

A Five Dimensional Model of Executive Function: Cognition, Behavior, Social-Emotional, Academics, & Impairment!

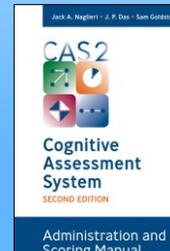
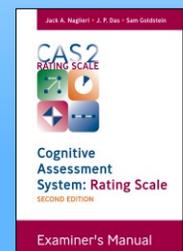
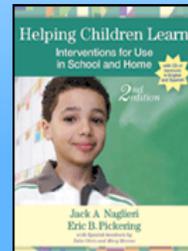
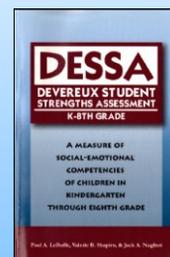
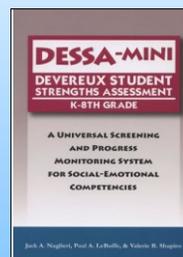
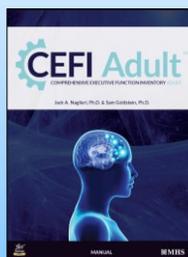
Jack A. Naglieri, Ph.D.

Research Professor, University of Virginia
Senior Research Scientist, Devereux Center for Resilient Children
jnaglieri@gmail.com
www.jacknaglieri.com

conclusions

1

Resources and Disclosures



conclusions

2

www.jacknaglieri.com

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

conclusions 3

Want to Learn More... Join us in California July 9-13, 2018

conclusions 4

Workshop Leaders: Kathleen M. Kryza, MA, Master Teacher, International Educational Consultant/Coach; and Jack A. Naglieri, PhD, Research Professor, University of Virginia, Senior Research Scientist, Devereux Center for Resilient Children

My Background

- Interest in intelligence and instruction
- Experience
 - Need
 - Psychology
 - Evidence
- My personal research
- Why this



conclusions

5

Today's Session

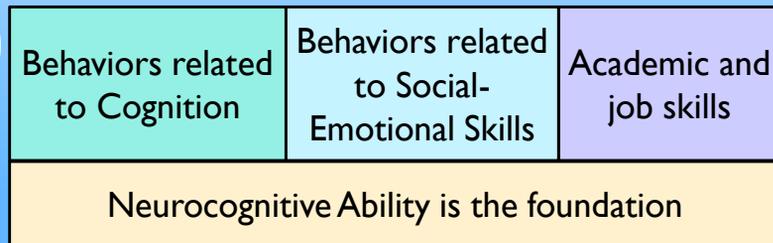
- Introduce yourself to your neighbors
 - We will be discussing various topics today and you need to know who your talking to
 - Name (write it down so you remember)
 - What they do
 - Share a something about yourself relative to EF
- Establish roles:
 - Coach
 - Organizer (keeps time)
 - Recorder and Spokesperson
 - Energizer

conclusions

6

Goal of this presentation

A comprehensive approach to understanding and assessing EF needs to include several conceptual areas.



conclusions

Presentation Outline

- ➔ Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom or Clinic
 - More lesson plans for improving components of EF
- Conclusions

conclusions

8

EF Lesson on Saturday Night Live

- We will begin by learning about how EF can be encouraged, using one of the lessons in *www.efintheclassroom.net* curriculum
- The lessons teach aspects of EF and are structured as follows:
 - STEP 1 – View the video
 - STEP 2 – Discuss the video with the person sitting next to you.
 - STEP 3 – Share your ideas with everyone

conclusions

9

EF Lesson on Saturday Night Live



conclusions

10

EF Lesson on Saturday Night Live

- STEP 1 – View the video
- STEP 2 – Discussion of the video with someone sitting next to you.
- STEP 3 – Share your ideas with everyone

conclusions

11

Time to Think and Talk

- **Task:**
- Talk with your partner(s)
- What was the main point ?
- Was the goal achieved ?
- Why was it so hard to get the students to think?
- Your own questions and thoughts..


 START

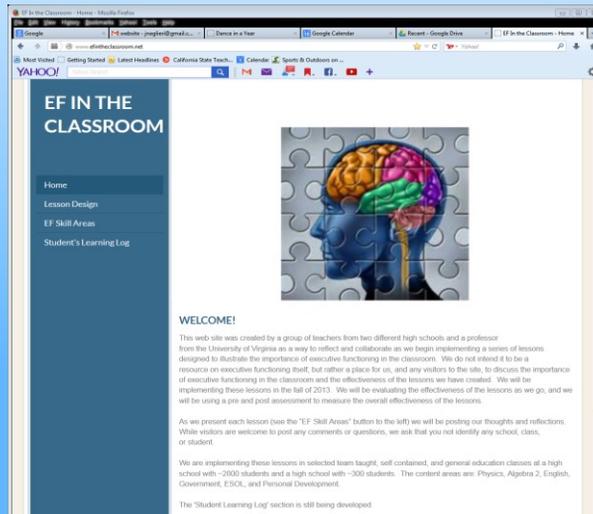


4
minutes
left



conclusions

All Lessons available at: www.efintheclassroom.net



conclusions

13

History Class: Saturday Night Live

- STEP 1 – View the video
- STEP 2 – Discussion of the video with someone sitting next to you.
 - Consider:
 - What was the main point ?
 - Was the goal achieved ?
 - What did the teacher do wrong ?
 - Your own questions and thoughts..
- ➔ STEP 3 – Share your ideas with everyone

conclusions

14

History Class: SNL

Metacognition

The ability to think about your thinking

Phrase of the week: Are you thinking about thinking?

Watch Seinfeld History Lesson Video:

<http://www.schooltube.com/video/30747e2e060f4e4efc5b/>



1. Why was the teacher frustrated in the video?
2. What could the students in the video have done differently?
3. Why was it so hard for the students to think about history?
4. Do you think about how you're doing your work *while* you are actually doing it?

Wrap-Up:

This week whenever you are stuck, you must describe to the teacher what you did. How you got to where you are? This is an example of being aware of what you're thinking, sometimes called "self-monitoring". Write in your notebook how you think this could benefit you.

History Class: 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'

History Class: Student Comments

- 'The way 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'
- 'We need to know why the teacher is getting us to learn history'

conclusions

17

History Class: Saturday Night Live

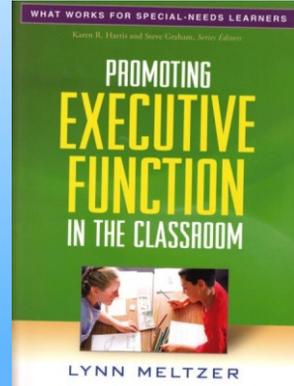
- Teach students to think not just remember
- How to learn is just as important as what to learn
- This is what Executive Function is all about
- This is the theme of today's workshop

conclusions

18

Meltzer (2010)

- ‘Classroom instruction generally focuses on content (or the *what to know*), rather than on the *how to do or learn...*and does not address metacognitive strategies that teach students to think about *how* they think and learn’.



conclusions

19

Why this Workshop on EF?

- Executive Function (EF) is the most important ability we have, because it provides us **a way to decide how to do what we choose to do to achieve a goal**
- The best news is that EF **can be taught**
- Instruction that improves EF will affect children’s ability to learn, their behavior, and their social skills.
- Improving EF will change a student’s life

conclusions

20

Executive Function Goals

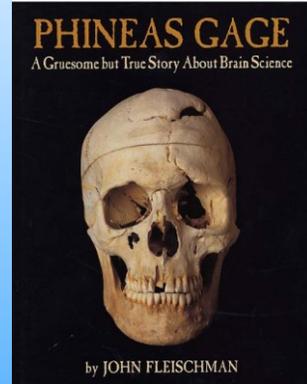
- Today we will be *thinking about thinking*
- I will be teaching you *how* to help people learn to do the things they want to do
- The goal is to help students learn more by *encouraging them consider how they do what they decide to do*
- The goal is to engage the frontal lobes

Presentation Outline

-  Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom or Clinic
 - More lesson plans for improving components of EF
- Conclusions

The Curious Story of Phineas Gage

John Fleischman's book "Phineas Gage: A Gruesome but True Story About Brain Science" is an excellent source of information about this person, his life, and how this event impacted our understanding of how the brain works; and particularly the frontal lobes.

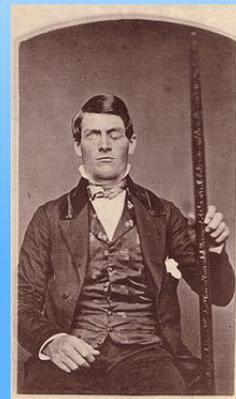


conclusions

23

The Curious Story of Phineas Gage

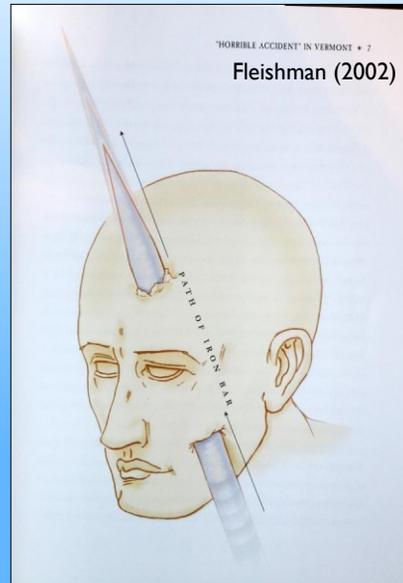
- September 13, 1848 26 year old Phineas Gage was in charge of a railroad track construction crew blasting granite bedrock near Cavendish, Vermont
- The job Phineas has is to use a "tamping iron" to set explosives
- The tamping iron is a rod about 3 ½ feet long weighing 13 ½ lbs pointed at one end



24

Fleishman (2002, p 70)

- From Damaiso (1994) article in *Science*
- The rod passed through the left frontal lobe, between the two hemispheres, then to left hemisphere
- The damage was to the front of the frontal cortex more than the back, and the underside more than the top

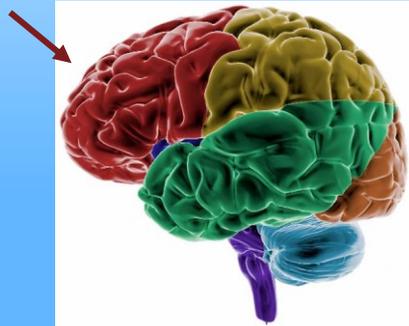


Before . . . & . . . After

- **Before** the accident 'he possessed a well-balanced mind, was seen as a shrewd, smart business man, very energetic and persistent in executing all his plans of operation' (p 59)
- **After** the accident his ability to direct others was gone, he had considerable trouble with decision making, control of impulses and interpersonal relationships – management of intellect, behavior and emotion

A Bit of EF Neuroanatomy

- The case of Phineas Gage led to a better understanding of the frontal lobes; in particular the pre-frontal cortex.
- Rich cortical, sub-cortical and brain stem connections.

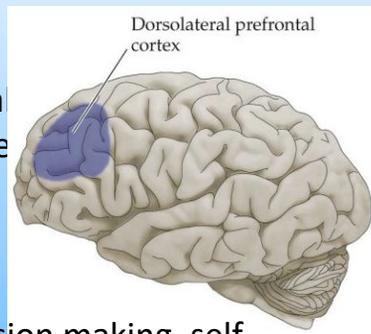


conclusions

27

More Specifically

- The dorsolateral prefrontal cortex is involved with the ability to plan, shift set, organize remember and solve novel problems.
- That is: planning and decision making, self monitoring, self correction, especially when responses are not well-rehearsed or contain novel sequences of actions.



conclusions

28

The Curious Story of Phineas Gage

The Skull of Phineas Gage is at Harvard's Warren Anatomical Museum



The skull of Phineas Gage

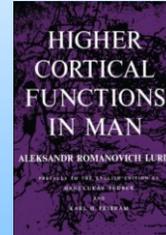
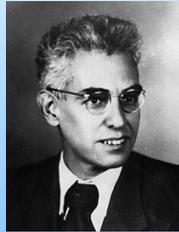
The skull of Phineas Gage, along with the tamping iron which did the damage. On display at Harvard's Warren Anatomical Museum.

Frontal Lobes and Executive Function(s)

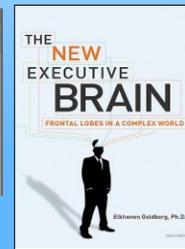
What do we mean by the term Executive Function(s)?

Executive Functions

- In 1966 Luria first wrote and defined the concept of Executive Function (EF)



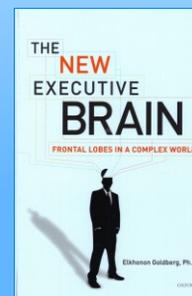
- Elkhonon Goldberg provides a valuable review of what the frontal lobes do
- Describes EF as the orchestra leader



conclusions

Goldberg (2009, p. 4)

- “The frontal lobes ... are related to intentionality, purposefulness, and complex decision making.”
- They make us human, and as Luria stated, are “the organ of civilization”
- Frontal lobes are about ...”leadership, motivation, drive, vision, self-awareness, and awareness of others, success, creativity, sex differences, social maturity, cognitive development and learning...”



conclusion: 32

What is Executive Function(s)

There is no formal accepted definition of EF

- We typically find a vague general statement of EF (e.g., goal-directed action, cognitive control, top-down inhibition, effortful processing, etc.).
- Or a listing of the constructs such as
 - Inhibition,
 - Working Memory,
 - Planning,
 - Problem-Solving,
 - Goal-Directed Activity,
 - Strategy Development and Execution,
 - Emotional Self-Regulation,
 - Self-Motivation

Goldstein, Naglieri, Princiotta, & Otero (2013)

- Executive function(s) has come to be an umbrella term used for many different “abilities”-- planning, working memory, attention, inhibition, self-monitoring, self-regulation and initiation -- carried out by pre-frontal lobes.
- We found more than 30 definitions of EF(s)



Executive Function

- EF is a **unitary** construct (Duncan & Miller, 2002; Duncan & Owen, 2000).
- EF is **unidimensional** in early childhood not adulthood.
- Both views are supported by some research (Miyake et al., 2000) EF is a **unitary construct ... but with partially different components.**

Executive Functions

- EF has **three components**: *inhibitory control, set shifting (flexibility), and working memory* (e.g., Davidson, et al., 2006).
- Executive Functions is a **multidimensional** model (Friedman et al., 2006) with independent **abilities** (Wiebe, Espy, & Charak, 2008).

conclusions

35

Executive Function(s)

- Given all these definitions of EF(s) we wanted to address the question...
Executive Functions **s** ... or
Executive Function?
- One way to answer the question is to research the factor structure of EF behaviors
- Factor structure of the Comprehensive Executive Function Inventory (CEFI)

conclusions

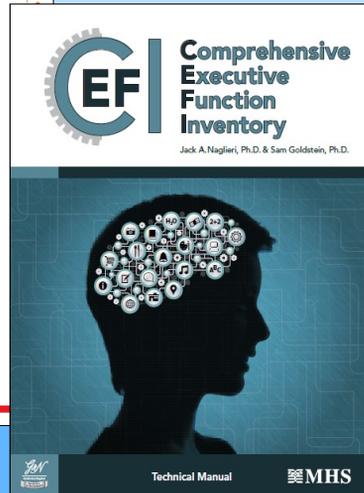
36

CEFI (Naglieri & Goldstein, 2012)

CEFI Comprehensive Executive Function Inventory
 (5-18 Years)
TEACHER FORM
 Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.

Client Name/ID: _____ Today's Date: _____
 Gender: M / F _____ Birth Date: _____
 Grade: _____ Age: _____
 Teacher's Name/ID: _____ Class(es) Taught: _____
 School: _____ Time Known Child: _____
 Examiner: _____

MHS Copyright © 2012 MHS Health Services, Inc. All rights reserved.
 2000 N.W. 17th St., Suite 1000, Fort Lauderdale, FL 33305, USA-954-585-1100
 Florida, 1-800-368-5858, Florida, 1-800-368-5858, Florida, 1-800-368-5858



37

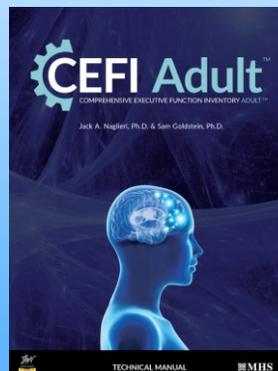
CEFI Adult (Naglieri & Goldstein, 2017)

CEFI Adult
 Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.

Observer Form

Client's Name/ID: _____ Today's Date: _____
 Gender: _____ Birth Date: _____
 Observer's Name/ID: _____ Age: _____
 Relationship to Client: _____ Time Known Client: _____
 Examiner: _____

MHS Copyright © 2017 MHS Health Services, Inc. All rights reserved.
 2000 N.W. 17th St., Suite 1000, Fort Lauderdale, FL 33305, USA-954-585-1100
 Florida, 1-800-368-5858, Florida, 1-800-368-5858, Florida, 1-800-368-5858



conclusions

Exploratory Factor Analysis

➤ The normative samples for parent, teacher, and self ratings were randomly split into two samples and EFA conducted using

- the item raw scores
- nine scales' raw scores

➤ The sample ...



CEFI Parent Rating Scale (Ages 5-18)

CEFI Teacher Rating Scale (Ages 5-18)

CEFI Self-Rating Scale (Ages 12-18)

CEFI Full Scale (100 items)

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

CEFI Standardization Samples

- Sample was stratified by
 - Sex, age, race/ethnicity, parental education level (PEL; for cases rated by parents), geographic region
 - Race/ethnicity of the child (Asian/Pacific Islander, Black/African American/African Canadian, Hispanic, White/Caucasian, Multi-racial by the rater
 - Parent (N=1,400), Teacher (N=1,400) and Self (N=700) ratings were obtained

conclusions

41

Factor Analysis

➤ Item Level Analysis

- For the **first half** of the normative sample (Parent, Teacher and Self ratings') **item scores** (90 items) used in factor analysis

➤ Scale Level Analysis

- Using the **second half** of the normative sample EFA was conducted using raw scores by scale:
 - Attention
 - Emotion Regulation
 - Flexibility
 - Inhibitory Control
 - Initiation
 - Organization
 - Planning
 - Self-Monitoring
 - Working Memory

conclusions

EXPLORATORY FACTOR ANALYSES

Table 8.6. Consistency of Factor Loadings Across Groups

Grouping Factor	CEFI Form	Coefficient of Congruence
Gender	Parent	.999
	Teacher	.999
	Self-Report	.992
Race/ Ethnic Group	Parent	.996
	Teacher	.999
	Self-Report	.995
Age	Parent	.999
	Teacher	.999
	Self-Report	.995
Clinical/ Educational	Parent	.993
	Teacher	.994
	Self-Report	.976

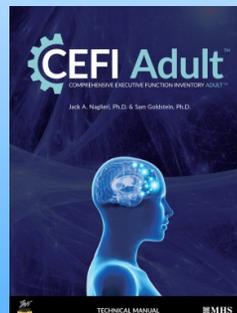
Nearly identical factor solutions (ALL ONE FACTOR) by Gender, Race/Ethnic, Age and Clinical/typical status

conclusions

43

Factor Analysis of the CEFI Adult

- Same scale structure as CEFI
- Full Scale
 - Attention
 - Emotion Regulation
 - Flexibility
 - Inhibitory Control
 - Initiation
 - Organization
 - Planning
 - Self-Monitoring
 - Working Memory



conclusions

Consistency of Loadings

Consistency of Factor Loadings Across Groups

Exploratory factor analysis (EFA) was used to examine the replicability of the unidimensional factor structure of the CEFI Adult across several demographic groups (gender, age, race/ethnicity, and clinical status). The EFA procedure was conducted for each demographic group to determine if the factor structure was consistent across genders (males vs. females), ages (below vs. at or above the normative mean of 50), race/ethnicity (broken down into White vs. non-White to allow large enough sample sizes to detect differences), and clinical status (non-clinical vs. clinical). The factor loadings of the items were correlated across groups to compute the coefficient of congruence (Abdi, 2010); results revealed a very high degree of consistency across all groups (see Table 8.6), indicating that the unidimensionality of the CEFI Adult generalized across the demographic groups.

Consistency of Factor Loadings Across Groups

Grouping Factor	CEFI Adult Form	Coefficient of Congruence	Group 1		Group 2	
			Level	N	Level	N
Gender	Self-Report	.998	Male	795	Female	865
	Observer	.999	Male	795	Female	865
Racial/Ethnic Group	Self-Report	.997	White	1,153	Non-white	507
	Observer	.999	White	1,154	Non-white	506
Age	Self-Report	.997	Under 50 years	840	50+ years	820
	Observer	.999	Under 50 years	840	50+ years	820
Clinical Status	Self-Report	.993	Non-clinical	1,501	Clinical	159
	Observer	.996	Non-clinical	1,497	Clinical	163

conclusions

EXPLORATORY FACTOR ANALYSES

➤ Conclusions

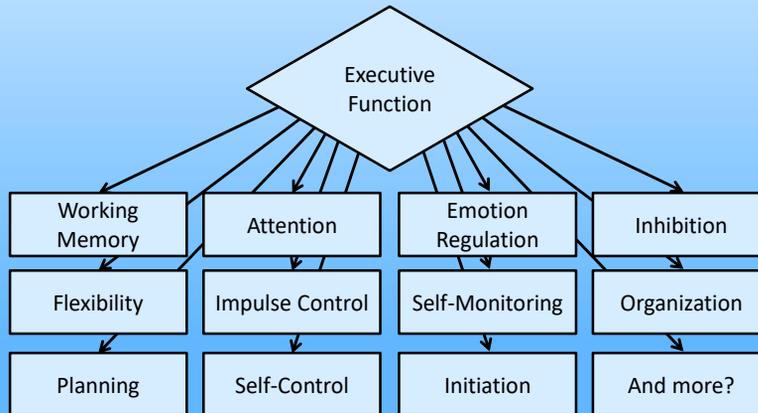
- CEFI: Parent (N=1,400), Teacher (N=1,400) and Self (N=700),
- CEFI Adult: Self (N = 1,600) and Observer (N = 1,600) ratings
- From nationally representative samples aged 5 to 80 years (N = 6,700) indicates .. Executive Function best describes the concept

conclusions

46

EF and its components

- Abilities, cognitive processes, and behaviors

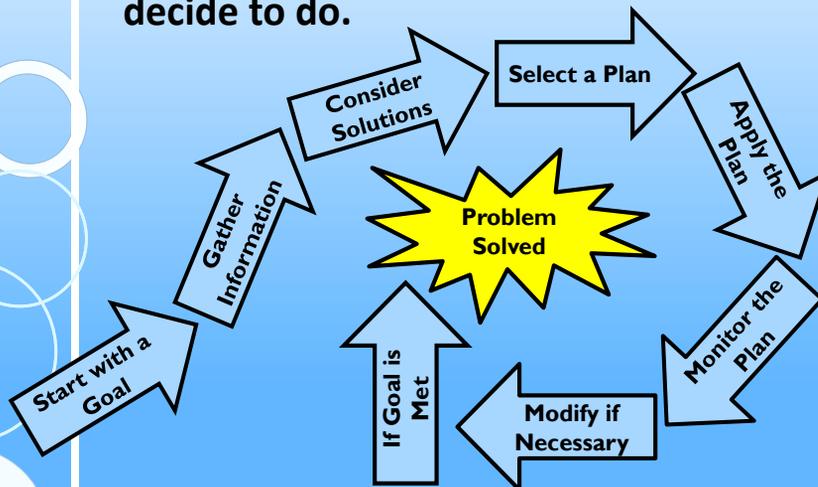


conclusions

47

Naglieri & Goldstein, 2012

- Executive Function is: *how you do what you decide to do.*



conclusions

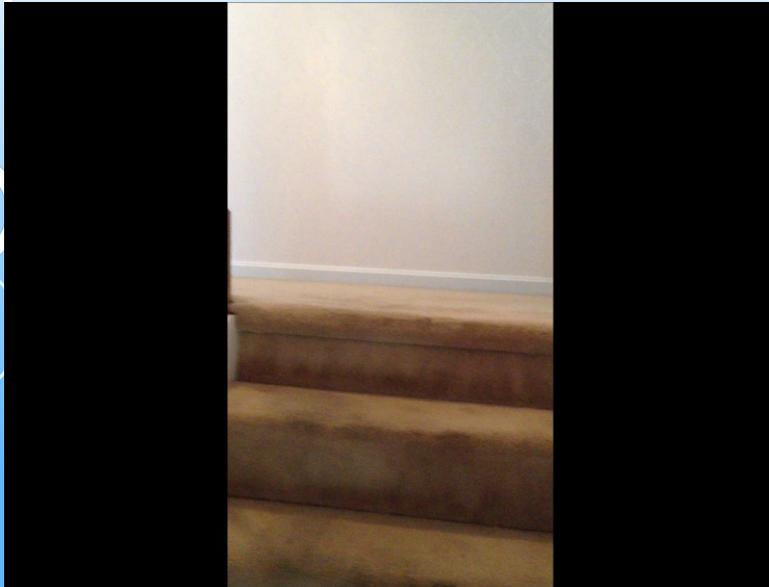
48

Does a 13 month old have EF?



