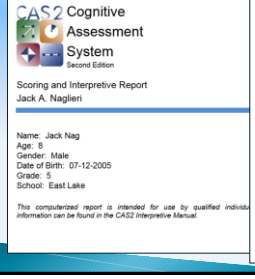
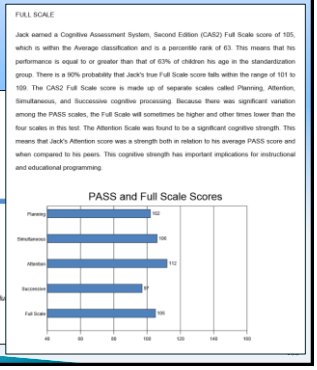
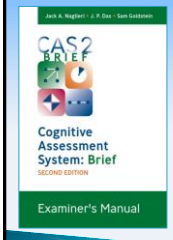
CAS2 Online Score & Report

- Narrative report can be obtained in Word or PDF





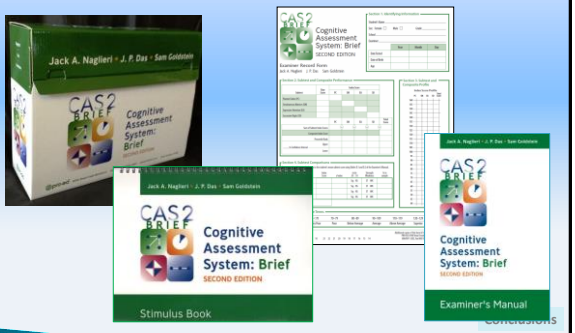
CAS2: Brief



- Structure and features

Conclusions

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)

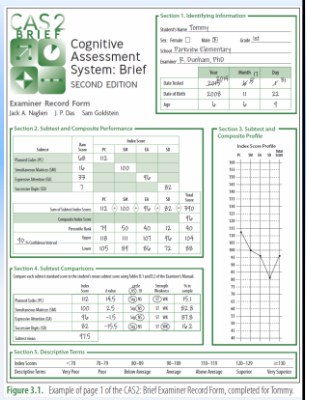
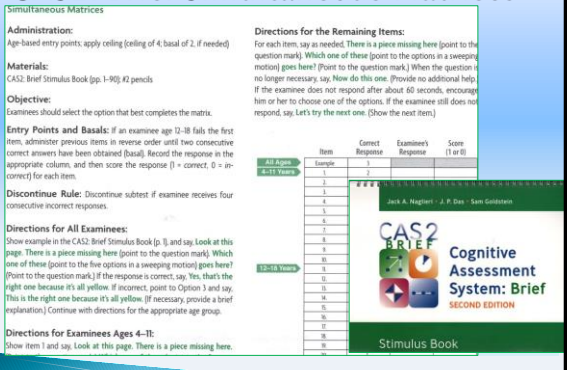


Figure 3.1. Example of page 1 of the CAS2: Brief Examiner Record Form, completed for Tommy.

201

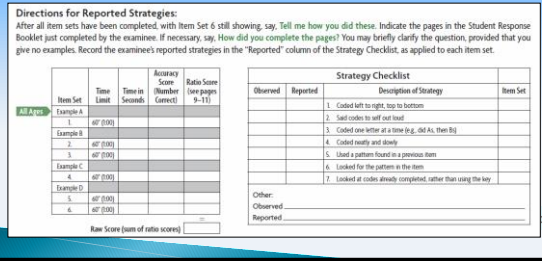
CAS2: Brief Simultaneous Matrices



202

CAS2: Brief Planned Codes & Successive Digits

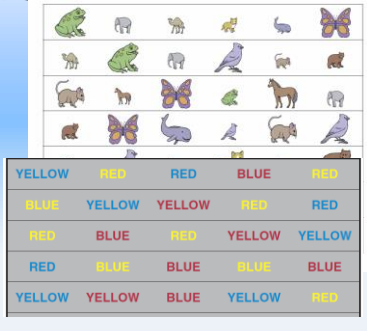
- Planned Codes has 8 items using numbers not letters and has different patterns
- Successive Digits uses numbers (not words)



203

CAS2: Brief Scale

- Expressive Attention (Stroop) used
- Big/Little animals (ages 4–7 years)
- Color Words (ages 8–18)



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

Conclusions

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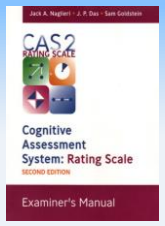
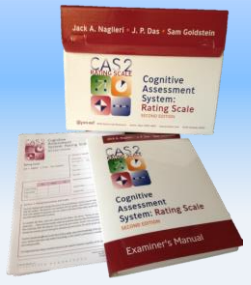
CAS2: Rating Scale



» For TEACHERS

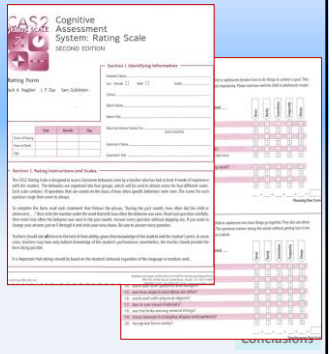
CAS2 Rating Scales (Ages 4–18 yrs.)

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



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 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.

CAS2 Rating Scales

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

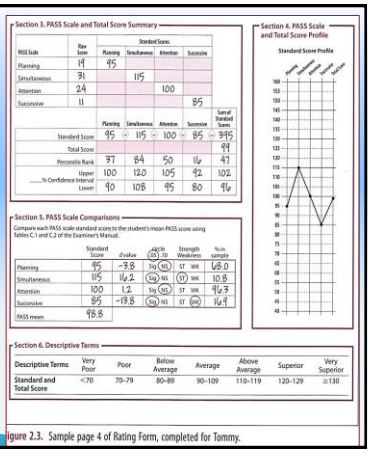


Figure 2.3. Sample page 4 of Rating Form, completed for Tommy.

PASS: Across the Three Measures

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

PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)

CAS2 Rating Scale (4 subtests)	CAS2 Brief (4 subtests)	CAS2 Core (8 subtests)	CAS2 Extended (12 subtests)
Total Score Planning Simultaneous Attention Successive	Total Score Planning Simultaneous Attention Successive	Full Scale Planning Simultaneous Attention Successive	Full Scale Planning Simultaneous Attention Successive Supplemental Scales Executive Function Working Memory Verbal / Nonverbal Visual / Auditory

PASS Comprehensive System

- At Tier 1 CAS2: Rating Scale can be completed by a teacher and depending upon those results…
- At Tier 2 the CAS2: Brief scale could be given to inform instruction and for screening
- At Tier 3 the CAS2: Extended Battery could be given for full evaluation of his neurocognitive abilities
- This PASS Comprehensive System provides three ways to learn about a student's learning strengths and weaknesses

Topical Outline

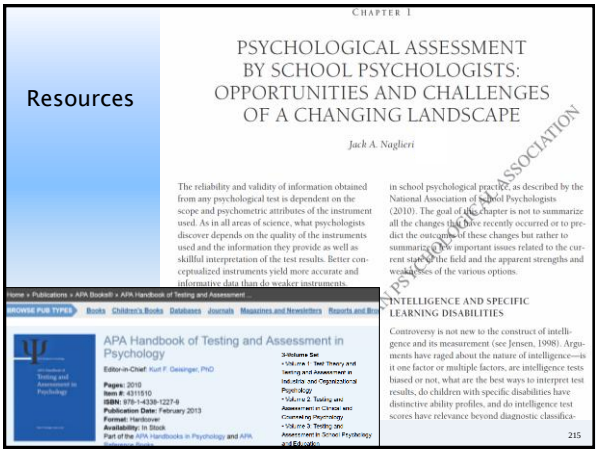
- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

Ability Test Profiles

Do Students with SLD Have a Pattern of Cognitive Strengths and Weaknesses?

This is essential for intervention planning

Resources


CHAPTER 1

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

Jack A. Naglieri

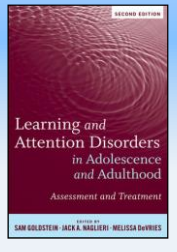
The reliability and validity of information obtained from any psychological test is dependent on the scope and psychometric attributes of the instrument used. As in all areas of science, what psychologists discover depends on the quality of the instruments used and the information they provide as well as skillful interpretation of the test results. Better conceptualized instruments yield more accurate and informative data than do weaker instruments.

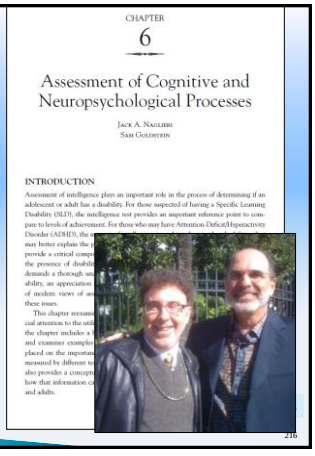
in school psychological practice, as described by the National Association of School Psychologists (2010). The goal of this chapter is not to summarize all the changes that have recently occurred or to predict the outcomes of these changes but rather to summarize a few important issues related to the current state of the field and the apparent strengths and weaknesses of the various options.

INTELLIGENCE AND SPECIFIC LEARNING DISABILITIES

Controversy is not new to the construct of intelligence and its measurement (see Jensen, 1998). Arguments have raged about the nature of intelligence—is it one factor or multiple factors, are intelligence tests biased or not, what are the best ways to interpret test results, do children with specific disabilities have distinctive ability profiles, and do intelligence test scores have relevance beyond diagnostic classifica-

SLD Profiles by Ability Test




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

provide a critical

the presence of disabil

demands a thorough

ability, an appreciation

of modern views of

these issues.

This chapter

cal attention to the

the chapter includes

and examiner examples

placed on the

measured by different

also provides a

how that information

and adults.

