Think Smart for School and Life: Assessment to Intervention

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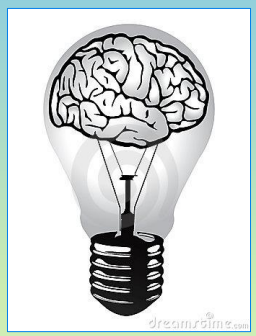

PASS

conclusions

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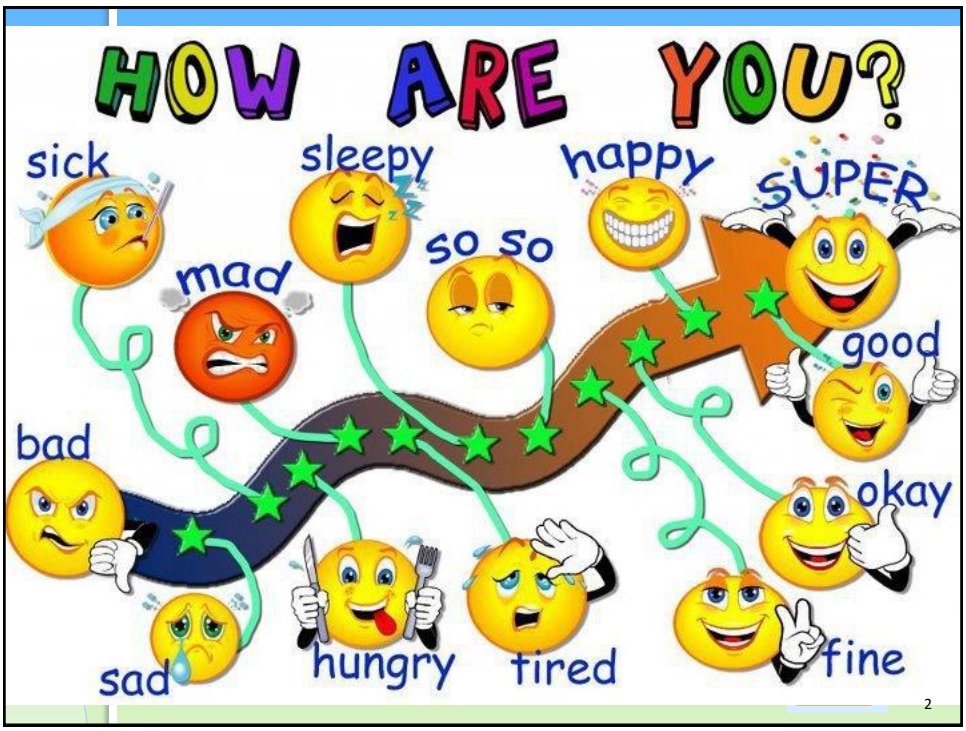

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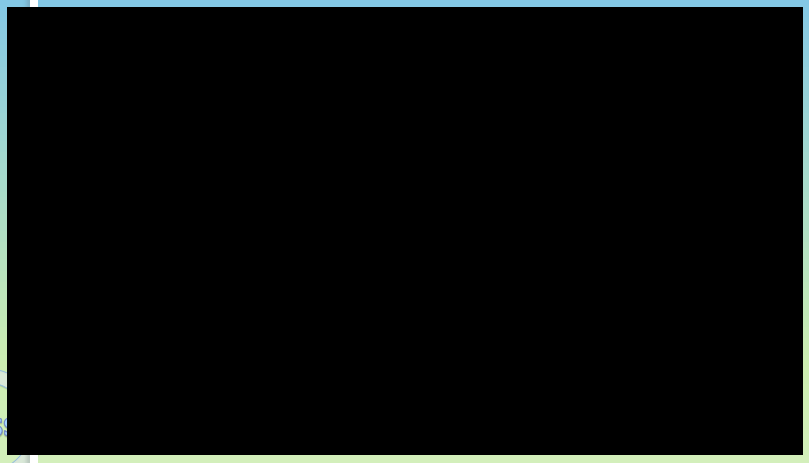
Settle Your Glitter!!

Settle Your Glitter App



STAND & SHARE: Who's Here?

Please Stand if…

- School psychologist
- Administrator
- School counselor
- You are a teacher
- Speech pathologist
- Other?

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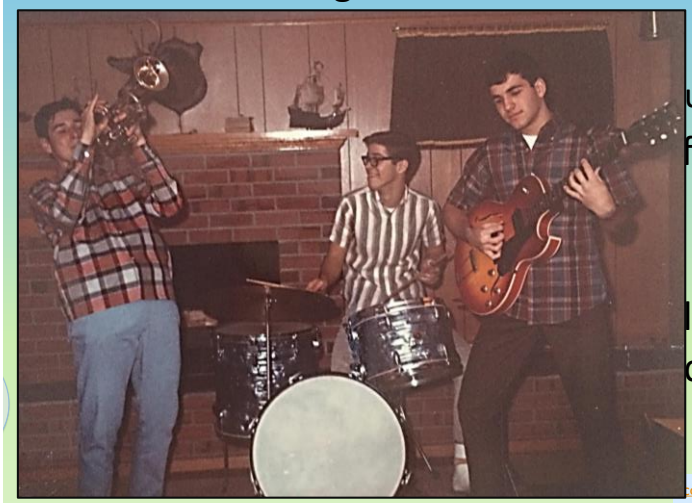
Jack's Background

- Interest in intelligence and instruction



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Kathleen's Teaching Journey

Secondary & Elementary Classroom Teacher

Special Education

Talent Development

Multicultural Learners

Juvenile Delinquents

Teacher of Teachers
Teacher Researcher

My Intention:
To open the heart, nourish the mind, and inspire the spirits of learners and teachers.

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Wedding the Art and Science of Teaching: Theory Into Reality

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And actually wed, May 17, 2014

PASS

Goals for Our Workshop

- We will …
- Merge the brain science of **PASS** with real classroom examples and practical strategies to help students **think smart** and **take charge of their learning** in school and life
- Learn how to **assess** PASS using the CAS-2 and use this information for eligibility determination and intervention
- Learn **practical strategies** to support student use of PASS abilities to be more successful in school and in life.
- How to **effectively teach strategies** for maximum impact, ownership and improve performance.
- **WHY: We Can Help Students Think Smarter and be more successful**

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Here's Where We're Going…

- Introduction/Routines and Procedures
- PASS and Thinking Smart
- PASS & Learning
  - Planning & Instruction
  - Attention & Instruction
  - Successive & Instruction
  - Simultaneous & Instruction
- Think Smart: Closing

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conclusions 12

Decades of Research shows…

- In most classrooms, 20% of the students do 80% of the talking and thinking.
- Today, we will all be talking and thinking together, using strategies that HELP CHILDREN, and us, LEARN !

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Routines & Procedures

- Sound of Coming Together
- Core Groups
- Chat Chums

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Core Groups

- Groups of 3-4
- Establish roles:
  - **C**oach
  - **O**rganizer/Time Keeper
  - **R**ecorder
  - Energizer

Pg. 3

conclusions

Let's chat…

WHEN IT'S TIME TO TALK WITH YOUR CHAT CHUM:

- Share with your Core Group…
- Your Name
- Where you are from
- What do you do
- What brings you here

Pg. 3

conclusions

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Norms for Today

- Respect Others
- Stay engaged and involved
- Professional Use of Technology (Stay Present)
- Practice forming new habits of the mind that challenge the limits of your potential.

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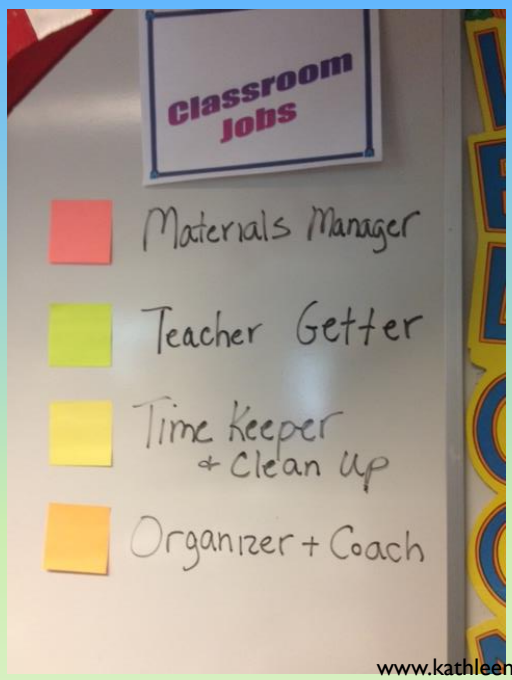

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Time to share…

- Knee to Knee, Eye to Eye
- Share….
- Remember back to your own school days. Do you recall being taught how to "think smart?" Yes or no? Share memories.

WHY AREN'T KIDS THINKING

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Let's Practice: Thinking Together

- As you watch the following video, think…
- What was the teachers goal in this skit?
- Was the goal achieved ?
- Why was it so hard to get the students to think?
- Your own questions and thoughts..

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A Lesson in Thinking

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Core Group Activity

- **Task:**
- What was the teachers goal in this skit?
- Was the goal achieved ?
- Why was it so hard to get the students to think?
- **STAND AND SHARE**

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Mountain View High School Student Comments

- 'The teacher was frustrated because the students weren't thinking about what he was saying'
- 'They should have paused before responding so that they could think'
- 'When you feel pressure you'll say anything if you don't know the answer'

Mountain View High School Student Comments

- We need to know why the teacher is getting us to learn history
- The way the teachers run the class stops you from thinking because they tell you there is only one way to do something – but it's a fact that there is more than one way to solve a problem'
- 'That's what I like about this class, there are different ways to solve the problems'
- '

Let's Take a Mindful Moment or Brain Break (or Syn-nap)

The brain needs time **process!**

- **Stretch**
- Cross Laterals
- Walk and Talk
- Energizers
- Relaxers

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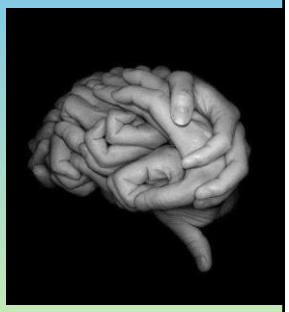
Why Brain Breaks?

- **SYN-NAPS: Neurotransmitters, brain transport proteins, needed for memory construction and attention are depleted after as little as ten minutes of doing the same activity. Syn-naps are brain-breaks where you change the learning activity to let the brain chemicals replenish.**
- **The Syn-naps can be stretching, singing, or acting out vocabulary words. After just a few minutes, refreshed brains will be ready for new memory storage. (Dr. Judy Willis)**



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Here's Where We're Going…

- Introduction/Routines and Procedures
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  - Planning & Instruction
  - Attention & Instruction
  - Successive & Instruction
  - Simultaneous & Instruction
- Think Smart: Closing

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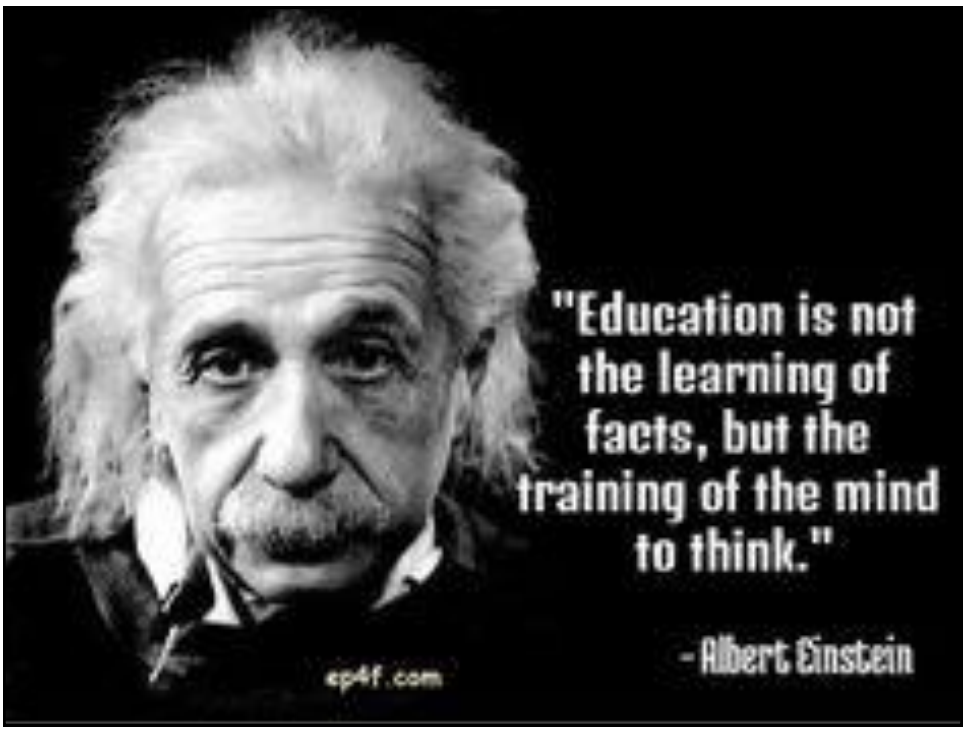

Our Goal – Think Smart!

- EMPOWER

NOT

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A Nation of Adults Like This?

conclusions

Winning Formula to *Think Smart!*

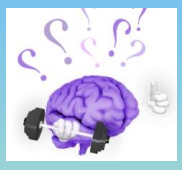
Mindsets

\+

Skill Sets

\=

RESULTS!



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Mindsets + Skillsets = Results

- Mindsets
  - Willingness to grow or acceptance of limitations
  - Willingness to put forth the effort needed to "Think Smart." Develop skill sets and utilize knowledge
- Skill Sets
  - Using what is known
  - Being so fluent with knowledge that it is easily accessed and used
  - Using strategies, paying attention, seeing the big picture, and working with information that is in a sequence

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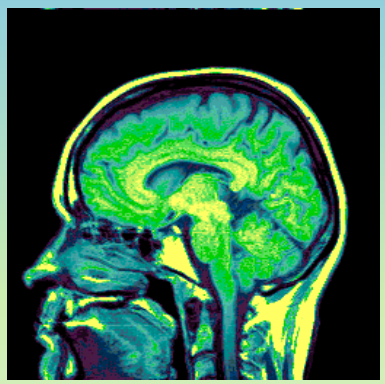
INTELLIGENCE IN THE 21ST CENTURY CONCEPTUALIZED AS BRAIN FUNCTION



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"Just Think!"

- What do we mean – Just think?
- Thinking has many names
  - Metacognition, executive function, mindfulness, cognitive processing, IQ, intelligence, attention, reasoning, problem solving, memory etc.
- Psychologists have used these terms when defining thinking -- especially intelligence
- We need to reflect on the concept of IQ and intelligence to define how to THINK SMART

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conclusions

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From IQ to Brain Function

- Learning is based on BRAIN function
  - Wechsler (traditional IQ) not based on brain
  - We can redefine intelligence as neurocognitive processes based on brain function (A. R. Luria)
- Reinvent IQ based on the brain
  - Measure brain function, not IQ
  - Do not include achievement test questions
  - Measure ***thinking*** not ***knowledge***

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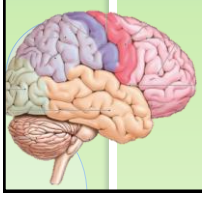
Knowledge vs. Thinking

- What does the student have to *know* to complete a task?
  - ***This is dependent on developing content understanding***
- How does the student have to *think* to complete a task?
  - ***This is dependent on developing the metacognitive brain***



The test we use to assess ability matters!