49

Age 19 months: Knowledge & EF

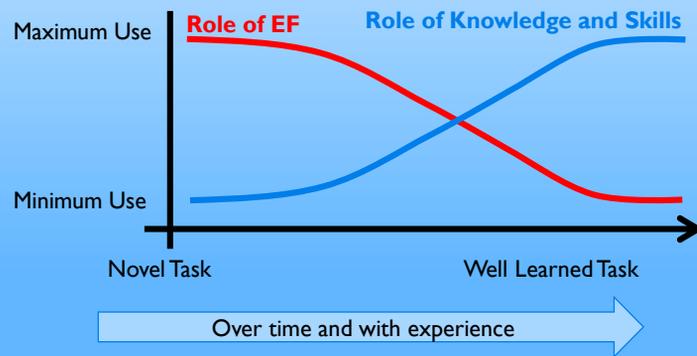
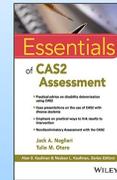


conclusions

50

EF's Learning Curves (Naglieri & Otero, 2017)

- Learning depends upon instruction and EF
- At first, EF plays a major role in learning
- When a new task is learned and practiced it becomes a skill and execution requires less EF



conclusions

Executive Function Involves

- **“How you decide *what to do*” demands...**
 - **Initiation** to achieve a goal, **planning** and **organizing** parts of a task, **attending** to details to notice success of the solution, keeping information in **memory**, having **flexibility** to modify the solution as information from **self-monitoring** is received and demonstrating **emotion regulation** (which also demands **inhibitory control**) to ensure clear thinking so that the task is completed successfully.

conclusions

52

**Which
Lemming
has good
EF?**



conclusions

53

**EF: ability, behavior, social-
emotional skill?**

All are reflections of **FRONTAL LOBE** activity

conclusions

54

Brain, Cognition, & Behavior

- **EF ability** is provided by the Frontal Lobes of the brain (an intelligence)
- **EF behaviors** are the result of experiences that influence likelihood that a person is strategic when doing things
- **EF Emotions** are the result of learning
- It is very important to measure EF *Behaviors* and EF *Ability* and *Emotion* because they may be different

conclusions

55

Presentation Outline

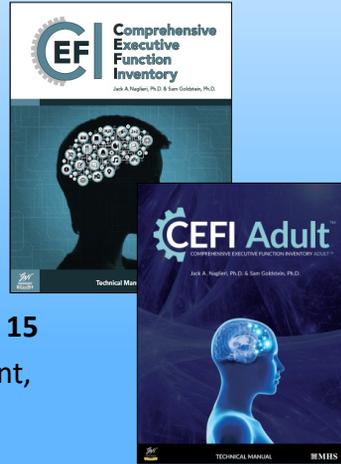
- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
-  EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- Conclusions

conclusions

56

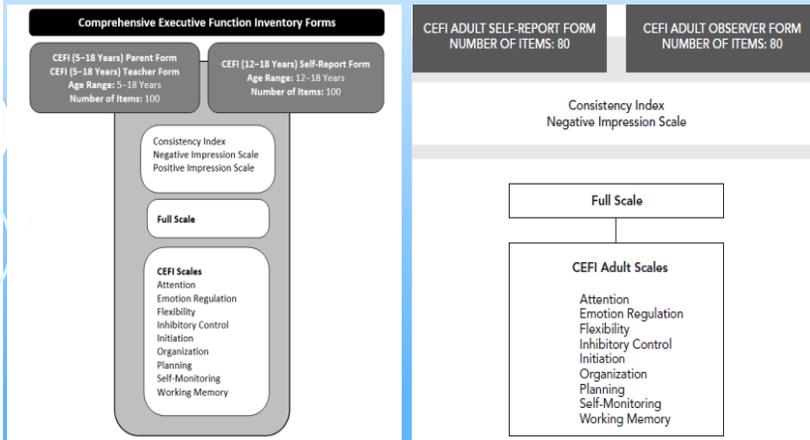
Comprehensive Executive Function Inventory - CEFI and CEFI Adult

- CEFI is a **strength based** EF measure
- Items are **positively** worded
- Higher scores = **good** behaviors related to EF
- Scores set at mean of **100** SD of **15**
- Ages 5-18 years rated by a parent, teacher, or the child/youth.



conclusions 57

CEFI & CEFI-Adult Scales



conclusions

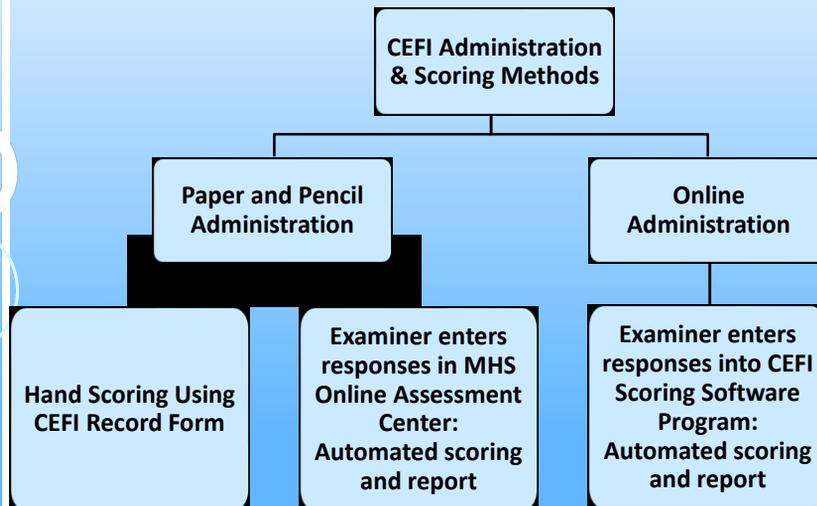
CEFI Normative Samples

- 1,400 ratings by Parents for children aged 5-18 years
- 1,400 ratings by Teachers for children aged 5-18 years
- 700 ratings from the self-report form for those aged 12-18 years
- There were equal numbers of ratings of or by males and females
- Stratified according to the 2009 US Census by race/ethnicity, parental education, region, age, and sex

conclusions

59

CEFI Administration & Scoring



conclusions

60

CEFI Forms and Scales

**CEFI Parent
Rating Scale
(Ages 5-18)**

**CEFI Teacher
Rating Scale
(Ages 5-18)**

**CEFI Self-
Rating Scale
(Ages 12-18)**

CEFI Full Scale (100 items)

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

conclusions

CEFI Forms

- Each 100-item form yields scales set at a mean of 100 and SD of 15

**English
Parent
Form (5-18
years)**

**English
Teacher
Form (5-18
years)**

**English Self-
Report
Form (12-18
years)**

**Spanish
Parent
Form (5-18
years)**

**Spanish
Teacher
Form (5-18
years)**

**Spanish
Self-Report
Form (12-18
years)**

conclusions

62

CEFI Forms

Each form yields a **Full Scale** score and 9 separate content scales which contain items as follows...

CEFI Scales

Attention
Emotion Regulation
Flexibility
Inhibitory Control
Initiation
Organization
Planning
Self-Monitoring
Working Memory

conclusions

63

CEFI Items by Scale

Table C.4. Attention (12 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
3.	finish a boring task?	finish a boring task?
11.	work well in a noisy environment?	work well in a noisy environment?
21.	work well for a long time?	work well for a long time?

Table C.5. Emotion Regulation (9 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
10.	control emotions when under stress?	control emotions when under stress?
12.	stay calm when handling small problems?	stay calm when handling small problems?
42.	find it hard to control his/her emotions? (R)	find it hard to control your emotions? (R)

Table C.6. Flexibility (7 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
7.	come up with a new way to reach a goal?	come up with a new way to reach a goal?
41.	come up with different ways to solve problems?	come up with different ways to solve problems?
45.	have many ideas about how to do things?	have many ideas about how to do things?

conclusions

64

CEFI Items by Scale

Table C.7. Inhibitory Control (10 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
1.	think before acting?	think before acting?
19.	find it hard to control his/her actions? (R)	find it hard to control your actions? (R)
32.	think of the consequences before acting?	think of the consequences before acting?

Table C.8. Initiation (10 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
16.	start something without being asked?	start something without being asked?
30.	start conversations?	start conversations?
39.	take on new projects?	take on new projects?

Table C.9. Organization (10 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
5.	complete one task before starting a new one?	complete one task before starting a new one?
13.	organize his/her thoughts well?	organize your thoughts well?
18.	appear disorganized? (R)	appear disorganized? (R)

conclusions

65

CEFI Items by Scale

Table C.10. Planning (11 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
9.	prepare for school or work?	prepare for school or work?
15.	solve problems creatively?	solve problems creatively?
22.	do things in the right order?	do things in the right order?
28.	plan for future events?	plan for future events?

Table C.11. Self-Monitoring (10 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
6.	ask for help when needed?	ask for help when needed?
14.	fix his/her mistakes?	fix your mistakes?
17.	change a plan that was not working?	change a plan that was not working?
29.	learn from past mistakes?	learn from past mistakes?

Table C.12. Working Memory (11 items)

Item #	Parent/Teacher Item <i>During the past 4 weeks, how often did the child...</i>	Self-Report Item <i>During the past 4 weeks, how often did you...</i>
4.	forget instructions? (R)	forget instructions? (R)
8.	remember how to do something?	remember how to do something?
23.	forget instructions with many steps? (R)	forget instructions with many steps? (R)
26.	remember many things at one time?	remember many things at one time?

One Factor and 9 Scales?

- NOTE: EF is a unidimensional concept
- Use the Full Scale to answer the question “Is the child poor in EF or not?”
- Use the 9 scales to identify the specific groups of items that represent 9 different types of behaviors that can be addressed by Intervention

CEFI Scales

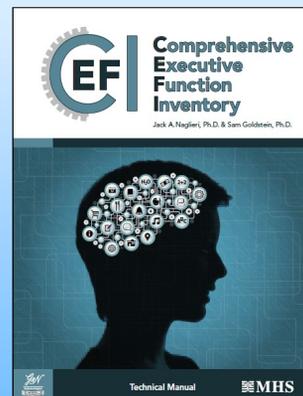
Attention
 Emotion Regulation
 Flexibility
 Inhibitory Control
 Initiation
 Organization
 Planning
 Self-Monitoring
 Working Memory

conclusions

67

CEFI Characteristics

- Automated scoring and reporting includes intervention suggestions
- Scores are based on nationally representative normative sample that is representative of the US



conclusions

68

CEFI Full Scale and Treatment Scores

Figure 4.1. Illustration of Executive Function Weakness and Strengths on the CEFI (5–18 Years) Teacher Form

CEFI Scales	Standard Score	Difference From Youth's Average	Statistically Significant? (Yes/No)	Executive Function Strength/Weakness	90%/95% (circle one) Confidence Interval	Percentile Rank	Classification
Attention (AT)	95	-6.7	Yes	—	<u>90</u> to <u>100</u>	37	Average
Emotion Regulation (ER)	82	-19.7	Yes	Weakness	<u>77</u> to <u>90</u>	12	Low Average
Flexibility (FX)	112	10.3	Yes	Strength	<u>103</u> to <u>118</u>	79	High Average
Inhibitory Control (IC)	99	-2.7	No		<u>93</u> to <u>105</u>	47	Average
Initiation (IT)	120	18.3	Yes	Strength	<u>112</u> to <u>125</u>	91	Superior
Organization (OG)	99	-2.7	No		<u>93</u> to <u>105</u>	47	Average
Planning (PL)	101	-0.7	No		<u>96</u> to <u>106</u>	53	Average
Self-Monitoring (SM)	102	0.3	No		<u>95</u> to <u>109</u>	55	Average
Working Memory (WM)	105	3.3	No		<u>99</u> to <u>111</u>	63	Average
Sum of Standard Scores	915	101.7	Youth's Average				

Note. Differences from the Child's/Youth's Average are significant at $p < .10$.

Free Use of CEFI:
<http://info.mhs.com/cefi>



Comprehensive Executive Function Inventory™ - CEFI®



Learn More
 If you are interested in learning more about the CEFI, fill out the form to request information like:

- How this instrument compares to others
- Progress Monitoring
- Intervention Strategies
- View case studies, sample reports or items
- How to use an instrument
- Setting up trainings
- Further questions or comments

I would like to ...

- Learn more about: (Check all that Apply)
- Theoretical support for model
 - How this assessment compares to other assessments
 - Psychometric Properties
 - Reliability and Validity
 - The Authors
 - Speaking with the consultant
 - Participate in Data Collection Opportunities
 - Other (Please specify in Comments)

- I would like to: (Check all that Apply)
- Try it Online For Free
 - Speak with a Consultant
 - Set Up Training
 - Other (Please specify in Comments)

First Name * Last Name *

I am a ___ and I work in a ___ *
 - Please Select -

School District/Organization *

Email * Phone Number *

Preferred Contact Method *
 Phone
 Email

Country *
 - Please Select -

State/Region * City *

- Please Select -

I would like to receive email communications on MHS assessments, discounts, workshops, training, data collection opportunities, and surveys. You can unsubscribe at anytime.

Yes
 Comments/Questions

Submit

Free Use of CEFI: mhs.com/cefi

Comprehensive Executive Function Inventory™ - CEFI - Mozilla Firefox

Problem loading page

info.mhs.com/cefi

Yahoo Search

Learn More

If you are interested in learning more about the CEFI, fill out the form to request information like:

- How this instrument compares to others
- Progress Monitoring
- Intervention Strategies
- View case studies, sample reports or items
- How to use an instrument
- Setting up trainings
- Further questions or comments

I would like to: (Check all that Apply)

View Samples Items

View Sample Reports

View Case Studies

Speak with a Consultant

Set Up Training

First Name *

Last Name *

I am a ___ and I work in a ___: *

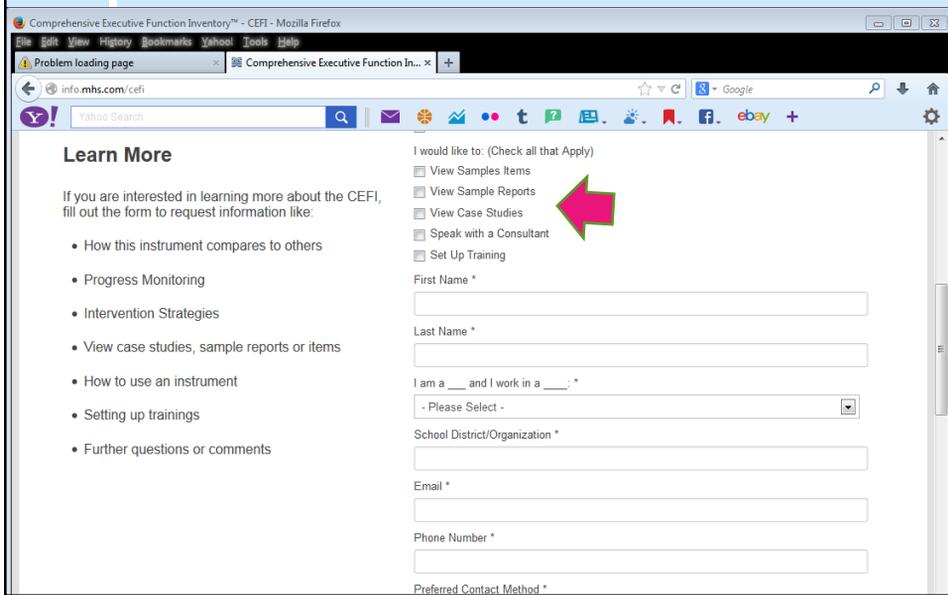
- Please Select -

School District/Organization *

Email *

Phone Number *

Preferred Contact Method *



CEFI Scale Reliability

CEFI Internal Reliability Coefficients for the Normative Sample

	Parent (N = 1,396)	Teacher (N=1,400)	Self (N = 700)
Full Scale	.99	.99	.97
Attention	.93	.96	.86
Emotion Regulation	.89	.93	.78
Flexibility	.85	.90	.77
Inhibitory Control	.90	.94	.80
Initiation	.89	.93	.80
Organization	.91	.94	.85
Planning	.92	.96	.85
Self-Monitoring	.87	.92	.78
Working Memory	.89	.94	.83

CEFI Interpretation

- Step 1: Examine Quality of the Ratings:
Consistency, Positive and Negative
Impression
- Step 2: Interpret Scale Scores
- Step 3: Compare CEFI Scale Scores
- Step 4: Examine Item-Level Responses
- Step 5: Compare Results Across Raters
- Step 6: Compare Results Over Time

conclusions

73

Step 1: Consistency Index

- The Consistency Index provides information about whether the rater responded to similar items differently.
- Inconsistent responding can occur intentionally or unintentionally, and could be due to deliberate non-compliance, fatigue, a misunderstanding of the items or instructions, inattention, disinterest, or a lack of motivation

conclusions

74

Step 1: Impression Scales

- The Negative Impression scale evaluates the likelihood that the rater underestimated the individual's functioning.
- The Positive Impression scale evaluates the likelihood that the rater overestimated the individual's functioning.

conclusions

75

Step 1: Impression Scales

- A particular response style is indicated if the standard score is less than 76 (< 5% of the normative sample).

Scale	Interpretive Text	
	Standard Score ≤ 75	Standard Score > 75
Consistency Index	The rater responded in a different way to similar items. This rating pattern is not typical and should be further investigated.	The pattern of ratings is typical.
Negative Impression Scale	The pattern of ratings may underestimate the child's behavior. This rating pattern is not typical and should be further investigated.	The pattern of ratings is typical.
Positive Impression Scale	The pattern of ratings may overestimate the child's behavior. This rating pattern is not typical and should be further investigated.	The pattern of ratings is typical.
Time to Completion	The rater spent considerably less time than is usual completing the CEFI.	The time the rater took to complete the CEFI was typical. 76

Time to Completion is only for online administration

CEFI Interpretive Report



(5-18 Years)
Parent Form

Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.

Interpretive Report

Youth's Name/ID: Brittany Ambers
Age: 12 years
Gender: Female
Birth Date: November 18, 1999
Grade: 6
School: K. H. S.
Parent's Name/ID: Mrs. Z
Relationship to Youth: Mother
Administration Date: May 19, 2012
Examiner: DH
Data Entered By: MT

conclusions

77

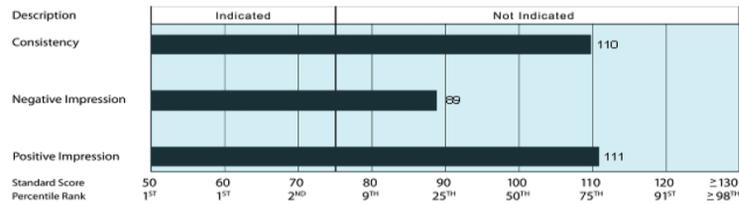
CEFI Interpretive Report

CEFI (5-18 Years) Parent Interpretive Report for Brittany Ambers

Admin Date: 05/19/2012

About the Ratings

This section of the report provides an evaluation of the ratings provided by this rater. Item scores were examined for consistency, negative impression, positive impression, and number of omitted items. This information can be used to determine whether responses should be reviewed with the rater to explore possible reasons response bias is indicated, and the amount of confidence one can have in the scores.



Scores

Consistency Index	Standard Score = 110 Inconsistent response style is not indicated.
Negative Impression Scale	Standard Score = 89 Negative impression response style is not indicated.
Positive Impression Scale	Standard Score = 111 Positive impression response style is not indicated.
Number of Omitted Items	Number of Items Omitted = 0 None of the items were omitted.

conclusions

78

CEFI Interpretation

- Step 1: Examine Quality of the ratings:
Consistency, Positive and Negative Impression
- Step 2: Interpret Scale Scores
- Step 3: Compare CEFI Scale Scores
- Step 4: Examine Item-Level Responses
- Step 5: Compare Results Across Raters
- Step 6: Compare Results Over Time

conclusions

79

Step 2: Interpret Scale Scores

- All scales are set at mean of 100, SD of 15
- Low scores mean poor EF

Table 4.3. Interpretation Guidelines for Examining Scale Scores

Scale	Interpretation Guidelines
Full Scale	Reflects overall executive function. The Full Scale score is made up of 90 items from nine different areas that are conceptually related to executive function (i.e., Attention, Emotion Regulation, Flexibility, Inhibitory Control, Initiation, Organization, Planning, Self-Monitoring, and Working Memory). The CEFI Scales describe the content of the items for intervention purposes. If there is significant variation among the CEFI Scales, the Full Scale score will sometimes be higher and other times lower than scores on these scales. However, the Full Scale score is a good description of a child's/youth's executive function behaviors if there is no significant variation among the CEFI Scales.
Attention	Describes how well a child/youth can avoid distractions, concentrate on tasks, and sustain attention.
Emotion Regulation	Indicates the child's/youth's control and management of emotions, including staying calm when handling small problems and reacting with the right level of emotion.
Flexibility	Reflects a child's/youth's skill at adjusting behavior to meet circumstances, including coming up with different ways to solve problems, having many ideas about how to do things, and being able to solve problems using different approaches.

CEFI Interpretive Report

CEFI (5–18 Years) Parent Interpretive Report for Brittany Ambers

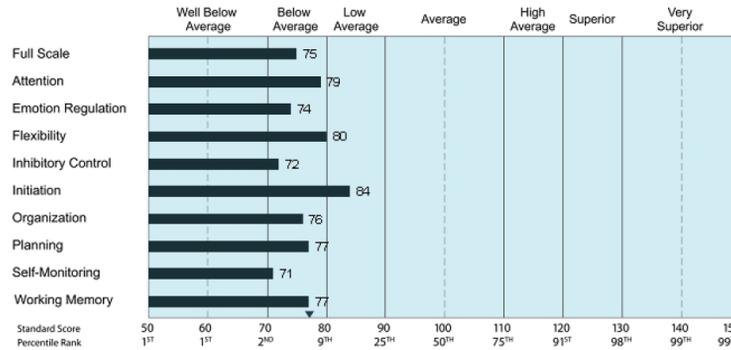
Admin Date: 05/19/2012

Overview of Results for Brittany Ambers

Scores in Relation to the Norm

Brittany Ambers's results are provided in the graph below.

▼ Youth's Average



conclusions

81

CEFI Interpretive Report

CEFI (5–18 Years) Parent Interpretive Report for Brittany Ambers

Admin Date: 05/19/2012

CEFI Results

Brittany Ambers's **Full Scale** standard score of 75 falls in the *Below Average* range and is ranked at the 5th percentile. This means that her score is equal to, or greater than, 5% of those obtained by youth her age in the standardization group. There is a 90% probability that Brittany Ambers's true Full Scale standard score is within the range of 73 to 78. The CEFI Full Scale score is made up of items that belong on separate scales called Attention, Emotion Regulation, Flexibility, Inhibitory Control, Initiation, Organization, Planning, Self-Monitoring, and Working Memory. There was no significant variation among the CEFI Scales. This indicates that Brittany Ambers obtained similar scores on the separate scales. This also means that the Full Scale is a good description of her executive function behaviors.

Brittany Ambers's **Initiation** scale score describes how she begins tasks or projects on her own, including starting tasks easily, being motivated, and taking the initiative when needed. Her standard score of 84 falls in the *Low Average* range and is ranked at the 14th percentile. There is a 90% probability that her true Initiation standard score is within the range of 78 to 93. Item score variability suggests that ratings for Brittany Ambers were low on, for example, initiating conversations and putting plans into action.

Brittany Ambers's **Flexibility** scale score describes how she adjusts her behavior to meet circumstances, including coming up with different ways to solve problems, having many ideas about how to do things, and being able to solve problems using different approaches. Her standard score of 80 falls in the *Low Average* range and is ranked at the 9th percentile. There is a 90% probability that her true Flexibility standard score is within the range of 74 to 92. Ratings for Brittany Ambers were low on, for example, using a different strategy when another doesn't work.

Brittany Ambers's **Attention** scale score reflects how well she can avoid distractions, concentrate on tasks, and sustain attention. Her standard score of 79 falls in the *Below Average* range and is ranked at the 8th percentile. There is a 90% probability that her true Attention standard score is within the range of 74 to 87. Variability in item scores indicates that ratings for Brittany Ambers were low on, for example, finishing a boring task, avoiding distraction and noticing details. (See the *CEFI Items by Scale* section of this report for additional low item scores.)

conclusions

82

CEFI (12–18 Years) Self-Report Interpretive Report for Random2 Admin Date: 01/07/2

Report

Intervention Strategies are provided for each of the 9 CEFI scales

Intervention Strategies for Attention

Helping a Child Overcome Problems with Inattention

First, help the child understand the nature of his or her attention problems, including:

- Concepts such as attention, resistance to distraction, and control of attention.
- Recognition of how attention affects daily functioning.
- Recognition that the deficit can be overcome.
- Basic elements of the control program.

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

- Promote success via small steps.
- Ensure success at school and at home.
 - Allow for oral responses to tests.
 - Circumvent reading whenever possible.
- Teach rules for approaching tasks.
 - Help the child define tasks accurately.
 - Assess the child's knowledge of problems.
 - Encourage the child to consider all possible solutions.
 - Teach the child to use a correct test strategy.
- Discourage passivity and encourage independence.
 - Do not rely too heavily on teacher-oriented approaches.
 - Require the child to take responsibility for correcting his or her own work.
 - Help the child to become more self-reliant.
- Encourage the child to avoid:
 - Excessive talking.
 - Working fast with little accuracy.
 - Giving up too easily.
 - Turning in sloppy, disorganized papers.

Third, teachers and parents should give the child specific problem-solving strategies.

- Model and teach strategies that improve attention and concentration.
- Help the child to recognize when he or she is under- or over-attentive.