Naglieri & Goldstein (2011)

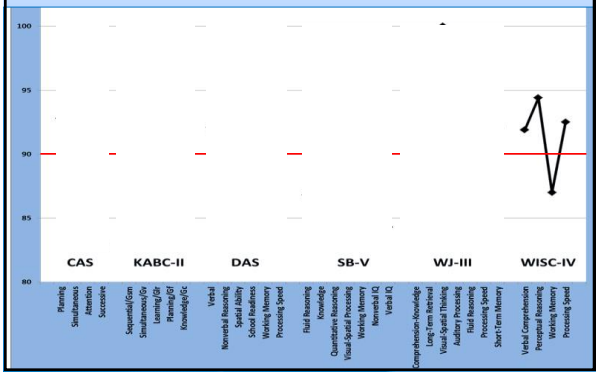
GROUP PROFILES BY ABILITY TEST

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

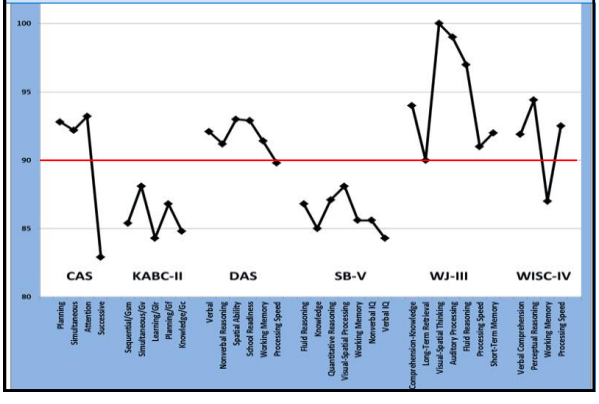
1. We need to know if intelligence tests yield distinctive profiles

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

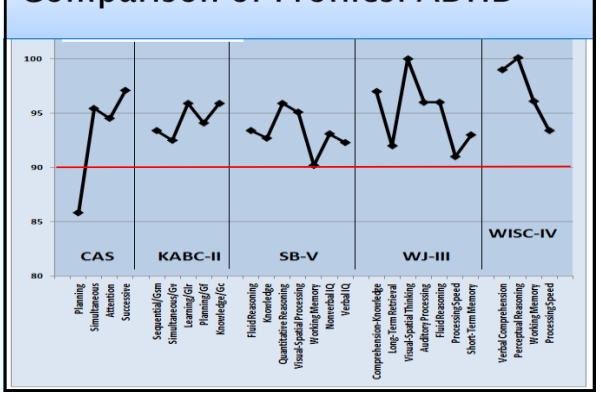
Test Comparison: Reading Decoding



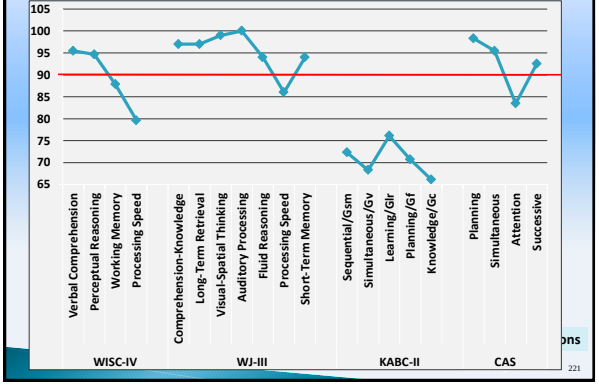
Comparison of Profiles: Reading Decoding



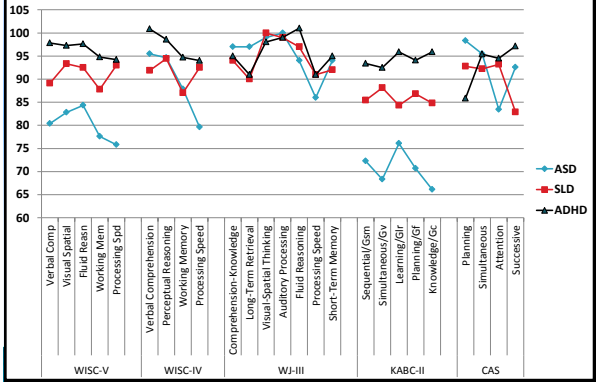
Comparison of Profiles: ADHD



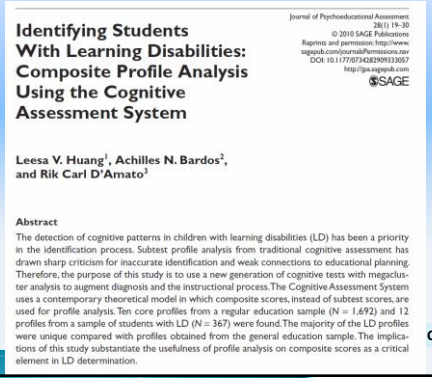
Comparison of Profiles: Autism



WISC-5



SLD Profiles on CAS (Huang, Bardos, D'Amato, 2010)



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

Journal of Psychoeducational Assessment 28(1) 19-30
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DOI: 10.1177/0734282909333057
http://jpa.sagepub.com
SAGE

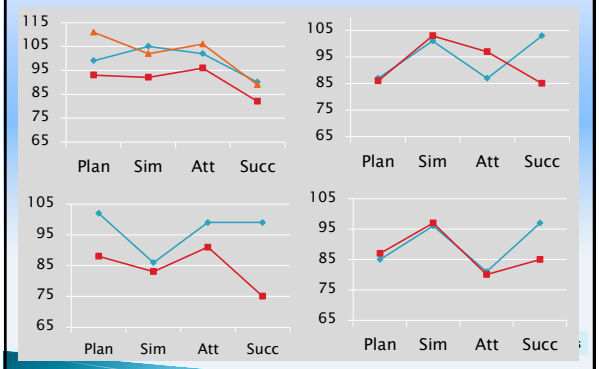
Leesa V. Huang[1], Achilles N. Bardos[2], and Rik Carl D'Amato[3]

Abstract

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

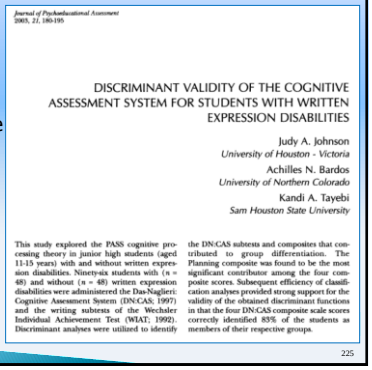
Conclusions

9 CAS Profiles



Johnson, Bardos & Tayebi, 2003

- "this study suggests that the CAS…yields information that contributes to the differential diagnosis of students suspected of having a learning disability in writing"



Journal of Psychoeducational Assessment 2003, 21, 180-195

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

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

This study explored the PASS cognitive processing theory in junior high students (aged 11-15 years) with and without written expression disabilities. Ninety-six students with (n = 48) and without (n = 48) written expression disabilities were administered the Das-Naglieri: Cognitive Assessment System (DN:CAS; 1997) and the writing subtests of the Wechsler Individual Achievement Test (WIAT; 1992). Discriminant analyses were utilized to identify the DN:CAS subtests and composites that contributed to group differentiation. The Planning composite was found to be the most significant contributor among the four composite scores. Subsequent efficiency of classification analyses provided strong support for the validity of the obtained discriminant functions in that the four DN:CAS composite scale scores correctly identified 83% of the students as members of their respective groups.

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 B. Gaboury
Pasadena School District, Pasadena, WA

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

Conclusions

Slides by Jack A. Naglieri, Ph.D. (jnaglieri@gmail.com)

Ability & 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

Conclusions

Ability & Achievement (Naglieri, 1999)

	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 Interpretative Manual; DAS Handbook.
Increase = $(r^2_1 - r^2_2)/ r^2_1$ where r^2_1 = WISC-3 WIAT correlation

Conclusions

CAS and Achievement

Journal of Educational Psychology
2004, Vol. 96, No. 1, 174–181

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

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

Jack A. Naglieri and Johannes Rojahn
George Mason University

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

There are many ways in which the validity of a theory of cognitive ability may be evaluated. Psychologists often attempt to relate information about a child's cognitive characteristics to that child's academic performance. Because cognitive ability and academic achievement share a significant portion of the same construct, tests of cognitive ability should correlate with tests of academic achievement. This shared construct representation constitutes a basic type of construct validity (Messick, 1995). If there is a strong relationship between the results of a cognitive ability test and measures of academic achievement, we assume that whatever that test measures plays an important role in academic performance.

achievement. For instance, subtests like General Information are also included on individual achievement tests (e.g., the Peabody Individual Achievement Test—Revised; Markwardt, 1997). Similarly, the WISC-III Vocabulary and Similarities subtests require knowledge of words, which is also assessed by vocabulary or word analogy tests on, for example, the Stanford Achievement Test, Ninth Edition (SAT^9; 1995). The risk of circular reasoning is obvious. The recognition that this overlap in content is undesirable is not new (Boake, 2002) and has influenced the structure of tests such as the Kaufman Assessment Battery for Children (K-ABC; Kaufman & Kaufman, 1983) and the Naglieri Nonverbal Ability Test (N-NAT; Naglieri, 1997).

ri, Ph.D. George
Mason Univ, Fairfax, VA
22030. naglieri@gmu.edu

Race Differences

Evolution of IQ (Goldstein, & Naglieri, 2015)

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, who was also the president of the American Psychological Association. Yerkes made an appeal to members of APA who responded by

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

Jack A. Naglieri, Ph.D.

Race & IQ

(Naglieri, 2015)

Brain-based PASS measured by CAS and CAS2 is most fair

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

Test	Difference
Traditional	
SB-IV (matched)	12.6
WISC-IV (normative sample)	11.5
WJ-III (normative sample)	10.9
WISC-IV (matched)	10.0
Second generation	
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

Hispanic ELL Students with Reading Problems

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

Jack A. Naglieri
George Mason University
Tulio Otero
Columbia College, Elgin Campus
Brianna DeLauder
George Mason University
Holly Matto
Virginia Commonwealth University

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

This study compared the performance of referred bilingual Hispanic children on the Planning, Attention, Simultaneous, Successive (PASS) theory as measured by English and Spanish versions of the Cognitive Assessment System (CAS; Naglieri & Das, 1997a). The results suggest that students scored similarly on both English and Spanish versions of the CAS. Within each version of the CAS, the bilingual children earned their lowest scores in Successive processing regardless of the language used 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 were found to contribute to the differences between the English and Spanish versions of the CAS. Comparisons of the children's profiles of cognitive weakness on both versions of the CAS showed that these children performed consistently despite the language difference.