Case of Alejandro

Note: this is not a picture of Alejandro

conclusions

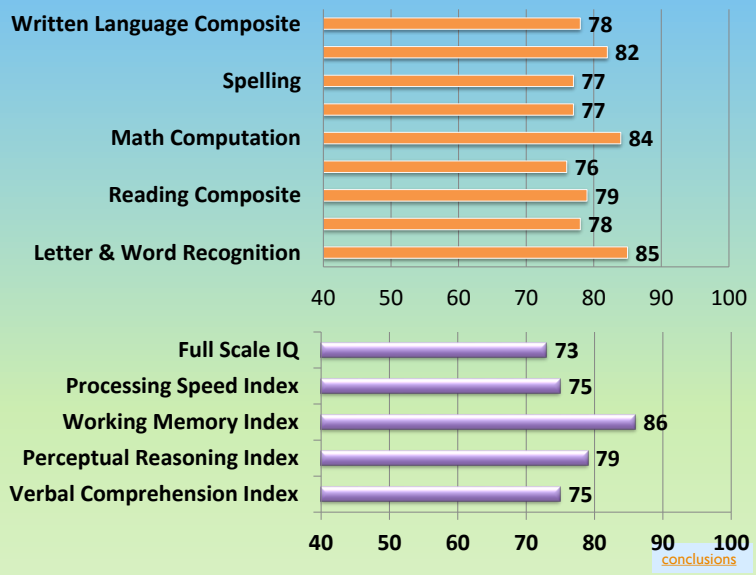
CASE STUDY: ALEJANDRO (C.A. 7-0 GRADE 1)

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

conclusions

WISC-IV ASSESSMENT



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Think and Talk

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What would you say about his abilities based on this assessment?

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

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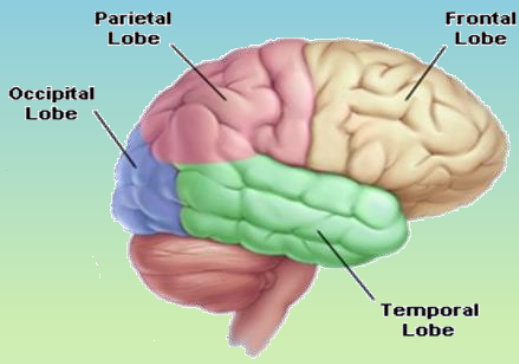
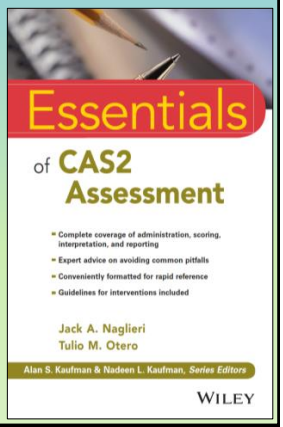
A Brain-based Theory of Learning called PASS





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PASS Neurocognitive Theory

- Learning is based on the BRAIN
  - Wechsler (traditional IQ) not based on brain
  - PASS neurocognitive theory of learning is based on brain function (A. R. Luria)
    - Knowing a student's PASS processing abilities is critical for understanding their successes and difficulties
    - Efficient instruction is tailored to a student's PASS
  - PASS includes concepts such as Executive Function (P&A), and the ability to work with Visual-Spatial (Simultaneous), and Sequencing (Successive) tasks.

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conclusions

PASS Neurocognitive Theory

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

- **PASS theory** is a modern way to measure neurocognitive abilities related to brain function

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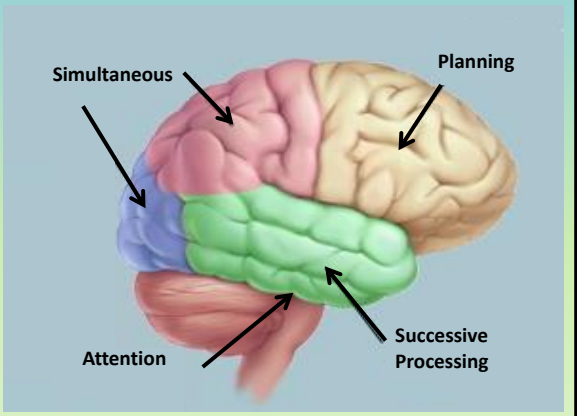
conclusions

PASS Neurocognitive Theory

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

PASS

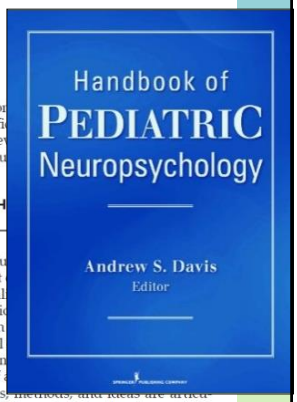
Naglieri, J. A. & Otero, T. (2011). Cognitive Assessment System: Redefining Intelligence from A Neuropsychological Perspective. In A. Davis (Ed.). *Handbook of Pediatric Neuropsychology (320-333)*. New York: Springer Publishing.



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-

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PASS For Teachers (www.kathleenkryza.com)

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Clarifying Key Terms

- **PASS** – a *neurocognitive theory* of learning
  - **PASS** is ***NOT*** IQ nor traditional intelligence
- **IQ** – All tests related to the US Army Alpha and Beta (1917) including Wechsler, Woodcock, DAS, Stanford-Binet
- **Knowledge** – everything we learn
- **Skill** – knowledge we can use with little cognitive effort

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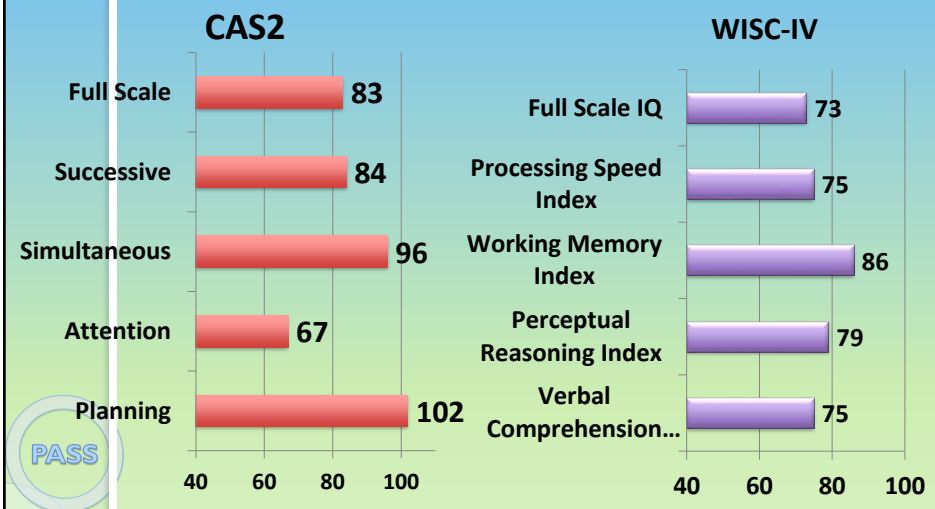
PASS Scores from CAS2



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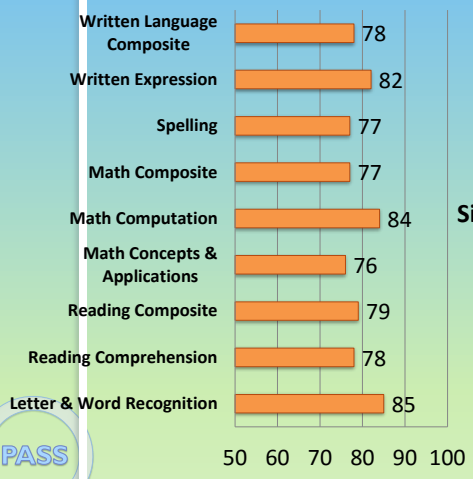
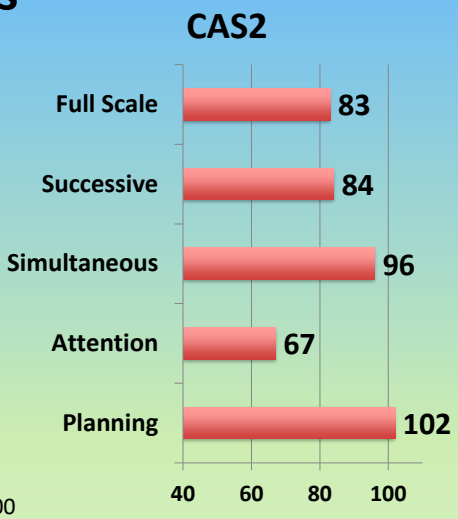
Alejandro's Results





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Core Group Activity

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- Which test results make more sense?
- Was WISC-IV information Helpful?
- Did CAS2 Results change your mind?
- Can you determine if the student has a SLD using PASS?
- Your thoughts…

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conclusions

Alejandro and PASS (by Dr. Otero)

- Alejandro is not a slow learner.
- He has good scores in basic psychological processes:
  - Simultaneous = 96 and Planning = 102
- He has a "disorder in one or more of the basic psychological processes"
  - Attention = 67 and Successive = 84
- And he has academic failure which equals SLD.

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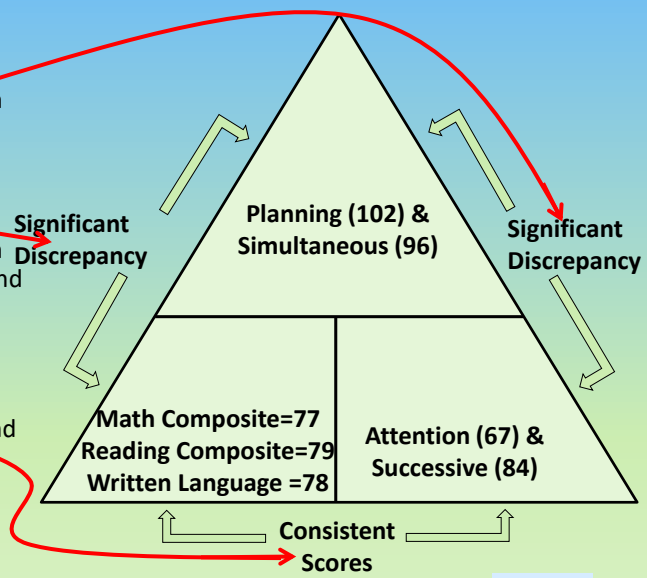
Discrepancy Consistency Model for SLD

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



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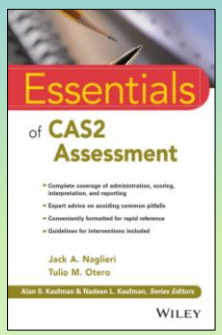
Discrepancy Consistency Model for SLD

- This method documents evidence of a 'disorder in one or more of the basic psychological processes' and academic failure.
- The discrepancies tell us that the student has (1) variability in PASS scores and (2) a difference between PASS and achievement
- The consistency helps us understand **WHY** the student has failed and **WHAT** to do about it



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BREAK TIME

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LET'S TAKE A BRAIN BREAK or Syn-Nap

The brain needs time **to process!**

- **Stretch**
- **Cross Laterals**
- Walk and Talk
- Energizers
- Relaxers

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Alejandro and IDEA

Is PASS non-discriminatory?

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conclusions

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IDEA 2004

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

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

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

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

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

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

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

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

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

non discriminatory assessments

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Why use PASS?

- We need the best tool to help us understand ***why*** a student is having difficulty learning
  - The test must yield a profile of scores
- We need to know exactly what the **test scores mean**
  - Scores should be easy to explain to teachers, parents, and the students
- The test must be ***non-discriminatory***
  - Verbal and quantitative tests must be eliminated

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The First IQ TEST: Alpha

1. Bull Durham is the name of a 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 cigarette

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

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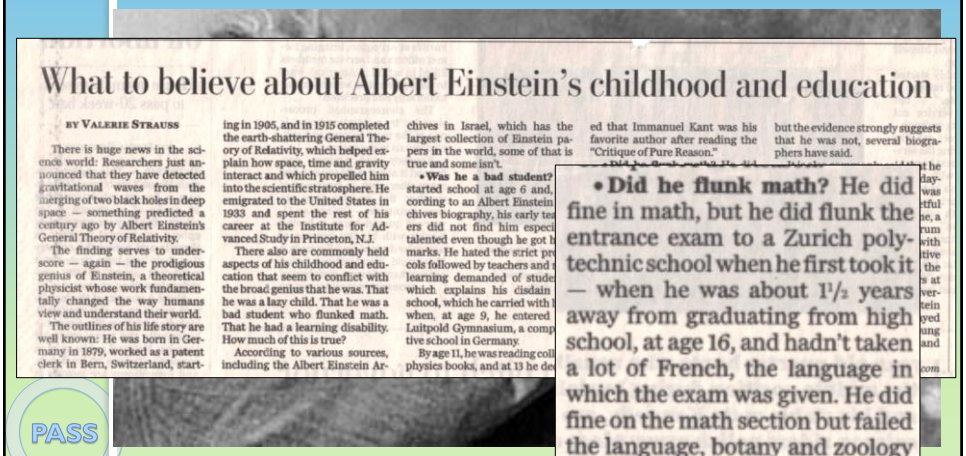
Are Verbal Tests Accurate?



What to believe about Albert Einstein's childhood and education

BY VALERIE STRAUSS

There is huge news in the science world: Researchers just announced that they have detected gravitational waves from the merging of two black holes in deep space — something predicted a century ago by Albert Einstein's General Theory of Relativity.

The finding serves to underscore — again — the prodigious genius of Einstein, a theoretical physicist whose work fundamentally changed the way humans view and understand their world.

The outlines of his life story are well known: He was born in Germany in 1879, worked as a patent clerk in Bern, Switzerland, starting in 1905, and in 1915 completed the earth-shattering General Theory of Relativity, which helped explain how space, time and gravity interact and which propelled him into the scientific stratosphere. He emigrated to the United States in 1933 and spent the rest of his career at the Institute for Advanced Study in Princeton, N.J.

There also are commonly held aspects of his childhood and education that seem to conflict with the broad genius that he was. That he was a lazy child. That he was a bad student who flunked math. That he had a learning disability. How much of this is true?

According to various sources, including the Albert Einstein Archives in Israel, which has the largest collection of Einstein papers in the world, some of that is true and some isn't.

• Was he a bad student? started school at age 6 and, cording to an Albert Einstein chives biography, his early te ers did not find him especi talented even though he got h marks. He hated the strict pr cols followed by teachers and learning demanded of stude which explains his disdain school, which he carried with when, at age 9, he entered Luitpold Gymnasium, a comp tive school in Germany.