Naglieri, J. A., & Pickering, E. B., *Helping Children Learn: Intervention Handouts for Use at School and at Home*, Second Edition, 2010. Baltimore: Paul H. Brookes Publishing Co., Inc. www.brookespublishing.com. Used with the permission of the publisher.

conclusions 83

CEFI Interpretation

Step 1: Examine Quality of the ratings:
Consistency, Positive and Negative Impression

Step 2: Interpret Scale Scores

Step 3: Compare CEFI Scale Scores

Step 4: Examine Item-Level Responses

Step 5: Compare Results Across Raters

Step 6: Compare Results Over Time

conclusions 84

Step 3: Compare CEFI Scale Scores

Figure 4.1. Illustration of Executive Function Weakness and Strengths on the CEFI (5–18 Years Teacher Form

CEFI Scales	Standard Score	Difference From Youth's Average	Statistically Significant? (Yes/No)	Executive Function Strength/Weakness	90%/95% (circle one) Confidence Interval	Percentile Rank	Classification
Attention (AT)	95	-6.7	Yes	—	90 to 100	37	Average
Emotion Regulation (ER)	82	-19.7	Yes	Weakness	77 to 90	12	Low Average
Flexibility (FX)	112	10.3	Yes	Strength	103 to 118	79	High Average
Inhibitory Control (IC)	99	-2.7	No		93 to 105	47	Average
Initiation (IT)	120	18.3	Yes	Strength	112 to 125	91	Superior
Organization (OG)	99	-2.7	No		93 to 105	47	Average
Planning (PL)	101	-0.7	No		96 to 106	53	Average
Self-Monitoring (SM)	102	0.3	No		95 to 109	55	Average
Working Memory (WM)	105	3.3	No		99 to 111	63	Average
Sum of Standard Scores	915	101.7	Youth's Average				

Note. Differences from the Child's/Youth's Average are significant at $p < .10$.

CEFI Interpretation

Step 1: Examine Quality of the ratings:
Consistency, Positive and Negative Impression

Step 2: Interpret Scale Scores

Step 3: Compare CEFI Scale Scores

Step 4: Examine Item-Level Responses

Step 5: Compare Results Across Raters

Step 6: Compare Results Over Time

Step 5: Between Rater Comparisons

Table 4.5. Critical Values ($p < .10$) Denoting Statistically Significant Differences Between

Scale	Parent to Parent		Teacher to Teacher		Parent to Teacher		Parent to Self-Report	Teacher to Self-Report
	5-11 Years	12-18 Years	5-11 Years	12-18 Years	5-11 Years	12-18 Years	12-18 Years	12-18 Years
Full Scale	5	5	4	4	4	4	8	5
Attention	10	10	7	7	9	9	13	11
Emotion Regulation	13	12	10	10	11	11	15	14
Flexibility	14	14	12	12	13	13	15	15
Inhibitory Control	12	12	9	9	11	10	14	13
Initiation	13	12	10	10	12	11	14	14
Organization	12	10	10	9	11	10	12	12
Planning	11	10	8	8	10	9	13	11
Self-Monitoring	14	12	11	11	13	11	15	14
Working Memory	13	12	9	9	11	11	11	13

conclusions

87

CEFI Interpretation

- Step 1: Examine Quality of the ratings:
Consistency, Positive and Negative Impression
- Step 2: Interpret Scale Scores
- Step 3: Compare CEFI Scale Scores
- Step 4: Examine Item-Level Responses
- Step 5: Compare Results Across Raters
- Step 6: Compare Results Over Time

conclusions

88

Step 6: Compare Results Over Time

- Determine if CEFI pre post scores differ significantly – but also if the post-test standard score is in the Average range or higher

Table 4.6. Critical Values Denoting Statistically Significant Change Over Time

Scale	Parent Form				Teacher Form				Self-Report Form	
	5-11 Years		12-18 Years		5-11 Years		12-18 Years		12-18 Years	
	$p < .05$	$p < .10$	$p < .05$	$p < .10$	$p < .05$	$p < .10$	$p < .05$	$p < .10$	$p < .05$	$p < .10$
Full Scale	6	5	5	5	4	4	4	4	8	6
Attention	12	10	11	10	9	7	9	7	16	13
Emotion Regulation	15	13	14	12	11	10	11	10	20	17
Flexibility	17	14	16	14	14	12	14	12	20	17
Inhibitory Control	15	12	14	12	11	9	11	9	19	16
Initiation	15	13	14	12	12	10	12	10	19	16
Organization	14	12	12	10	11	10	11	9	17	14
Planning	13	11	12	10	10	8	9	8	17	14
Self-Monitoring	17	14	14	12	13	11	12	11	20	17
Working Memory	15	13	14	12	11	9	11	9	18	15

Time to Think and Talk

- Task:
 - EF as a single concept
 - Other ideas
- Discuss in your groups
- Your own questions and thoughts..
- Report to the audience

START

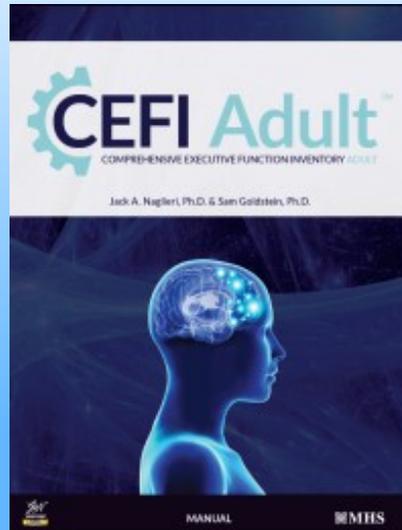
4

minutes
left



conclusions

CEFI – ADULT FORM (2017)



conclusions

91

CEFI Adult (ages 18+)

Observer Form

CLIENT'S NAME/ID	TODAY'S DATE: Year / Month / Day
GENDER	BIRTH DATE: Year / Month / Day
CM / CFI	
OBSERVER'S NAME/ID	AGE: Years / Months / Days
RELATIONSHIP TO CLIENT	TIME KNOWN CLIENT: Years / Months / Days
EXAMINER:	

MHS Copyright ©2017 MHS Health Systems, Inc. All rights reserved. In the U.S.A.: P.O. Box 910, North Tonawanda, NY 14240, 1-800-455-3000. In Canada: 200 Victoria Park Ave., Toronto, ON M5B 2K6, 1-800-455-3000. International: +1-416-455-3000. In the U.S.A.: 1-800-455-3000.

- Same scale structure as CEFI
- Full Scale
 - Attention
 - Emotion Regulation
 - Flexibility
 - Inhibitory Control
 - Initiation
 - Organization
 - Planning
 - Self-Monitoring
 - Working Memory

conclusions

92

CEFI Adult (ages 18+)

➤ 80 items in same 9 scales

Observer Form

CLIENT'S NAME: _____ TODAY'S DATE: Year _____ Month _____ Day _____

INSTRUCTIONS: Read each statement that follows the phrase: "During the past four weeks, how often did the individual...", then circle the letter under the word that tells how often it happened. Read each question carefully, then mark how often you saw it happened in the past four weeks. Answer every question without skipping any. If you want to change your answer, put an X through it and circle your new choice. Be sure to answer every question.

During the past four weeks, how often did the individual...

	Never	Rarely	Sometime	Often	Very Often	Always
1. show self-control?	N	R	S	O	V	A
2. have trouble finding things?	N	R	S	O	V	A
3. maintain self-control?	N	R	S	O	V	A
4. plan ahead?	N	R	S	O	V	A
5. remember many things at one time?	N	R	S	O	V	A
6. know when a task was completed?	N	R	S	O	V	A

conclusions

93

CEFI Adult (ages 18+)

➤ Same interpretation method

CEFI ADULT RESULTS

See chapter 3 of the CEFI Adult Technical Manual for complete scoring instructions.

- See the circled raw scores in the appropriate Norms Conversion Table to find the **Standard Score**, **Percentile Rank**, and **Classification** for each scale.
- Individual's Average:** Sum the CEFI Adult Scales' standard scores and divide the total by nine. Round to one decimal place.
- Difference from Individual's Average:** Subtract the Individual's Average from the standard score for each CEFI Adult Scale. Retain the positive and negative signs.
- Determine if **Differences from Average** are **Statistically Significant** (see Table 3.4 in chapter 3).
- Determine if each CEFI Adult Scale is an **Executive Function Strength** (standard score is greater than 109 and significantly higher than Individual's Average), or an **Executive Function Weakness** (standard score is less than 90 and significantly lower than the Individual's Average).
- 90%/95% Confidence Intervals:** Locate values in appendix B of the CEFI Adult Technical Manual.

Full Scale	Standard Score	90%/95% (circle one) Confidence Interval		Percentile Rank	Classification	
		_____ to _____				

CEFI Adult Scales	Standard Score	Difference from Average	Statistically Significant? (Yes/No)	Executive Function Strength/Weakness	90%/95% (circle one) Confidence Interval	Percentile Rank	Classification
Attention (AT)					_____ to _____		
Emotion Regulation (ER)					_____ to _____		
Flexibility (FX)					_____ to _____		
Inhibitory Control (IC)					_____ to _____		
Initiation (IT)					_____ to _____		
Organization (OG)					_____ to _____		
Planning (PL)					_____ to _____		
Self-Monitoring (SM)					_____ to _____		
Working Memory (WM)					_____ to _____		
Sum of Standard Scores	→ +	← Individual's Average					

94

Interpretive Report




Jack A. Nagler, Ph.D. & Sam Goldstein, Ph.D.

Self-Report Form Interpretive Report

Name/ID: John Sample
Age: 35 years
Gender: Male
Birth Date: February 16, 1982
Administration Date: September 5, 2016
Examiner: SC
Date Entered By: SAM

This interpretive report is intended for use by qualified individuals. Parts of this report contain copyrighted material, including test items. It is necessary to provide a copy of this report to anyone other than the examinee, sections containing copyrighted material must be removed.

MHS Copyright © 2017 Multi-Health Systems, Inc. All rights reserved.

CEFI:Adult™ CEFI:Adult™ Self-Report Interpretive Report for John Sample Admin Date: 09/05/2016

About the Comprehensive Executive Function Inventory: Adult™

The Comprehensive Executive Function Inventory: Adult™ (CEFI:Adult™) Self-Report Form is used to quantify an individual's executive function behaviors in combination with other information, results from the CEFI:Adult™ include an individual's level of executive function in the following areas: Attention, Emotion Regulation, Flexibility, Inhibitory Control, Initiation, Organization, Planning, Self-Monitoring, and Working Memory. This management report provides quantitative information about ratings of the adult. Additional interpretive information can be found in the CEFI:Adult™ Technical Manual.

About the Ratings

This section of the report provides an evaluation of the ratings provided by the user. Item scores were examined for consistency, negative responses, and number of omitted items. The amount of time took to complete the assessment is also examined. Response time is indicated; the response should be increased with the user to explore possible causes why.

CONSISTENCY INDEX

1

An inconsistent response style is not indicated.

NEGATIVE IMPRESSION

0

A negative response style is not indicated.

OMITTED ITEMS

0

The user did not omit any of the items.

COMPLETION TIME

91 mins

An unusually slow response time is indicated.

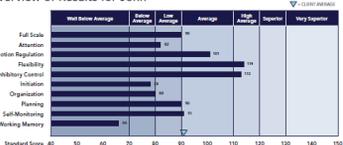
Note: 1 indicates flagged items. Please see CEFI:Adult™ Technical Manual for explanation of flagged items.

MHS Copyright © 2017 Multi-Health Systems, Inc. All rights reserved.

Interpretive Report

CEFI:Adult™ CEFI:Adult™ Self-Report Interpretive Report for John Sample Admin Date: 09/05/2016

Overview of Results for John



Scores in Relation to the Norm and the Individual

John's results are detailed in the tables below. These scores show how John compares to the normative sample. They also provide an analysis of the variability of John's scores on the respective CEFI:Adult™ Scales. Differences between John's average score and the standard scores on each scale are presented, as is a summary column that indicates whether or not these differences were statistically significant. If a standard score on any of the CEFI:Adult™ Scales is greater than or equal to 1.96 and significantly higher than the client's average score on the CEFI:Adult™ Scales, or less than 1.96 and significantly lower than the client's average score, then that score represents an Executive Function Strength or an Executive Function Weakness, respectively.

Scale	Standard Score	90% Confidence Interval	Percentile Rank	Classification
CEFI:Adult™ Scale	90	87-93	25	Average

CEFI:Adult™ Scale	Standard Score	90% Confidence Interval	Percentile Rank	Classification	Off-normative Score Average (ST)	Statistically Significant?	Executive Function Strength/Weakness
Attention	87	85-90	13	Low Average	9	No	---
Emotion Regulation	101	96-106	53	Average	-10	No	---
Flexibility	114	105-120	82	High Average	-23	Yes	Strength
Inhibitory Control	113	104-119	81	High Average	-22	Yes	Strength
Initiation	78	69-84	4	Below Average	17	Yes	Weakness
Organization	80	75-85	9	Low Average	11	No	Weakness
Planning	92	84-98	26	Average	-1	No	---
Self-Monitoring	91	84-100	27	Average	0	No	---
Working Memory	66	62-77	1	Well Below Average	25	Yes	Weakness

Note: This scale is scored with incomplete data due to omitted items, and was processed to provide the best estimate of executive function. Note: Not Available, could not be calculated due to too many omitted items. See the CEFI:Adult™ Technical Manual for details.

MHS Copyright © 2017 Multi-Health Systems, Inc. All rights reserved.

CEFI:Adult™ CEFI:Adult™ Self-Report Interpretive Report for John Sample Admin Date: 09/05/2016

Summary of Results

This section of the report provides a summary of scores for the CEFI:Adult™ Scales. Some items may be listed as above or below average. Please see the CEFI:Adult™ Technical Manual for the "Items by Scale" section of this report for more information.

FULL SCALE

John's Executive Function score reflects his overall level of executive function skills made up of items that belong to separate scales, called Attention, Emotion Regulation, Flexibility, Inhibitory Control, Initiation, Organization, Planning, Self-Monitoring, and Working Memory. Ratings on this scale yielded a standard score of 90 (90% CI = 87-93), which is ranked at the 25th percentile, and falls within the Average range. There was significant variation among the CEFI:Adult™ Scales. Specific areas of strength and weakness were found. Please review the individual scores below for a detailed view of the executive function behaviors.

Executive Functioning Strengths:

- Flexibility
- Inhibitory Control

Executive Functioning Weaknesses:

- Attention
- Initiation
- Organization
- Working Memory

ATTENTION

John's Attention scale score reflects his ability to avoid distractions, concentrate on tasks, and sustain attention. Ratings on this scale yielded a standard score of 87 (90% CI = 76-95), which is ranked at the 13th percentile, and falls within the Low Average range. This scale was found to be an Executive Function Weakness.

Items that were rated **above average**: No items were rated as above average on this scale.
 Items that were rated **below average**: 9 (1-30-66)

EMOTION REGULATION

John's Emotion Regulation scale score reflects his ability to control and manage his emotions, including staying calm when handling small problems and meeting with the right kind of emotion. Ratings on this scale yielded a standard score of 101 (90% CI = 94-108), which is ranked at the 53rd percentile, and falls within the Average range.

Items that were rated **above average**: No items were rated as above average on this scale.
 Items that were rated **below average**: No items were rated as below average on this scale.

FLEXIBILITY

John's Flexibility scale score reflects his ability to adjust his behavior to meet circumstances, including coming up with different ways to solve problems, changing his behavior when needed, and being able to come up with new ways to reach a goal. Ratings on this scale yielded a standard score of 114 (90% CI = 105-120), which is ranked at the 82nd percentile, and falls within the High Average range. This scale was found to be an Executive Function Strength.

Items that were rated **above average**: 7 (1-66-88)
 Items that were rated **below average**: No items were rated as below average on this scale.

INHIBITORY CONTROL

John's Inhibitory Control scale score reflects his ability to control his behavior or impulses, including thinking about consequences before acting, recognizing social cues, and being able to stop. Ratings on this scale yielded a standard score of 113 (90% CI = 104-119), which is ranked at the 81st percentile, and falls within the High Average range. This scale was found to be an Executive Function Strength.

Items that were rated **above average**: 1 (3-13)
 Items that were rated **below average**: No items were rated as below average on this scale.

Note: CI = Confidence Interval

MHS Copyright © 2017 Multi-Health Systems, Inc. All rights reserved.

Interpretive Report

CEFI Adult CEFI Adult Self-Report Interpretive Report for John Sample
Admin Date: 06/05/2016

Items by Scale (Continued)

This section of the report contains copyrighted items and information that are not intended for public disclosure. If it is necessary to provide a copy of the report to anyone other than the examinee, this section must be reviewed.

CEFI Adult Scales

Note: For the CEFI Adult Scales, item scores that are substantially above the average are indicated by a lightly shaded cell (e.g., 100) and those substantially below the average are in a darker cell (e.g., 0).

Item	Score	Item	Score
18. pay attention for a long time?	100	1. show self control?	100
19. pay attention during a boring task?	7	2. maintain self control?	100
22. have trouble listening to instructions? (R)	0	13. think of the consequences before acting?	4
31. work well in a noisy environment?	100	29. suppress thoughts? (R)	1
35. pay attention to detail?	100	44. have trouble waiting your turn? (R)	4
45. concentrate while working?	100	54. have trouble waiting to get what you want? (R)	4
46. get distracted? (R)	0	65. think before acting?	4
49. take notes when reading?	100	73. think before speaking?	100

Item	Score	Item	Score
17. stay calm when handling a small problem?	4	16. start tasks easily?	100
27. find it hard to control your emotions? (R)	0	26. need others to tell you to get started on things? (R)	0
34. react with the right level of emotion?	7	39. fail to get things done on time? (R)	0
40. manage frustration?	0	41. start something without being asked?	0
50. become upset in new situations? (R)	4	42. need others to tell you to do things? (R)	0
58. express frustration?	0	52. express excitement?	100
76. get upset when plans have changed? (R)	0	71. seem too excited/happy?	0
78. control emotions when under stress?	0	89. take interest?	100

Item	Score	Item	Score
7. come up with different ways to solve a problem?	5	2. have trouble finding things? (R)	0
16. explore different ways of doing things?	4	52. get things done efficiently?	0
41. change your behavior as needed?	4	21. work neatly?	0
51. compromise when needed?	0	28. get things done on time?	0
59. consider other people's needs?	4	43. change how affected you?	0
64. react to change? (R)	4	53. organize your thoughts well?	0
74. come up with a new way to reach a goal?	4	45. organize tasks well?	0
79. react well to new demands?	4	72. express disappointment?	0

MHS Copyright © 2012 MHS Health Systems Inc. All rights reserved.

CEFI Adult CEFI Adult Self-Report Interpretive Report for John Sample
Admin Date: 06/05/2016

Items by Scale (Continued)

This section of the report contains copyrighted items and information that are not intended for public disclosure. If it is necessary to provide a copy of the report to anyone other than the examinee, this section must be reviewed.

Item	Score	Item	Score
4. plan ahead?	3	5. remember many things at one time?	1
9. have trouble solving problems? (R)	0	15. forget to do things? (R)	0
14. know what to do first?	0	24. remember instructions with many steps?	1
26. prepare for upcoming events?	4	32. hold a set of ideas in memory?	1
33. have trouble judging how long it takes to do something? (R)	0	43. follow instructions well?	0
39. think through your decisions?	0	52. remember important things?	0
49. solve problems creatively?	0	47. keep goals in mind when making decisions?	1
77. make good decisions?	0	76. forget where you put things?	1

Item	Score
4. know when a task was completed?	1
25. keep track of time?	0
36. notice his/her mistakes?	0
44. seem from past mistakes?	0
55. notice how his/her actions affected others?	0
63. ask for help when needed?	0
68. make careless errors? (R)	0
75. fix his/her mistakes?	0

CEFI Adult Online vs Paper

➤ No differences across administration method

Table F.2. Mean Standard Score Differences Between Administration Methods for the CEFI Adult Self-Report Form

Scale	Obt. <i>r</i>	Cor. <i>r</i>	Online		Paper-and-Pencil		<i>d</i> -ratio	<i>F</i> (1, 53)	<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Full Scale	.99	.99	102.9	12.4	102.7	12.6	-0.01	0.40	.531
Attention	.90	.96	101.9	11.3	101.7	12.0	-0.02	0.07	.793
Emotion Regulation	.97	.98	103.8	13.7	103.8	13.8	0.00	0.01	.938
Flexibility	.98	.99	103.1	13.3	103.3	13.5	0.01	0.29	.590
Inhibitory Control	.97	.98	101.5	13.5	101.2	13.6	-0.03	0.65	.423
Initiation	.89	.95	102.4	12.3	102.1	11.9	-0.03	0.19	.662
Organization	.95	.98	102.2	11.6	102.2	11.0	0.00	0.01	.942
Planning	.95	.98	102.7	11.6	102.3	12.1	-0.04	0.68	.412
Self-Monitoring	.98	.99	101.9	12.2	101.9	12.2	0.00	0.03	.856
Working Memory	.98	.99	102.6	13.1	102.3	13.4	-0.03	0.65	.424

Note. Obt. *r* = Obtained correlation, Cor. *r* = Corrected correlation. All correlations significant, *p* < .001. *N* = 52. Guidelines for interpreting Cohen's *d* are as follows: small effect size = 0.2, medium effect size = 0.5, and large effect size = 0.8. Positive *d*-ratio values indicate higher scores for the paper-and-pencil administration.

CEFI Adult Race & Ethnicity

Table 8.9. CEFI Adult Full Scale Score Comparison Between Black and White Groups

Form		Black Sample	Matched White Sample	<i>d</i> -ratio	<i>F</i> (df)	<i>p</i>
Self-Report Form	<i>M</i>	100.5	98.5	0.13	1.56 (1,352)	.212
	<i>SD</i>	16.2	14.4			
	<i>N</i>	177	177			
Observer Form	<i>M</i>	99.5	99.7	-0.01	0.02 (1,362)	.892
	<i>SD</i>	15.5	13.9			
	<i>N</i>	182	182			

Note. Guidelines for interpreting Cohen's *d* are as follows: small effect size = 0.2, medium effect size = 0.5, large effect size = 0.8. Positive *d*-ratio values indicate higher scores in the Black sample.

Table 8.10. CEFI Adult Full Scale Score Comparison Between Hispanic and White Groups

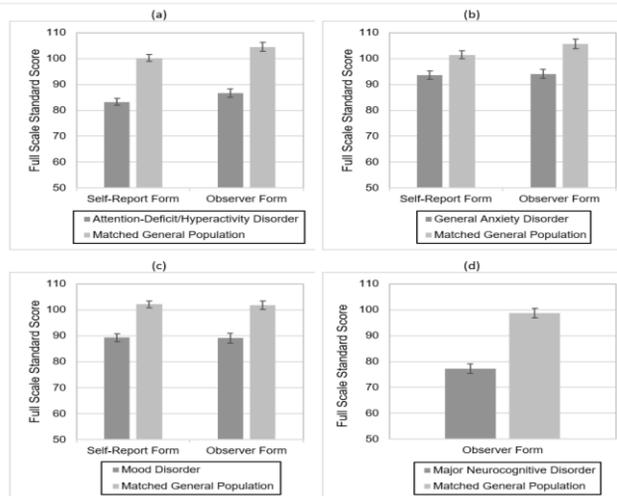
Form		Hispanic Sample	Matched White Sample	<i>d</i> -ratio	<i>F</i> (df)	<i>p</i>
Self-Report Form	<i>M</i>	101.0	99.4	0.10	0.95 (1,346)	.330
	<i>SD</i>	16.8	13.6			
	<i>N</i>	174	174			
Observer Form	<i>M</i>	98.9	100.6	-0.12	1.29 (1,358)	.258
	<i>SD</i>	14.7	15.0			
	<i>N</i>	180	180			

Note. Guidelines for interpreting Cohen's *d* are as follows: small effect size = 0.2, medium effect size = 0.5, large effect size = 0.8. Positive *d*-ratio values indicate higher scores in the Hispanic sample.

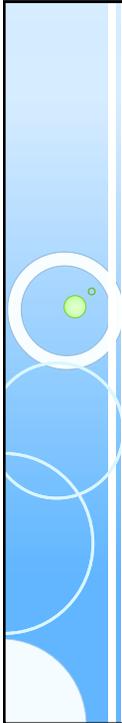
Note: . Samples of Black and Hispanic individuals from the normative sample were compared to samples of White individuals from the normative sample matched on age, gender, U.S. geographical region, and education level.

CEFI Adult Group Differences

Figure 8.1. CEFI Adult Full Scale Differences Between ADHD, GAD, Mood Disorder, and Major Neurocognitive Disorder Samples and Matched General Population Samples



Note. Gen. Pop. = Matched sample from the general population portion of the respective normative sample; Error bars represent standard error.