English Spanish CAS

Means, *SDs*, *d*-ratios, Obtained and Correction Correlations Between the English a

Spanish Version of the CAS ($N = 55$).

	CAS English		CAS Spanish		*d*-ratio	Correlations	
	Mean	*SD*	Mean	*SD*	*d*	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

English Spanish CAS Summary

- The PASS cognitive weakness profiles on both the Spanish and English versions of the CAS were studied
- The percentage of children who had a cognitive weakness on the English AND Spanish versions of the CAS:
  - Planning 92.7%
  - Simultaneous 89.1%
  - Attention 100%
  - Successive 78.2%

Otero, Gonzales, Naglieri (2012)

- SLD and PASS scores

APPLIED NEUROPSYCHOLOGY: CHILD, 0: 1–9, 2012
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The Neurocognitive Assessment of Hispanic English-Language Learners With Reading Failure

Tulio M. Otero
Departments of Clinical Psychology and School Psychology, Chicago School of Professional Psychology, Chicago, Illinois
Lauren Gonzales
George Mason University, Fairfax, Virginia
Jack A. Naglieri
University of Virginia, Faiefax, 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.

Otero, Gonzales, Naglieri (2012)

- "Fagan (2000) as well as Suzuki and Valencia (1997) suggested that a cognitive processing approach like that used in the CAS would avoid the knowledge base required to answer verbal and quantitative questions found on most traditional IQ tests and would be more appropriate for culturally and linguistically diverse populations. The results of this study support the assertion (p. 8)."

TABLE 2
Means, Standard Deviations, *d* Ratios, and Correlations Between the English and Spanish Versions of the Cognitive Assessment System ($N = 40$)

	CAS English		CAS Spanish			Correlations	
CAS Subtests and Scales	*M*	*SD*	*M*	*SD*	*d* ratio	Obtained	Corrected
Scales							
Planning	94.60	8.78	94.98	8.59	-0.04	.978	.997
Simultaneous	92.58	11.34	93.63	12.06	-0.09	.886	.953
Attention	94.08	8.48	94.78	8.23	-0.08	.973	.997
Successive	78.65	10.29	78.25	10.08	0.04	.943	.987
Full Scale	86.40	8.73	87.10	7.94	-0.08	.936	.993

Naglieri, Rojahn, Matto (2007)

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

Available online at www.sciencedirect.com
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ELSEVIER
INTELLIGENCE

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, MSN 2C6, United States
b Virginia Commonwealth, 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.

PASS neuropsychological abilities in other languages

Van Luit, et al (2002) Dutch

- 186 Dutch Children

Utility of the PASS Theory and Cognitive Assessment System for Dutch Children With and Without ADHD

Johannes E. H. Van Luit, Evelyn H. Kroesbergen, and Jack A. Naglieri

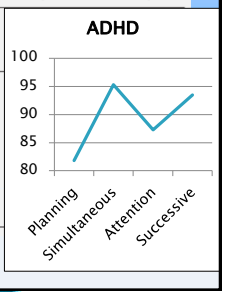
Abstract

This study examined the utility of the Planning, Attention, Simultaneous, Successive (PASS) theory of intelligence as measured by the *Cognitive Assessment System* (CAS) for evaluation of children with attention-deficit/hyperactivity disorder (ADHD). The CAS scores of 51 Dutch children without ADHD were compared to the scores of a group of 20 Dutch children with ADHD. The scores of the Dutch children were also compared to American standardization samples of children with and without ADHD. The findings showed that children with ADHD in both countries demonstrated relatively low scores on the Planning and Attention scales of the CAS, but average scores on the Simultaneous and Successive scales. These findings are similar to previously published research suggesting that the PASS theory, as operationalized by the CAS, has sensitivity to the cognitive processing difficulties found in some children with ADHD.

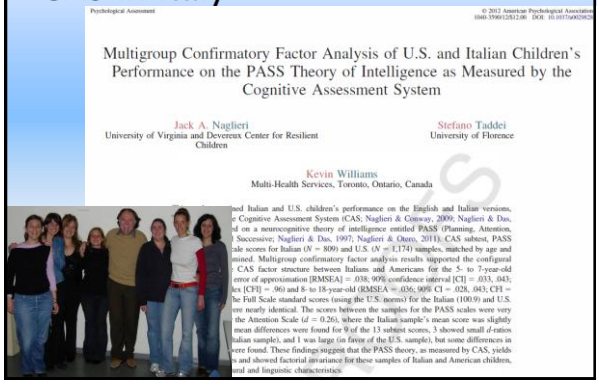
Van Luit, et al (2002)

TABLE 2
CAS Full Scale and Subscale Means and Standard Deviations for Dutch ADHD Group and Dutch Control Group

Scale	ADHD[a] M	ADHD[a] SD	Control[b] M	Control[b] SD
Planning	81.8	9.3	95.6	10.5
Attention	87.3	10.6	102.2	11.6
Simultaneous	95.3	13.7	101.2	12.7
Successive	93.5	14.4	103.0	13.0
Full Scale	85.7	12.9	100.4	11.1



CAS in Italy



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

Jack A. Naglieri
University of Virginia and Devereux Center for Resilient Children

Stefano Taddei
University of Florence

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

CAS in Italy

- Full Scale standard scores using the US norms were nearly identical between the two countries.

Table 5
Means and SDs for Italian Children (N = 809) on the CAS Subtests and PASS and Full Scales Using U.S. Norms and d-Ratio Comparisons to U.S. Sample (N = 1,174), Matched by Age

Subtests and scales	Italian M	Italian SD	Italian n	U.S. M	U.S. SD	U.S. n	F	p	d-ratio
CAS composite scales									
Planning	97.7	13.4	809	100.5	15.4	1,174	18.1	<.01	−0.19
Simultaneous	103.0	13.9	809	101.1	14.1	1,174	9.3	<.01	0.14
Attention	104.2	13.7	809	100.6	14.4	1,174	32.2	<.01	0.26
Successive	99.0	12.5	809	100.5	14.5	1,174	5.1	.02	−0.11
Full Scale	100.9	12.9	809	100.5	14.8	1,174	2.3	.13	0.03

Note. CAS = Cognitive Assessment System; PASS = Planning, Attention, Simultaneous, and Successive. U.S. sample *Ns* vary due Designations for *d*-ratios are as follows: T = trivial (<.2), S = small (.2), M = medium (.5), and L = large (.8). For all *F* values the *dfs* a for Speech Rate (1, 1219) and Sentence Questions (1,762).

Why PASS works across race, ethnicity, language, and culture

- It measures important basic neurocognitive processes
- It does not measure ability by tests that involve academic skills, that is no
  - Vocabulary
  - Similarities
  - Arithmetic
  - Comprehension
- All traditional IQ tests with verbal and quantitative tests are contaminated by knowledge
- IS VERBAL IQ REAL?

Group Think…

- Discuss with the group what implications these findings have for your understanding of the students you work with
- What is most surprising about this information?
- What thoughts do you have?
- Report to the audience

Take Away Message

- The brain-based approach to defining important neurocognitive abilities is very different from traditional IQ
  - PASS yield profiles for students with different exceptionalities
  - PASS yields the smallest race/ethnic differences
  - PASS scales are useful for instructional planning
  - PASS helps us better understand gender differences

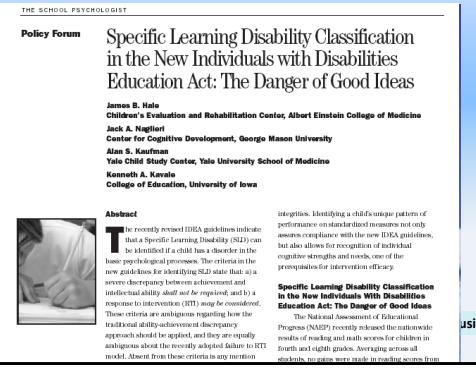
Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

SLD & Basic Psychological Processes

Connecting IDEA 2004 with practice

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: a) 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 integrities. Identifying a child's unique pattern of performance on standardized measures not only assures compliance with the new IDEA guidelines, but also allows for recognition of individual cognitive strengths 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

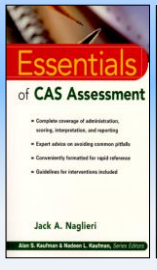
The National Assessment of Educational Progress (NAEP) recently released the nationwide results of reading and math scores for children in fourth and eighth grades. Averaging across all students, no gains were made in reading scores from

Hale, Naglieri, Kaufman, & Kavale (2004)

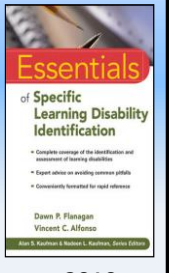
- In the US, the Federal definition of SLD is
  - "… a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. (2004; IDEA)"
- Neither the IQ/achievement discrepancy model used in the past nor RTI evaluates basic psychology processes

Discrepancy Consistency Model for SLD

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.