By age 11, he was reading coll physics books, and at 13 he de ed that Immanuel Kant was his favorite author after reading the "Critique of Pure Reason."

but the evidence strongly suggests that he was not, several biographers have said.

• Did he flunk math? He did fine in math, but he did flunk the entrance exam to a Zurich polytechnic school when he first took it — when he was about 1½ years away from graduating from high school, at age 16, and hadn't taken a lot of French, the language in which the exam was given. He did fine on the math section but failed the language, botany and zoology sections, according to History.com.

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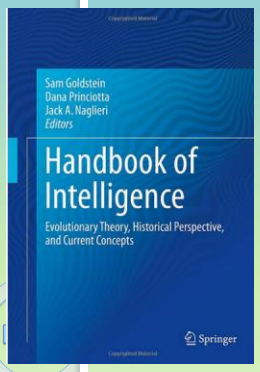
Evolution of IQ (Goldstein, Princiotta & Naglieri, 2015)



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

conclusions

Race by test

(Naglieri, 2015)

psychological processes measured by KABC2 and CAS2 are the more fair than traditional tests

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

conclusions

Naglieri, Rojahn, Matto (2007)

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

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

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

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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 Score by Language

CAS Full Scale = 84.6 in English and 87.6 in Spanish

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

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Virginia Commonwealth University

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

This study compared the performance of *on the Planning, Attention, Simultaneous,* *sured by English and Spanish versions o* *(CAS; Naglieri & Das, 1997a). The results* *on both English and Spanish versions of t* *CAS, the bilingual children earned their lo* *regardless of the language used during test* *ences were noted between the means of the* *Simultaneous and Successive processing sca* *were similar. Specific subtests within the* *were found to contribute to the difference* *versions of the CAS. Comparisons of the c* *ness on both versions of the CAS showed* *sistently despite the language difference.*

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

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Lauren Gonzales
George Mason University, Fairfax, Virginia
Jack A. Naglieri
University of Virginia, Fairfax, Virginia

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

PASS

CAS Full Scale = 86.4 in English and 87.1 in Spanish

conclusions

CAS in Italy

Psychological Assessment

1040-3590/12/$12.00 DOI: 10.1037/a0029828

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

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University of Florence

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Italian mean = 100.9 &US mean = 100.5 using US norms

This study examined Italian and U.S. children's performance on the English and Italian versions, respectively, of the Cognitive Assessment System (CAS; Naglieri & Conway, 2009; Naglieri & Das, 1997), a test based on a neurocognitive theory of intelligence entitled PASS (Planning, Attention, Simultaneous, and Successive; Naglieri & Das, 1997; Naglieri & Otero, 2011). CAS subtest, PASS scales, and Full Scale scores for Italian (N = 809) and U.S. (N = 1,174) samples, matched by age and gender, were examined. Multigroup confirmatory factor analysis results supported the configural invariance of the CAS factor structure between Italians and Americans for the 5- to 7-year-old (root-mean-square error of approximation [RMSEA] = .038; 90% confidence interval [CI] = .033, .043; comparative fit index [CFI] = .96) and 8- to 18-year-old (RMSEA = .036; 90% CI = .028, .043; CFI = .97) age groups. The Full Scale standard scores (using the U.S. norms) for the Italian (100.9) and U.S. (100.5) samples were nearly identical. The scores between the samples for the PASS scales were very similar, except for the Attention Scale (d = 0.26), where the Italian sample's mean score was slightly higher. Negligible mean differences were found for 9 of the 13 subtest scores, 3 showed small d-ratios (2 in favor of the Italian sample), and 1 was large (in favor of the U.S. sample), but some differences in subtest variances were found. These findings suggest that the PASS theory, as measured by CAS, yields similar mean scores and showed factorial invariance for these samples of Italian and American children, who differ on cultural and linguistic characteristics.

WJ-III and ELL Hispanic Students

(Sotelo-Dynega, Ortiz, Flanagan & Chaplin, 2013)

11 point mean score difference in GAI

Table 1
WJ III GIA and Test Performance Differences Between LEPs and the WJ III Standardization Sample Mean

WJ III Test	Sample *M*	Sample *SD*	WJ III Sample *M*	WJ III Sample *SD*	Difference	*t*	*d*
General Intellectual Ability	89.34	11.78	100	15	−10.64	−7.07**	−.90
Verbal Comprehension	80.38	14.09	100	15	−19.62	−10.87***	−1.40
Concept Formation	87.16	12.20	100	15	−12.84	−8.22***	−1.05
Numbers Reversed	95.23	12.46	100	15	−4.77	−2.96*	−0.38
Visual-Auditory Learning	95.62	14.56	100	15	−4.38	−2.35*	−0.30
Sound Blending	97.82	11.57	100	15	−2.18	−1.47	−0.19
Visual Matching	98.93	9.80	100	15	−1.07	−0.85	−0.11
Spatial Relations	99.18	8.45	100	15	−0.82	−0.758	−0.10

*p < .05. **p < .01. ***p < .001.

As English skills go down so does the GAI

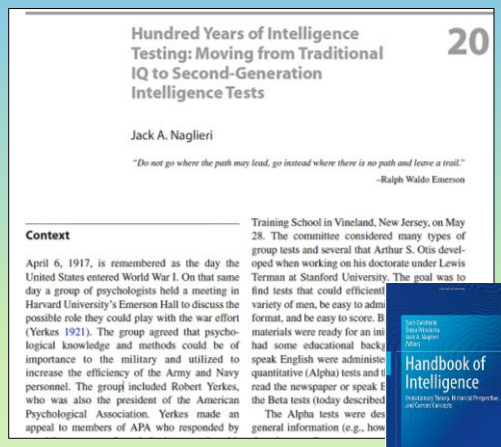
Table 2
Differences Among the NYSESLAT Proficiency Group's WJ III, GIA Mean Score, and the WJ III Standardization Sample Mean

NYSESLAT Proficiency Group	Sample *M*	Sample *SD*	WJ III Sample *M*	WJ III Sample *SD*	Difference	*t*	*d*
Beginner	71.75	3.95	100	15	−28.25	−14.31*	−7.15
Intermediate	82.29	8.66	100	15	−17.71	−7.65*	−2.05
Advanced	89.55	9.17	100	15	−10.45	−10.45*	−1.14
Proficient	101	9.23	100	15	1.00	.405	0.11

*p < .001.

Correlations with Achievement

- Can you take achievement out of a cognitive test?
- The average correlations between ability and academic scores with and without ***criterion contamination***…



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 efficient
variety of men, be easy to adm
format, and be easy to score. B
materials were ready for an ini
had some educational backg
speak English were administe
quantitative (Alpha) tests and t
read the newspaper or speak E
the Beta tests (today described
The Alpha tests were des
general information (e.g., how

PASS

conclusions

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Correlations with Achievement

- Average correlations between IQ Scales with total achievement scores and *basic psychological processes*

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

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

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

PASS

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Core Group Activity

&

- What are your thoughts about this research?
- What questions do you have about these research studies?
- Other ideas?

PASS

conclusions

PASS Comprehensive System

GOAL: Create a set of tools to measures PASS Theory for use across multiple settings

and multiple tiers

PASS

conclusions

Options for Assessing PASS

- PASS neurocognitive processes can be measured using the
  - CAS-2 (for school psychologists);
  - CAS-2 Brief (for speech/language, special education, etc); and
  - CAS-2 Rating Scale (for teachers)
- For effective instructional planning and identification of special students (e.g. SLD, ADHD), fair assessment, and the gifted.

PASS

conclusions

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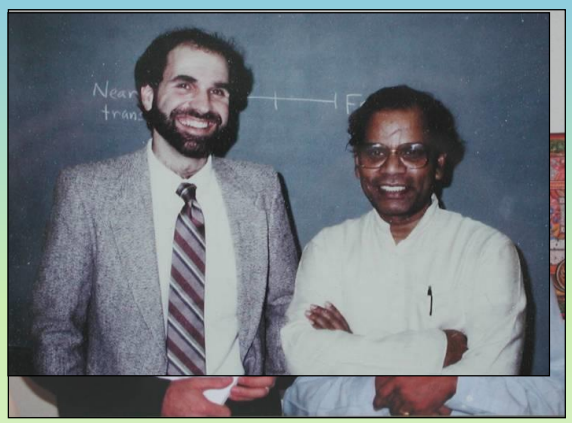
A neurocognitve approach to understanding learning and learning problems (Naglieri & Das, 1997)



PASS

conclusions

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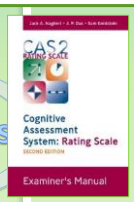
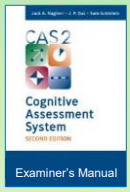
PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)

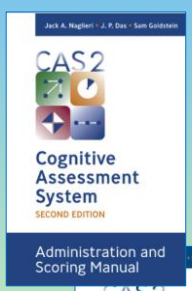
CAS2 Rating Scale (4 subtests)	**CAS2 Brief** (4 subtests)	**CAS2 Core** (8 subtests)	**CAS2 Extended** (12 subtests)
Total Score Planning Simultaneous Attention Successive	Total Score Planning Simultaneous Attention Successive	Full Scale Planning Simultaneous Attention Successive	Full Scale Planning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

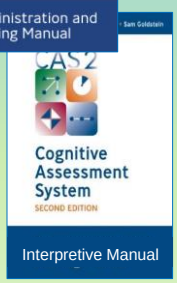


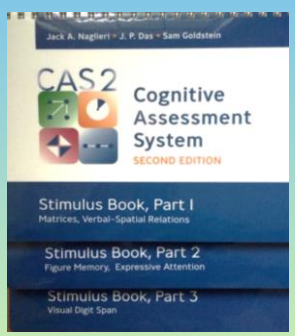


conclusions

CAS2 (Ages 5-18 yrs.)







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.

PASS

conclusions

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CAS2

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

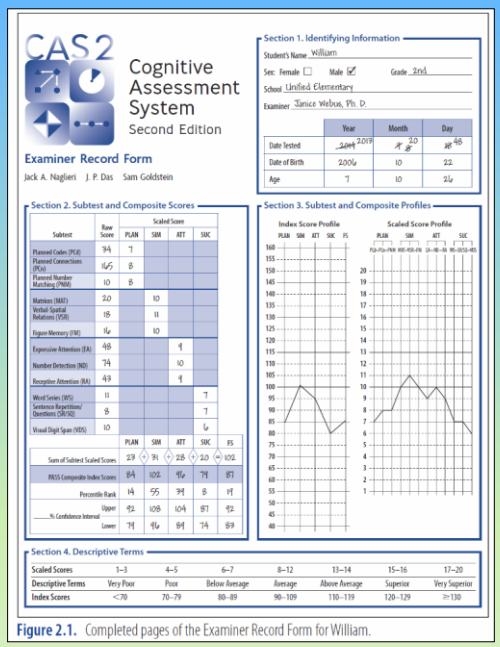

Figure 2.1. Completed pages of the Examiner Record Form for William.

PASS

conclusions

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CAS2

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

PASS

Supplemental Composite Scores

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

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

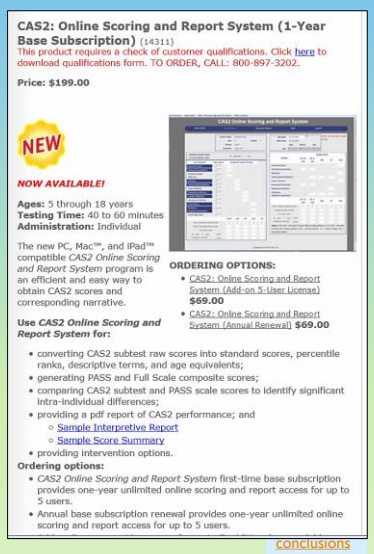
conclusions

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

PASS



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

Price: $199.00

NEW

NOW AVAILABLE!

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

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

ORDERING OPTIONS:
- CAS2: Online Scoring and Report System (Add-on 5-User License) **$69.00**
- CAS2: Online Scoring and Report System (Annual Renewal) **$69.00**

Use *CAS2 Online Scoring and Report System* for:
- converting CAS2 subtest raw scores into standard scores, percentile ranks, descriptive terms, and age equivalents;
- generating PASS and Full Scale composite scores;
- comparing CAS2 subtest and PASS scale scores to identify significant intra-individual differences;
- providing a pdf report of CAS2 performance; and
  - Sample Interpretive Report
  - Sample Score Summary
- providing intervention options.

Ordering options:
- *CAS2 Online Scoring and Report System* first-time base subscription provides one-year unlimited online scoring and report access for up to 5 users.
- Annual base subscription renewal provides one-year unlimited online scoring and report access for up to 5 users.

conclusions

CAS2 Online Score & Report

- Narrative report in Word or PDF

CAS2 Cognitive Assessment System
Second Edition

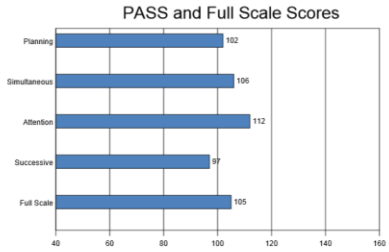
Scoring and Interpretive Report
Jack A. Naglieri

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

This computerized report is intended for use by qualifie information can be found in the CAS2 Interpretive Manual.

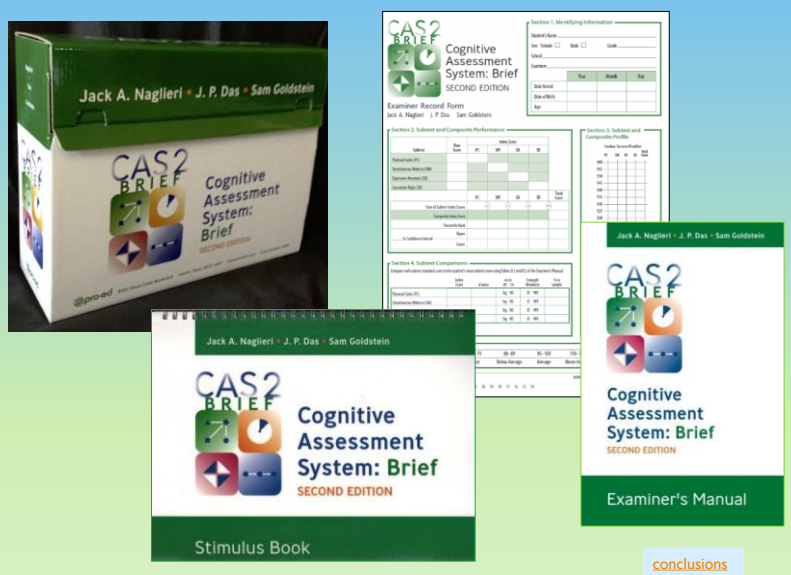
FULL SCALE

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



PASS

CAS2: Brief for ages 4-18 years



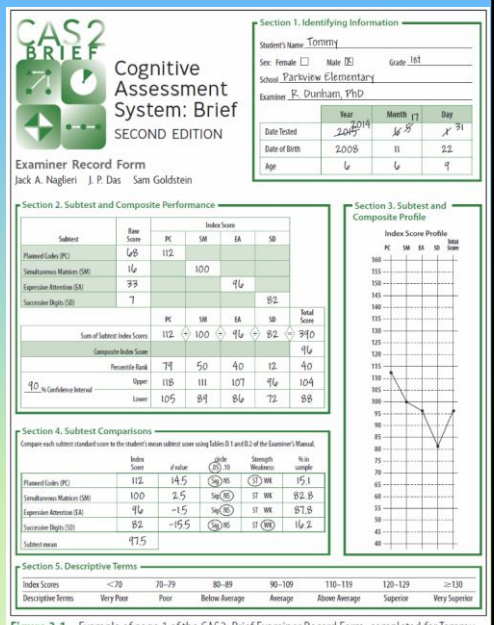
PASS

conclusions

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)

PASS



CAS2 BRIEF

Cognitive Assessment System: Brief

SECOND EDITION

Examiner Record Form

Jack A. Naglieri J. P. Das Sam Goldstein

Section 1. Identifying Information

Student's Name Tommy

Sex: Female ☐ Male ☒ Grade 1st

School Parkview Elementary

Examiner R. Dunham, PhD

	Year	Month	Day
Date Tested	2014	11	31
Date of Birth	2008	11	22
Age	6	6	9

Section 2. Subtest and Composite Performance

Subtest	Raw Score	Index Score PC	SM	EA	SD
Planned Codes (PC)	68	112			
Simultaneous Matrices (SM)	16		100		
Expressive Attention (EA)	33			96	
Successive Digits (SD)	7				82

	PC	SM	EA	SD	Total Score
Sum of Subtest Index Scores	112	100	96	82	390
Composite Index Score					96
Percentile Rank	79	50	40	12	40
90 % Confidence Interval Upper	118	111	107	96	104
Lower	105	89	86	72	88

Section 3. Subtest and Composite Profile

Index Score Profile

Section 4. Subtest Comparisons

Compare each subtest standard score to the student's mean subtest score using Tables B.1 and B.2 of the Examiner's Manual.