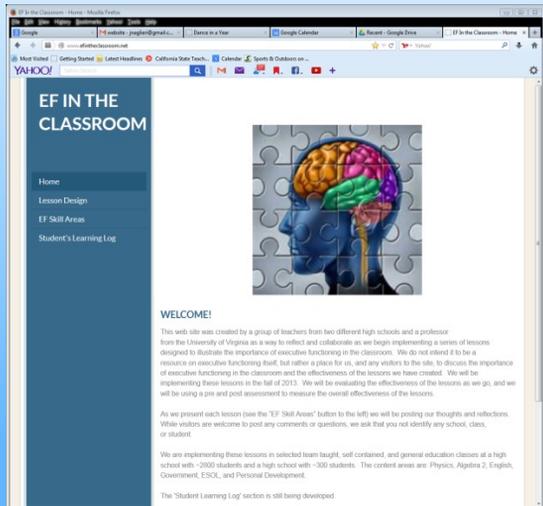
INTERVENTIONS FOR EF BEHAVIORS

conclusions 101



www.efintheclassroom.net

➤ Start with Awareness of thinking about thinking

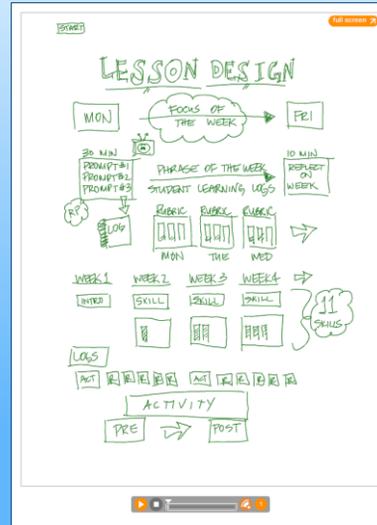


The screenshot shows a web browser window displaying the website. The browser's address bar shows 'www.efintheclassroom.net'. The website has a dark blue sidebar with a white navigation menu. The main content area has a white background with a dark blue header. The central image is a stylized human head in profile, with the brain area filled with colorful, segmented shapes. Below the image, there is a 'WELCOME!' section with text that reads: 'This web site was created by a group of teachers from two different high schools and a professor from the University of Virginia as a way to reflect and collaborate as we begin implementing a series of lessons designed to illustrate the importance of executive functioning in the classroom. We do not intend it to be a resource an executive functioning itself, but rather a place for us, and any visitors to the site, to discuss the importance of executive functioning in the classrooms and the effectiveness of the lessons we have created. We will be implementing these lessons in the fall of 2013. We will be evaluating the effectiveness of the lessons as we go, and we will be using a pre and post assessment to measure the overall effectiveness of the lessons.' Below this, there is another paragraph: 'As we present each lesson (see the "EF Skill Areas" button to the left) we will be posting our thoughts and reflections. While visitors are welcome to post any comments or questions, we ask that you not identify any school, class, or student.' At the bottom, there is a final paragraph: 'We are implementing these lessons in selected team taught, self contained, and general education classes at a high school with ~2000 students and a high school with ~300 students. The content areas are: Physics, Algebra 2, English, Government, ESOL, and Personal Development. The "Student Learning Log" section is still being developed.'

conclusions 102

Structure of the lessons

- Each topic is discussed for one week
- Monday – class lesson
- Tues-Thurs reminders
- Friday – class reflection



conclusions

103

Interventions for EF Behaviors

➤ CEFI Scales

- Attention
- Emotion Regulation
- Flexibility
- Inhibitory Control
- Initiation
- Organization
- Planning
- Self-Monitoring
- Working Memory

➤ Efintheclassroom.net

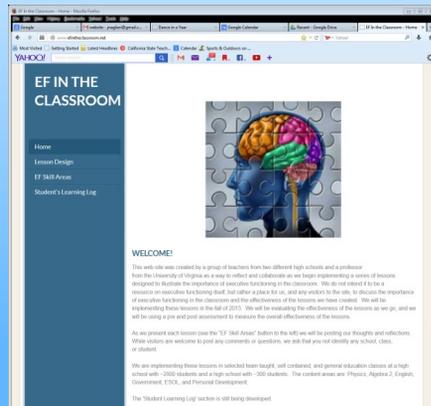
- Sustained Attention
- Emotional Control
- Cognitive Flexibility
- Response Inhibition
- Task Initiation
- Organization
- Planning
- Response Inhibition
- Working Memory
- Goal Directed Persistence

conclusions

104

Other Lessons from www.efintheclassroom.net

Working Memory Lesson



conclusions

105

Interventions for EF Behaviors

- | ➤ CEFI Scales | ➤ Efintheclassroom.net |
|----------------------|-----------------------------|
| ▪ Attention | ▪ Sustained Attention |
| ▪ Emotion Regulation | ▪ Emotional Control |
| ▪ Flexibility | ▪ Cognitive Flexibility |
| ▪ Inhibitory Control | ▪ Response Inhibition |
| ▪ Initiation | ▪ Task Initiation |
| ▪ Organization | ▪ Organization |
| ▪ Planning | ▪ Planning |
| ▪ Self-Monitoring | ▪ Response Inhibition |
| ▪ Working Memory | ▪ Working Memory |
| | ▪ Goal Directed Persistence |

conclusions

106

What is Working Memory

- Georgiou, Das, and Hayward (2008) described **working memory** as the capacity of the individual to store information for a short period of time and manipulate it using a phonological loop and visual-spatial sketchpad (Baddeley & Hitch, 1974)
- The **visual-spatial sketchpad** is described as a mental image of visual and spatial features (Engle & Conway, 1998)
- The **phonological loop** refers to retention of information from speech-based systems that are particularly important when order of information is required (Engle & Conway, 1998)

conclusions

Working Memory Game

- You will see a series of words presented at 2 per second. The words are from two different categories. For example, Man - Hammer - Boat - Woman, would be organized into Man and Woman (people), Hammer and Saw (tools)
- When you see the STOP sign, that is the time for you will write the words down in two columns.

conclusions

**Ready
Trial 1**

START

conclusions

conclusions



**Put the words in groups.
Write them down.**

conclusions

**Next Item:
Put the words in **SOME**
NUMBER of groups.**

conclusions

**Ready
Trial 2**

START

conclusions

This slide features a blue gradient background. On the left side, there is a vertical white line with a small green circle above it and several overlapping white circles below. In the center, a yellow rectangular box contains the text "Ready Trial 2" in bold black font. To the right of this box, a large green arrow points to the right, with the word "START" written in bold black text inside it. The word "conclusions" is written in a small, light blue font in the bottom right corner.

conclusions

This slide has the same blue gradient background and left-side decorative elements as the first slide. A large, solid light green rectangle occupies the upper and middle portions of the slide, leaving a blue area at the bottom. The word "conclusions" is written in a small, light blue font in the bottom right corner.



**Put the words into groups.
Write them down.**

conclusions

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



conclusions

116

Presentation Outline

- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- Conclusions



conclusions

117

EF is a Brain-Based Ability

- EF is an ability by virtue of its relationship to the brain
- Because there is a relationship between BRAIN FUNCTION and BEHAVIOR, behaviors tell us about the ABILITY (sometimes...)
- EF skills are the result of EF Ability **and** well practiced behaviors that reflect EF
 - Not all abilities and not all behaviors involve EF

conclusions

118

Cognition or Knowledge?

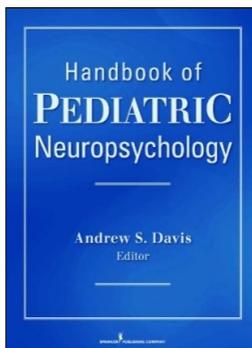
- What does the student have to **know** to complete a task?
 - This is dependent on *instruction*
- How does the student have to **think** to complete a task?
 - This is dependent on the *brain – PASS*



A Theory of Learning

28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

Jack A. Naglieri and Tulio M. Otero



an important field of clinical, developmental, psychiatric, and educational psychology. By addressing the various factors intrinsic to the development of cognitive, reasoning, planning, and executive functions, clinicians can better understand and treat children with a variety of developmental disorders. This book is edited by a leading expert in the field, and is a must-read for all those interested in the social and motor aspects of an individual's development. It is also a valuable resource for those who use neuropsychological tests to derive inferences about the brain, the brain's function, and clinical practice. This book is a functional mosaic of the brain, the brain's function, and clinical practice. It is a functional mosaic of the brain, the brain's function, and clinical practice. It is a functional mosaic of the brain, the brain's function, and clinical practice.

Such tools also provide information and add

FROM NEUROPSYCHOLOGY TO ASSESSMENT

Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.

perhaps one of the most important works in the field of neuropsychology.

Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.

perhaps one of the most important works in the field of neuropsychology.

Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.

perhaps one of the most important works in the field of neuropsychology.

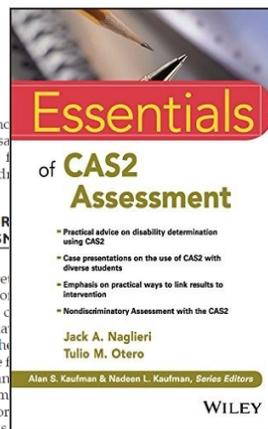
Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.

perhaps one of the most important works in the field of neuropsychology.

Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.

perhaps one of the most important works in the field of neuropsychology.

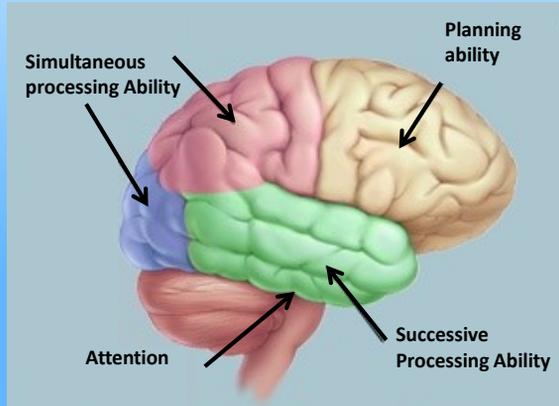
Luria's theory of brain-behavior orders that the brain, the brain's function, and clinical practice.



Brain, Cognition, & Behavior

- The brain is the seat of abilities called PASS
- These abilities comprise what has been described as a modern view of intelligence (Naglieri & Otero, 2011)

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

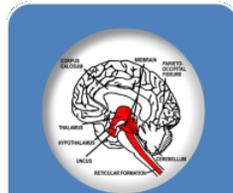


IQ defined by BRAIN function

- **PASS** theory is a modern way to define 'ability' (AKA – intelligence)
- **P**lanning = THINKING ABOUT THINKING
- **A**ttention = BEING ALERT
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE

The Brain and Intelligence as PASS

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



Attention

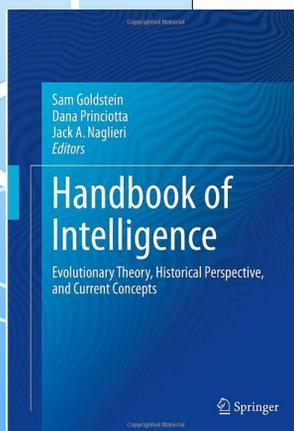
Focused cognitive activity and resistance to distraction

123

conclusions

100 Years of Intelligence and IQ

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



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

20

Jack A. Naglieri

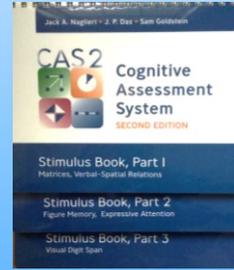
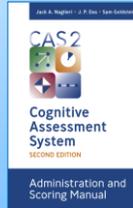
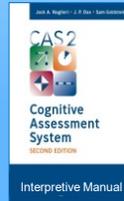
"Do not go where the path may lead, go instead where there is no path and leave a trail."

—Ralph Waldo Emerson

1917, is remembered as the day the American Psychological Association entered World War I. On that same day, a group of psychologists held a meeting in the University of Chicago's Emerson Hall to discuss the ways in which they could play with the war effort (Stern, 1992). 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, and Lewis Terman, who was the director of the 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).

124

CAS2 for (Ages 5-18 yrs.)

conclusions

CAS2 (Ages 5-18 yrs.)

Examiner Record Form
Jack A. Naglieri | J. P. Das | Sam Goldstein

Section 1. Identifying Information

Student's Name _____
 Sex: Female Male Grade: _____
 School: _____
 Examiner: _____
 Date tested: _____
 Date of Birth: _____
 Age: _____

Section 2. Subtest and Composite Scores

Subtest	Raw Score	Scaled Score			
		PLAN	SM	ATT	SEC
Planned Color (PCG)					
Planned Colorless (PCL)					
Planned Number (PN)					
Planned Figure (PF)					
Block Design (BD)					
Visual Spatial Reasoning (VSR)					
Figure Memory (FM)					
Expressive Attention (EA)					
Number Detection (ND)					
Acoustic Attention (AA)					
Word Series (WS)					
Cognitive Searcher Questions (CSQ)					
Visual Digit Span (VDS)					

Scale of Scaled Score:
 100 = Superior
 85 = Very Good
 70 = Good
 55 = Fair
 40 = Marginal
 25 = Below Average
 10 = Very Below Average
 0 = Extremely Below Average

Hoja de registro del evaluador
Jack A. Naglieri | Mary A. Moreno | Tulo M. Otero

Sección 1. Información de identificación

Nombre del estudiante _____
 Género: Femenino Masculino Grado: _____
 Escuela: _____
 Evaluador: _____
 Fecha evaluación: _____
 Fecha nacimiento: _____
 Edad: _____

Sección 2. Puntuaciones de subpruebas y puntuaciones compuestas

Subprueba	Puntaje bruto	Puntuación escala			
		PLAN	SM	ATTN	SEC
Subpruebas planificadas (CPG)					
Subpruebas planificadas coloradas (PCL)					
Planificación de números (PN)					
Planificación de figuras (PF)					
Diseño de bloques (BD)					
Razonamiento espacial (VSR)					
Memoria de figuras (FM)					
Atención expresiva (EA)					
Detección de números (ND)					
Atención acústica (AA)					
Serie de palabras (WS)					
Preguntas de búsqueda cognitiva (CSQ)					
Memoria visual de dígitos (VDS)					

Perfil de puntuación por índice:
 PLAN SM ATTN SEC
 100
 95
 90
 85
 80
 75
 70
 65
 60
 55
 50
 45
 40
 35
 30
 25
 20
 15
 10
 5
 0
 -5
 -10

Perfil de puntuaciones compuestas:
 PLAN SM ATTN SEC
 100
 95
 90
 85
 80
 75
 70
 65
 60
 55
 50
 45
 40
 35
 30
 25
 20
 15
 10
 5
 0
 -5
 -10

conclusions

CAS2

- CAS2 Yields PASS and Full Scale score but ALSO
- Executive Function is the combination of Planning and Attention subtests
- Also: Working Memory, Verbal, Nonverbal and a Visual and Auditory comparison

CAS2 Cognitive Assessment System Second Edition

Examiner Record Form
Jack A. Naglieri J. P. Das Sam Goldstein

Section 1. Identifying Information
Student's Name: William
Sex: Female Male Grade: 2nd
School: Unified Elementary
Examiner: Janice Wilson, Ph.D.

Date Tested	Year	Month	Day
2/20/19	2019	2	20
Date of Birth	Year	Month	Day
2006	2006	10	22
Age	Year	Month	Day
7	7	10	26

Section 2. Subtest and Composite Scores

Subtest	Raw Score	Scaled Score				
		PLAN	SM	ATT	SSC	
Planned Color (PCL)	34	7				
Planned Connections (PCN)	12	5				
Planned Number Matching (PNN)	10	5				
Number (NM)	20		10			
Visual Spatial Relations (VSR)	15		11			
Figure Memory (FM)	16		10			
Expressive Attention (EA)	16			1		
Number Detection (ND)	14			10		
Receptive Attention (RA)	13			9		
Word Series (WS)	11				7	
Optimism-Regretful Questions (ORQ)	8				7	
Visual Digit Span (VDS)	10				10	
		PLAN	SM	ATT	SSC	FL
Sum of Scaled Scaled Scores	239	31	28	20	102	
Index Composite Index Scores	14	102	71	81		
Percentile Rank	14	95	39	8		
% Confidence Interval	92	106	104	81	92	
Lower	71	76	57	74	89	

Section 3. Subtest and Composite Profiles

Index Score Profile: PLAN SM ATT SSC FL

Scaled Score Profile: PLAN SM ATT SSC

Section 4. Descriptive Terms

Scaled Scores	1-3	4-5	6-7	8-12	13-14	15-16	17-20
Descriptive Terms	Very Poor	Poor	Below Average	Average	Above Average	Superior	Very Superior
Index Scores	<70	70-79	80-89	90-109	110-119	120-129	≥130

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

PASS Theory: Planning

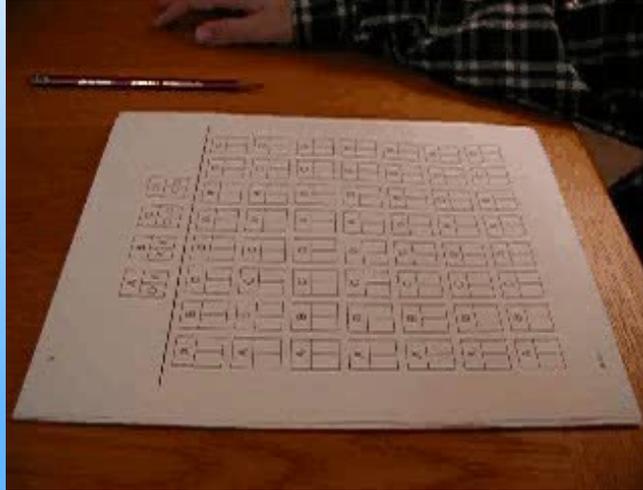
- ▶ Planning is a neurocognitive ability that a person uses to determine, select, and use efficient solutions to problems
 - problem solving
 - developing plans and using strategies
 - retrieval of knowledge
 - impulse control and self-control
 - control of processing



conclusions

128

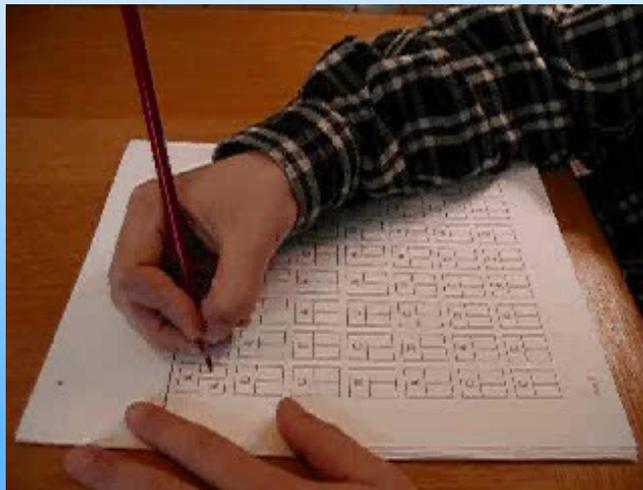
Planned Codes 1



conclusions

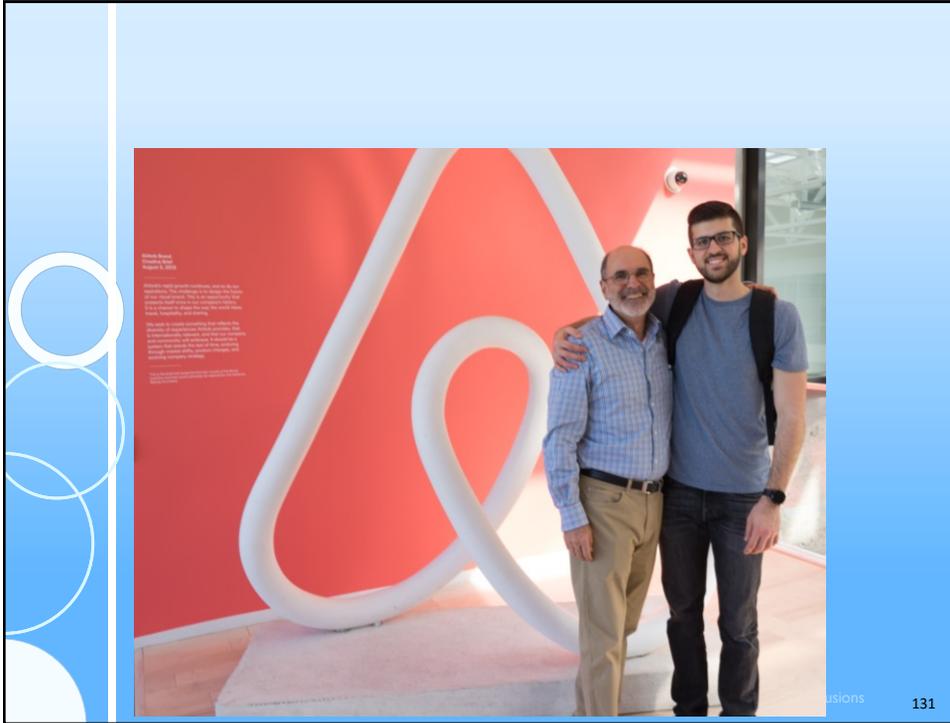
129

Planned Codes Page 2



conclusions

130



usions

131

Math Strategies

Note to the Teacher:
When we teach children skills by helping them use strategies and plans for learning, we are teaching both knowledge and processing. Both are important.

Name _____

Doubles and Near Doubles

double
 $8 + 8 = 16$

How many are there?
 $8 + 9 = 17$ near double

Ring the double. Add.

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

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

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

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

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

three hundred thirty-five 335

PASS Theory: Planning

Planning

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

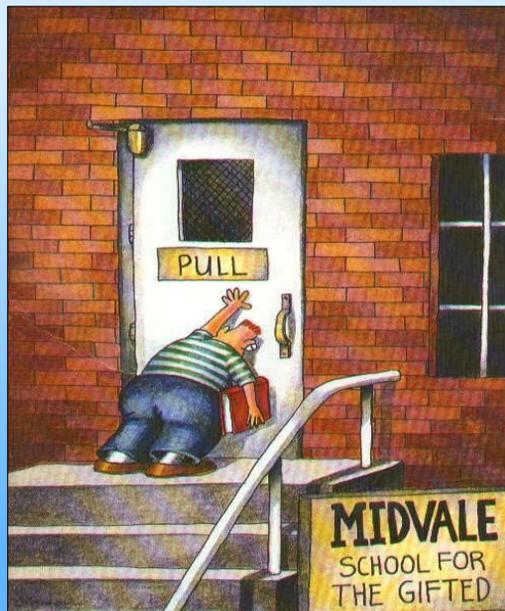
Examples of classroom problems related to Plan

- 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

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



POOR PLANNING



conclusions

134

Efintheclassroom.net

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.

conclusions

135

Antwerp train Station (2009)



conclusions

136

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)

conclusions

137

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)

conclusions

138

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

How might students react to being told that now they have to think?

Like the Seinfeld video

conclusions

139

This Planning Lesson

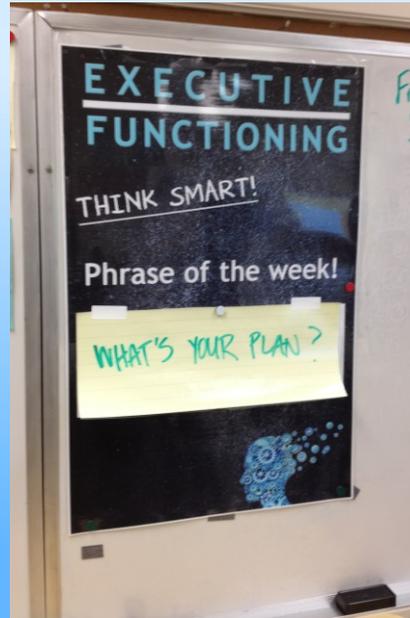
- This lesson brings to light the important distinction between planning over a long time (what was just shown) and real time planning

conclusions

140

EF Instruction

- We use posters like this one to remind the students of the importance of **PLANNING**

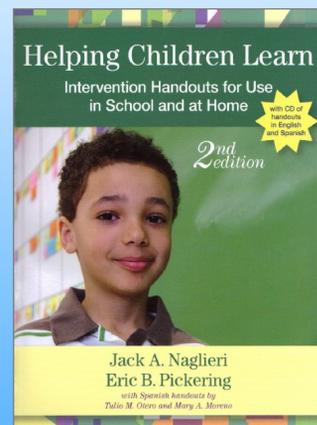


conclusions

141

Encourage Planning

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



conclusions

142

Step 1 – Talk with Students

How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Step 1 – Talk with Students

How Can You Be Smarter?

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

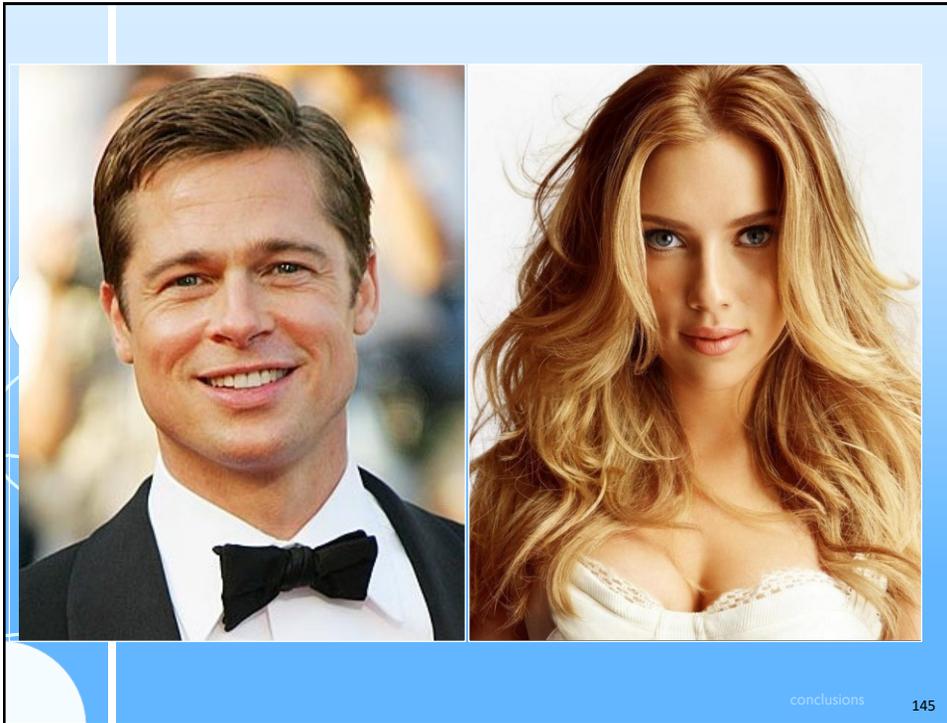
You will be able to do more if you remember to use a plan. An easy way to remember to use a plan is to look at the picture "Think smart and use a plan!" (Figure 1). You should always use a plan for reading, vocabulary, spelling, writing, math problem solving, and science.