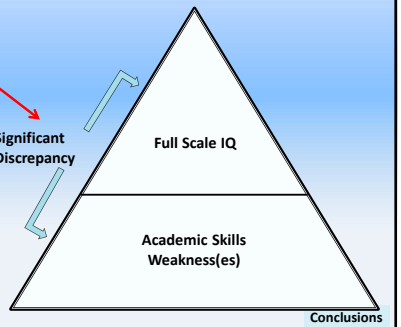
1999



2010

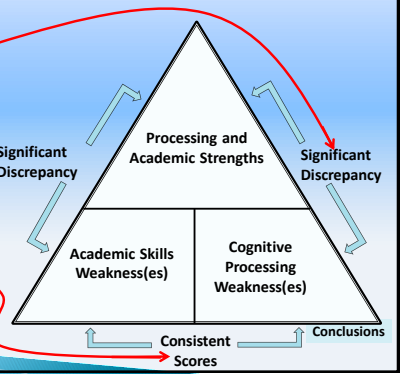
Old Discrepancy Model for SLD

- **Discrepancy between Full Scale IQ and achievement test scores of some magnitude determined by each State Department of Education**



Discrepancy Consistency Model for SLD

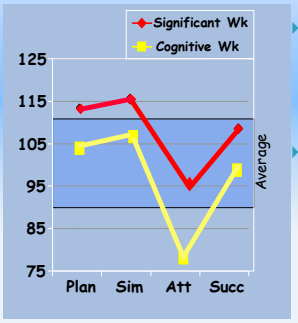
- **Discrepancy between high and low processing scores**
- **Discrepancy** between high processing and low achievement
- **Consistency** between low processing and low achievement



What is a 'disorder in processing'

- Use the Discrepancy Consistency Model to identify a "*disorder in one or more of the basic psychological processes*"
  - Identify a **weakness** with otherwise average or above scores in **basic psychological processes** along with academic failure
  - A disorder should have **two** components
    - A score on a multi-dimensional measure of processes that is significantly lower than the student's average
    - The low score(s) need to be at least below the Average range (e.g., less than 90)

What is a 'disorder in processing'



- **Significant Weakness**
  - *Is low relative* to the child's mean score
- **Cognitive Weakness**
  - Is a Significant weakness and the score falls in the Low Average range (80–89) or lower

The Case of Rocky – RTI Delayed the Comprehensive Evaluation

From assessment to intervention

The case of Rocky

- Rocky[1] 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.

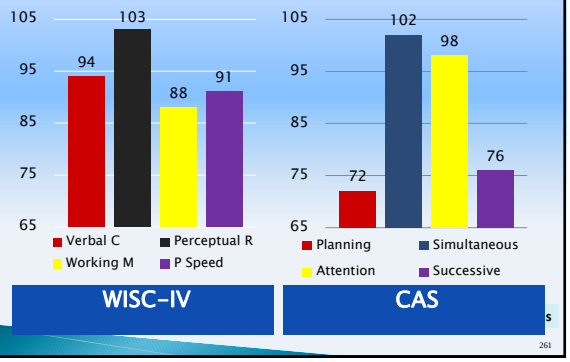
The case of Rocky

- By the middle of his second year in first grade Rocky was having difficulty with
  - decoding, phonics, and sight word vocabulary;
  - working with math problems that involve money, addition, fact families, and problem solving activities;
  - and focusing and paying attention."

The case of Rocky

- 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
- Rocky has failed to respond to intervention – so what now?
  - Identify him as having a learning disability?
  - Give him more intensive instruction?
  - What treatment would be appropriate?
  - Do we know enough about him?

WISC-IV and CAS

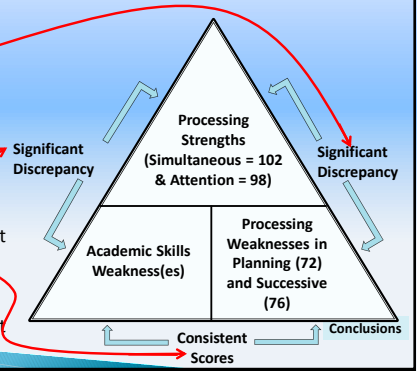


The case of Rocky

- Rocky has a "disorder in one or more of the basic psychological processes"
  - Planning = 72
  - Successive = 76
  - Simultaneous = 100, Attention = 98
- Rocky has documented academic failure
- He has intra-individual differences in cognitive processes that underlie his academic problems

Discrepancy Consistency Model for SLD

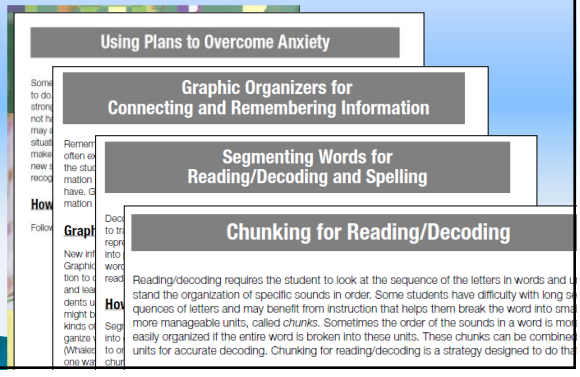
- **Discrepancy between high and low processing scores**
- **Discrepancy** between high processing and low achievement
- **Consistency** between low processing and low achievement



The case of Rocky

- Rocky meets the definition of SLD in IDEA
  - He requires specialized instruction that takes into account his learning needs
  - Instruction should emphasize the use of strategies and plans in all content areas
  - Instruction should include ways to better work with serial information
  - Rote memory and phonics instruction are ill-advised

The case of Rocky



The case of Rocky

- These children experience
  - academic failure that may be exacerbated by poor instruction, but it is not caused by it
  - they may benefit from frequent progress monitoring, but this is not enough
  - They may do poorly in the regular classroom but their problem is not an instructional failure
  - They need instruction that is tailored to their individual strengths and limitations in processing
- The only way to know is to carefully evaluate the child's basic psychological processes

Group Think…

- Does this method make sense?
- Does it help you understand the problem and guide instruction?
- What is most surprising about this information?
- Report to the audience

Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

Christopher

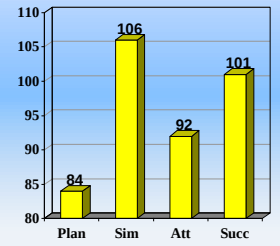
A Case study

Case of Chris – 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
- CBCL Externalizing = 68
  - failure in control, impulsivity problems, arguing, attention-getting behaviors.
- Met DSM criteria for ADHD Combined type

Case of Christopher (continued)

- WISC-IV (FS = 106)
  - VC = 114 PO = 102
  - WM = 96 PS = 94
- Achievement
  - Reading = 106
    - Comprehension = 117
    - Word Attack = 108
    - Dictation = 82
  - Math = 100
    - Applied Problems = 93
    - Calculation = 86



-11.8(W) 10.3(S) -3.8 5.3
Child's mean = 95.8; d values are above

Conclusions

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ADHD Characteristics

- ADHD "results from a failure in self-control" (Barkley, 1998, p. 66)
- Symptoms:
  - problems with inhibition of prepotent responses which limits control of behavior
  - lead to poor planning and anticipation
  - poor organization
  - impaired verbal problem solving and self-directed speech, poor rule governed behavior
  - problems developing, using and monitoring organizational strategies;
  - (Barkley, 2003).

Conclusions

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ADHD Characteristics

- ADHD children may have difficulty with 'executive functions' which has been associated with the prefrontal lobes (e.g., Roth & Saykin, 2004)
- If ADHD is a failure of self-control within the context of prefrontal lobe functions (see Goldberg, 2001)
- then a connection between the disorder and the PASS theory described by Naglieri and Das (2005) based on A. R. Luria's work can be made

Conclusions

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ADHD Characteristics

- There is considerable research that suggests that children with ADHD have a specific profile of abilities on the Planning, Attention, Simultaneous, Successive (PASS) theory
  - Dehn, 2000; Paolitto, 1999; Iseman, 2005; Naglieri, Goldstein, & Iseman, 2003; Naglieri, Salter & Edwards, 2004; VanLuit, Kroesbergen & Naglieri, 2005
- A look at the research

Conclusions

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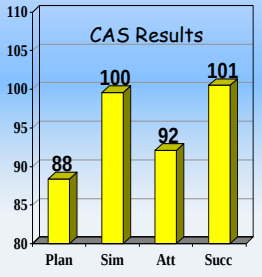
Paolitto, 1999



- N = 66 (6-14 years)
- All subjects met DSM-IV criteria for ADHD
- No comorbid diagnoses
- Results suggest behavioral disinhibition and attention problems are related to ADHD

Conclusions

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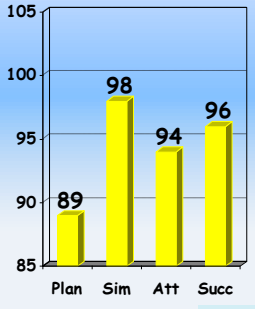
Milt Dehn (2000)

- Paper presented at NASP (New Orleans, 4/2000)
- N = 25
  - Documented ADHD
  - No comorbidity
  - 21 males
  - Ages 6-16
  - Not on medication on the day of testing



Conclusions

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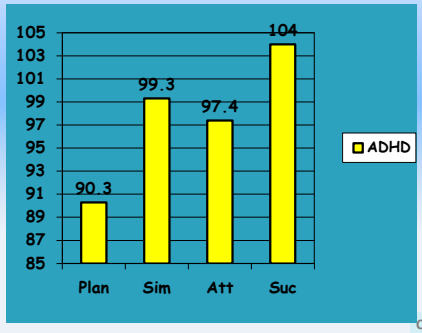
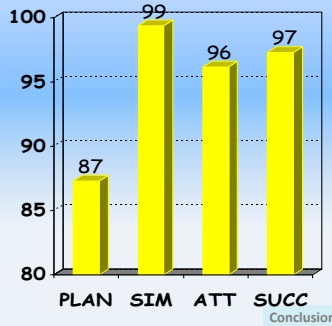
Naglieri, Salter & Edwards (2001)

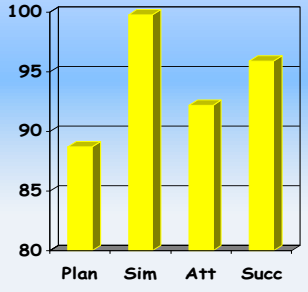


Naglieri, Goldstein, Iseman & Schwebach (2003)

- 25 Children who
- DSM-IV criteria for ADHD
- All referred for evaluation



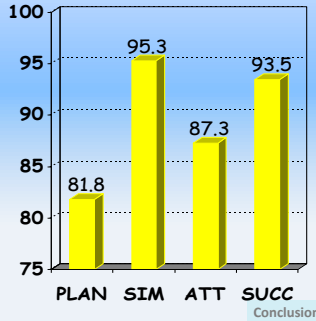
Iseman (2005)



- 29 Children with ADHD
- All attended a special school for children with severe learning problems

Van Luit, Kroesbergen & Naglieri (2005)

- 20 Dutch Children
- DSM-IV criteria met (Hyper/Imp)
- Age = 10.6 years (SD = 0.9)



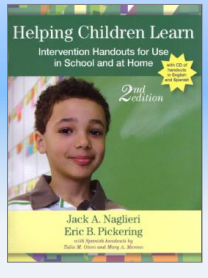
Teaching Students to use their Planning Ability

IT WORKS ! !