	Index Score	d value	Circle .05 or .10	Strength Weakness	% in sample
Planned Codes (PC)	112	14.5	Sig .05	ST WK	15.1
Simultaneous Matrices (SM)	100	2.5	Sig .05	ST WK	82.8
Expressive Attention (EA)	96	-1.5	Sig .05	ST WK	87.8
Successive Digits (SD)	82	-15.5	Sig .05	ST WK	14.2
Subtest mean	97.5				

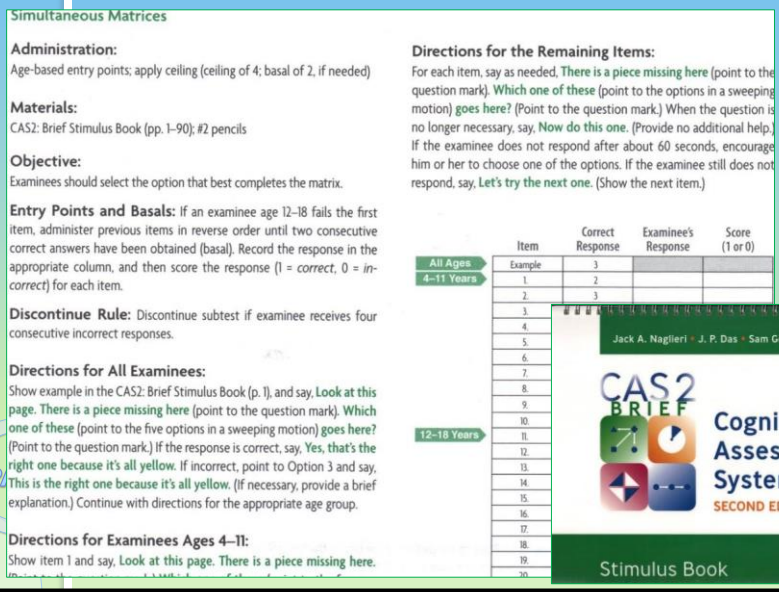
Section 5. Descriptive Terms

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

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

conclusions 83

CAS2: Brief Simultaneous Matrices



Simultaneous Matrices

Administration:
Age-based entry points; apply ceiling (ceiling of 4; basal of 2, if needed)

Materials:
CAS2: Brief Stimulus Book (pp. 1–90); #2 pencils

Objective:
Examinees should select the option that best completes the matrix.

Entry Points and Basals: If an examinee age 12–18 fails the first item, administer previous items in reverse order until two consecutive correct answers have been obtained (basal). Record the response in the appropriate column, and then score the response (1 = *correct*, 0 = *incorrect*) for each item.

Discontinue Rule: Discontinue subtest if examinee receives four consecutive incorrect responses.

Directions for All Examinees:
Show example in the CAS2: Brief Stimulus Book (p. 1), and say, **Look at this page. There is a piece missing here** (point to the question mark). **Which one of these** (point to the five options in a sweeping motion) **goes here?** (Point to the question mark.) If the response is correct, say, **Yes, that's the right one because it's all yellow.** If incorrect, point to Option 3 and say, **This is the right one because it's all yellow.** (If necessary, provide a brief explanation.) Continue with directions for the appropriate age group.

Directions for Examinees Ages 4–11:
Show item 1 and say, **Look at this page. There is a piece missing here.**

Directions for the Remaining Items:
For each item, say as needed, **There is a piece missing here** (point to the question mark). **Which one of these** (point to the options in a sweeping motion) **goes here?** (Point to the question mark.) When the question is no longer necessary, say, **Now do this one.** (Provide no additional help.) If the examinee does not respond after about 60 seconds, encourage him or her to choose one of the options. If the examinee still does not respond, say, **Let's try the next one.** (Show the next item.)

	Item	Correct Response	Examinee's Response	Score (1 or 0)
All Ages / 4–11 Years	Example	3		
	1.	2		
	2.	3		
	3.			
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			
12–18 Years	11.			
	12.			
	13.			
	14.			
	15.			
	16.			
	17.			
	18.			
	19.			
	20.			

Jack A. Naglieri • J. P. Das • Sam Goldstein

CAS2 BRIEF

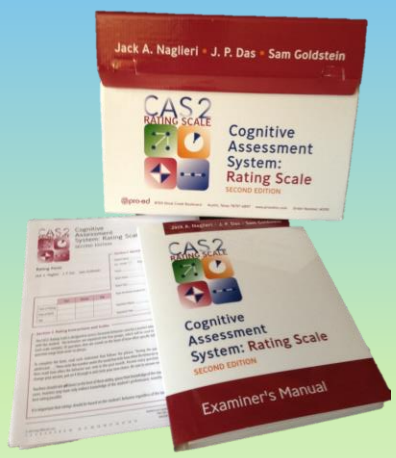
Cognitive Assessment System: Brief

SECOND EDITION

Stimulus Book

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

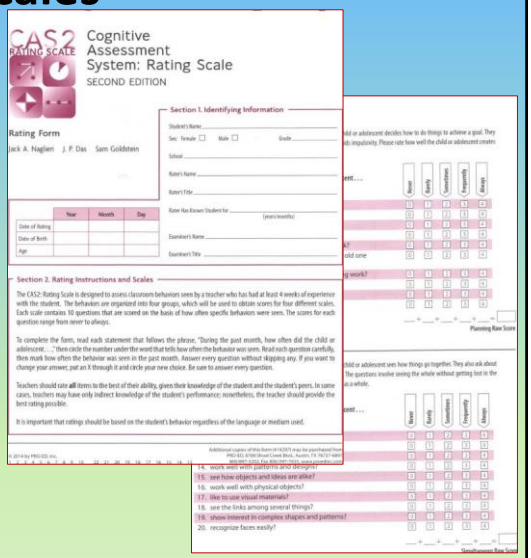


PASS

conclusions

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

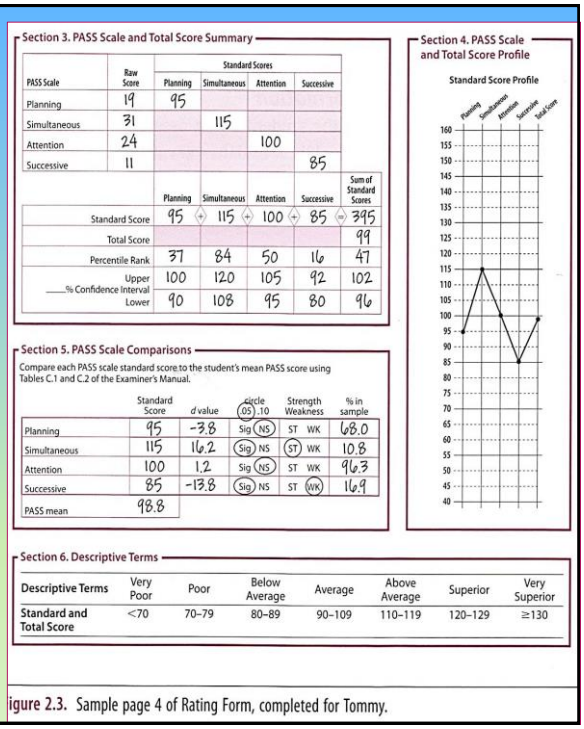


PASS

conclusions

CAS2 Rating Scales

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



Section 3. PASS Scale and Total Score Summary

PASS Scale	Raw Score	Standard Scores: Planning	Simultaneous	Attention	Successive
Planning	19	95			
Simultaneous	31		115		
Attention	24			100	
Successive	11				85

	Planning	Simultaneous	Attention	Successive	Sum of Standard Scores
Standard Score	95	115	100	85	395
Total Score					99
Percentile Rank	37	84	50	16	47
95% Confidence Interval: Upper	100	120	105	92	102
95% Confidence Interval: Lower	90	108	95	80	96

Section 4. PASS Scale and Total Score Profile

Standard Score Profile

Section 5. PASS Scale Comparisons

Compare each PASS scale standard score to the student's mean PASS score using Tables C.1 and C.2 of the Examiner's Manual.

	Standard Score	d value	circle .05 .10	Strength Weakness	% in sample
Planning	95	-3.8	Sig (NS)	ST WK	68.0
Simultaneous	115	16.2	(Sig) NS	(ST) WK	10.8
Attention	100	1.2	Sig (NS)	ST WK	96.3
Successive	85	-13.8	(Sig) NS	ST (WK)	16.9
PASS mean	98.8				

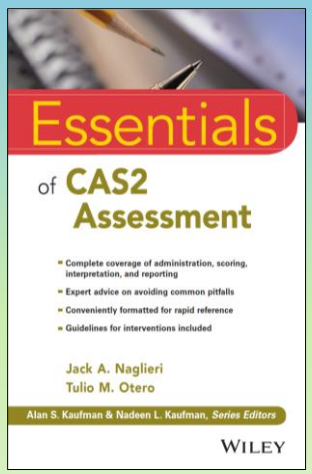
Section 6. Descriptive Terms

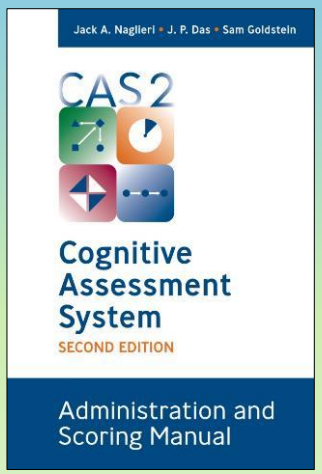
Descriptive Terms	Very Poor	Poor	Below Average	Average	Above Average	Superior	Very Superior
Standard and Total Score	<70	70–79	80–89	90–109	110–119	120–129	≥130

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

More on PASS & the CAS2

- www.jacknaglieri.com





conclusions

Core Group Activity

&

- Talk to your core group members
- Do you have any questions about the CAS2 suite of measures?

PASS

conclusions

The Brain and Learning

In the classroom, the more ways the materials in the are introduced to the brain and reviewed, the more dendritic pathways of access will be created. There will be more cell-to-cell bridges and these pathways will be used more often, become stronger and remain safe from pruning.

-- Dr. Judy Willis, Neurologist, 2006.

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PASS

conclusions

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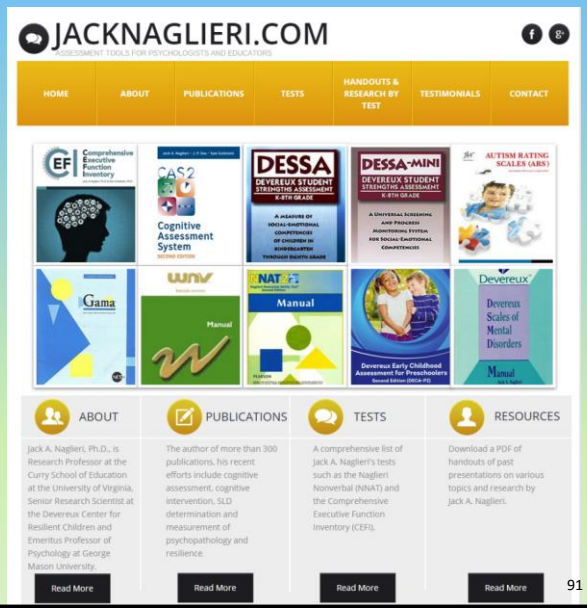
- General information
- Copies of presentations, research and book chapters
- To ask a question



PASS

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- Newsletter
- Free Resources
- Books
- Contact me or book me for your school
- Don't forget to like me on Facebook or Follow me on Twitter!

PASS

92

Edu-Venture In Belize

differentiation, experience it to embrace it!

3 Minute Body Scan

PASS

conclusions

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Winning Formula to *Think Smart!*

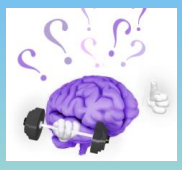
Mindsets

+

Skill Sets

=

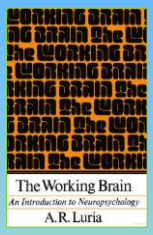
RESULTS!

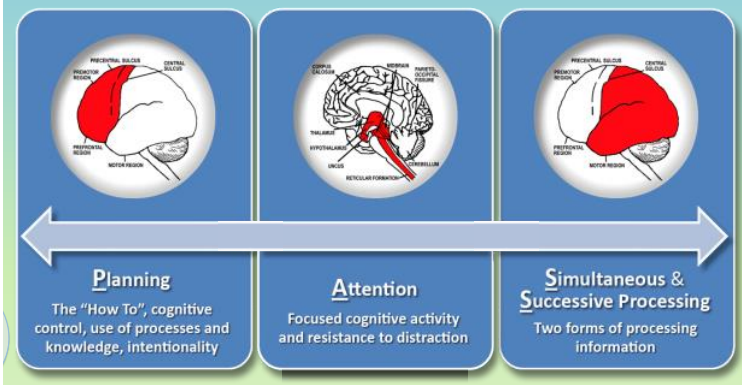


PASS

PASS: A neurocognitive approach

Three Functional Units - A. R. Luria





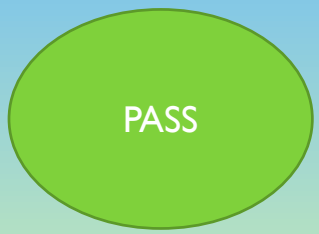
PASS

Building the Big Picture

Big Idea :PASS

Subheadings:

- Planning
  - Mindsets
  - Skill Sets
- Attention
- Successive
- Simultaneous



You will be capturing the big idea of each key part of PASS on your organizer after we teach each section.

conclusions 97

Here's Where We're Going…

- Introduction/Routines and Procedures
- PASS and Thinking Smart
- PASS & Learning
  - Planning & Instruction
  - Attention & Instruction
  - Successive & Instruction
  - Simultaneous & Instruction
- Think Smart: Closing

conclusions 98

Planning (or lack of it!)