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

**Think smart
and use a plan!**



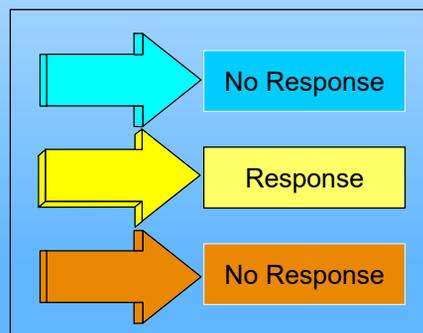
It is smart to have a plan for doing all schoolwork. When you read, you should have a plan. One plan is to look at the questions you have to answer about the story first. Then read the story to find the answers. Another plan is to make a picture of what you read so that you can see all the parts of the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



PASS Theory

▶ **Attention** is a neurocognitive ability that a person uses to selectively attend to some stimuli and ignore others

- selective attention
- focused cognitive activity over time
- resistance to distraction



Attention Test Instructions:
You will see words like

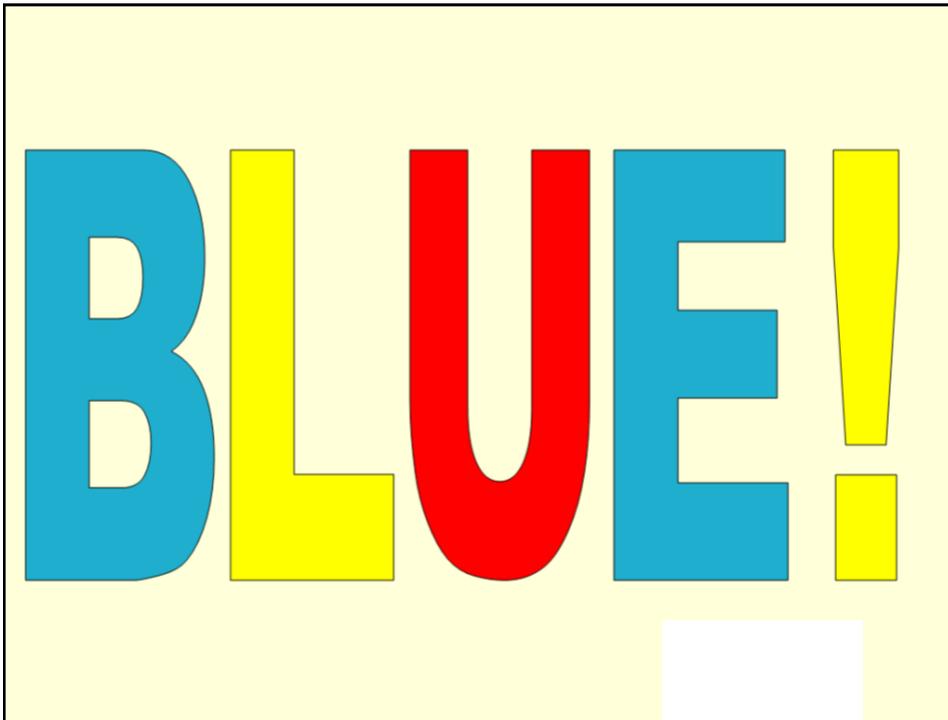
RED

Your task: say the COLOR (green) not the word (red)

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

READY ?

conclusions 147



Expressive Attention - Italiano

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

conclusions

149

Expressive Attention – Korean CAS

□ The child says the color not the word

노랑	초록	빨강	파랑
빨강	노랑	노랑	초록
초록	파랑	초록	빨강
초록	노랑	빨강	노랑
빨강	파랑	빨강	초록

conclusions

150

Attention

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

11. A 3:15 A.M. B 3:30 P.M. C 3:15 P.M. D 3:15 A.M.



leave school

11. 3:15 p.m.

12. Trent began studying at 5:00 P.M. and finished 1 hour and 22 minutes later. What time did he finish?

A 6:22 A.M. B 5:22 P.M. C 6:10 P.M. D 6:22 P.M.

12. 6:22 p.m.

13. Maura began basketball practice at 3:00 P.M. and finished 50 minutes later. What time did she finish?

A 3:50 P.M. B 3:05 A.M. C 4:05 P.M. D 4:50 A.M.

13. 3:50 p.m.

14. Lance fished from 6:00 A.M. to 9:45 A.M. How long did he fish?

A 3 hours B 3 hours and 15 minutes
C 3 hours and 45 minutes D 4 hours and 45 minutes

14. 3 hours 45 min.

conclusions

151

PASS Theory: Attention

Attention

- Focus on one thing and ignore others

Examples of classroom problems related to

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

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



Efintheclassroom.net

Attention Lesson

- Start by making students aware of what attention is ...
- View Attention video from Apollo Robbins
- Then provide Discussion
 - What did you learn from this video?
 - How can you attend better?
 - How can you resist distractions better?
- Then an Assignment – Make a list of times when you did well, and not so well, paying attention, noticing details, and resisting distractions.

conclusions

153

Efintheclassroom.net

Attention Lesson

Sustained Attention Lesson

Phrase of the week: Where is your focus?

Video: <http://www.youtube.com/watch?v=jKCT-simmBo&noredirect=1>

Q1: Why do you think you were tricked by this video?

Q2: How do you decide what to pay attention to, and what not to, in this class?

Q3: What are your biggest distractions in class? What will you have the hardest time ignoring?

Hand out Learning Logs:

Students go to SA section and create a list they (or the class as a whole) will try to ignore this week.

conclusions

154

Attention Lesson



OK

conclusions

155

Time to Think and Talk

- **Task:**
- Why do you think you were tricked by this video?
 - How do you decide what to pay attention to, and what not to, in this class?
 - What are you biggest distractions in class?
 - What will you have the hardest time ignoring?
 - Your own questions and thoughts..

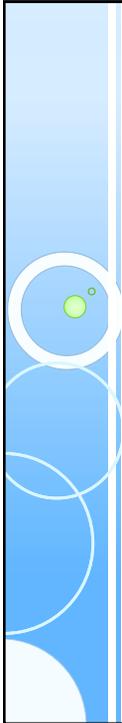
START



4
minutes
left




conclusions



WHAT IS NOT EF IN PASS

conclusions 157



EF ability and the brain

- Planning and Attention have been included in conceptualizations of Executive Function
- The next two abilities are **not** related to EF
 - We will see what they are and ...
 - See how we can improve performance when these abilities are required by using EF (strategies) to improve performance

conclusions 158

PASS Theory

- **Simultaneous** is a neurocognitive ability a person uses to integrate stimuli into groups
 - Parts are seen as a whole
 - Each piece of information is related to others
 - Visual spatial tasks like blocks and puzzles on the Wechsler Nonverbal Scale
 - KABC Simultaneous Scale

conclusions

159

Progressive Matrices

3

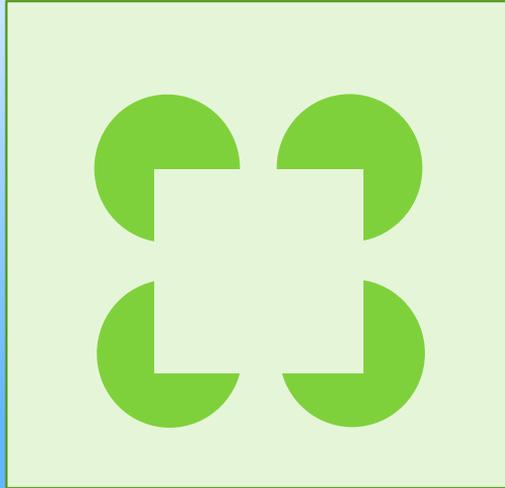
1 2 3 4 5

conclusions

160

PASS Theory

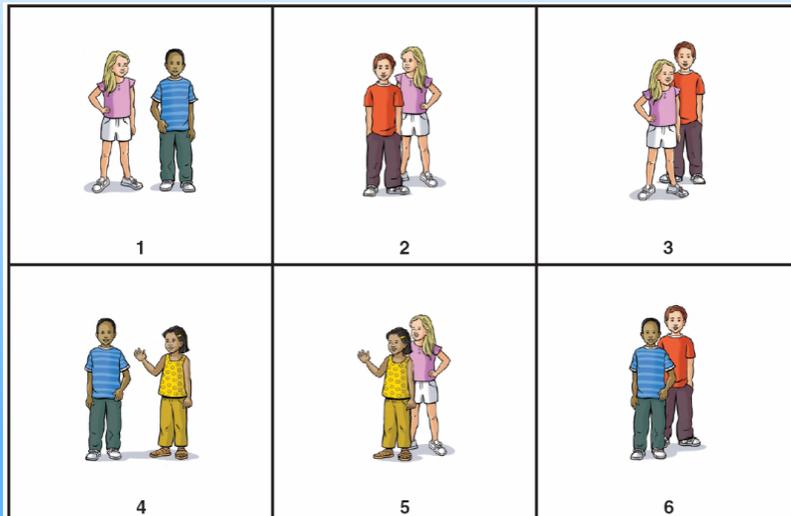
- **Simultaneous** processing is what Gestalt psychology was based on
- Seeing the whole



conclusions

161

Verbal-Spatial Relations



Which picture shows a boy behind a girl?

Numbers from 1 to 100

How can EF be brought to this Work sheet?

Use Simultaneous processing to see that patterns

Name Jack Secret number _____

Write the numbers 1 to 100 in order.

100% beautiful numbers!!

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

TR221 Blank Hundred Chart © J.C. Heun and Company

PASS Theory: Simultaneous

Simultaneous Processing

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

Examples of classroom problems related to

- Difficulty comprehending text
- Difficulty with math word problems
- Trouble recognizing sight words quickly
- Trouble with spatial tasks
- Often miss the overall idea

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



Use EF to manage low Simultaneous

- How do you help a child with low simultaneous ability?
- Teach students to USE STRATEGIES
- What kinds of strategies could you use for tasks that require seeing the whole?

conclusions

165

Use EF

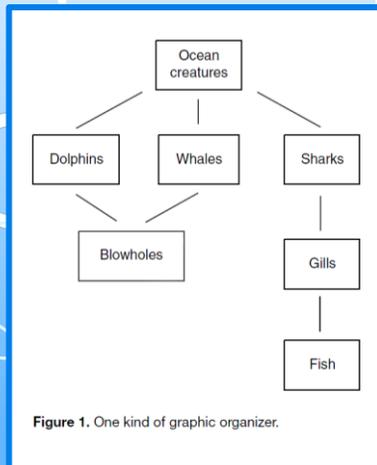


Figure 1. One kind of graphic organizer.

Graphic Organizers for Connecting and Remembering Information

Remembering and relating information is a common part of learning and daily life. Students are often expected to learn large amounts of new and unfamiliar information. Learning facts requires the student to see how information is connected or related. Students often remember this information better if they see it graphically and understand how it relates to knowledge they already have. Graphic organizers are designed to help students (and teachers) present and organize information so it is easier to understand and remember.

Graphic Organizers

New information is better remembered if it is connected to information the students already know. Graphic organizers are visual representations of information that shows the links of new information to other new and existing information. This makes the new information easier to understand and learn. Furthermore, the visual nature of graphic organizers and the links they make help students understand the connections between information parts. For example, a graphic organizer might be used to teach young children about different animals. A child learning about different kinds of animals might already know what a fish is. This knowledge can be used to graphically organize whales, sharks, and dolphins. They all live underwater, but sharks have gills and are fish. (Whales and dolphins have blowholes and breathe air, so they are not fish.) Figure 1 represents one way to map this graphic organizer.

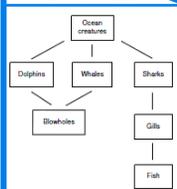


Figure 1. One kind of graphic organizer.

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

How to Teach Graphic Organizers

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

1. Select information that you need to present to the child (which may be from a story, a chapter, or any concept).
2. Determine the key components that are necessary for the child to learn.

page 1 of 2

Helping Children Learn Intervention Handouts for Use in School and at Home, Second Edition, by Jack A. Naglen & Eric S. Picketing
Copyright © 2010 by Paul H. Brookes Publishing Co., Inc. All rights reserved.

166

Venn Diagram

Graphic Organizers for Connecting and Remembering Information (continued)

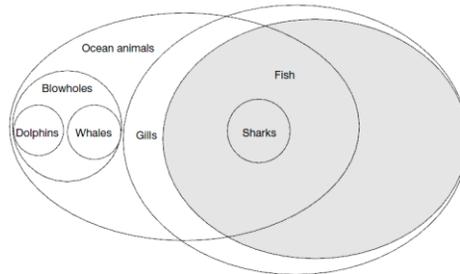


Figure 2. A Venn diagram used as a graphic organizer.

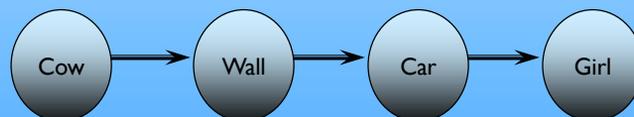
3. Create the graphic representation of the information. The illustration should include the key concepts, concepts the child already knows, and the linkages between the concepts.
4. Present the organizer to the child and discuss it to be sure he or she understands the information and sees the connections.

conclusions

167

Successive Processing Ability

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



conclusions

168

Sentence Questions (Ages 8-17)

- The child answers a question read by the examiner

1. The blue is yellow. Who is yellow?
10. The red greened the blue with a yellow. Who used the yellow?
20. The red blues a yellow green of pinks, that are brown in the purple, and then grays the tan. What does the red do first?

conclusions

169

Successive

The sequence of the sounds is emphasized in this work sheet

Aa

Ants accept award

Active ants applaud

Annie ate apples

conclusions

170

PASS Theory: Successive

Successive Processing

- Use information in a specific order

Examples of classroom problems related to Successive

- Trouble blending sounds to make words
- Difficulty remembering numbers in order
- Reading decoding problems
- Difficulty remembering math facts when they are taught using rote learning ($4 + 5 = 9$).

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



32

Helping Children Learn

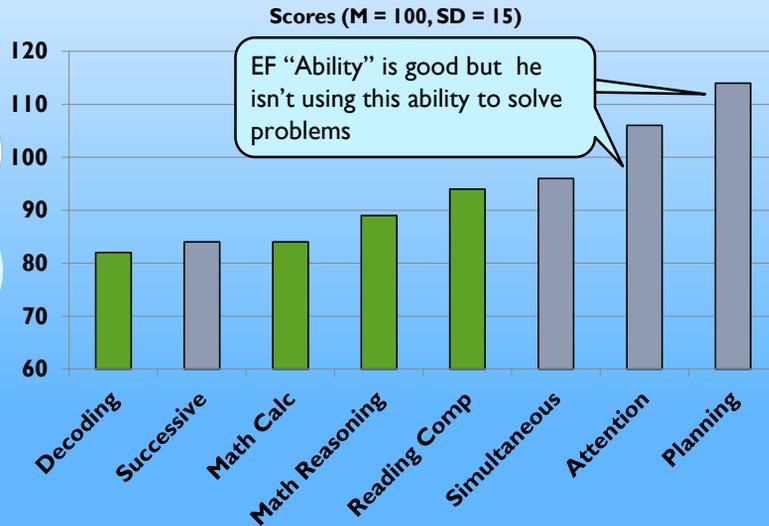
Ben's Problem with Successive Processing



Ben was an energetic but frustrated third-grade student who liked his teachers, was popular with his peers, and fit in well socially at school. However, Ben said he did not like school at all, particularly schoolwork. Ben was good at turning in all of his work on time, and he worked hard, but he earned poor grades. He appeared to be getting more and more frustrated at school.

In general, Ben struggled to perform well because he had a lot of trouble following directions that were not written down, his writing often did not make sense, and he did not appear to comprehend what he read. Ben's teachers noticed that when directions for assignments and projects were given orally in class, he often only finished part of the task. Ben's teacher described an assignment in which students had to collect insects, label them, organize them into a collection, and then give a brief presentation about each insect. Unlike any other student, Ben chose to make the labels for the insects first and then go look for the insects. He found only a few of the insects he had made labels for, and when he put them in the collection, they were not in the order that had been specified. He also had trouble with the spelling of the scientific names of the insects and made many errors in the sequence of letters in the words.

Ben's Problem with Successive processing Ability



Case of Ben

- Planning = Strength
- Successive = Weakness and it is < 85; so it can be considered a 'disorder in basic psychological processes'

		Diff
Planning	114	14
Attention	106	6
Simultaneous	96	-4
Successive	84	-16
PASS Mean	100	

Ben's Problem with Successive Ability

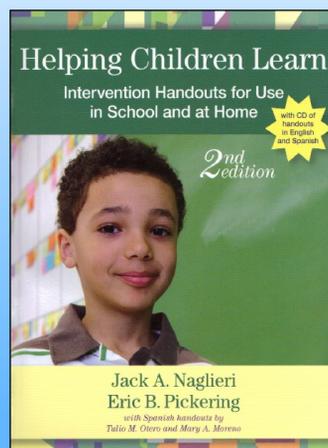
- Ben has difficulty whenever ANY task requires sequencing
 - Academic or ability tests
 - Visual or auditory tests
 - Math or spelling or reading
 - Tasks that require memory of sequences
- How do we help him learn better?

conclusions

175

Teach Children about their Abilities

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



conclusions

176

Use EF with Sequencing Tasks

How Can You Be Smarter?

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

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

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



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

Ben's Problem with Successive Ability

➤ Teach him to use his strength in Planning

How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Ben's Problem with Successive Ability

➤ Teach him to recognize sequences

How to Teach Successive Processing Ability

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

conclusions

179

Ben's Problem with Successive Ability

➤ Teach him to use strategies

Chunking for Reading/Decoding

Segmenting Words for Reading/Decoding and Spelling

Reading
stand
quenc
more r
easily
units f

How

Teache
be rem

Plan

Look at
Find the
Sound

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

How to Teach Segmenting Words

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

Take Away Messages

- CAS Planning and Attention scores tell about Executive Function
 - So CAS *includes* EF as a critical part of ability (aka intelligence)
- Traditional IQ tests do not measure Executive Function
 - So EF is the important ability missed when you look at an IQ score

conclusions

181

Presentation Outline

- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- Conclusions

conclusions

182

Phineas had Social Emotional deficit

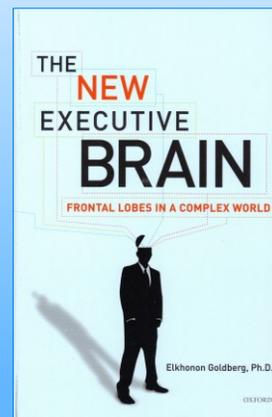
- Phineas had profound social emotional problems after his injury to the frontal lobes
- Phineas is
 - insulting
 - impulsively says things
 - uses vulgar language
 - can't manage his emotions
 - inconsistent in social situations
 - doesn't recognize he is offensive
 - loses control in interactions with others

conclusions

183

Frontal Lobes and Emotion

- Goldberg (2011, p 116-117)
 - the “emphasis in the classic studies of frontal lobe syndromes was on cognition [intelligence] rather than on affect [social emotional]”
 - ‘very few researchers have attempted to merge cognitive and emotional aspects of frontal lobe dysfunction’

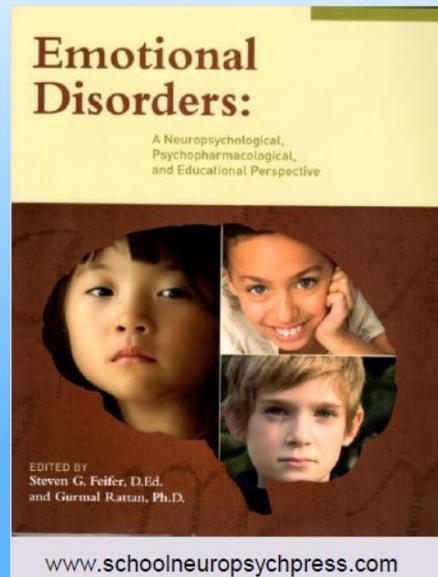


conclusions

184

Feiffer & Rattan (2009)

- Provide a collection of papers on the relationship between EF and Emotional Disorders



185

Feiffer & Rattan (2009) on EF and Frontal Lobes

The Cerebral Orchestra of Emotions: Cortical Regions

- (1) **Orbitofrontal cortex** - region of the brain responsible for ascribing an emotional valence or value judgment to another's feelings. Often triggers an automatic social skills response (Rolls, 2004).
- * Has rich interconnections with the limbic system by way of the *uncinate fasciculus*.
 - * Responsible for *emotional executive functioning*.
 - * Self-regulation of behavior..... highest levels of emotional decision making dictated by this brain reg

The Cerebral Orchestra of Emotions: Cortical Regions

- (2) **Ventrolateral prefrontal cortex** - responsible for *response inhibition* and *emotional regulation*.
- * Has rich interconnections with the limbic system.
 - * Also involved with *emotional executive functioning*.
 - * Situated adjacent to orbitofrontal cortex and involved in the ability to take another's perspective on an emotional event (*theory of mind*).

conclusions

186

Social Emotional Skills: From Conceptual to Assessment to Instruction

conclusions 187

www.casel.org

About Why It Matters In Schools Collaborating Districts Initiative Policy & Advocacy Research

Good science links Social & Emotional Learning to the following:

STUDENT GAINS

- Social-emotional skills
- Improved attitudes about self, others, and school
- Positive classroom behavior
- 11 percentile-point gain on standardized achievement tests

REDUCED RISKS FOR FAILURE

- Conduct problems
- Aggressive behavior
- Emotional distress

Benefits of Social and Emotional Learning

Social and emotional learning improves student outcomes.

» READ MORE

Collaborating Districts Initiative

Collaborating Districts Initiative

This is a national initiative to take social and emotional learning to scale in eight large districts. Three have already been selected. Five more will be selected by December 2011.

» READ MORE

All Invited

Roger Weissberg to speak Oct. 20 in Chicago

Roger Weissberg to speak on Oct. 20 at Investiture of NoVo Endowed Chair of Social and Emotional Learning. Public invited.

» READ MORE

Twitter Feed

CASSEL.org: @BarefootBehavior Thanks for the shout-out! We're very excited about this initiative and what it means for the future of #SEL nation-wide!
Posted 5 hours, 39 minutes ago

CASSEL.org: @rannieroux Do you mean the meta-analysis? Summary here http://t.co/8k2XBEys with full article download link at bottom.
Posted 5 hours, 43 minutes ago

CASSEL.org: This article discusses benefits students get from afterschool activities & what they mean to overall school engagement http://t.co/NDw4lcpj

188

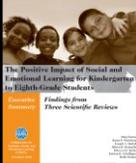
Skills for Social and Academic Success

Research Links SEL to Higher Success

- 23% gain in SE skills
- 9% gain in attitudes about self/others/school
- 9% gain in pro-social behavior
- 11% gain on academic performance via standardized tests (math and reading)

And Reduced Risks for Failure

- 9% difference in problem behaviors
- 10% difference in emotional distress



Source: Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., and Schellinger, K. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*, 405-432.

conclusions

Social Emotional Skills

Five key social-emotional skills from CASEL

These are in many state and local standards

What is Social and Emotional Learning?