Jack A. Naglieri, Ph.D. George Mason Univ.
Fairfax, VA 22030, naglieri@gmu.edu

Encourage Planning

- 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.



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.

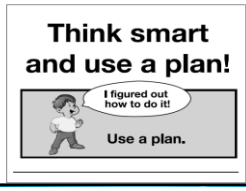
Step 1 – Talk with Students

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.



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!

Mindsets = Planning from PASS

- Planning is about how we do what we decide to do
- We can decide to have a growth mind set and **think smart!**
- **Does teaching students to Think Smart and use a Plan work?**

Planning

Planning Facilitation for Math Calculation

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

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

How to Teach Planning Facilitation

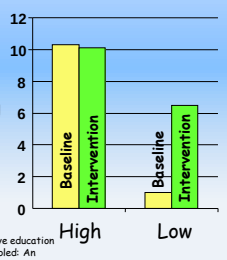
Planning facilitation is provided in three 10-minute time periods: 1) 10 minutes of math, 2) 10 minutes of discussion, and 3) 10 more minutes of math. These steps can be described in more detail:

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

Planning Facilitation in Math –

Naglieri & Gottling (1995)

- 4 boys with LD
- low / high planning
- 1 to 1 intervention
- Classroom math
- Instruction: planning was facilitated
- Low group improved more than high



Naglieri, J. A., & Gottling, S. H. (1995). A cognitive education approach to math instruction for the learning disabled: An individual study. Psychological Reports, 76, 1343-1354.

Naglieri & Gottling (1997)

Mathematics instruction and PASS cognitive processes: An intervention study. *Journal of Learning Disabilities, 30*, 513-520.

Math intervention for children with low Planning

Planning Facilitation in Math –
Naglieri & Gottling (1997)

- 6 females; 6 males; (24% minority)
- Aged 9 to 12 years
- Attended a private school that specializes in treating children with significant learning problems
- All met LD criteria
- Two regular teachers gave instruction in group setting
- They did not know the children's PASS scores
- Teachers were instructed in an initial one-hour session with weekly follow-up

Planning Facilitation in Math –
Naglieri & Gottling (1997)

- 28 Math work sheets constructed by computer to match pages used in class
- Subtraction sheets –
  54 problems; 6 rows X 9 columns; numbers with 1 to 3 digits (no decimals); with and without regrouping.
- Multiplication problems –
  whole numbers by a two-digit number ranging from 10 – 99; with and without carrying

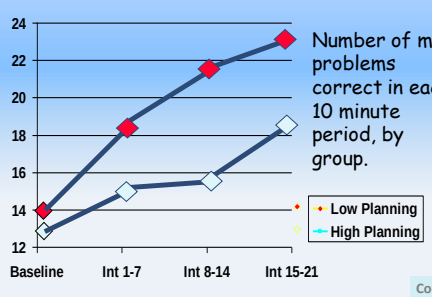
Planning Facilitation in Math –
Naglieri & Gottling (1997)

- Students were encouraged to
  - determine how they did the pages
  - verbalize and discuss their methods
  - be self-reflective
- Teachers asked questions to facilitate
  - How did you do the problems & why?
  - What will you do next time?
  - What did you notice on this page?

Planning Facilitation in Math –
Naglieri & Gottling (1997)

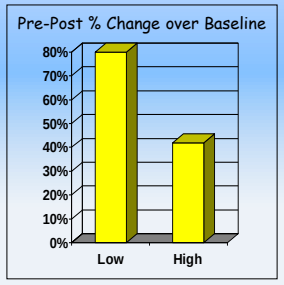
- Students said:
  - When I get distracted I move my seat
  - I have to remember to borrow
  - I'll do the easy ones first
  - I do them row by row
  - Keep the columns straight
  - Be sure to do them right not just get it done

Planning Facilitation in Math –
Naglieri & Gottling (1997)



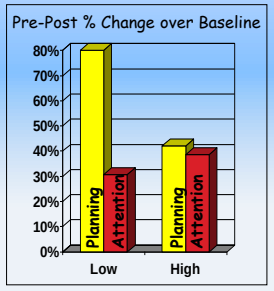
Number of math problems correct in each 10 minute period, by group.

Planning Facilitation in Math –
Naglieri & Gottling (1997)



- Students with low planning scores improved more than those with high planning scores (38 % difference)

Planning Facilitation in Math –
Naglieri & Gottling (1997)



- Students with low planning scores improved more than those with high planning scores (38% difference)
- Attention high / low difference was small (19%)

Conclusions

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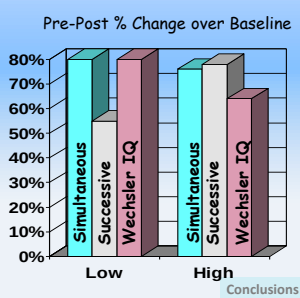
Planning Facilitation in Math –
Naglieri & Gottling (1997)

- Simultaneous high / low % difference was small (4%)
- Successive high / low % difference was slight (23%)
- Wechsler FSIQ high / low % difference was slight (16%)



Conclusions

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Naglieri & Johnson (2000).

Effectiveness of a Cognitive Strategy Intervention to Improve Math Calculation Based on the PASS Theory. *Journal of Learning Disabilities, 33,* 591-597.

Children with Cognitive Weaknesses in PASS

Conclusions

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JOURNAL OF LEARNING DISABILITIES
VOLUME 33, NUMBER 6, NOVEMBER/DECEMBER 2000, PAGES 591–597

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

Jack A. Naglieri and Deanne Johnson

Abstract

The purpose of this study was to determine if an instruction designed to facilitate planning, given by teachers to their class as a group, would have differential effects depending on the specific Planning, Attention, Simultaneous, Successive (PASS) cognitive characteristics of each child. A cognitive strategy instruction that encouraged planning was provided to the group of 19 students with learning disabilities and mild mental impairments. All students completed math worksheets during 7 baseline and 14 intervention sessions. During the intervention phase, students engaged in self-reflection and verbalization of strategies about how the arithmetic computation worksheets should be completed. The sample was sorted into one experimental and four contrast groups after the experiment was completed. There were four groups with a cognitive weakness in each PASS scale from the Cognitive Assessment System and one group with no cognitive weakness. The results showed that children with a cognitive weakness in Planning improved considerably (large effect size of 1.4), in contrast to those with a cognitive weakness in Attention (small effect size of 0.3), Simultaneous weakness (a slight deterioration and effect size of -0.2), Successive weakness (medium effect size of 0.4), and no cognitive weakness (small effect size of .2). These data showed that children with a Planning weakness benefitted from the instruction designed to help them be more playful. Those children who received the planning-based instruction who were not low inplanning did not show the same level of improvement.

Children with PASS Profiles

- 21 children with LD and mild mental impairments
- Teachers followed Planning Facilitation method described by Naglieri and Gottling (1997, 1997)
- Students were given instruction that facilitated the use of Planning

Conclusions

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Illustration of a Math Worksheet Used in this Study.

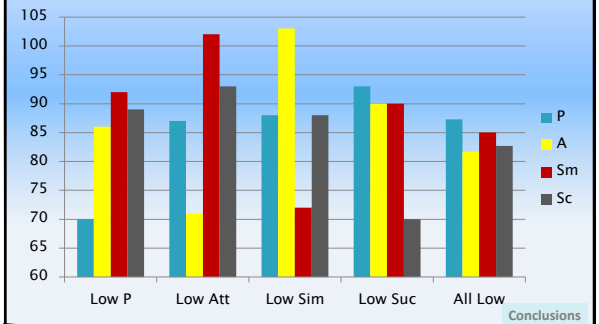
Name:			Page 1	2	12	5	1	2
Date:				2	12	14	10	3
				+	+	+	+	+
988	98,923	7,344		5	6	3	3	13
- 335	- 287	- 3,740		5	13	3	5	26
15	50	154						
X 1	X 2	X 68		5	18	24	25	13
				-	-	-	-	-
				11	1	3	3	5
864	99,979	9,424		11	5	6	3	9
+ 192	+ 241	+ 6,430						
83,052	71,085	81,747		9	9	7	7	8
- 44,247	- 24,408	- 12,688		9	13	11	11	9
				-	-	-	-	-
				3	10	4	1	4
1304	934	1918		5	14	9	6	7

Children with PASS Profiles

- Naglieri & Johnson (1998)
  - Seven 10-minute Baseline sessions
  - Fourteen 10-minute Intervention sessions
  - Children completed math computation worksheets that came from the curriculum
  - Children with a cognitive weakness in each of the PASS areas were identified
  - Cognitive Weakness = significant PASS ipsative score *and* the weakness must be a score < 90.