PASS

PASS Theory: Planning

- **Planning** is a neurocognitive process that a person uses to determine, select, and use efficient solutions to problems
  - problem solving
  - developing plans and using strategies
  - retrieval of knowledge
  - impulse control and self-control
- These can also be described as executive function, metacognition, strategy use

PASS

Which Lemming has good Planning?

PASS

conclusions

CAS2: Rating Scale Planning

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

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

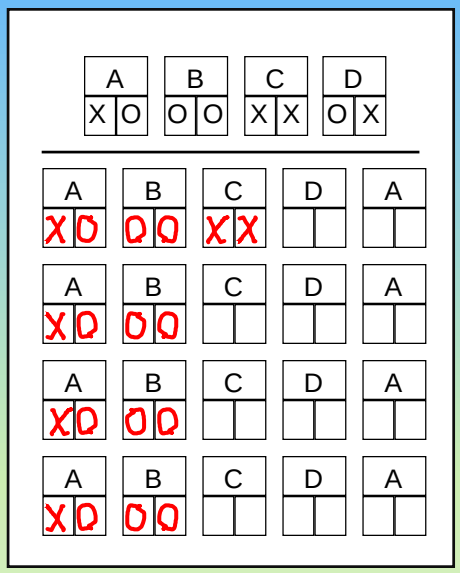
___ + ___ + ___ + ___ + ___ = ☐

Planning Raw Score

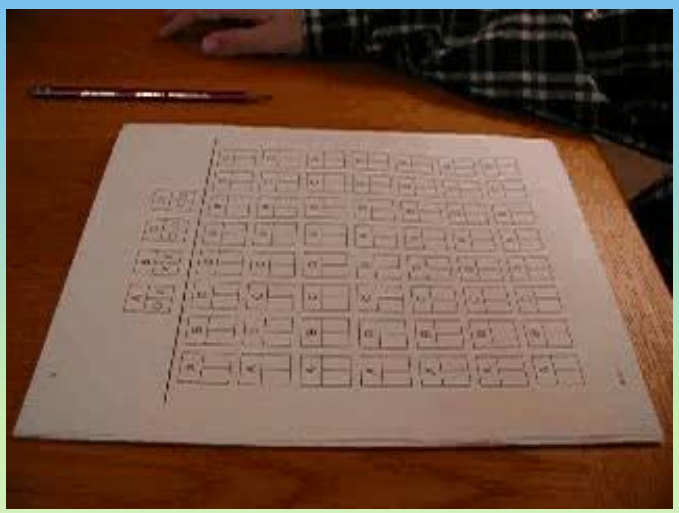
Do Planed Codes

Planned Codes 1

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



Planned Codes 1



PASS

conclusions

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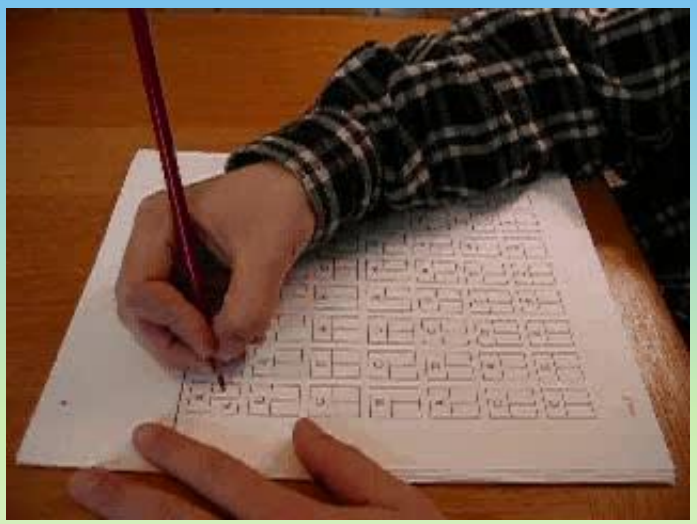
Planned Codes Page 2



PASS

conclusions

106

conclusions

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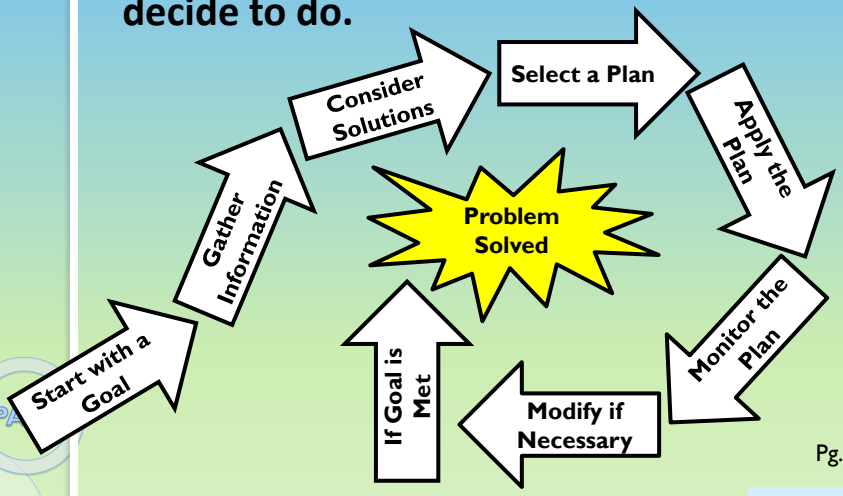
PASS Abilities: Planning

- Planning Ability is: ***how*** **you do what you decide to do.**



Pg. 9-10

conclusions

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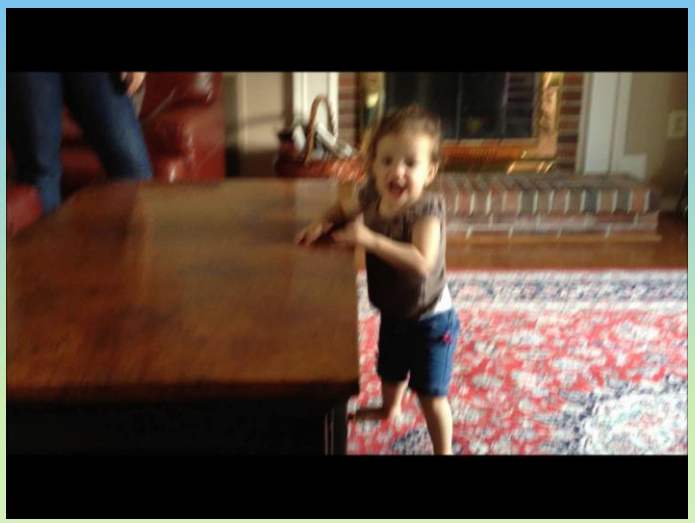
Does a 13 month old have EF?



PASS

conclusions

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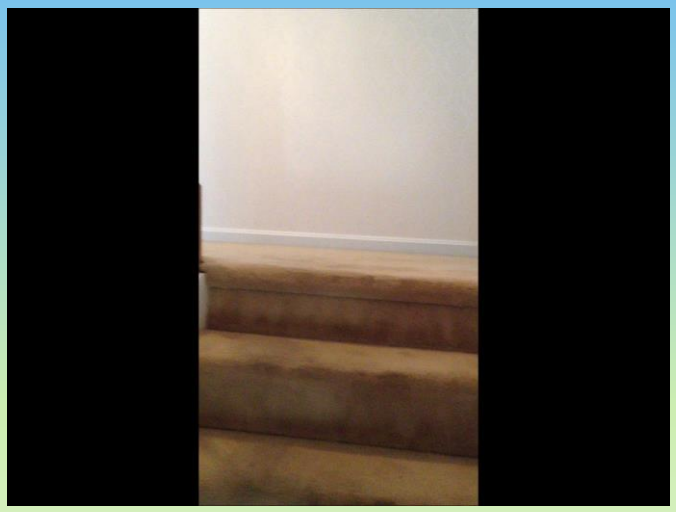
Age 19 mos: Knowledge & Planning



PASS

conclusions

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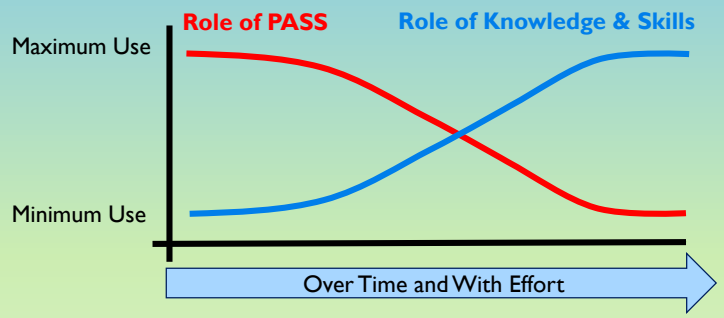
The Role of PASS and Learning

Planning Learning Curves

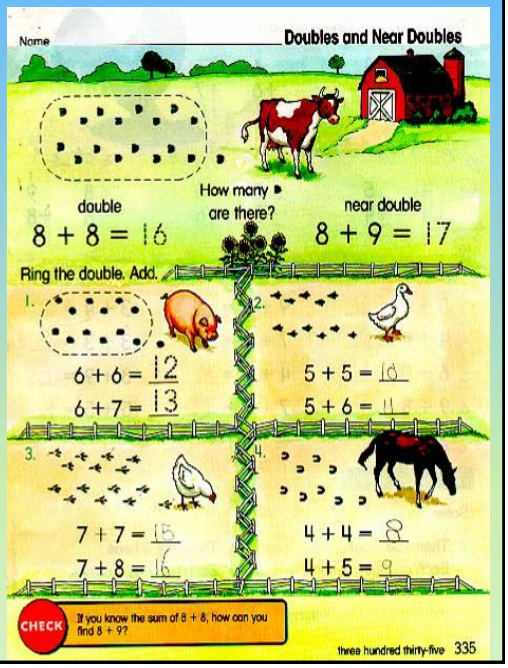
- Learning depends upon many factors especially PASS
- At first, PASS plays a major role in learning
- When a new task is learned and practiced it becomes a skill and execution requires less thinking



Note: A **skill** is the ability to do something fluently.

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.



Building the Big Picture

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  - Mindsets & Skill Sets
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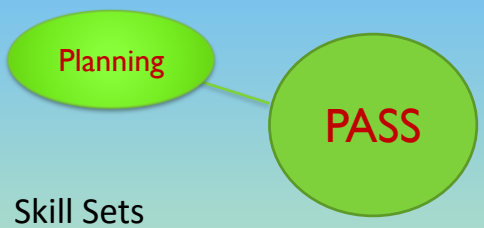
- Successive
- Simultaneous



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conclusions

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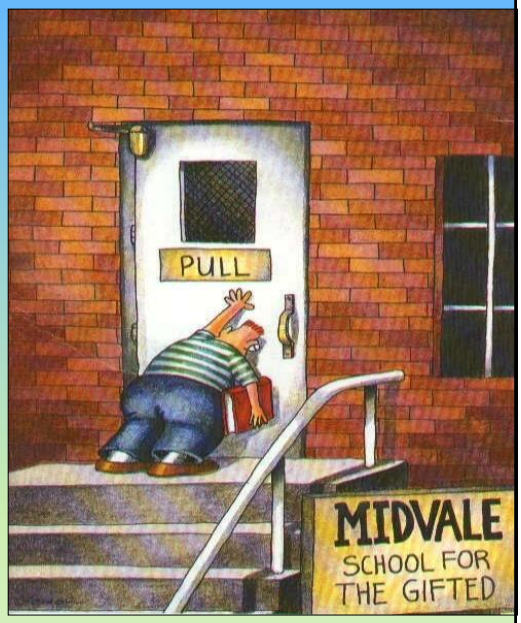
POOR PLANNING



PASS

PASS Theory: Planning Challenges

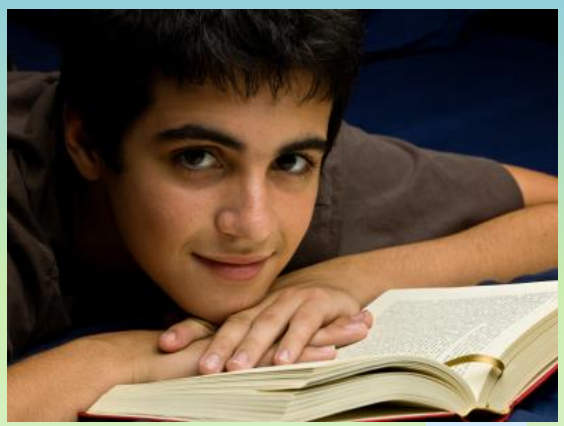
Examples of classroom problems related to Planning

- Using the same strategy even if it is not effective
- Struggling with how to complete tasks
- Not monitoring progress during a task
- Misinterpretation of what is read

PASS

The Case of Rocky

Specific Learning Disability and ADHD



PASS

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

PASS

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

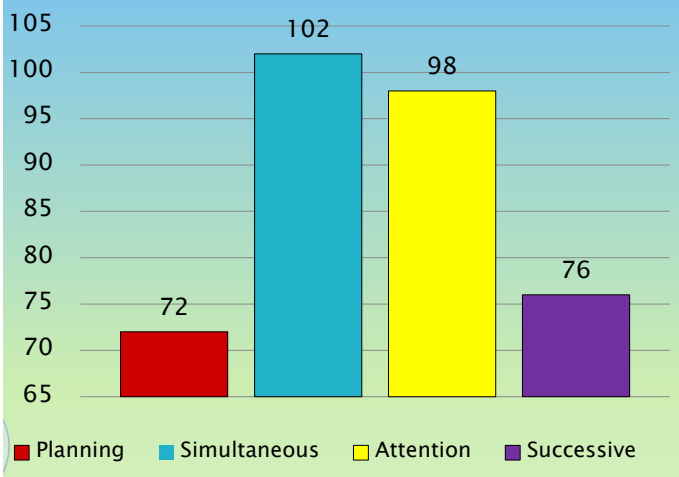
The case of Rocky

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

PASS

conclusions

Basic Psychological Processing Scores



PASS

conclusions

The case of Rocky

- He has Planning and Successive weaknesses
- Met DSM for ADHD
- Met SLD definition a "disorder in one or more of the basic psychological processes"

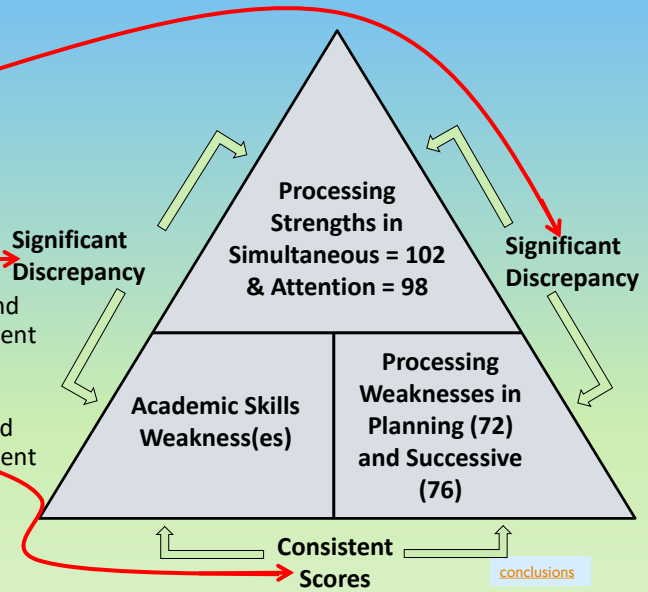
	Score	Diff	Significant	S/W
Planning	72	-15.0	yes	Weakness
Simultaneous	102	15.0	yes	
Attention	98	11.0	yes	
Successive	76	-11.0	yes	Weakness
PASS mean	87.0			

PASS

conclusions

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

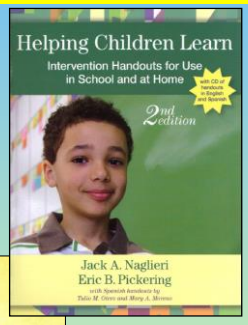


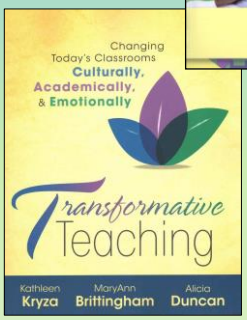
PASS

conclusions

Core Group Activity

- What interventions should you recommend to address the weakness in Planning?