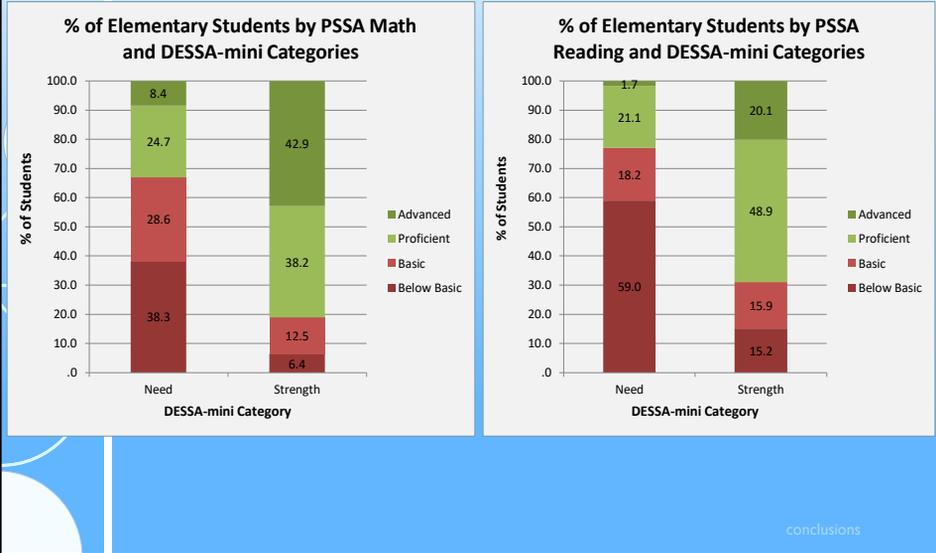
The Collaborative for Academic, Social, and Emotional Learning (CASEL) describes SEL as the process of developing the following five sets of core competencies in the context of safe, caring, well-managed, academically rigorous, and engaging learning environments:

- 1 **Self-awareness**—being able to accurately assess one's feelings, interests, values, and strengths; maintaining a well-grounded sense of self-confidence
- 2 **Self-management**—being able to regulate one's emotions to handle stress, control impulses, and persevere in overcoming obstacles; setting and monitoring progress toward personal and academic goals; expressing emotions effectively
- 3 **Social awareness**—being able to take the perspective of and empathize with others; recognizing and appreciating individual and group similarities and differences; recognizing and using family, school, and community resources
- 4 **Relationship skills**—being able to establish and maintain healthy and rewarding relationships based on cooperation; resisting inappropriate social pressure; preventing, managing, and resolving interpersonal conflict; seeking help when needed
- 5 **Responsible decision-making**—being able to make decisions based on consideration of reason, ethical standards, safety concerns, social norms, respect for self and others, and likely consequences of various actions; applying decision-making skills to academic and social situations; contributing to the well-being of one's school and community.¹

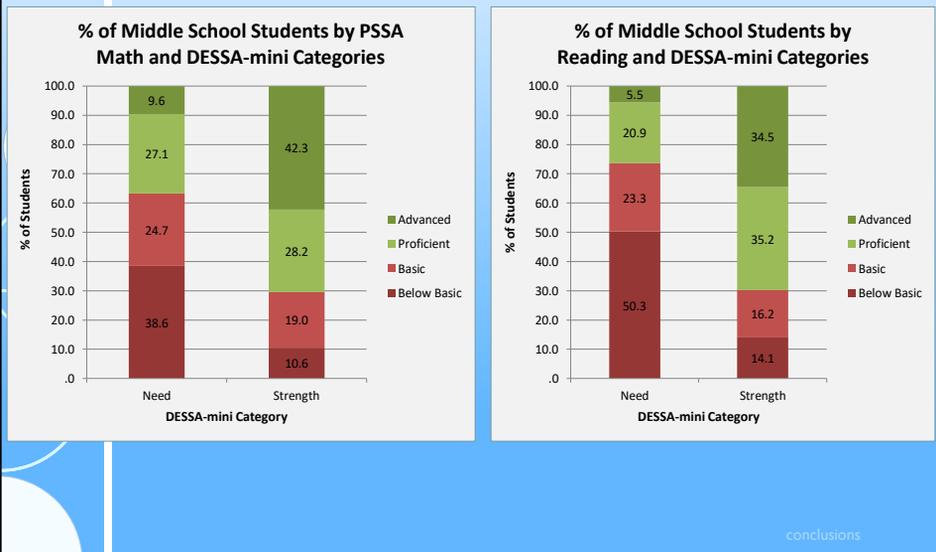
conclusions

190

Relationship Between Academic Achievement and Social-Emotional Competence



Relationship Between Academic Achievement and Social-Emotional Competence



Close Reading: What's SEL got to do with it? (Chicago Public Schools)

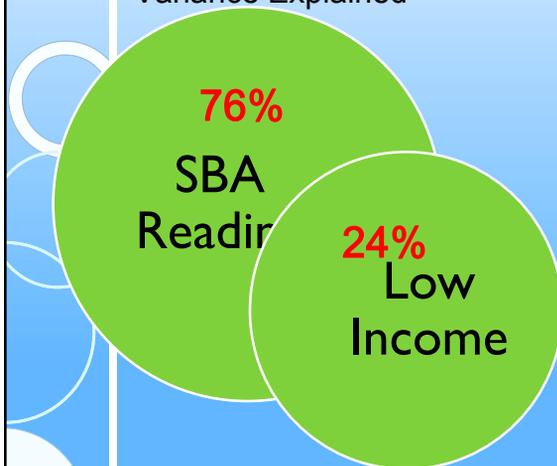
Close Reading is a set of strategies that allow students to productively struggle with complex text in ways that accelerate and deepen their learning.

Elements of Close Reading Include:	Self-Management skills required	Relationship skills required	Responsible Decision Making skills required
Individual reading of complex text	<ul style="list-style-type: none"> • Self control • Self motivation • Perspective Taking 	n/a	n/a
Group exploration of complex text	<ul style="list-style-type: none"> • Self control • Self motivation • Perspective Taking • Setting and Achieving goals 	<ul style="list-style-type: none"> • Communicating clearly • Working collaboratively • Resolving conflicts • Seeking help 	<ul style="list-style-type: none"> • Considering the well-being of self and others • Recognizing one's responsibility to behave ethically • Evaluating realistic consequences of various actions
Student-led discussion and analysis of text	<ul style="list-style-type: none"> • Regulating one's emotions • Self control • Self motivation • Perspective Taking • Setting and Achieving goals 	<ul style="list-style-type: none"> • Communicating clearly • Working collaboratively • Resolving conflicts • Seeking help 	<ul style="list-style-type: none"> • Considering the well-being of self and others • Recognizing one's responsibility to behave ethically • Basing decisions on safety, social and ethical considerations • Evaluating realistic consequences of various actions



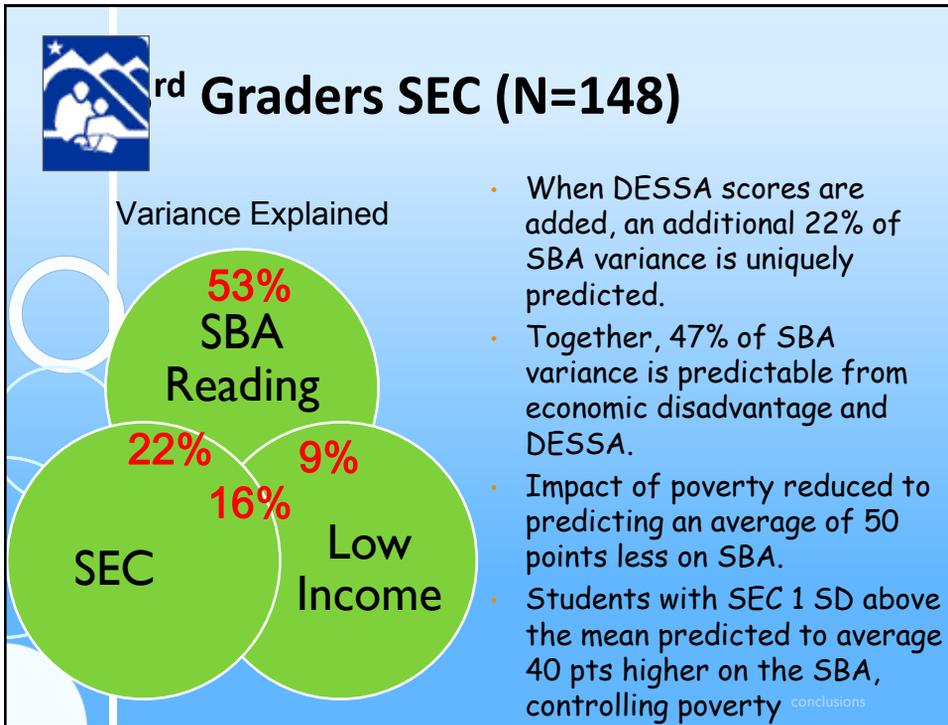
rd Graders SEC (N=148)

Variance Explained



- Economic disadvantage explains approx 24% of SBA variance.
- Low income students predicted to average 80 pts lower on the SBA (1 SD).

conclusions



Same Skills Needed in the Workplace

➤ Secretary's Commission on Achieving Necessary Skills (SCANS) Report -1999

- Skills needed by the workforce
- 50% (8 of 16) were social and emotional skills
 - Decision-making
 - Problem-solving
 - Personal responsibility
 - Sociability
 - Self-management
 - Integrity

conclusions

Prediction of Challenging Behaviors

- Allentown Social Emotional Learning Initiative
 - approximately 12,000 students K-8th grade (ages 6-16)
- All students screened in October with the DESSA-Mini
 - 9,248 students
- Random 5 students/classroom assessed in October with DESSA
 - 1,960 students
- Analysis Sample (n=1875)

conclusions

Sample Demographics

- Gender
 - 47% female
- Race/Ethnicity
 - 65% Hispanic/Latino
 - 17% Black/African American
 - 14% White/European American
 - 4% multi/other races (e.g., Asian/Pacific Islander American, Native American)

conclusions

The Result

Students who were identified as having a Need for SEL Instruction in October were 4.5 times more likely to have a record of serious infraction by the end of the academic year as compared to those who were not identified as having a Need of Instruction in October ($p < 0.001$)

conclusions

Kong (2013): IQ, SEL & Achievement

- Tiffany Kong studied CogAT, DESSA, and achievement scores for 276 elementary students grades K-8
- All gifted based on scores on verbal, quantitative, or nonverbal test scores at least 97th percentile

Socioemotional Competencies, Cognitive Ability,

and Achievement in Gifted Students

by

Tiffany Kong

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

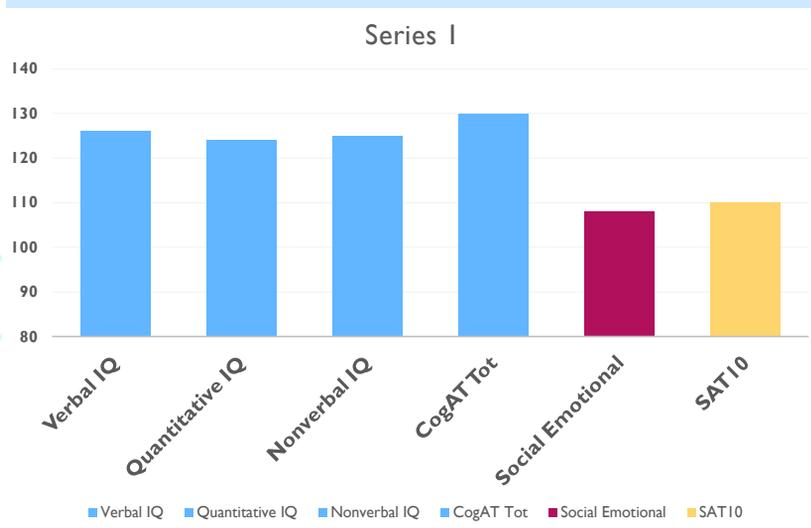
Approved November 2013 by the
Graduate Supervisory Committee:

Linda Caterino Kulhavy, Chair
Jack Naglieri
Dina Brulles

conclusions

200

Ability, Social Emotional & Skills



conclusions

201

Kong (2013): IQ, SEL & Achievement

- DESSA Total correlated .44 and CogAT Total correlated .36 with Total Achievement (reading, math, language)
 - A clearer picture of the relationships between IQ (CogAT) and SEL (DESSA) with achievement was obtained from hierarchical regression analysis...

conclusions

202

Kong (2013) SEL Predicts Beyond IQ (p. 44)

DESSA predicted reading, language and math scores over IQ (CogAt) scores

Relations between Cognitive Ability, Socioemotional Competency, and Achievement Variables

Hierarchical regression analyses were conducted to determine which scales and subtests predicted the most variance in the dependent achievement variables. Composite CogAT scores were not found to significantly predict composite achievement, $R^2\Delta = .03$, $F(1, 121) = 3.27$, $p > .05$, reading, language, or math scores over-and-above the DESSA Total scores (Table 11). On the other hand, the DESSA Total scores significantly predicted composite achievement, $R^2\Delta = .05$, $F(1, 121) = 6.99$, $p < .05$; language scores, $R^2\Delta = .03$, $F(1, 121) = 4.26$, $p < .05$; and math scores, $R^2\Delta = .05$, $F(1, 121) = 6.09$, $p < .05$, over-and-above the composite CogAT scores.

conclusions

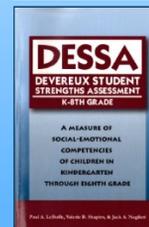
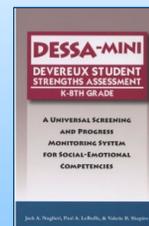
203

The DESSA Comprehensive System

- Universal screening with an 8-item, strength-based behavior rating scale, the *DESSA-mini* for universal screening and ongoing progress monitoring
- 72-item *DESSA* to find specific areas of need



Paul LeBuffe & Valerie Shapiro



conclusions

204

<http://www.centerforresilientchildren.org/>

The screenshot shows the website for the Devereux Center for Resilient Children. At the top, the logo "Devereux CENTER FOR RESILIENT CHILDREN" is on the left, and navigation links "Home | About Us | Testimonials | In The News | Newsletter | Contact Us" are on the right. Below the logo are social media icons for Facebook, Twitter, and YouTube. A navigation menu includes "Overview", "Infants & Toddlers", "Preschool", "School-Age", and "Adults". A search bar is located on the right side of the menu.

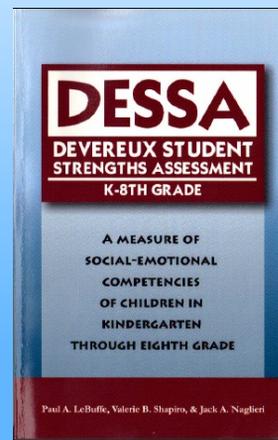
The main content area features a video player with the text: "Mental health experts speak out on the importance of early childhood social and emotional screening, and their success with the Devereux Early Childhood Assessment Program." Below this is the Devereux logo and the text "Watch the video!".

At the bottom, there are four featured sections:

- INFORMATIONAL WEBINARS**: Shows a woman at a computer.
- DCRC RESOURCES**: Lists "DVDs Assessment Strategies for Teachers", "Music RESILIENCE Research", and "Web-based Families".
- EVENT REGISTRATION**: Shows a group of people.
- DECA-P2 DOWNLOADS**: Shows a box with a "NEW!" starburst.

205

Assessment of Social Emotional Skills with the DESSA



conclusions

206

The DESSA

- Based on resilience theory & SEL principles described by CASEL
 - Identify social-emotional strengths and needs of elementary and middle school children (for K-8th grade)
 - 72 items and 8 scales
 - Completed by parents, teachers, and/or after-school / community program staff
 - Takes 15 minutes to complete
 - On-line administration, scoring and reporting available

conclusions

207

DESSA Norms

- 2,475 children, grades K-8
- All 50 states included in sample
- Representative of US Population

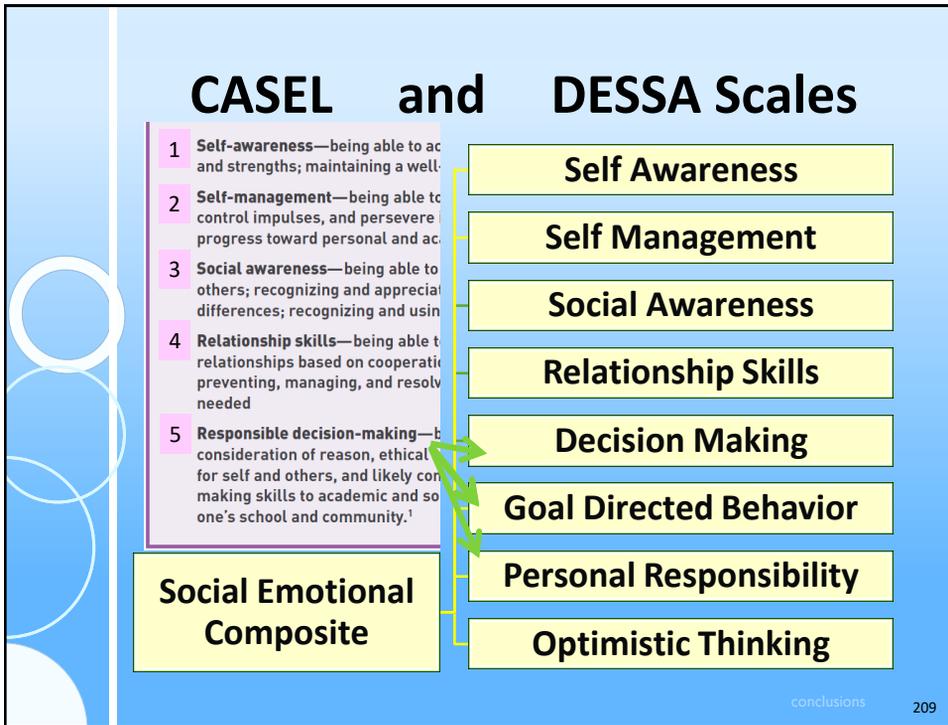
TABLE 2.1

DESSA Standardization Sample Characteristics by Grade and Gender

	Males		Females		Total	
	n	%	n	%	n	%
Kindergarten	256	52.0	236	48.0	492	19.8
1st Grade	186	50.0	186	50.0	372	15.1
2nd Grade	161	50.0	161	50.0	322	13.1
3rd Grade	160	50.0	160	50.0	320	12.9
4th Grade	134	47.5	148	52.5	282	11.4
5th Grade	138	49.1	143	50.9	281	11.3
6th Grade	88	48.9	92	51.1	180	7.2
7th Grade	57	46.7	65	53.3	122	4.9
8th Grade	46	44.2	58	55.8	104	4.2
Total Sample	1,226	49.5	1,249	50.5	2,475	
U.S. %		51.2		48.8		

conclusions

208



Interventions for DESSA

Evo Social & Emotional
An Apperson Evo Module

Apperson's Social & Emotional Learning (SEL) platform gives insight to student emotional competence and resiliency, and provides a framework for maximizing potential. Opportunity is everything.

FREE TRIAL

Maximize the Benefits of Social & Emotional Learning.
MAKE A POSITIVE IMPACT ON STUDENTS' LIVES AND SOCIAL CLIMATE WITH RESEARCH-BASED TOOLS.

- IMPROVE ATTITUDES**
Greater motivation to learn, commitment to school and classroom behavior.
- ENHANCE ACADEMICS**
Higher test scores than students who did not receive SEL instruction.
- PROMOTE PROSOCIAL BEHAVIORS**
Strength-based approaches encourage improved relationships.
- REDUCE EMOTIONAL DISTRESS**
Fewer reports of student depression, anxiety, stress, and social withdrawal.
- DECREASE NEGATIVE BEHAVIORS**
Decreased disruptive behaviors, noncompliance, aggression and disciplinary referrals.
- FOSTER RESILIENCE**
Reduce risk factors and strengthen protective factors in the environment.

conclusions

211

Apperson **SEL+ Compass**

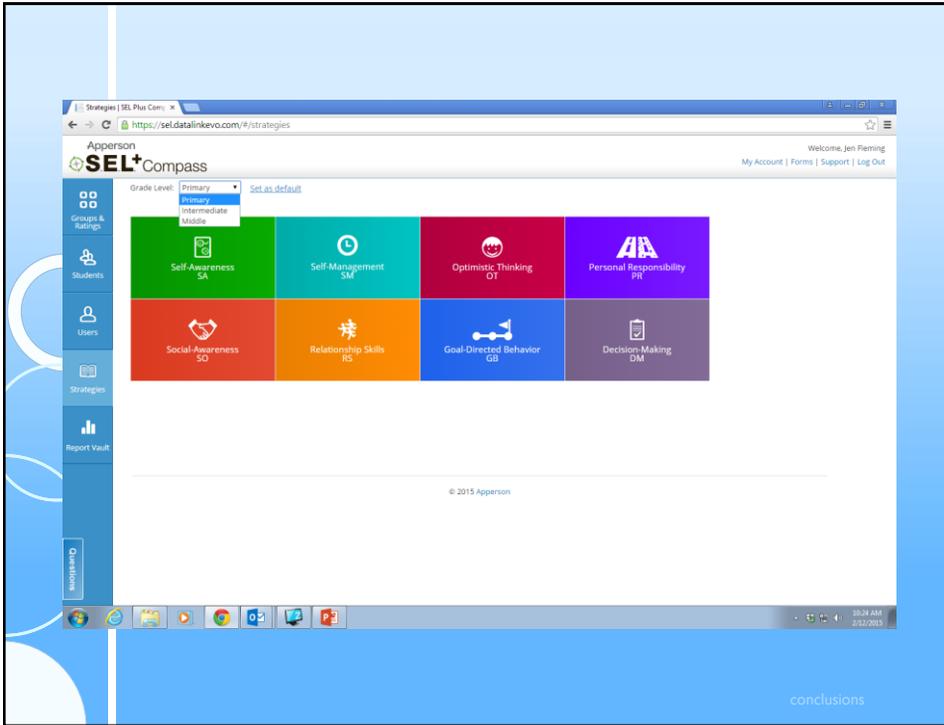
Welcome, Jen Fleming
My Account | Forms | Support | Log Out

Grade Level: Primary | Set as default

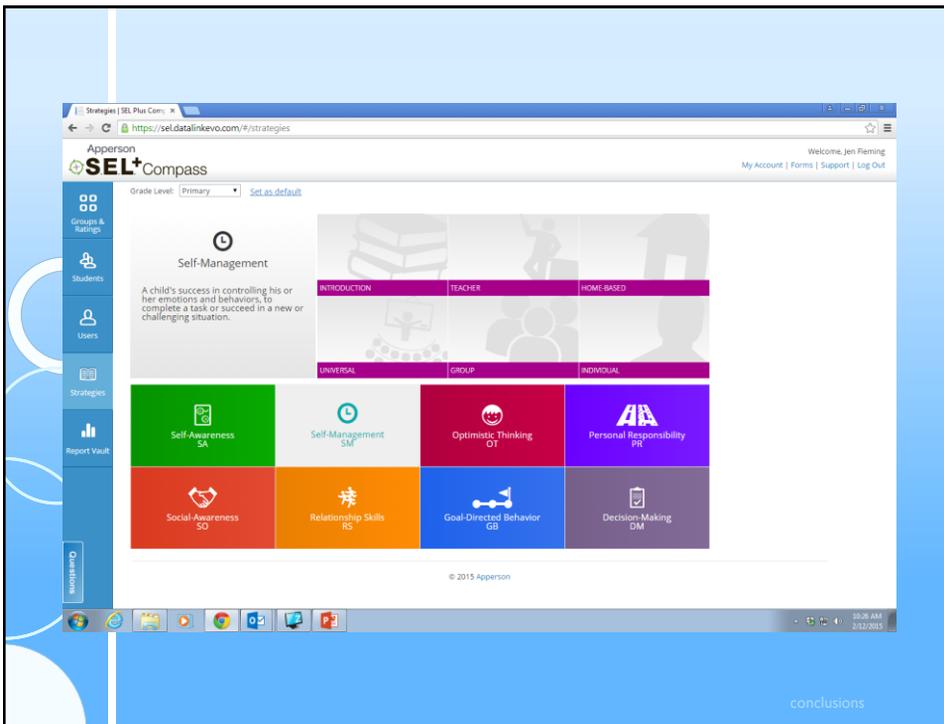
Self-Awareness (SA)	Self-Management (SM)	Optimistic Thinking (OT)	Personal Responsibility (PR)
Social-Awareness (SO)	Relationship Skills (RS)	Goal-Directed Behavior (GB)	Decision-Making (DM)

© 2015 Apperson

conclusions



conclusions



conclusions

Teacher Reflection: Setting Ourselves Is A Gift to Self and Others

Self-Management: being in control of our emotions and behaviors, accomplishing tasks, and succeeding in new and challenging situations.

A variety of sources cite this rather astounding number: teachers make around 1,500 educational decisions each day. That's an average of about three decisions every minute—decisions involving content, relationships, safety, strategy. Decisions about how to approach a concept, how to reframe an idea to make it more understandable, who to call on first, and who to remember to come back to for a private conversation. Teaching has been listed as second only to air traffic control in the number of crucial decisions made all day, every day.

Is it any wonder that one of the vitally important aspects of being a successful, effective, and happy teacher is the ability to manage one's emotions? To remain clear-headed and confident under the pressure of constant decision-making, teachers must be able to regulate themselves, to regain composure again and again, all day long.

Maintaining a positive, calm classroom climate is key to student learning. And the best way to help others feel calm and settled is to calm and settle ourselves.

As one classroom teacher with over twenty years of experience put it, "I have a responsibility to be happy in the classroom because I set the tone. I want the students to be emotionally present, so my job is to be emotionally present. I need to take care of myself in ways that contribute to me being able to show up in that way."

Complete this [self assessment](#); then answer the reflection questions below on your journal or with a trusted colleague.

Self assessment
Using a scale of 1 (rarely) to 5 (very frequently), privately respond to the questions below. Allow yourself time to think about concrete examples that help you decide on your rating.