Groups by PASS Weakness

Naglieri & Johnson (2000)



Children with PASS Profiles

	# Correct Baseline	Inter-vention	% Change	Effect Size
No CW	26	29	11	0.2

Note: Total number correct for all 7 sessions. 7 baseline, 14 intervention sessions (intervention number correct was weighted by .5). The % change = (Int – Base) /Base. Effect sizes are averages across subjects using (mean Int – mean Base) / SD baseline.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

Children with PASS Profiles

	# Correct Baseline	Inter-vention	% Change	Effect Size
Suc	28	39	39	0.5
NoCW	26	29	11	0.2

Note: Total number correct for all 7 sessions. 7 baseline, 14 intervention sessions (intervention number correct was weighted by .5). The % change = (Int – Base) /Base. Effect sizes are averages across subjects using (mean Int – mean Base) / SD baseline.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

Children with PASS Profiles

	# Correct Baseline	Inter-vention	% Change	Effect Size
Att	16	24	50	0.3
Suc	28	39	39	0.5
NoCW	26	29	11	0.2

Note: Total number correct for all 7 sessions. 7 baseline, 14 intervention sessions (intervention number correct was weighted by .5). The % change = (Int – Base) /Base. Effect sizes are averages across subjects using (mean Int – mean Base) / SD baseline.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

Children with PASS Profiles

	# Correct Baseline	Inter-vention	% Change	Effect Size
Sim	33	29	-11	-0.2
Att	16	24	50	0.3
Suc	28	39	39	0.5
NoCW	26	29	11	0.2

Note: Total number correct for all 7 sessions. 7 baseline, 14 intervention sessions (intervention number correct was weighted by .5). The % change = (Int – Base) /Base. Effect sizes are averages across subjects using (mean Int – mean Base) / SD baseline.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

Children with PASS Profiles

	# Correct Baseline	Inter-vention	% Change	Effect Size
Plan	10	25	142	1.4
Sim	33	29	-11	-0.2
Att	16	24	50	0.3
Suc	28	39	39	0.5
NoCW	26	29	11	0.2

Note: Total number correct for all 7 sessions. 7 baseline, 14 intervention sessions (intervention number correct was weighted by .5). The % change = (Int – Base) /Base. Effect sizes are averages across subjects using (mean Int – mean Base) / SD baseline.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA
307 22030. naglieri@gmu.edu

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http://journaloflearningdisabilities.sagepub.com
SAGE

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

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

Abstract

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

Design of the Study

Experimental and Comparison Groups

7 worksheets with Normal Instruction

Experimental Group

19 worksheets with Planning Facilitation

Comparison Group

19 worksheets with Normal Instruction

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

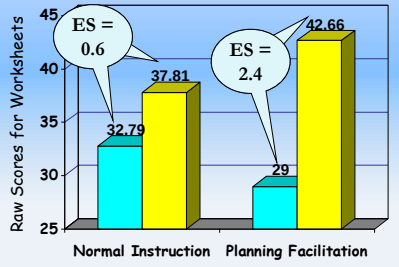
Planning (Metacognitive) Strategy Instruction

- 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?

Student Plans

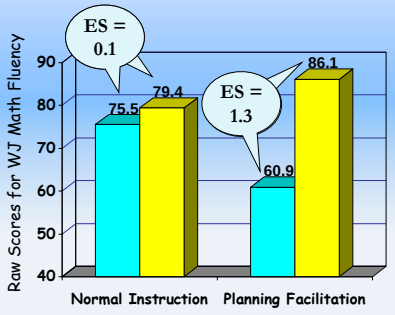
- "My goal was to do all of the easy problems on every page first, then do the others."
- "I do the problems I know, then I check my work."
- "I do them (the algebra) by figuring out what I can put in for X to make the problem work."
- "I did all the problems in the brain-dead zone first."
- "I try not to fall asleep."

Worksheet Means and Effect Sizes for the Students with ADHD



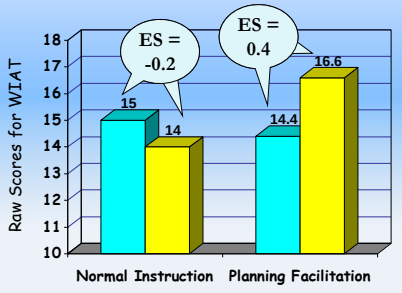
Reminder
< .2 = no effect
.2 - .5 = small
.6 - .8 = medium
> .8 = large

WJ Math Fluency Means and Effect Sizes for the Students with ADHD



Reminder
< .2 = no effect
.2 - .5 = small
.6 - .8 = medium
> .8 = large

WIAT Numerical Operation Means and Effect Sizes for Students with ADHD

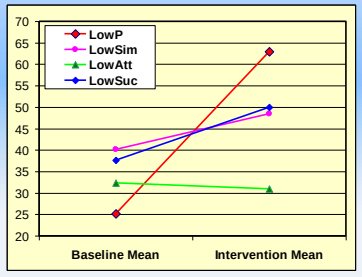


Reminder
< .2 = no effect
.2 - .5 = small
.6 - .8 = medium
> .8 = large

Conclusions

Iseman (2005)

- Baseline Intervention means by PASS profile
- Different response to the same intervention



Conclusions

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

Conclusions

Instructional Implications

- Planning Strategy Instruction is easily implemented in the classroom
- The method yields substantial results within a minimal of time (10 half-hour sessions over 10 days)
- Planning Strategy Instruction can be applied in math as well as other content areas (e.g., reading comprehension)

Conclusions

Winning Formula for Success

A Planning Mindset + Knowledge & Skill Sets = RESULTS!



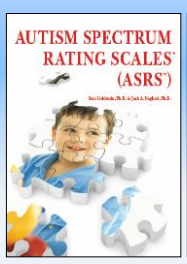
Group Think…

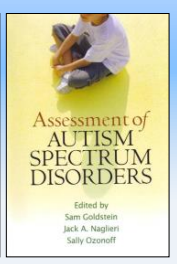
- Discuss children you have seen or worked with who were good and/or bad in Planning as just defined
  - What methods helped them
  - What methods did not help
- Your thoughts
- Report to the audience

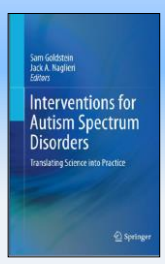
Topical Outline

- Understanding tradition IQ
- A brain-based view of abilities
- Cognitive Assessment System Second Edition
- Deciding Which Tests to Use
- Diagnosis of SLD
- Neurocognitive abilities and ADHD
- Neurocognitive abilities and ASD
- Final case studies

Three Resources by Goldstein & Naglieri for ASD

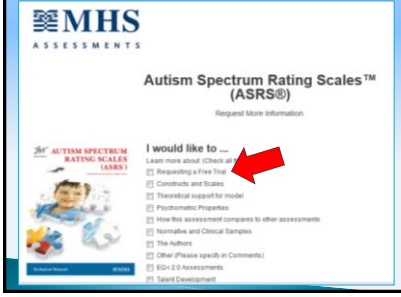


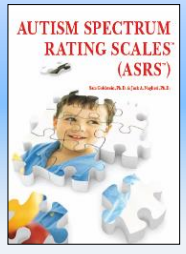




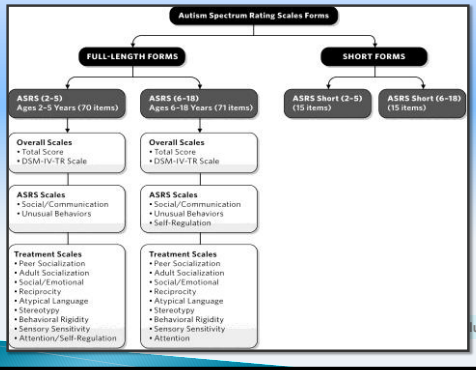
Free Trial of the ASRS

- For a free trial go to http://www.mhs.com





Autism Spectrum Rating Scales

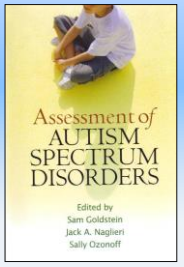


Importance of a National Norm

- The way we calibrate a psychological test or rating scale score has a direct impact on the reliability and validity of the instrument
- The composition of the comparison and characteristics of the group is especially important whenever diagnostic decisions are being made.
- What is the current state of the art?

Importance of A National Norm

- Psychometric issues for Autism rating scales is provided in the chapter by Naglieri & Chambers in *Assessment of Autism Spectrum Disorders* (Goldstein, Naglieri, & Ozonoff, 2009)



Importance of a National Norm

Psychometric Issues and Current Scales for Assessing Autism Spectrum Disorder

Jack A. Naglieri
Kimberly M. Chambers

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

Importance of a National Norm

TABLE 3.2. Comparison of Essential ASD Rating Scale Characteristics

Behavior rating scale	No. of items	Age range	Comparison sample size	Comparison sample	Representative standardization sample	Scores for total scale
Autism Diagnostic Interview—Revised (ADI-R)	93	2–*x* years	Exact *N* not given	Children with and without ASD, studies conducted by authors who [illegible] and	No	Raw score
Childhood Autism Rating Scale (CARS)	15	Exact ages not given	1,600	Ch [illegible] H	No	Raw score
Social Communication Questionnaire (SCQ)	40	4–*x* years	200	A wide variety of individuals (persons with autism, atypical autism, Asperger syndrome, fragile X syndrome, Rett syndrome, conduct disorder, language delay, mental retardation, and other clinical diagnoses)	No	Raw score
Social Responsiveness Scale (SRS)	65	4–18 years	1,636	Cases from five studies, combined into one sample (74% white, 11% black, 11% Hispanic, 2% Asian, 2% other)	No	*T* score

We don't know the *ages* of those in the comparison group

Importance of a National Norm

TABLE 3.2. Comparison of Essential ASD Rating Scale Characteristics

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Social Communication Questionnaire (SCQ)	40	4–*x* years	200	A wide variety of individuals (persons with autism, atypical autism, Asperger syndrome, fragile X syndrome, Rett syndrome, conduct disorder, language delay, mental retardation, and other clinical diagnoses)	No	Raw score
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We sometimes don't know the *size* of the comparison group

Importance of a National Norm

TABLE 3.2. Comparison of Essential ASD Rating Scal

Behavior rating scale	No. of items	Age range	Comparison sample size	Compa	Representative standardization sample	Scores for total scale
Autism Diagnostic Interview—Revised (ADI-R)	93	2–*x* years	Exact *N* not given	Children [illegible] conducted by authors where interviews were administered as part of routine initial clinical assessment and systematic research evaluations	No	Raw score
Childhood Autism Rating Scale (CARS)	15	Exact ages not given	1,600	Children who were referred to the TEACCH program (see text)	No	Raw score
Social Communication Questionnaire (SCQ)	40	4–*x* years	200	A wide variety of individuals (persons with autism, atypical autism, Asperger syndrome, fragile X syndrome, Rett syndrome, conduct disorder, language delay, mental retardation, and other clinical diagnoses)	No	Raw score
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No nationally representative samples

Importance of a National Norm

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Typically only raw scores are provided

CARS2 (2010)

- Norms are not based on a sample of individuals representative of the US population.