PASS

conclusions

Six Learning Foundations that Work for ALL Learners

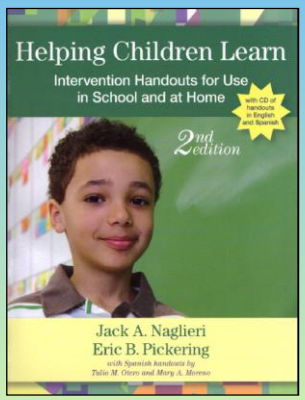
- Safe Environment
- Routines and Procedures
- Growth Mindsets
- Student Talk
- Student and Teacher Self Reflection
- Mindfulness

PASS

conclusions

Intervention Support Tools

- 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.



PASS

conclusions

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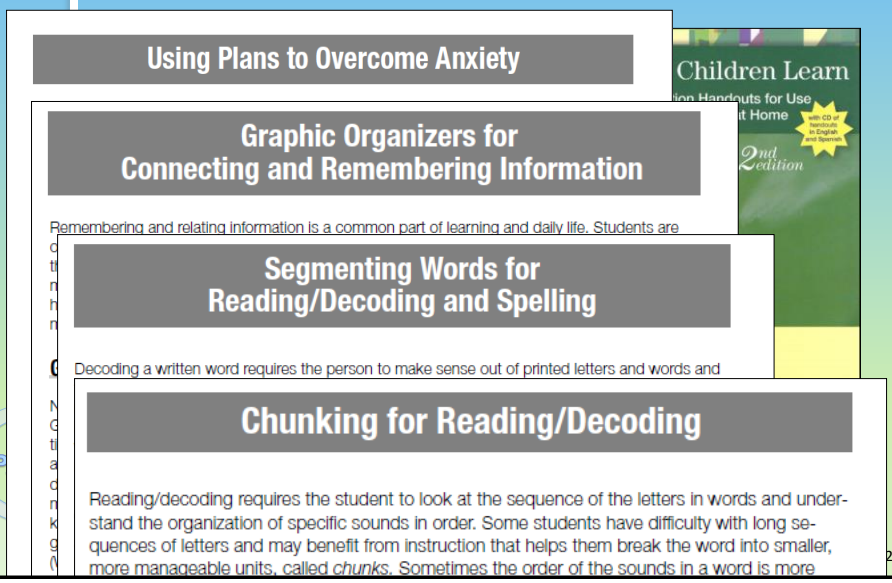
Interventions for Rocky



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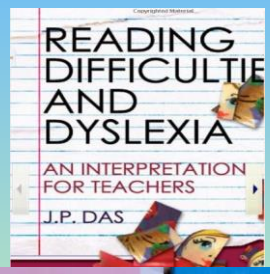
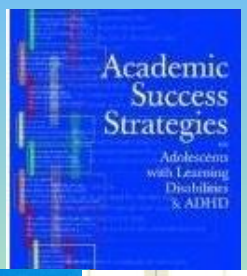
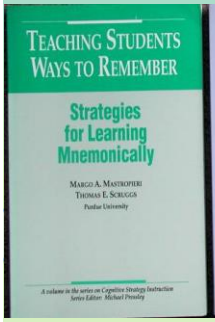
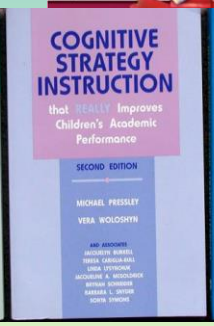
Intervention Resources

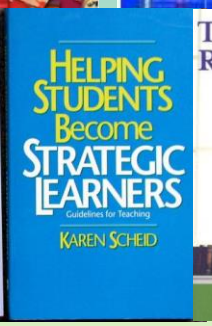
- Intervention resources

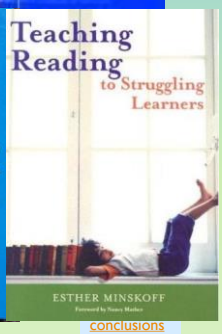












PASS

conclusions

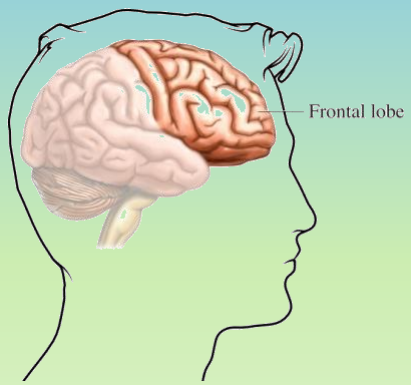
Let's Take a Break!

PASS

conclusions

Instructional Implications for Planning

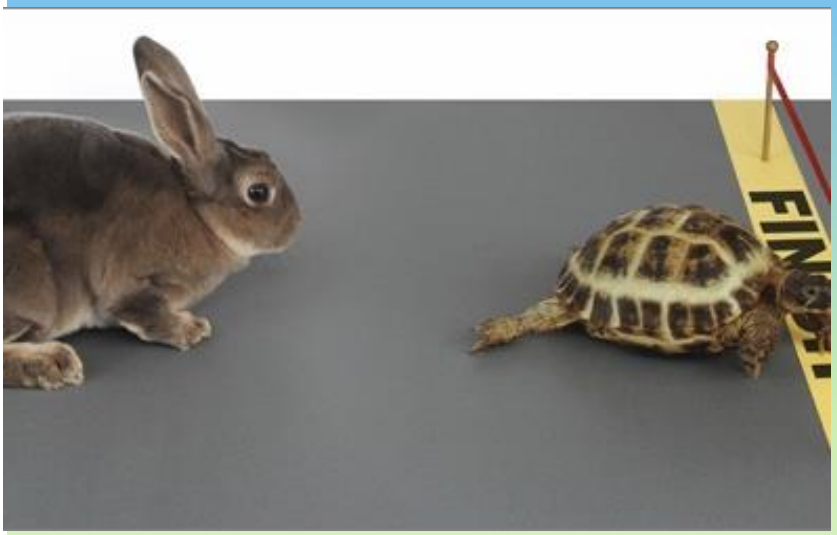
Engaging the FRONTAL LOBES



PASS

conclusions

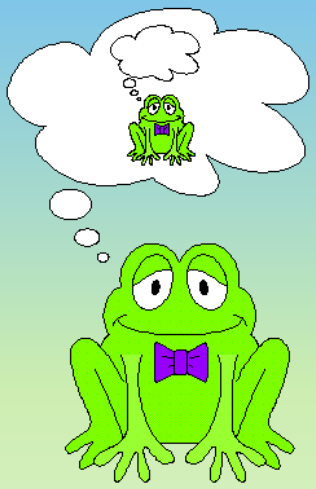
Encourage EF: Go Slow to Go Fast!



PASS

conclusions

Make Thinking Visible



Pg. 4-5

conclusions

Intentional & Transparent

Want Students to OWN their Learning?

BIG IDEA

conclusions

Intentional and Transparent

- Intentional: ***YOU*** Know why you're doing what you're doing.
- Transparent - ***THEY*** know why you're doing what you're doing.

PASS

conclusions

Brain Rule
"We need to repeat to remember"

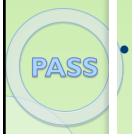
Talking
about an event immediately after is has occurred
enhances memory
for that event

PASS

conclusions

Litmus Test of Transparency

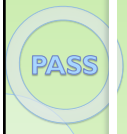
- If someone came into your class and asked your students ***what they are learning and why it's important to learn,*** could most of them give a clear and specific answer
  - We are doing a KWL because good readers predict and ask questions
  - We are making graphic organizers to connect our thoughts and ideas
  - We are singing a song to help us see how pioneers in the past had to live and entertain themselves.
  - I am using a mentor text as I write the lead for my piece because I learn from my favorite authors
  - I am helping to put things away because it's my responsibility to keep our community clean.



conclusions

Or…

- Would they simply tell what they are doing?
  - We are doing a KWL.
  - I am writing a story about my dad's birthday?
  - I am drawing a picture of girl from Japan.
  - We are making a graphic organizer for our project? (Why? Cause Ms. K likes them)
  - We are doing the worksheets (Why? What kind of thinking is required?)



conclusions

Teaching for Transfer

If we want learning to stick, we have to make it sticky.

ILS Make Learning Stick!

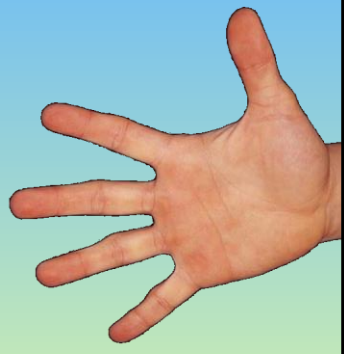
PASS

www.kathleenkryza.com

conclusions

Metacognition

- On a scale of 1-5 fingers, how well do you think you know the concept of metacognition
- Do you talk to your students about the power of thinking about thinking?



PASS

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conclusions

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.

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HAMMILL INSTITUTE ON DISABILITIES

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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]

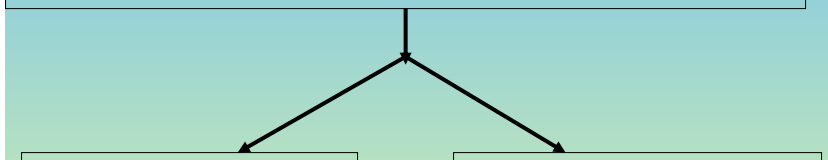
Abstract

The authors examined the effectiveness of cognitive strategy instruction b
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 worksh
(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	Comparison Group
19 worksheets with Planning Facilitation	19 worksheets with Normal Instruction

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conclusions

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

PASS

conclusions

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?

PASS

conclusions

Table 3. Students' Comments During Planning Facilitation Sessions

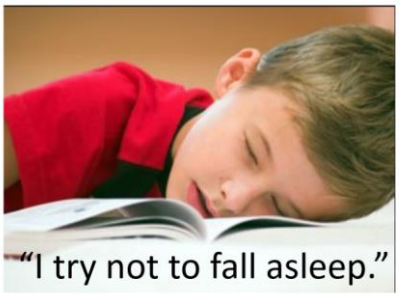
Goals
- "My goal was to do all of the easy problems on every page first, then do the others."
- "To get as many correct as I can."
- "To get as many right as quickly as possible."
- "To take time and make sure I get them correct."

Starting place
- "I started on the first one."
- "I skipped around."
- "I do the easy ones first."
- "I look at the type of problem and the number of step

Overall plan
- "I did all the easy problems on a page and went onto t
- "I do all the addition first, then the easy minus, and the
- "I do the problems I know, then I check my work."

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

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



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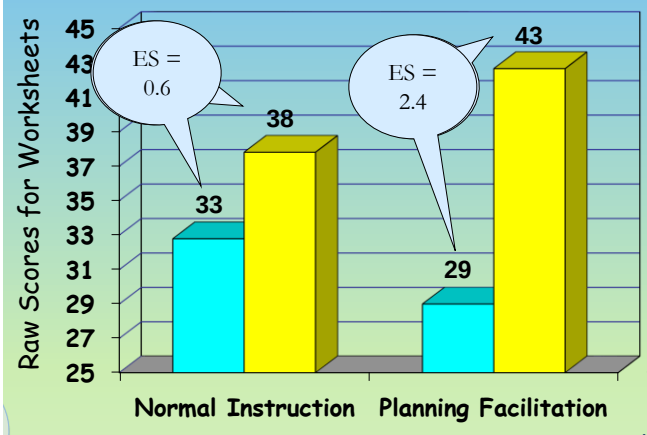
Classroom Worksheets Pre-Post



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

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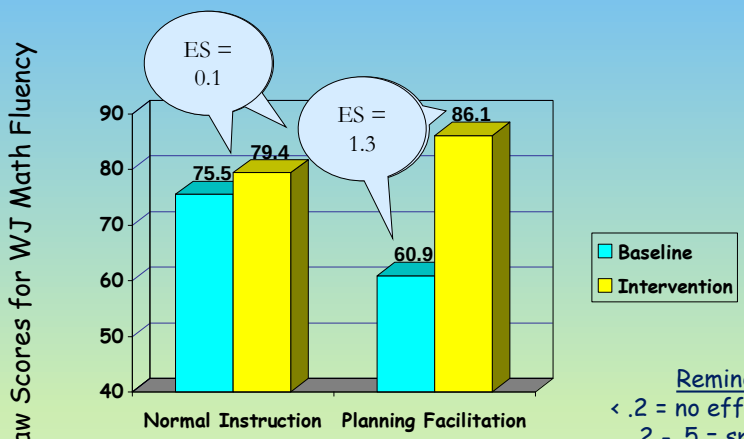
conclusions

Woodcock-Johnson Math Fluency



Reminder
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> .8 = large

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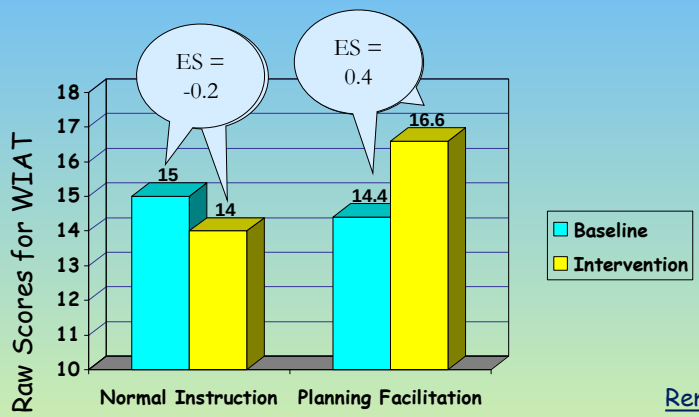
conclusions

WIAT Numerical Operations



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

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

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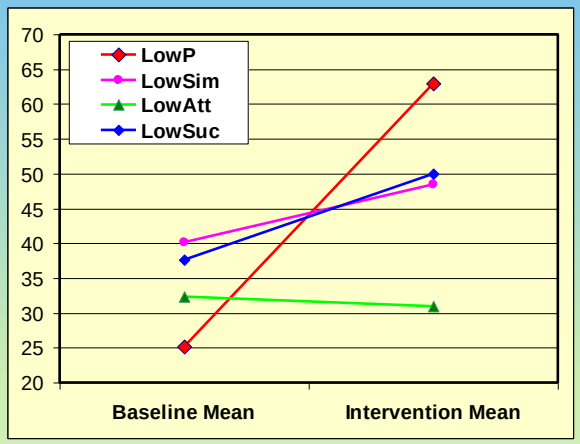
Iseman (2005)

Cognition (Planning scores) predicted response to intervention

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



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Results

- The experimental group did better than the control on math taken from the curriculum on standardized math tests
- A year later the experimental group still outperformed the control group.
- ***Mindsets Plus Skill Sets Equals Results!***

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conclusions

&

Discuss: What does this mean for our work as psychs, teachers, speech path, etc

PASS

conclusions

Don't Commit Assumicide

-Kelly Gallagher

- Assuming that someone else has taught students the skills they need to learn effectively in your classroom.
- Assuming that students will transfer skills they learned in someone else's class into your classroom without helping them transfer the skills.