- In pressured situations, I manage my emotions constructively (calm down, walk away, seek help). 1 2 3 4 5
- I am able to manage my difficult emotions in the moment (self talk, deep breaths). 1 2 3 4 5

conclusions

Take Away Messages

- Social Emotional Skills are the result of EF and what the person has learned in all aspects of the environment
- Children CAN BE TAUGHT good, or bad, social emotional skills

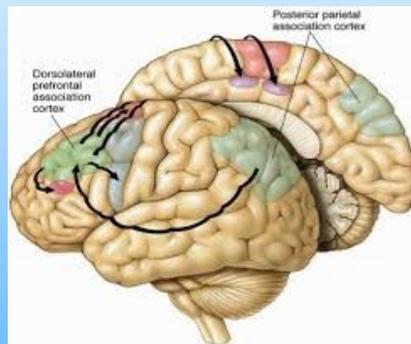
EF and Academics

conclusions

217

CAS-2 Planning & Reading Comprehension

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



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

conclusions

2
1
8



Far Word Recall: Word Planning

PK-Grade 2

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

Grades 3+

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

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

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

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

Trial 2 subtotals			
	Number correct	Repetitions	Intrusions

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

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

Silent Reading Fluency: Text Planning

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

2
2
0

conclusions

How to Pair Far & CAS2

- **CAS2** - determine if there is a cognitive processing weakness (i.e. **Planning**) and whether that particular weakness directly impacts the academic skill in question (Reading Comprehension) on the FAR.
- **Far:** The **Silent Reading Fluency** has individual stories followed by sets of questions. The story is removed, and followed by 4 literal and 4 inferential questions. Pair with **Word Recall** to determine the extent of poor planning at both the word and text level.

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

conclusions

2
2
1

Topical Outline

- Introduction to Traditional IQ
- IDEA and SLD
- A neuropsychological approach called PASS used to define “basic psychological process”
 - Using CAS2, FAR and FAM to identify SLD according to IDEA
- Which ability test to use?
- Which achievement test to use?
- Measure PASS and specific academic skills (FAR)
- Case studies

conclusions

2
2
2

Rowan 4th grade: ADHD & Reading

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

2
2
3

Rowan 4th grade: ADHD & Reading

FAR COMPREHENSION INDEX	Score	Percentile	Descriptor
Semantic Concepts — a multiple choice test requiring the student to select the correct antonym or synonym of a target word.	95	37%	Average
Word Recall — requires the student to repeat back a list of words over a series of two trials. The second trial requires the student to recall a word from a selected list.	82	11%	Below Average
Morphological Processing — a multiple choice test requiring students to choose the correct prefix, suffix, or stem that best completes an incomplete target word.	90	25%	Average
Silent Reading Fluency — requires the student to silently read a passage, and then answer a series of literal and inferential questions about the story. Reading rate is also recorded as well.	75	5%	Moderately Below Average
FAR COMPREHENSION INDEX	84+/-8	14%	Below Average
WIAT III Reading Comprehension	96	39%	Average

2
2
4

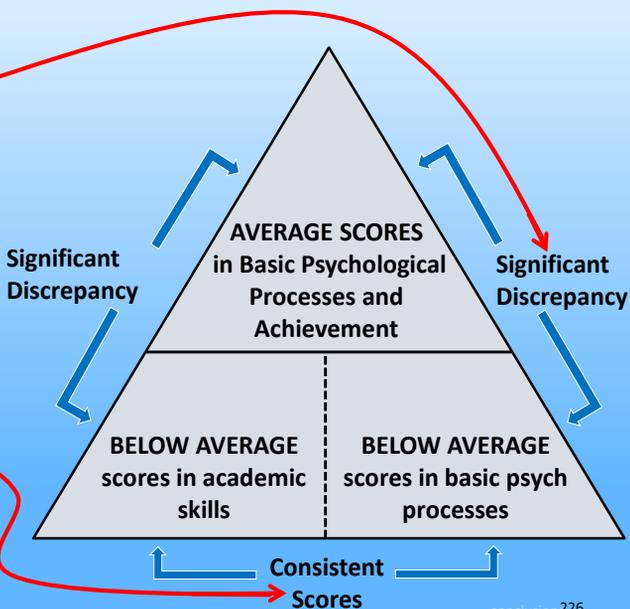
conclusions

SLD Eligibility

- Discrepancy/Consistency Method (Naglieri & Otero, 2017)
 - is based on theoretically defined measures of neurocognitive processes rather than traditional IQ achievement discrepancy
 - and combined with academic test scores to form a Pattern of Strengths and Weaknesses

Discrepancy Consistency Method for SLD

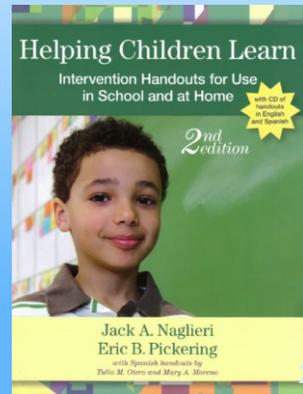
- **Discrepancy #1** between high and low processing scores
- **Discrepancy #2** between high processing and low achievement
- **Consistency** between low processing and low achievement



Planning Interventions

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

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



conclusions

2
2
9

Presentation Outline

- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- **Impairment and EF**
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- Conclusions

conclusions

230

Rating Scale of Impairment & EF

➤ EF and Impairment ...



conclusions

231

Definition of Impairment

- “Impairment is a reduced ability to meet the demands of life because of a psychological, physical, or cognitive condition” (Goldstein & Naglieri, 2016, p. 6).
- The American Psychiatric Association in the new DSM-5 (APA, 2013) emphasizes impairment over and above symptom presentation.
- World Health Organization’s International Classification of Functioning, Disability and Health (WHO, 2001) also has guidelines for impairment.

conclusions

Standardization

- RSI Normative Sample:
 - **2800** ratings
 - **800** ratings for each of the RSI (5-12 Years) Parent and Teacher forms
 - **600** ratings for each of the RSI (13-18 Years) Parent and Teacher forms
- Within **1% the 2010 U.S. Census** targets on:
 - Race/ethnicity,
 - Region,
 - PEL
- Includes 11.6%-11.8% of clinical cases

conclusions

RSI Forms and Scores

RATING SCALE OF IMPAIRMENT (RSI)			
RSI (5-12 YEARS)		RSI (13-18 YEARS)	
PARENT FORM	TEACHER FORM	PARENT FORM	TEACHER FORM
Number of Items: 41 Reading Level: 5.8 Admin Time: 10 mins.	Number of Items: 29 Reading Level: 6.6 Admin Time: 5 mins.	Number of Items: 49 Reading Level: 5.9 Admin Time: 10 mins.	Number of Items: 29 Reading Level: 6.6 Admin Time: 5 mins.
RSI Scales School Social Mobility Domestic Family	RSI Scales School Social Mobility	RSI Scales School/Work Social Mobility Domestic Family Self-Care	RSI Scales School Social Mobility
TOTAL SCORE	TOTAL SCORE	TOTAL SCORE	TOTAL SCORE

234

Factorial Support for RSI Scales

- Exploratory and confirmatory factor analyses confirm the RSI structure
 - 5 factors: School, Social, Mobility, Domestic, and Family for the RSI (5–12 Years) Parent Form
 - 6 factors: School/Work, Social, Mobility, Domestic, Family, and Self-Care) for the RSI (13–18 Years) Parent Form
 - 3 factors: School, Social, and Mobility) for the RSI (5–12 Years) and RSI (13–18 Years) Teacher Forms.

conclusions

235

RSI and EF correlations (Manual pg. 115)

RSI Total Score	
Adaptive Behavior	Symptom Scales
-.54 Adaptive Behavior Assessment System-II	.26 Conners CBRS — Content Scales
	.29 Conners CBRS — Symptom Scales
Social-Emotional Competency	Ability & Achievement
-.71 Devereux Student Strength Assessment	-.05 Wechsler Intelligence Scale for Children-IV
Symptom Scales	-.06 Woodcock Johnson III Achievement
-.78 Comprehensive Executive Function Inventory	-.03 Cognitive Assessment System



Guidance on
Evaluation and Eligibility
for the
Special Education Process

Educational Identification and Medical Diagnosis

Prescriptions, diagnosis, or reports issued by licensed medical professionals, using medical diagnosis and classification systems such as the International Statistical Classification of Diseases and Related Health Problems (ICD) and Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM 5), must be considered but are not sufficient to make an eligibility determination. The group must consider information from multiple sources that documents the presence of an impairment, the adverse impact on educational performance, and the need for specially designed instruction.

When a medical diagnosis is presented, groups should address the difference between educational identification under IDEA and medical diagnosis and review the criteria for the specific disability category mandated by the Virginia special education regulations.

Students may meet the criteria for educational identification as a child with a disability under one of the federal disability categories without having a medical diagnosis. It is also possible for a student to have a medical diagnosis but not meet the criteria for an educational identification as a child with a disability.

237

Presentation Outline

- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Impairment and EF
-  Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- Conclusions

conclusions

238

Executive Function Behaviors, Intelligence, and Achievement test scores

conclusions

239

EF and Achievement (Naglieri & Rojahn, 2004)

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

Copyright 2004 by the American Psychological Association, Inc.
0022-0663/04/\$12.00 DOI: 10.1037/0022-0663.96.1.174

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

Jack A. Naglieri and Johannes Rojahn
George Mason University

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

There are many ways in which the validity of a theory of cognitive ability may be evaluated. Psychologists often attempt to relate information about a child's cognitive characteristics to that child's academic performance. Because cognitive ability and academic achievement share a significant portion of the same con-

achievement. For instance, subtests like General Information are also included on individual achievement tests (e.g., the Peabody Individual Achievement Test—Revised; Markwardt, 1997). Similarly, the WISC-III Vocabulary and Similarities subtests require knowledge of words, which is also assessed by vocabulary or word

conclusions

240

EF and Achievement (Naglieri & Rojahn, 2004)

- Correlation between Executive Function (Planning + Attention) and overall achievement (Skills Cluster) = **.51** (N = 1,559; $p < .001$)
- P&A added significantly to the prediction of achievement after Simultaneous and Successive scores were used in the regression equation

Table 3

Pearson Product-Moment Correlations Between the CAS Basic Battery and Standard Battery Full Scale Scores and the WJ-R Subscale and Cluster Scores (N = 1,559)

Scale	CAS Standard Battery subtests			
	Planning	Simultaneous	Successive	Attention
WJ-R subtests				
Letter-Word Identification	.47	.53	.49	.42
Passage Comprehension	.43	.50	.47	.39
Calculation	.50	.47	.36	.43
Applied Problems	.49	.60	.47	.44
Dictation	.50	.53	.49	.44
Word Attack	.41	.48	.44	.37
Reading Vocabulary	.42	.53	.50	.35
Quantitative Concepts	.51	.59	.49	.44
Proofing	.44	.48	.44	.40
WJ-R clusters				
Broad Reading	.48	.55	.50	.43
Basic Reading	.47	.54	.49	.42
Reading Comprehension	.44	.54	.50	.39
Broad Math	.54	.58	.45	.47
Basic Math	.55	.58	.46	.47
Math Reasoning	.49	.60	.47	.44
Basic Writing	.51	.55	.48	.45
Skills Cluster	.54	.62	.53	.48

Note. CAS = Cognitive Assessment System; WJ-R = Woodcock-Johnson Revised Tests of Achievement.

conclusions

241

EF, WISC-IV, CAS, Achievement

- Data from Sam Goldstein's evaluation center in Salt Lake City, UT
- Children given the WISC-IV (N = 43), CAS (N = 62), and the WJIII achievement (N = 58) as part of the typical test battery

Table 8.26. Demographic Characteristics of the CAS, WISC-IV, and WJ III ACH Validity Samples

Demographic	Sample						
	CAS		WISC-IV		WJ III ACH		
	N	%	N	%	N	%	
Gender	Male	38	61.3	29	67.4	36	62.1
	Female	24	38.7	14	32.6	22	37.9
Race/Ethnic Group	Hispanic	1	1.6	1	2.3	1	1.7
	Asian	2	3.2	2	4.7	2	3.4
	White	55	88.7	38	88.4	52	89.7
	Other	4	6.5	2	4.7	3	5.2
Parental Education Level	High school diploma or less	1	1.6	0	0.0	1	1.7
	Some college or associate's degree	21	33.9	12	27.9	18	31.0
	Bachelor's degree or higher	36	58.1	26	60.5	34	58.7
	Missing information	4	6.5	5	11.6	5	8.6
Diagnostic or Educational Group	ADHD	24	38.7	15	34.9	20	34.5
	Anxiety	15	24.2	9	20.9	14	24.1
	ASD	7	11.3	5	11.6	7	12.1
	LD	3	4.8	3	7.0	3	5.2
	Mood	4	6.5	3	7.0	5	8.6
	Other	9	14.4	8	18.6	9	15.5
Total	62	100.0	43	100.0	58	100.0	
Age M (SD)	10.4 (2.9)		10.2 (2.6)		10.5 (2.7)		

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; Anxiety = Anxiety Disorder; ASD = Autism Spectrum Disorder; LD = Learning Disorder; Mood = Mood Disorder.

conclusions

242

EF Behaviors (CEFI) & CAS

	CAS				
	FS	Plan	Sim	Att	Suc
CEFI					
Full Scale	.45	.49	.43	.37	.32

	WISC-IV				
	FS	VC	PR	WM	PS
CEFI					
Full Scale	.39	.44	.27	.30	.34

CEFI Scales	WJ-III Achievement Tests				
	Total	Broad	Broad	Broad	Median
		Reading	Math	Written Language	
Full Scale	.51	.48	.49	.47	.49

conclusions

243

Take Away Messages

- EF behaviors are significantly correlated with scores from a nationally normed test of academic skills (WJ-III)
- EF behaviors are significantly correlated with all four PASS scales
- EF behaviors are mostly correlated with WISC-IV Verbal scale which requires a lot of knowledge

conclusions

244

Sex Differences in Executive Function

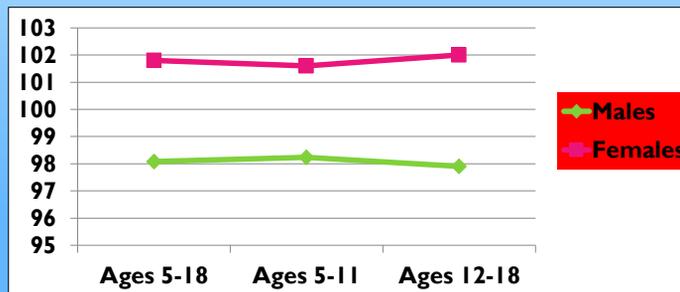
conclusions

245

CEFI Sex Differences: Parent Raters

➤ Girls are Smarter than Boys

Parents	N	Mn	SD	N	Mn	SD	ES
Ages 5-18	700	98.1	14.9	699	101.8	15.0	-0.25
Ages 5-11	350	98.2	14.3	349	101.6	15.6	-0.22
Ages 12-18	350	97.9	15.4	350	102.0	14.4	-0.28



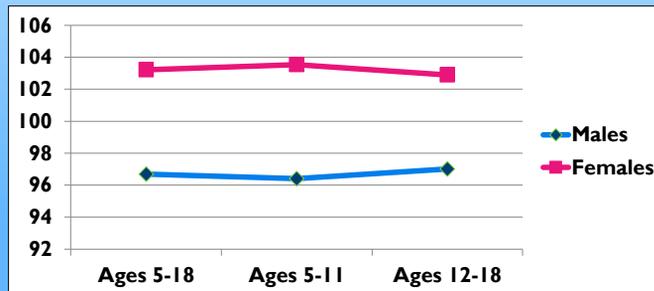
conclusions

246

CEFI Sex Differences: Teacher Raters

➤ Girls are Smarter than Boys

Teachers	N	Mn	SD	N	Mn	SD	ES
Ages 5-18	700	96.7	14.4	700	103.2	15.0	-0.44
Ages 5-11	350	96.4	14.5	350	103.5	14.9	-0.49
Ages 12-18	350	97.0	14.4	350	102.9	15.0	-0.40



conclusions

247

Gender Differences: Self Raters

➤ Girls are better EF than Boys



	Mean	SD	N
Male	98.9	15.4	350
Female	101.0	14.6	350

conclusions

248

Sex Differences: Ability

Journal of Educational Psychology
2001, Vol. 93, No. 2, 430–437

Copyright 2001 by the American Psychological Association, Inc.
0022-0663/01/\$5.00 DOI: 10.1037/0022-0663.93.2.430

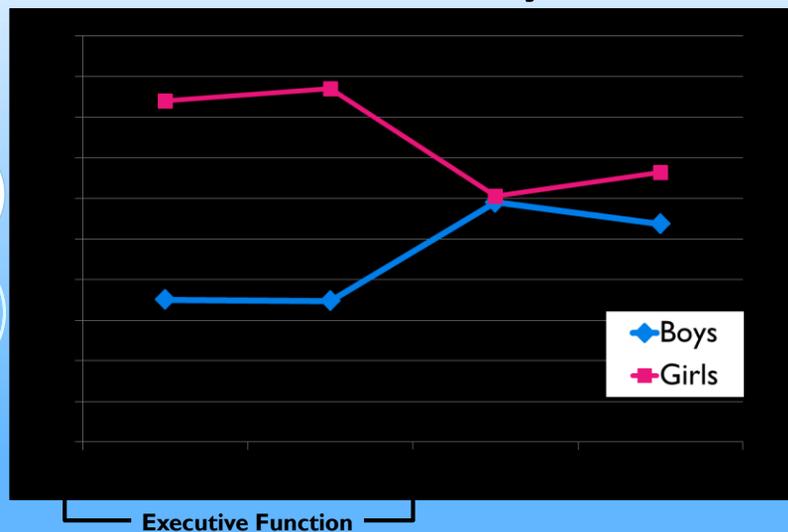
Gender Differences in Planning, Attention, Simultaneous, and Successive (PASS) Cognitive Processes and Achievement

Jack A. Naglieri
George Mason University

Johannes Rojahn
Ohio State University

Gender differences in ability and achievement have been studied for some time and have been conceptualized along verbal, quantitative, and visual-spatial dimensions. Researchers recently have called for a theory-based approach to studying these differences. This study examined 1,100 boys and 1,100 girls who matched the U.S. population using the Planning, Attention, Simultaneous, Successive (PASS) cognitive-processing theory, built on the neuropsychological work of A. R. Luria (1973). Girls outperformed boys on the Planning and Attention scales of the Cognitive Assessment System by about 5 points ($d = .30$ and $.35$, respectively). Gender differences were also found for a subsample of 1,266 children on the Woodcock-Johnson Revised Tests of Achievement Profiling ($d = .33$), Letter-Word Identification ($d = .22$), and Dictation ($d = .22$). The results illustrate that the PASS theory offers a useful way to examine gender differences in cognitive performance.

Sex Differences: Ability



Executive Function

conclusions

250

Sex Differences: Social Emotional

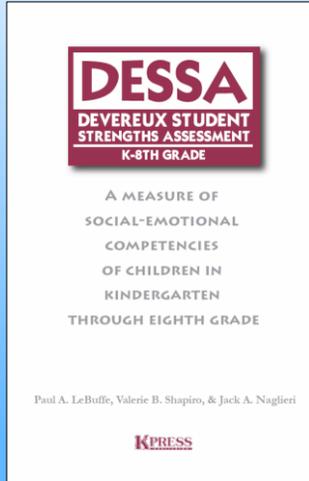


TABLE 2.6
Means, SDs, Ns, and d-ratios for DESSA T-Scores by Gender

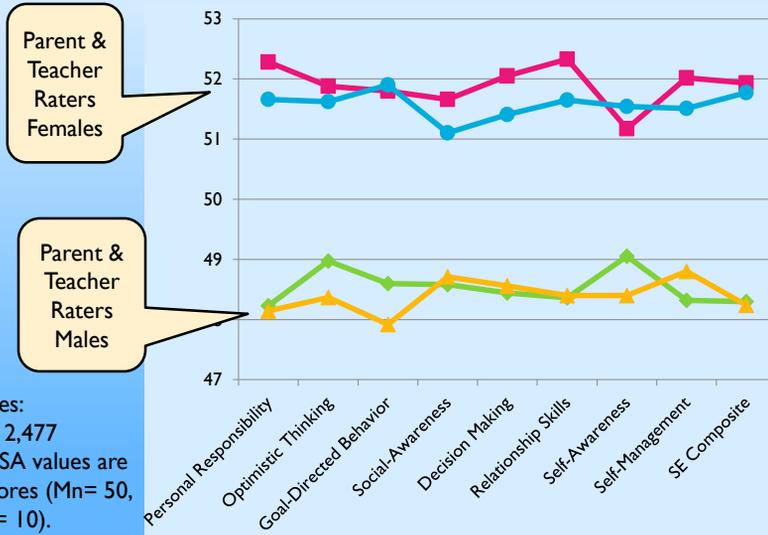
	Males			Male Female d-ratio	Females		
	Mean	SD	n		Mean	SD	n
TEACHER RATERS							
Personal Responsibility	48.23	9.98	631	-0.42	52.28	9.30	611
Optimistic Thinking	48.97	10.14	627	-0.30	51.88	9.47	612
Goal-Directed Behavior	48.60	10.05	631	-0.33	51.80	9.38	611
Social-Awareness	48.58	10.13	630	-0.31	51.66	9.64	612
Decision Making	48.44	10.08	631	-0.37	52.05	9.32	612
Relationship Skills	48.36	10.04	630	-0.41	52.33	9.30	612
Self-Awareness	49.05	10.28	631	-0.22	51.17	9.36	611
Self-Management	48.32	10.02	631	-0.39	52.02	9.18	612
Social-Emotional Composite	48.30	10.09	625	-0.38	51.93	9.02	609
PARENT RATERS							
Personal Responsibility	48.14	9.52	602	-0.36	51.66	9.87	641
Optimistic Thinking	48.37	9.86	602	-0.33	51.62	9.82	641
Goal-Directed Behavior	47.92	9.51	602	-0.41	51.90	9.96	641
Social-Awareness	48.71	9.75	602	-0.25	51.10	9.71	641
Decision Making	48.56	9.76	602	-0.29	51.41	9.62	641
Relationship Skills	48.40	9.72	602	-0.33	51.65	9.90	641
Self-Awareness	48.40	10.03	602	-0.32	51.54	9.51	641
Self-Management	48.80	9.98	602	-0.27	51.51	9.94	641
Social-Emotional Composite	48.24	9.51	602	-0.37	51.77	9.60	641

Devereux Elementary Student Strength Assessment (DESSA, LeBuffe Shapiro & Naglieri, 2009)

conclusions

251

Sex Differences: Social Emotional



Notes:
N = 2,477
DESSA values are T-scores (Mn= 50, SD = 10).

conclusions

252

Sex Differences

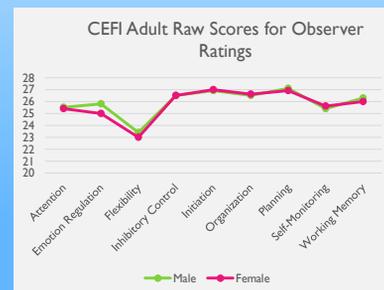
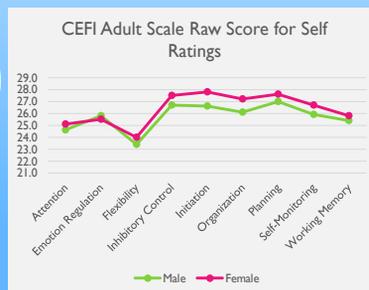


conclusions

253

CEFI Adult Sex Differences

- Negligible gender differences (median Cohen's d effect size was 0.15) were found for the CEFI Adult
 - CEFI Adult Full Scale male female d was -0.12 for self ratings and 0.03 for observer ratings



conclusions

254

Developmental Differences in Executive Function

conclusions

255

Developmental Changes in EF

Contents lists available at ScienceDirect



ELSEVIER

Learning and Individual Differences

journal homepage: www.elsevier.com/locate/lindif

Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample

John R. Best^{a,*}, Patricia H. Miller^b, Jack A. Naglieri^c

^a Department of Psychology, University of Georgia, Athens, GA, 30602-3013, USA

^b Department of Psychology, San Francisco State University, San Francisco, CA, 94132, USA

^c Department of Psychology, George Mason University, Fairfax, VA, 22030, USA

ARTICLE INFO

Article history:

Received 25 May 2010
Received in revised form 20 January 2011
Accepted 21 January 2011
Available online xxxxx

Keywords:

Executive function
Academic achievement
Childhood
Adolescence

ABSTRACT

This study examined age-related changes in complex executive function (EF) in a large, representative sample ($N=2036$) aged 5 to 17 using the Cognitive Assessment System (CAS; Naglieri & Das, 1997a). Relations between complex EF and academic achievement were examined on a sub-sample ($N=1395$) given the Woodcock-Johnson Tests of Achievement-Revised (Woodcock & Johnson, 1989). Performance on the three complex EF tasks improved until at least age 15, although improvement slowed with increasing age and varied some across tasks. Moreover, the different developmental patterns in the correlations between completion time and accuracy provide clues to developmental processes. Examination of individual achievement subtests clarified the specific aspects of academic performance most related to complex EF. Finally, the correlation between complex EF and academic achievement varied across ages, but the developmental pattern of the strength of these correlations was remarkably similar for overall math and reading achievement, suggesting a domain-general relation between complex EF and academic achievement.

© 2011 Elsevier Inc. All rights reserved.