Conclusions

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Importance of a National Norm

- What is the problem with not having a national norm?
  - You don't know how typical children perform
    - Typical means a wide variety of individuals who vary on important demographic variables
- What is the problem with not having a standard score like a T-score (mean of 50 and *SD* of 10)?
  - You don't know how similar a child's behavior is in relation to the norm
  - Let's look at some data …

Conclusions

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Diagnostic Reference Groups

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

Conclusions

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Diagnostic Reference Groups

- I studied the differences between results when using a nationally representative sample versus a sample of children identified as having Autism as a reference group
- Raw score to standard score (T-scores) conversion table was constructed based on two different reference groups
  - Children with ASD
  - Nationally representative sample

Conclusions

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Diagnostic Reference Groups

- The **sample of children with ASD** (N = 243) were diagnosed with
  - Autism (*n* = 137), Asperger Syndrome (*n* = 80), or Pervasive Developmental Disorder-Not Otherwise Specified (*n* = 26).
  - comprised of individuals with a single primary diagnosis made by a qualified professional (e.g., psychiatrist, psychologist) according to the DSM-IV-TR (APA, 2000) or ICD-10 (WHO, 2007)) using appropriate methods (e.g., record review, rating scales, observation, and interview).

Conclusions

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Diagnostic Reference Groups

- Total **Raw Scores** on the ASRS for 6-18 Year olds rated by Teachers.

	Mean	SD	N
Autism	157.1	47.9	137
Asperger's	123.1	42.4	80
PDD-NOS	151.5	53.6	26
Total ASD Sample	129.1	46.9	243

Diagnostic Reference Groups

- The **sample, representative of the US** population, included males and females from each of the four geographic regions of the US and four racial-ethnic groups (Asian, Black, White-Not Hispanic and Hispanic Origin aged 6 – 18 years.
- The N = 1,828 (See Goldstein & Naglieri (2009) for more details about the normative sample of the ASRS and those identified with ASD.)

Diagnostic Reference Groups

- Total **Raw Scores** on the ASRS for 6-18 Year olds rated by Teachers.

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PDD-NOS	151.5	53.6	26
Total ASD Sample	129.1	46.9	243
Normative Sample	53.1	36.1	1,828

Score Calibrations

Raw Score	ASD Comparison	National Comparison
170	59	
165	58	
160	57	
155	56	
150	54	
145	53	
140	52	
135	51	
130	50	
125	49	
120	48	
115	47	
110	46	
105	45	
100	44	
95	43	
90	42	
85	41	
80	40	
75	38	
70	37	
65	36	

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

A Raw Score of 80 is a T of 40 based on the ASD sample

Score Calibrations

Raw Score	ASD Comparison	National Comparison
170	59	82
165	58	81
160	57	80
155	56	78
150	54	77
145	53	75
140	52	74
135	51	73
130	50	71
125	49	70
120	48	69
115	47	67
110	46	66
105	45	64
100	44	63
95	43	62
90	42	60
85	41	59
80	40	57
75	38	56
70	37	55
65	36	53

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

A Raw Score of 80 is a T of 40 based on the ASD sample

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

ASRS with GARS-2

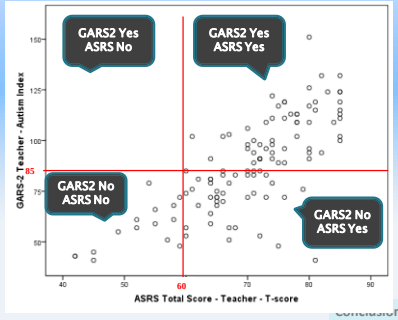
	Rater	Age in Years	Obt r	Corr r	N	GARS-2 M	GARS-2 SD	ASRS M	ASRS SD
GARS Autism Index	Parent	2–5	.83	.61	78	100.9	25.7	74.5	11.4
	Teacher	2–5	.76	.41	53	100.1	30.5	75.3	12.7
	Parent	6–18	.80	.63	104	93.9	24.4	69.3	10.0
	Teacher	6–18	.82	.68	116	88.6	23.3	69.8	10.0

Note: GARS-2 standard scores are mean of 100, *SD* of 15; 80+ = concern.

Almost 1 SD below GARS mean = ASRS T of 70 (+2 SD)

GARS-2 and ASRS

- N = 115 with clinical diagnosis: Autism (49%), PDD-nos (12%), Asperger (15%), LD (12%), ADHD (12%)
- GARS-2 mean = 87.4 (SD = 23.6)
- ASRS mean = 70.1 (SD = 9.9)



ASRS Standardization Samples

Ages 2-5, 6-18 year groups

Importance of a National Norm

- Sample was stratified by
  - Sex, age, race/ethnicity, parental education level (PEL; for cases rated by parents), geographic region
  - Race/ethnicity of the child (Asian/Pacific Islander, Black/African American/African Canadian, Hispanic, White/Caucasian, Multiracial by the rater
  - Parents provided PEL of both parents
    - the higher of the two levels was used to classify the parental education level of the child
  - All raters completed the ASRS via the paper-and-pencil or online methods.

Importance of a National Norm

ASRS Standardization Samples by Age and Rater

Age Groups	Parent Raters	Teacher Raters
2 - 5 Years	320	320
6 - 11 Years	480	480
12 - 18 Years	480	480
Sub Total n	1,280	1,280
TOTAL N	2,560	

Note: All norms are based on these age groups.

Note: at ages 2-16 years there were 80 subjects (40 girls and 40 boys) per one year age group. At ages 17-18 there were 80 subjects (40 girls and 40 boys) across this two year interval.

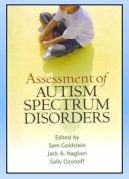
Importance of a National Norm

- Validity samples were collected
  - a single primary diagnosis was indicated
  - a qualified professional (e.g., psychiatrist, psychologist) had made the diagnosis
  - Criteria were made using DSM-IV-TR or ICD-10
  - Clinical samples include
    - ASD (*N* = 580)
    - ADHD (*N* = 250)
    - Communication Delay (*N* = 180)
    - Developmental Delay (*N* = 140)
    - Anxiety / Depression (*N* = 100)

Do Children with ASD have Difficulty in Attention?

ASRS & Attention Difficulty

- Individuals with ASD have been described as having "***difficulties in disengaging and shifting attention***" (p. 214) (see Klinger, O'Kelley, & Mussey's chapter 8 in *Assessment of Autism Spectrum Disorders* (Goldstein, Naglieri, & Ozonoff, 2009)
- We tested this hypothesis using the Cognitive Assessment System (Naglieri & Das, 1997)



ASRS & Attention Difficulty

- Sample Description

Table 8.16. Demographic Characteristics of the CAS Validity Sample

Demographic	Group	Parent		Teacher	
		N	%	*N*	%
Gender	Male	33	73.3	34	72.3
	Female	12	26.7	13	27.7
Race/Ethnicity	Asian	4	8.9	4	8.5
	African American	6	13.3	7	14.9
	Hispanic	11	24.4	11	23.4
	White	23	51.1	24	51.1
	Multiracial/Other	1	2.2	1	2.1
Parental Education Level	Less than high school	3	6.7	–	–
	High school or equivalent	7	15.6	–	–
	Some college	16	35.6	–	–
	College or higher	19	42.2	–	–
	Total	**45**	**100.0**	**47**	**100.0**
	Age *M* (*SD*)	**11.0 (2.4)**		**11.0 (2.4)**	

Conclusions

ASRS & Attention Difficulty

- the ASRS (6–18 Years) and Cognitive Assessment System (CAS; Naglieri & Das, 1997) was administered to children diagnosed with an ASD who were rated by a parent (N = 45) or a teacher (N = 47)
- The CAS provides measures of
  - Planning, Attention, Simultaneous, and
  - Successive cognitive abilities
- PASS is based on A. R. Luria's (1973) view of major brain functions

Conclusions

ASRS & Attention Difficulty

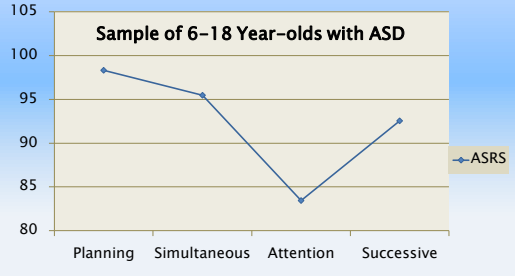
Table 8.17. ASRS and CAS Scores for Youth diagnosed with an ASD

Rater		ASRS (6-18 Years)	Cognitive Assessment System (CAS)				
		Total Score	Full Scale	Planning	Simultaneous	Attention	Successive
Parent	*M*	65.8	89.8	98.8	95.9	83.4	93.0
	SD	9.8	25	27.6	17.5	17.7	20.5
	N	45	45	45	45	45	45
Teacher	*M*	66.5	88.8	97.8	95.0	83.5	92.1
	SD	8.6	25.0	27.5	17.8	18.1	20.3
	N	47	47	47	47	47	47

Note. ASRS *T*-scores have a normative mean of 50 and standard deviation of 10. The CAS standard scores have a normative mean of 100 and standard deviation of 15.