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conclusions

Winning Formula to *Think Smart!*

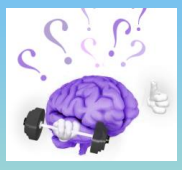
Mindsets

+

Skill Sets

=

RESULTS!



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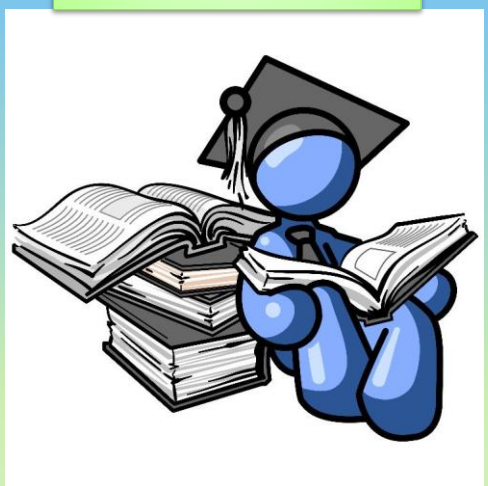
conclusions

PG. 12

Skill Sets



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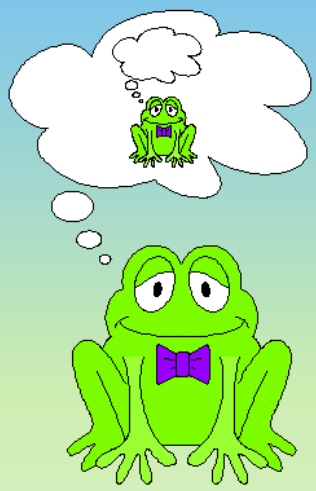
Make Metacognition Visible



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Learning to do well in school isn't magic….

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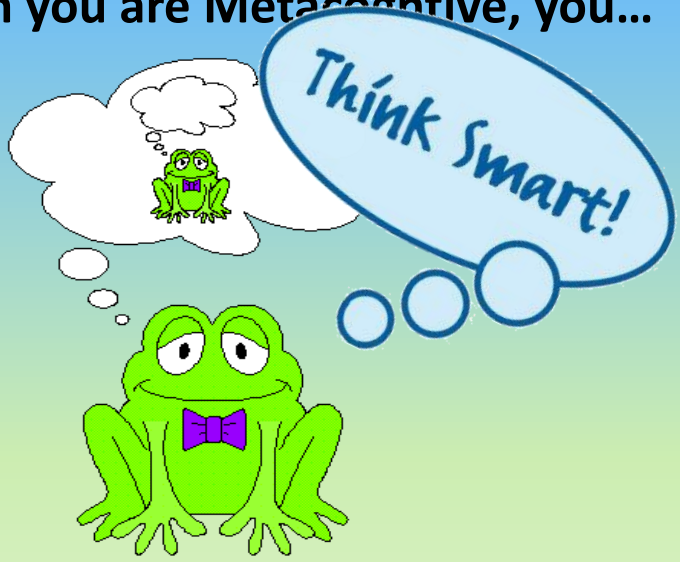
When you are Metacognitive, you…



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conclusions

You have to Think SMART
And have a…

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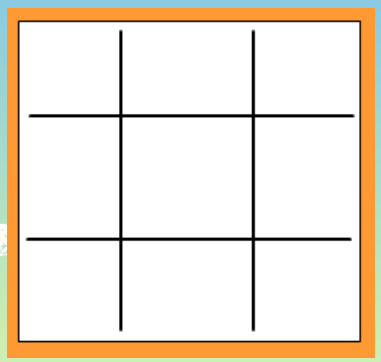
conclusions

First: Teach Intentionally About Metacognition

Metacognition is thinking about your thinking, having a plan of action for what to do when you don't know.



RESTATE: Now restate the term in your own words.

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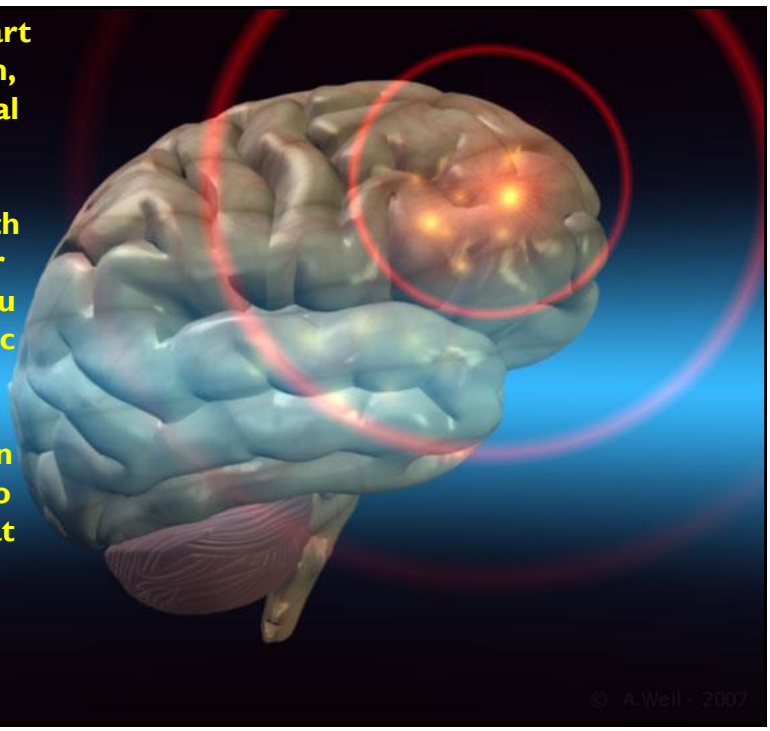
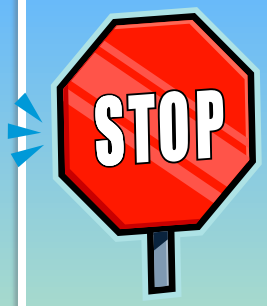
www.inspiringlearners.com
2012

The front part of your brain, or pre-frontal cortex, is where you come up with strategies or plans like you did for tic tac toe.

You can train your brain to get better at Planning





&

Draw a picture that represents your idea of metacognition. Share.

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STOP AND DRAW: Non-linguistic representations helps cement learning

www.inspiringlearners.com
2012

REVIEW: More on Metacognition (Read "How People Learn" for more…)

- **METACOGNITION** consists of three basic elements:
- *Developing a plan of action*
- *Maintaining/monitoring the plan*
- *Evaluating the plan*

- The more students are aware of their thinking processes as they learn, the more they can control such matters as goals, dispositions, and attention. Self-awareness promotes self-regulation

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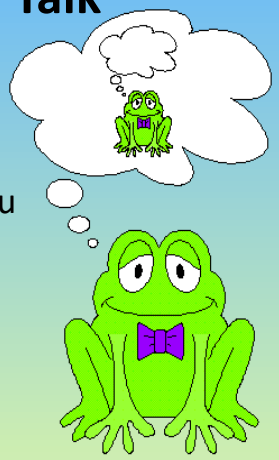
conclusions

Metacognitive Talk…

- Instead of saying "Here are some strategies you could use…"
- Say, "What are some strategies you could use… or even, here are a list of strategies, which ones would work for you?

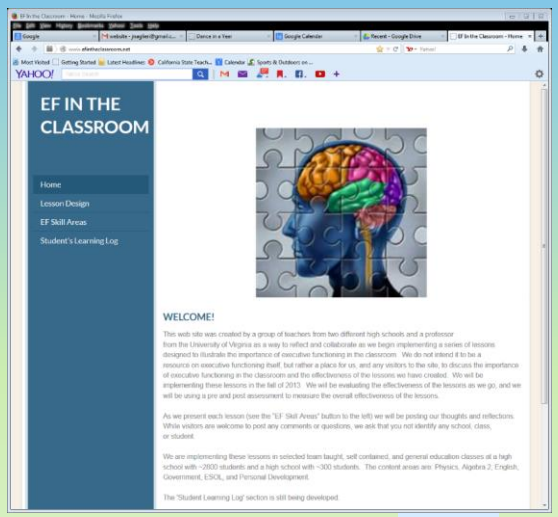
You Try It! Turn and Talk



- Based on what you just learned, describe how you are metacognitive about exercising or eating right.
- Do you need to monitor and adjust? How's your plan working? (Metastrategic)

High School Lessons www.efintheclassroom.net

- Start with Awareness of thinking about thinking



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conclusions

Metacognition Lesson: EF in the Classroom

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.

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conclusions

Students watched a Flash Mob at Antwerp train Station (2009)

PASS

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)

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Planning Lesson Student responses

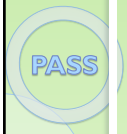
- Q3: How do you know if a plan is any good?
  - Put the plan in action and see if it works (self-monitoring)
  - Give it a try (perhaps learn by failing)

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

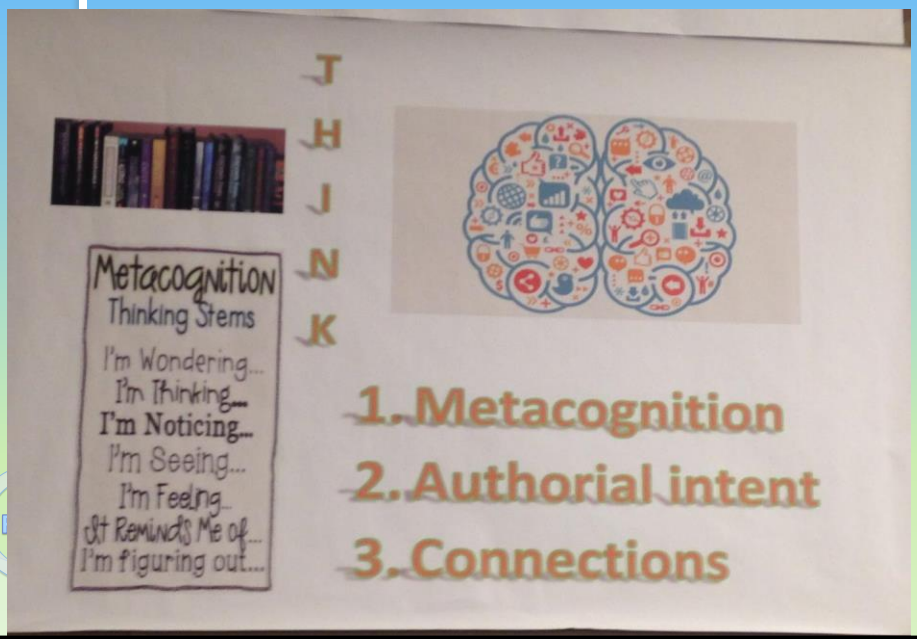
Planning Lesson Student responses

Q5: How do you use planning in this class?

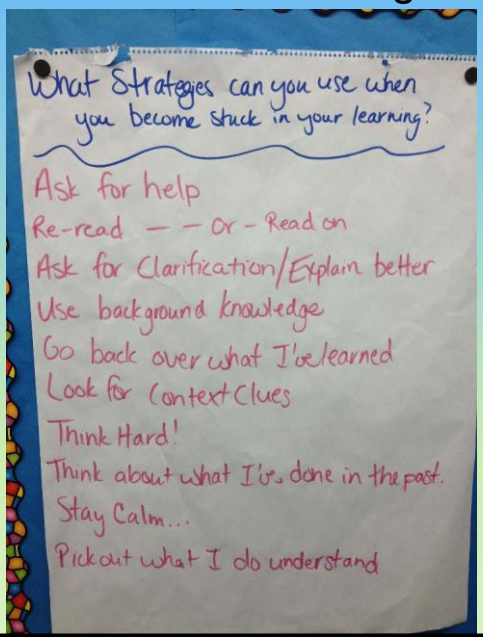
1. We don't plan in this class
2. Mrs. XXX does all the planning in this class so you don't have to think about planning



Anchor Charts = Transparent



Skill Set Anchor Chart: Making Thinking Visible



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conclusions

Think SMART!

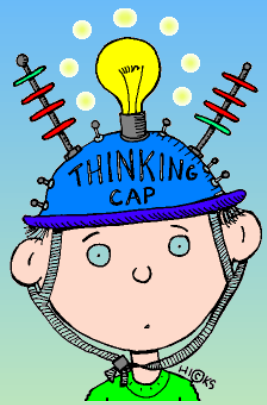
Stop and THINK

Make a PLAN

Take **A**ction!

Review/Reflect/Revise

Ta da! (or) Try Again



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Developed by Naglieri and Kryza, 2014

conclusions Pg. 11

Let's Try

- I'll give you some examples and you tell me if this person is THINKING **SMART** or NOT.
- Scott tried once, but couldn't do his math homework, so he watched T.V.
- Was he THINKING **SMART**?
- Let's help Scott THINK **SMART**

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conclusions

Think SMART!

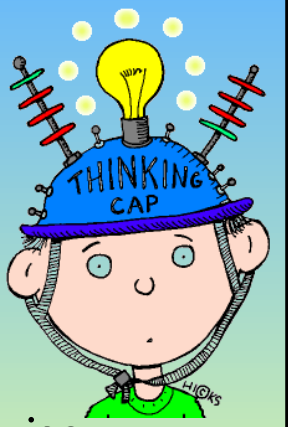
Stop and THINK

Make a PLAN

Take **A**ction!