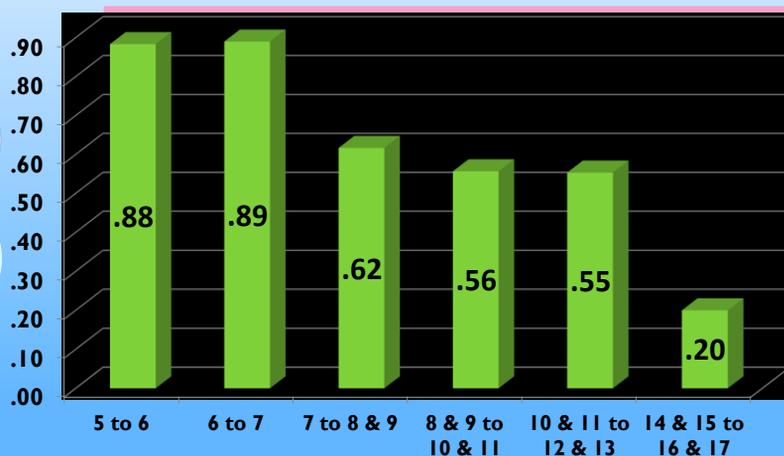
Developmental Changes in EF

- Best, et al (2011) reported means score differences between adjacent age groups of a large (N = 2, 036) nationally representative sample (CAS normative group)
- Results showed that EF does **not** develop consistently across the 5 year to 18 year age range
- Age differences were reported in effect sizes (.2 to .4 = small; .5 to .7 = medium; .8 and above = large)

conclusions

257

Developmental Changes in EF



conclusions

258

Developmental Changes in EF

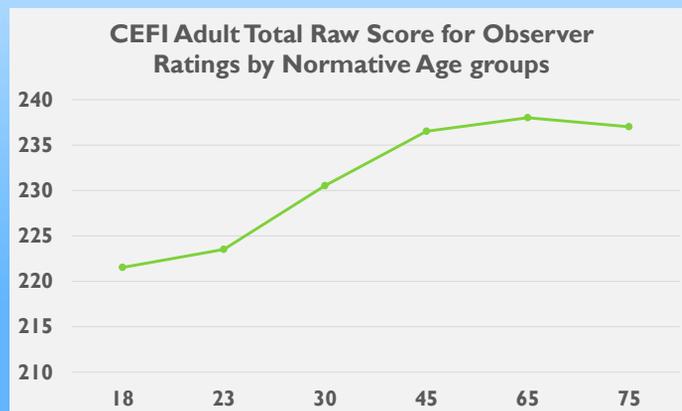
- These developmental data suggest that instruction in EF Skills should be stressed when growth is most rapid, that is, during early elementary and middle school years
- Students need to be TOLD what EF is and how it can be used to help them learn, especially during the early years when growth in ABILITY is ...so that growth in BEHAVIOR and EMOTION follow

conclusions

259

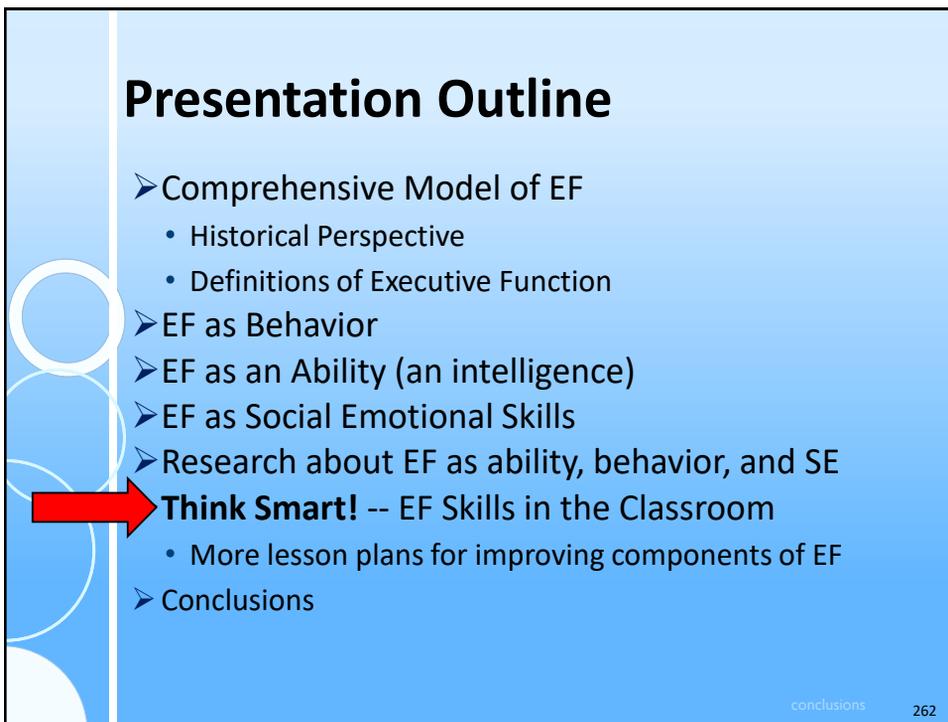
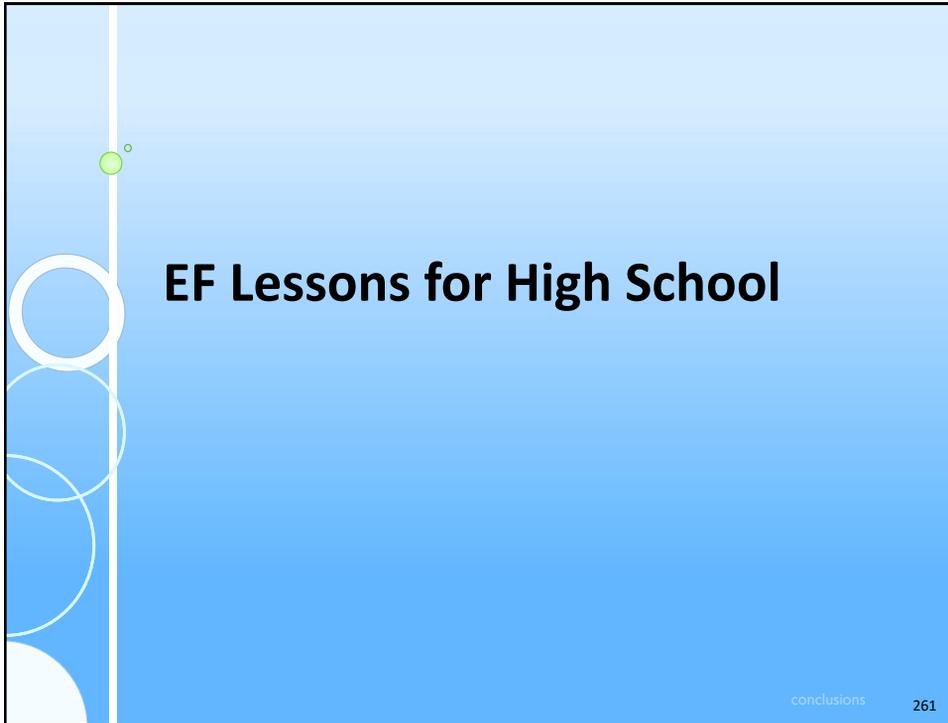
CEFI Adult by Age

- Observer Forms, small age differences were found on the Full Scale and all scale scores except Flexibility and Working Memory (effect sizes ranging from .010 to .026), with differences also being significant for Emotion Regulation, Inhibitory Control, Initiation, Organization and Planning scales ($p < .01$).



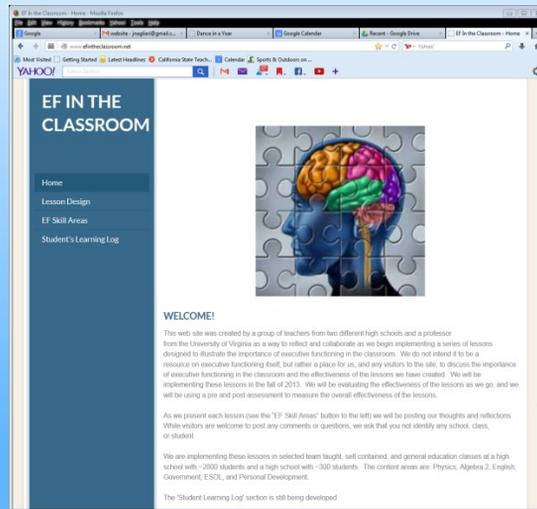
conclusions

260



www.efintheclassroom.net

- Start with Awareness of thinking about thinking

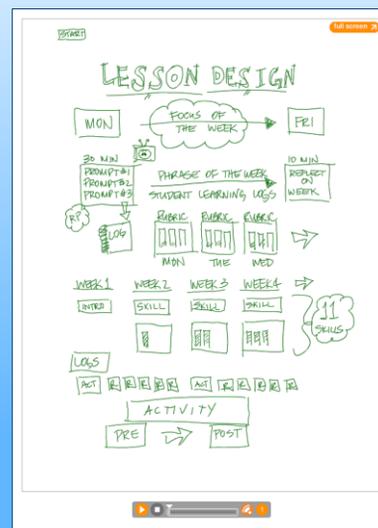


conclusions

263

Structure of the lessons

- Each topic is discussed for one week
- Monday – class lesson
- Tues-Thurs reminders
- Friday – class reflection



conclusions

264

EF Lesson Plan *Themes*

- Attention
- Flexibility
- Inhibition
- Initiation
- Self-Monitoring
- Working Memory
- Organization
- Planning
- Emotional Regulation

conclusions

265

EF Posters in the Class



Mountain View Alternative HS

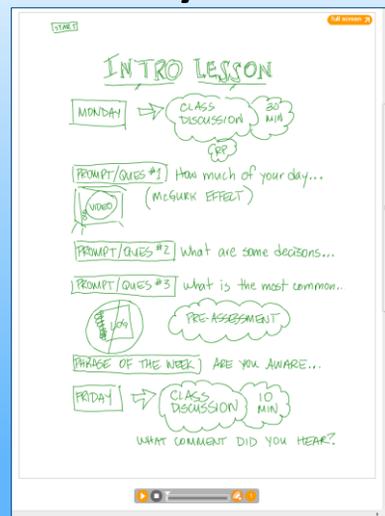


conclusions

267

Introductory Lesson: "Are you Aware"

- Ask for volunteers to NOT look at the video and report what word they hear



conclusions

268

Introductory Lesson: “Are you Aware”



conclusions

269

Other Lessons from www.efintheclassroom.net

www.Efintheclassroom.net

Research support?

EF IN THE CLASSROOM

- Home
- Lesson Design
- EF Skill Areas
- Student's Learning Log

WELCOME!

This web site was created by a group of teachers from five different high schools and a professor from the University of Virginia in a way to reflect and collaborate as we begin implementing a series of lessons designed to illustrate the experience of executive functioning in the classroom. We do not intend it to be a resource on executive functioning itself, but rather a place for us, and any visitors to the site, to discuss the importance of executive functioning in the classroom and the effectiveness of the lessons we have created. We will be implementing these lessons in the fall of 2015. We will be evaluating the effectiveness of the lessons as we go, and we will be using a pre and post assessment to measure the overall effectiveness of the lessons.

As we present each lesson (see the "EF Skill Areas" button to the left) we will be posting our thoughts and reflections. While visitors are welcome to post any comments or questions, we ask that you not identify any school, class, or student.

We are implementing these lessons in selected team taught, self contained, and general education classes at a high school with 2000 students and a high school with 1000 students. The current areas are: Physics, Algebra 2, English, Government, ESOL, and Personal Development.

The "Student Learning Log" section is still being developed.

conclusions

270

www.efintheclassroom.net

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.

conclusions

271

Planning

Teaching Students About Planning

How Learning Depends on Planning Ability

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

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

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

How to Teach Planning

**Think smart
and use a plan!**



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

Figure 1. A drawing that helps students remember to use a plan.

page 1 of 2

Helping Children Learn: Intervention Handouts for Use in School and at Home, Second Edition, by Jack A. Naglieri & Eric B. Pickering
Copyright © 2010 by Paul H. Brookes Publishing Co., Inc. All rights reserved.

272

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.

175

273

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

HAMMILL INSTITUTE
ON DISABILITIES

Journal of Learning Disabilities
44(2) 184-195
© Hammill Institute on Disabilities 2011
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0022219410391190
<http://journaloflearningdisabilities.sagepub.com>



Jackie S. Iseman¹ and Jack A. Naglieri¹

Abstract

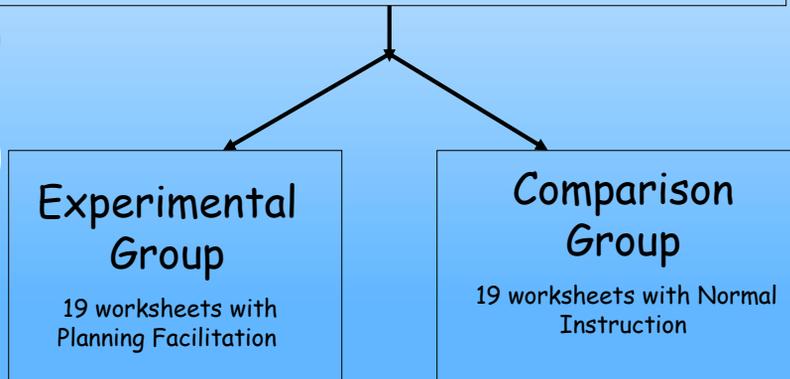
The authors examined the effectiveness of cognitive strategy instruction (Successive) given by special education teachers to students with ADHD. The experimental group were exposed to a brief cognitive strategy instruction development and application of effective planning for mathematical computation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



Design of the Study

Experimental and Comparison Groups

7 worksheets with Normal Instruction



conclusions

275

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

conclusions

276

Normal Instruction and Planning Facilitation Sessions

- ▶ Normal Instruction
 - 10 minute math worksheet
 - 10 - 20 of math instruction
 - 10 minute math worksheet
- ▶ Planning Facilitation
 - 10 minute math worksheet
 - 10 minutes of planning facilitation
 - 10 minute math worksheet

conclusions

277

Planning 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?

conclusions

278

Student Plans

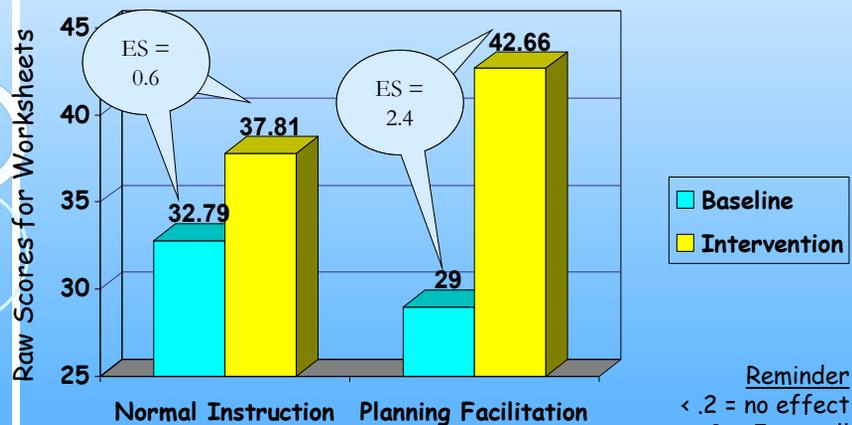
- “My goal was to do all of the easy problems on every page first, then do the others.”
- “I do the problems I know, then I check my work.”
- “I do them (the algebra) by figuring out what I can put in for X to make the problem work.”
- “I did all the problems in the brain-dead zone first.”
- “I try not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



conclusions

279

Worksheet Means and Effect Sizes for the Students with ADHD

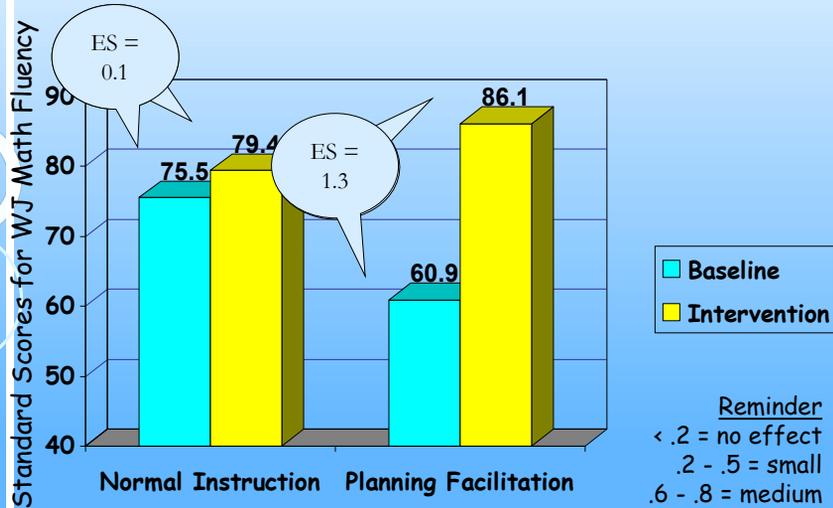


Reminder
 < .2 = no effect
 .2 - .5 = small
 .6 - .8 = medium
 > .8 = large

conclusions

280

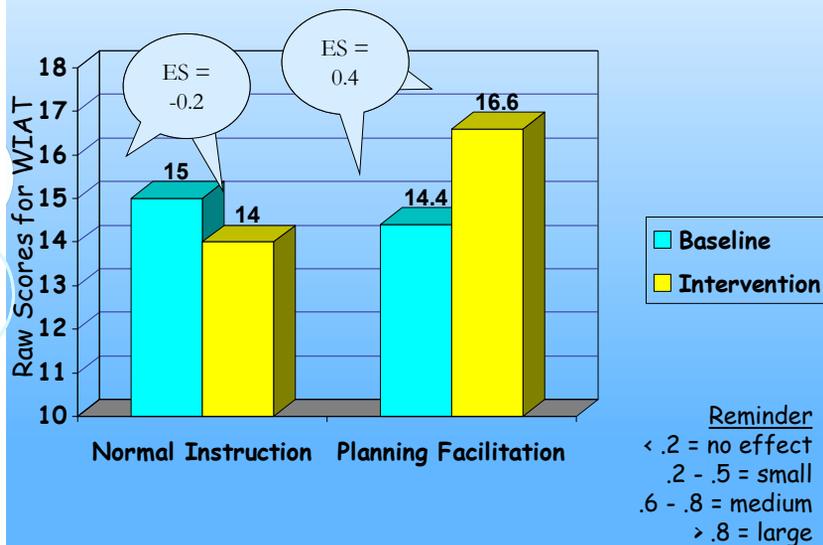
WJ Math Fluency Means and Effect Sizes for the Students with ADHD



conclusions

281

WIAT Numerical Operation Means and Effect Sizes for Students with ADHD

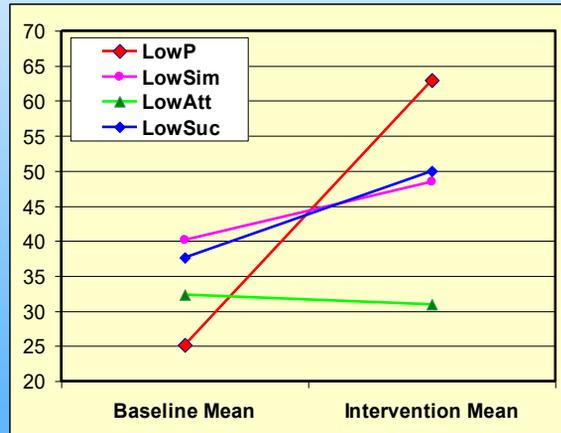


conclusions

282

Iseman (2005)

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



conclusions

283

One Year Follow-up

At 1-year follow-up, 27 of the students were retested on the WJ-III ACH Math Fluency subtest as part of the school's typical yearly evaluation of students. This group included 14 students from the comparison group and 13 students from the experimental group. The results indicated that the improvement of students in the experimental group ($M = 16.08$, $SD = 19$, $d = 0.85$) was significantly greater than the improvement of students in the comparison group ($M = 3.21$, $SD = 18.21$, $d = 0.09$).

conclusions

284

Instructional Implications

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

conclusions

285

EF and Reading Comprehension

Journal of Psychoeducational Assessment
2005, 21, 282-289

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

Frederick A. Haddad
Kyrene School District, Tempe, Arizona

Y. Evie Garcia
Northern Arizona University

Jack A. Naglieri
George Mason University

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

The purpose of this study was to evaluate whether instruction designed to facilitate planning would have differential benefit on reading comprehension depending on the specific Planning, Attention, Simultaneous, and Successive (PASS) cognitive characteristics of each child. A sample of 45 fourth-grade general education children was sorted into three groups based on each PASS scale profile from the Cognitive Assessment System

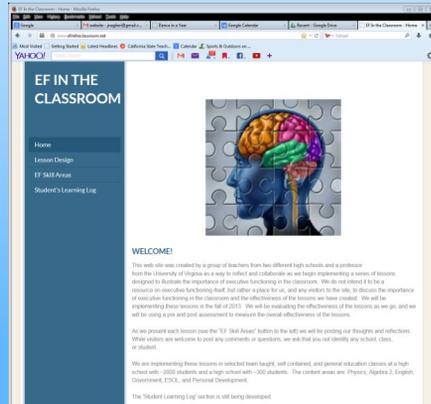
instructional level was determined, a cognitive strategy instruction intervention was conducted. The children completed a reading comprehension posttest at their respective instructional levels after the intervention. Results showed that children with a Planning weakness ($n = 13$) benefited substantially (effect size of 1.52) from the instruction designed to facilitate planning. Children with no weakness ($n = 21$; effect size = .52) or a

conclusions

286

Other Lessons from www.efintheclassroom.net

Working Memory Lesson



conclusions

287

Time to Think and Talk

➤ Task:

START

4

**minutes
left**

➤ Your own questions and thoughts..



conclusions

Teach Self-reliance

- Students with any kind of learning challenge and many without any limitations need to be self-reliant
- Show the Stuck on the Escalator video
- Discuss what the message is with the students

conclusions

289

Low EF and an Enabled Society



conclusions

290

Stuck on the Escalator

- “A student in 4th period (we are doing the EF lessons in that class) was working in her Chemistry class (that teacher is NOT doing the EF lessons) spontaneously said, “Man, I am stuck on the escalator” (a phrase of the week) even though that phrase is not used in Chem. I took this as evidence that the (cuing) skills being learned in one class are transferring to another. It is encouraging.”

conclusions

291

HOW TO EMPOWER STUDENTS WE ASSESS

conclusions

292

Two Mindsets



Fixed mindset:

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



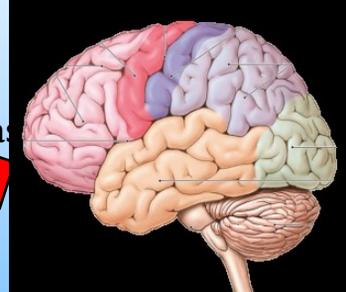
Growth mindset:

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

conclusions

Mindsets + Skillsets = Results

- Mindsets & Skillsets include
 - Brain-based concepts such as
 - Executive Function
 - Metacognition
 - Self-Regulation
 - **These concepts are all closely related to the **FRONTAL LOBES** of the brain.**



conclusions

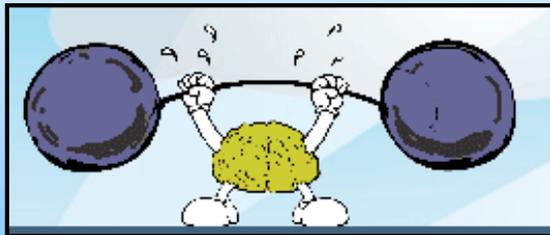
294

Teach Kids About Their Amazing Brains!



conclusions

Dweck's web site: www.brainology.us



“The growth mindset...reveals *that thinking skills can be developed*, and expertise can be built by means of deliberate practice.”

conclusions

Formula for Success (Kryza, 2013)

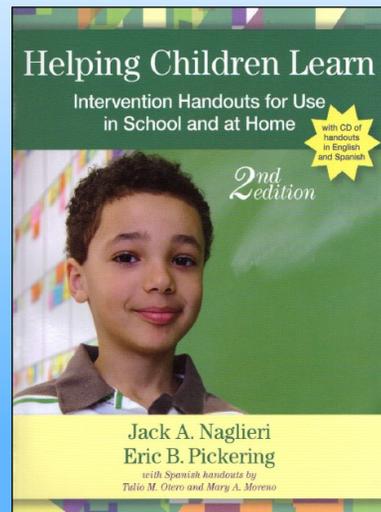
Mindsets plus **Skill Sets** equals **RESULTS!**



PG. 12

Teaching Children to use EF

- 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.



conclusions

298

CEFI Scales and Intervention

- CEFI yields 9 separate content scales
- Use these for treatment planning and treatment evaluation

CEFI Scales

Attention
 Emotion Regulation
 Flexibility
 Inhibitory Control
 Initiation
 Organization
 Planning
 Self-Monitoring
 Working Memory

conclusions

299

Step 1 – Talk with Students

How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Step 1 – Talk with Students

How Can You Be Smarter?

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

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

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

Think smart and use a plan!



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

Presentation Outline

- Comprehensive Model of EF
 - Historical Perspective
 - Definitions of Executive Function
- EF as Behavior
- EF as an Ability (an intelligence)
- EF as Social Emotional Skills
- Research about EF as ability, behavior, and SE
- **Think Smart!** -- EF Skills in the Classroom
 - More lesson plans for improving components of EF
- **Conclusions**



Conclusions-- on Education

- Benjamin Franklin – Tell me and I forget.
Teach me and I remember.
Involve me and I learn.
- Teacher's role is to give only as much help as is necessary, **NOT to be the frontal lobes for the student**



conclusions

303

Conclusions

- The teacher's role is to give students knowledge of facts **and** to encourage the use of Executive Function
- When we give students the responsibility to figure out how to do things we teach them to **THINK SMART! and use EF**
- **This is the gift of smarter thinking**
- **This is a gift of optimism**
- **This is a gift for life success**
- **EF is about LIFE not just school**

conclusions

304