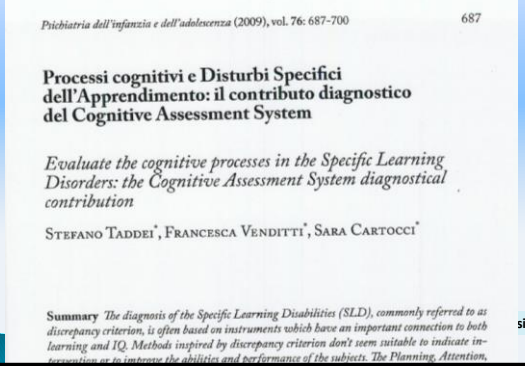
Conclusions

ASRS & Attention Difficulty



Conclusions

ASD – Italy



Psichiatria dell'infanzia e dell'adolescenza (2009), vol. 76: 687-700 687

Processi cognitivi e Disturbi Specifici dell'Apprendimento: il contributo diagnostico del Cognitive Assessment System

Evaluate the cognitive processes in the Specific Learning Disorders: the Cognitive Assessment System diagnostical contribution

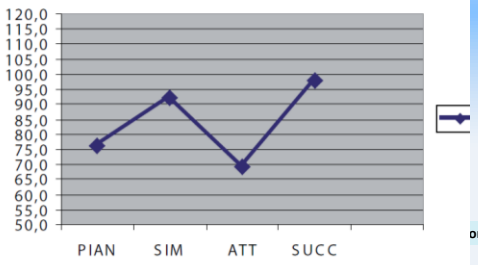
STEFANO TADDEI*, FRANCESCA VENDITTI*, SARA CARTOCCI*

Summary *The diagnosis of the Specific Learning Disabilities (SLD), commonly referred to as discrepancy criterion, is often based on instruments which have an important connection to both learning and IQ. Methods inspired by discrepancy criterion don't seem suitable to indicate in-*

sions

ASD – Italy

Figura 1. *Profilo cognitivo al CAS dell'intero campione.*



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Differentiate ASD from ADHD and SLD

Conclusions

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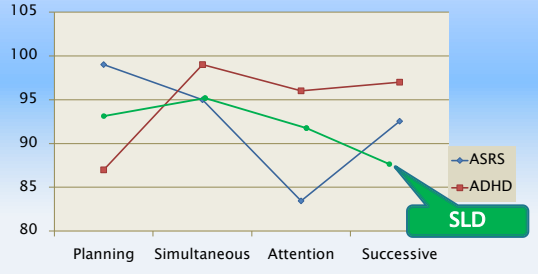
ASRS & Attention Difficulty



Note: Values for CAS for children with ADHD from Naglieri & Das (1997) CAS Interpretive Handbook

Conclusions

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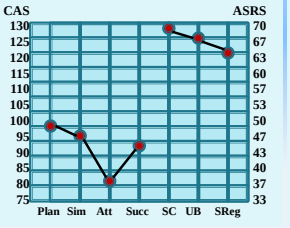
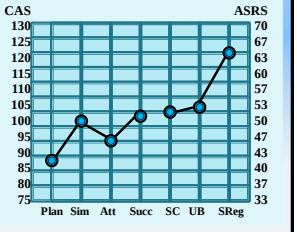
Differential Diagnosis: ADHD vs ASD

ASD Profile



ADHD Profile



Conclusions

Autism and Asperger Syndrome

ASRS preliminary findings

Conclusions

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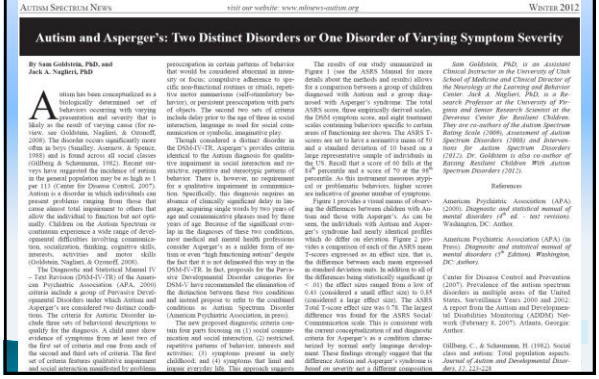
Autism & Asperger's



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

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

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

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

The Diagnostic and Statistical Manual IV – Text Revision (DSM-IV-TR) of the American Psychiatric Association (APA, 2000) criteria include a group of Pervasive Developmental Disorders under which Autism and Asperger's are considered two distinct conditions. The criteria for Autistic Disorder include three sets of behavioral descriptions to qualify for the diagnosis. A child must show evidence of symptoms from at least two of the first set of criteria and one from each of the second and third sets of criteria. The first set of criteria features qualitative impairment and social interaction manifested by problems preoccupation in certain patterns of behavior that would be considered abnormal in intensity or focus; compulsive adherence to specific non-functional routines or rituals; repetitive motor mannerisms (self-stimulatory behavior), or persistent preoccupation with parts of objects. The second two sets of criteria include delay prior to the age of three in social interaction, language as used for social communication or symbolic, imaginative play.

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

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

The results of our study summarized in Figure 1 (see the ASRS Manual for more details about the methods and results) allows for a comparison between a group of children diagnosed with Autism and a group diagnosed with Asperger's syndrome. The total ASRS score, three empirically derived scales, the DSM symptom score, and eight treatment scales continuing behaviors specific to certain areas of functioning are shown. The ASRS T-scores are set to have a normative mean of 50 and a standard deviation of 10 based on a large representative sample of individuals in the US. Recall that a score of 60 falls at the 84th percentile and a score of 70 at the 98th percentile. As this instrument measures atypical or problematic behaviors, higher scores are indicative of greater number of symptoms.

Figure 1 provides a visual means of observing the differences between children with Autism and those with Asperger's. As can be seen, the individuals with Autism and Asperger's syndrome had nearly identical profiles which do differ on elevation. Figure 2 provides a comparison of each of the ASRS-norm T-scores expressed as an effect size, that is, the difference between each mean expressed in standard deviation units. In addition to all of the differences being statistically significant ($p < .01$) the effect sizes ranged from a low of 0.41 (considered a small effect size) to 0.85 (considered a large effect size). The ASRS Total T-score effect size was 0.78. The largest difference was found for the ASRS Social-Communication scale. This is consistent with the current conceptualization of and diagnostic criteria for Asperger's as a condition characterized by normal early language development. These findings strongly suggest that the difference Autism and Asperger's syndrome is based on severity not a different composition

Sam Goldstein, PhD, is an Assistant Clinical Instructor in the University of Utah School of Medicine and Clinical Director of the Neurology at the Learning and Behavior Center. Jack A. Naglieri, PhD, is a Research Professor at the University of Virginia and Senior Research Scientist at the Devereux Center for Resilient Children. They are co-authors of the Autism Spectrum Rating Scale (2009), Assessment of Autism Spectrum Disorders (2008) and Interventions for Autism Spectrum Disorders (2012). Dr. Goldstein is also co-author of Raising Resilient Children With Autism Spectrum Disorders (2012).

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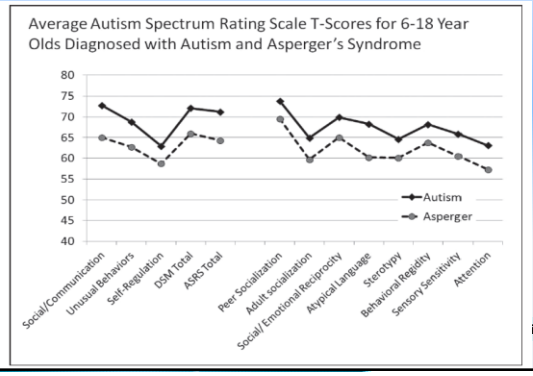
Autism & Asperger's



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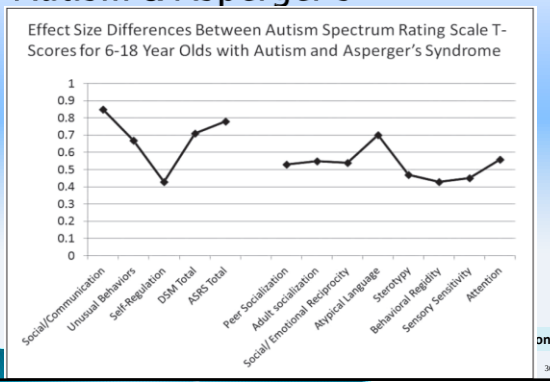
Autism & Asperger's



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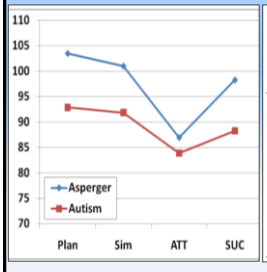
Autism vs Asperger 6-18



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

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

Conclusions

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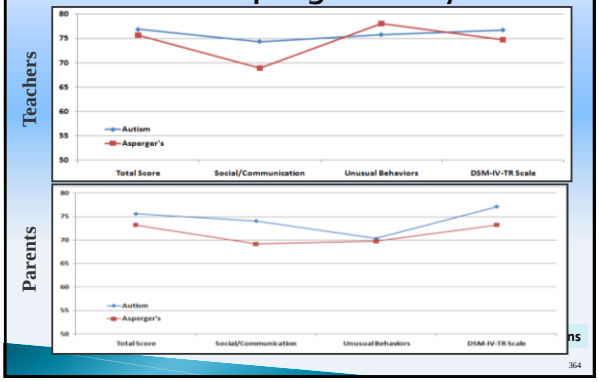
Autism vs Asperger 2-5 years



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Autism & Asperger's

- Goldstein and Naglieri (2012) Conclusions
  - Despite widely held belief that individuals with Asperger's have a better life outcome than those with Autism (Klin, Sparrow and Volkmar, 2000), the outcomes for youth with Asperger's may be better than those with Autism simply because their symptom profile is milder and they develop functional language at a much earlier age, typically demonstrating the ability to use language to communicate despite pragmatic problems.


Autism Spectrum News visit our website: www.nlnews-autism.org Winter 2012

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

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

preoccupation in certain patterns of behavior that would be considered abnormal in inten-

The results of our study summarized in Figure 1 (see the ASRS Manual for more

Sam Goldstein, PhD, is an Assistant Clinical Instructor in the University of Utah

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Autism & Asperger's

- Goldstein and Naglieri (2012) Conclusions
  - These data strongly support the decision by the DSM-V committee to eliminate the Asperger's and Pervasive Developmental Disorder – Not Otherwise Specified diagnoses and instead provide a single diagnosis of Autism Spectrum Disorder.


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Autism vs Asperger

- ASRS means for ages 2-5 years were typically somewhat higher for children with Autism than those with Asperger's syndrome
  - Exception being Unusual Behaviors where the two groups were similar
- ASRS means for ages 6-18 years were consistently higher for children with Autism than those with Asperger's syndrome
- Both groups had their lowest scores on the CAS Attention Scale

Conclusions

Main Points and Implications

Workshop Conclusions

- **From assessment to intervention**
  - Cognitive processing scores can be used to select research based cognitive interventions based on a child's pattern of cognitive and academic strengths and weaknesses.
  - Research with children who have SLD shows that teaching strategy use (Planning) has a significant effect on academic performance in the classroom and on standardized tests
- **We can teach children to better use their PASS neuropsychological abilities**
  - This will improve their academic skills
  - This will improve LIFE skills
  - This will improve the child's self confidence