Review/Reflect/Revise

Ta da! (or) Try Again



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Developed by Naglieri and Kryza, 2014

conclusions

Think SMART Rap!

Think SMART!
Here's how you START
You THINK, "I CAN!"
Then you make a PLAN
Now give it GO,
Watch your brain GROW!
So now YOU KNOW…
THINK SMART!
Peace out!

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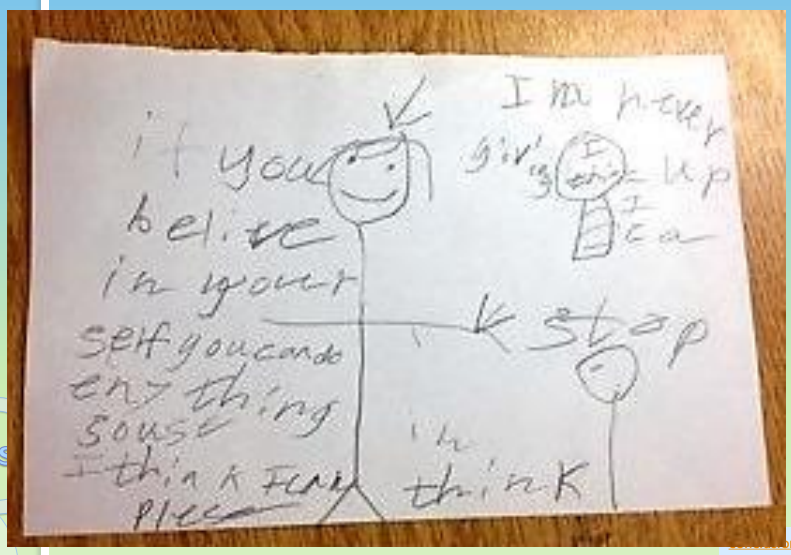
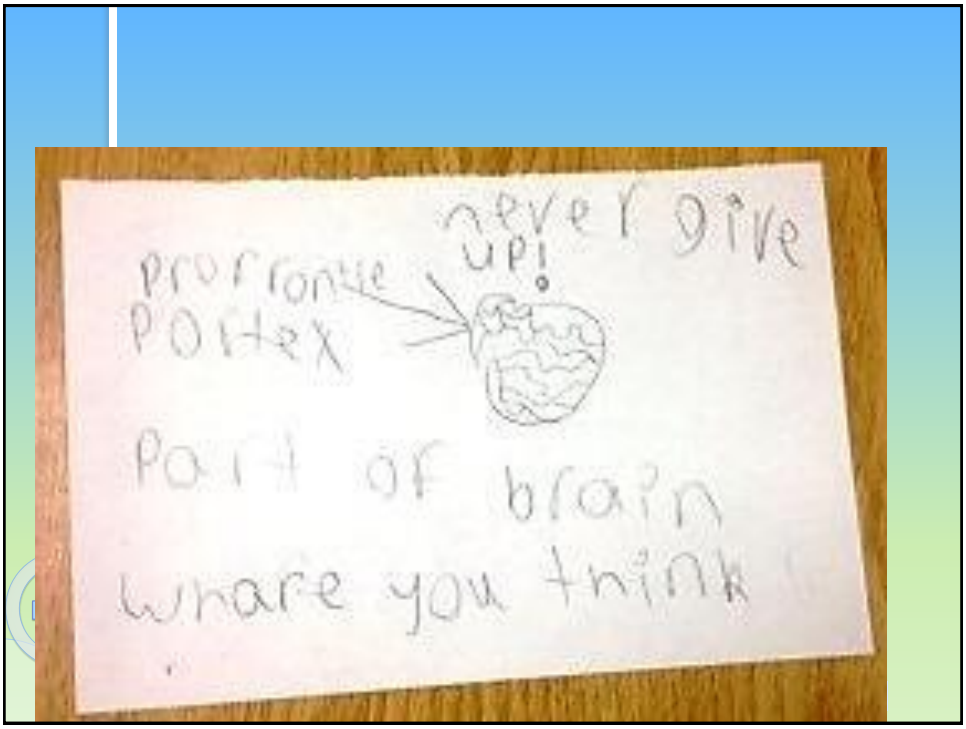
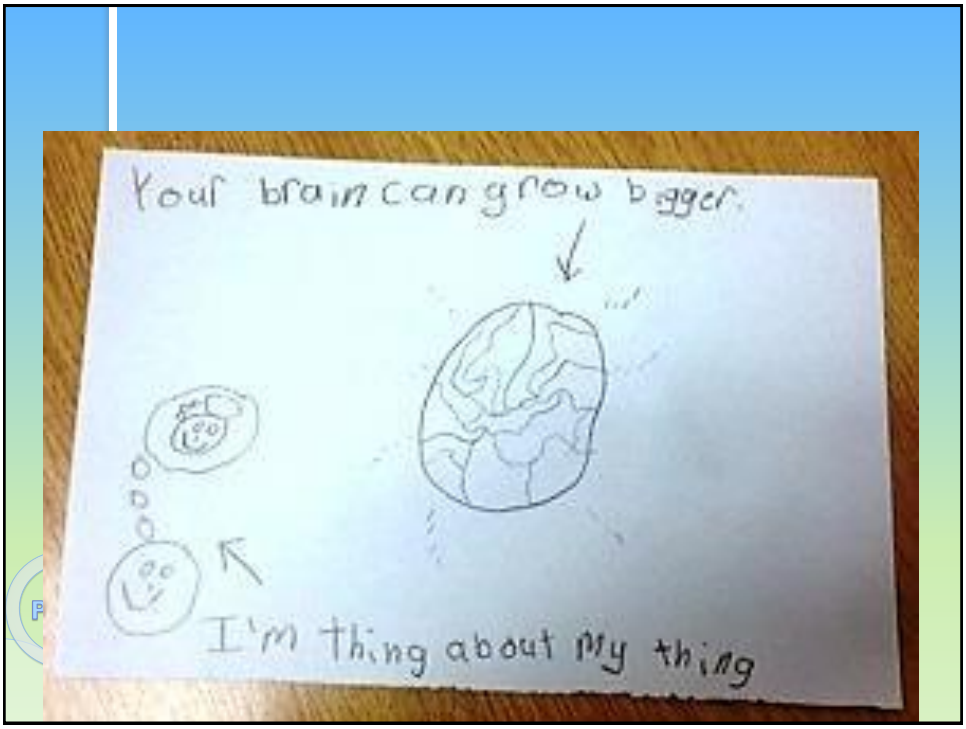
conclusions

Self-Assessment…




never Give
UP!
prorronte
Portex
Part of brain
whare you think


Your brain can grow bigger.
I'm thing about My thing

Dennis, 16, On Metacognition

- What's metacognition?
- It's the recognition,
- Of how my brain works,
- Understanding my learning quirks.
- It means I've got to have a plan
- And more important, think, "I can!"
- Before, during, after, that's the trick
- Metacognition means that learning sticks.
- When I have a plan, I'm a stronger reader
- This can help me become a real leader!
- So I'll practice my skills each and every day.
- Metacognition will take me all the way!

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Core Group Activity

&

How will you support students and teachers in developing their meta-strategic skill sets?

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

www.kathleenkryza.com

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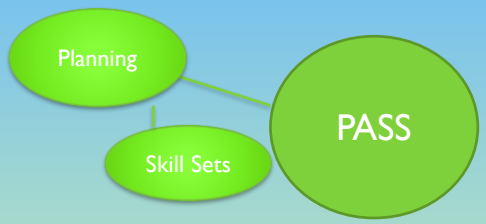
Building the Big Picture

Big Idea :PASS

Subheadings:

- Planning
  - Mindsets
  - Skill Sets
- Attention
- Successive
- Simultaneous



You will be capturing the "Big Idea" of each key part of PASS on your organizer after we teach each section.

conclusions

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A New View

Planning and Attention = Executive Function

conclusions

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Self Regulation/Executive Function

- Self Regulation is a deep, internal mechanism that enables children to engage in mindful, intentional and thoughtful behaviors.
  - Elena Bodrvoa and Deborah J. Leong
- Self-Regulation is a Skill that is Taught, it does not emerge naturally.

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conclusions

Students Can Do MORE Than We Think…

- When children are constantly regulated by adults, they may appear to be self-regulated, but they are actually "teacher regulated."
- If our goal is to…
- **EMPOWER**

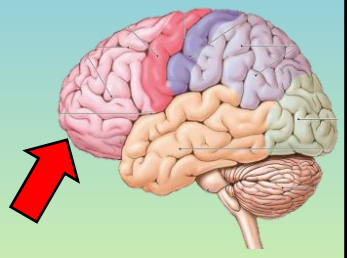
NOT

PASS

conclusions

Mindsets + Skillsets = Results

- Mindsets & Skillsets include
  - Brain-based concepts such as
    - PASS
    - Executive Function
    - Metacognition
    - Self-Regulation



- **These concepts are all closely related to the FRONTAL LOBES of the brain, what A. R. Luria described as PLANNING and ATTENTION**

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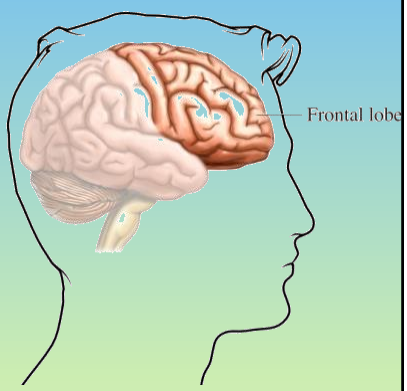
Executive Function/Frontal Lobe

- Frontal Lobe function impacts both students *social-emotional* and *academic* success.
- We (have been) and will be weaving in ways to promote development of *social-emotional* and *academic* Executive Function throughout sessions.



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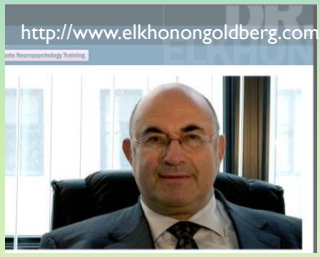
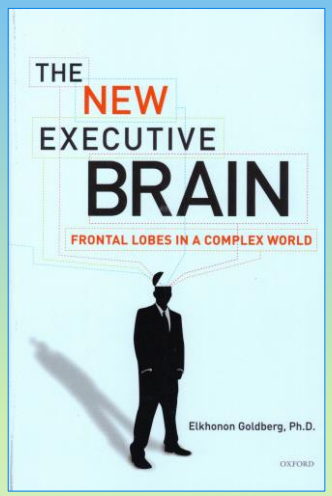
Executive Functions

- Elkhonon Goldberg provides a valuable review of what the frontal lobes do
- Describes EF as the orchestra leader





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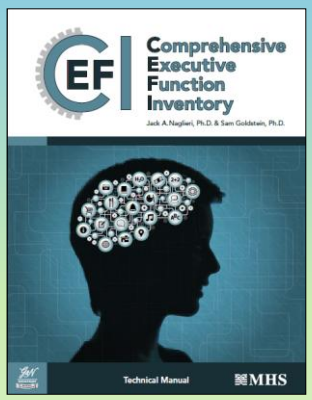
Comprehensive Executive Function Inventory (CEFI)

Jack A. Naglieri
Sam Goldstein

A rating scale designed to measure behaviors association with Executive Function for ages 5-18 years rated by a parent, teacher, or the child/youth.



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CEFI Parent Rating Scale (Ages 5-18)

CEFI Teacher Rating Scale (Ages 5-18)

CEFI Self-Rating Scale (Ages 12-18)

CEFI Full Scale (90 items)

1. Attention
2. Emotion Regulation
3. Flexibility
4. Inhibitory Control
5. Initiation
6. Organization
7. Planning
8. Self-Monitoring
9. Working Memory

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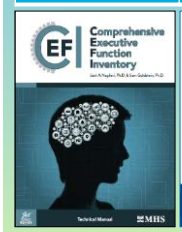
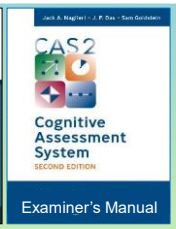
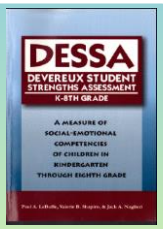
Comprehensive Model of EF

Behavior	Cognition	Social Emotional	Academic performance	Impairment
				

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conclusions

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Tomorrow's Focus

- Planning - Mindsets
- Attention
- Successive Processing
- Simultaneous Processing
- Bringing to all together

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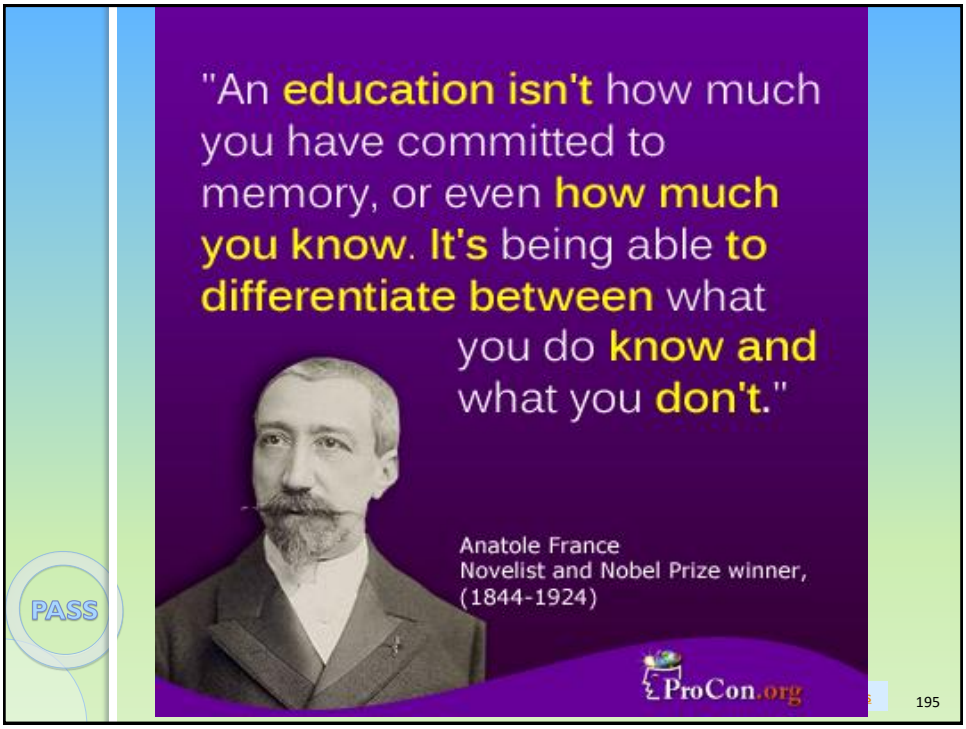
Your ticket out the door!

What are your greatest concerns about getting students to Think Smart?

Questions you hope to have answered before the end of tomorrow.


"An education isn't how much you have committed to memory, or even how much you know. It's being able to differentiate between what you do know and what you don't."
Anatole France
Novelist and Nobel Prize winner, (1844-1924)
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