# Executive Function: From Theory to Assessment and Effective Classroom Instruction

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conclusions

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Resources and Disclosures


conclusions

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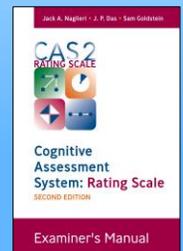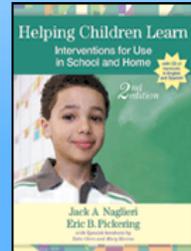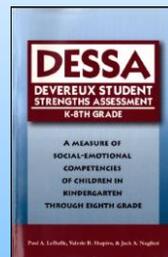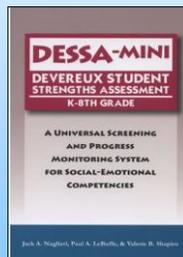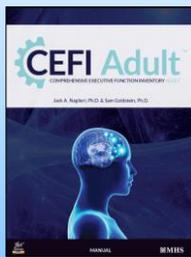
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- General information
- Copies of presentations, research and book chapters
- To ask a question

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My Background

➢Interest in intelligence and instruction

➢Exper

- Need
- Psych
- Evide

➢My pe resear

➢Why t

conclusions   4

Core Groups

➢ Introduce yourself to your Core Group
- 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 Core Group roles:
- **C**oach
- **O**rganizer (keeps time)
- **R**ecorder and Spokesperson
- **E**nergizer

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Goal of this presentation

A comprehensive approach to understanding and assessing EF needs to include several conceptual areas.
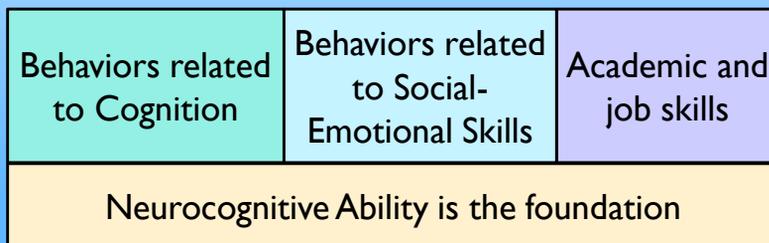
Behaviors related to Cognition	Behaviors related to Social-Emotional Skills	Academic and job skills
Neurocognitive Ability is the foundation		

conclusions

Presentation Outline

➤ Comprehensive Model of EF
  • Historical Perspective and Definitions
➤ EF as Behavior
➤ EF as an Ability (an intelligence)
➤ EF as Social Emotional Skills
➤ EF and Academic 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

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WHY DON'T KIDS THINK SMART?

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

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EF Lesson on Saturday Night Live

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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

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Time to Think and Talk

➢ **Task:**

➢ Talk with your partner(s)

➢ What did he hope to achieve?

➢ Was the teacher asking the students to THINK or REMEMBER?

➢ What questions could he have asked to get them to think?

All Lessons available at: www.efintheclassroom.net

conclusions
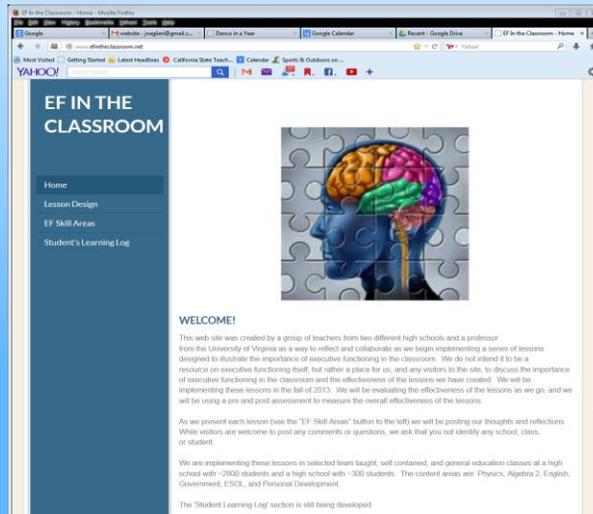
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History Class: Saturday Night Live

➢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

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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.

conclusions   15

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'

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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

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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'.
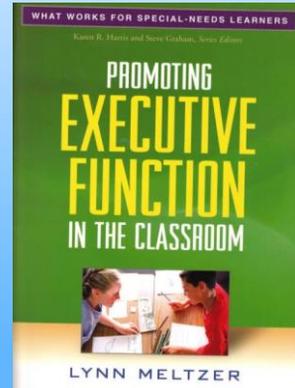
conclusions

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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

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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

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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 22
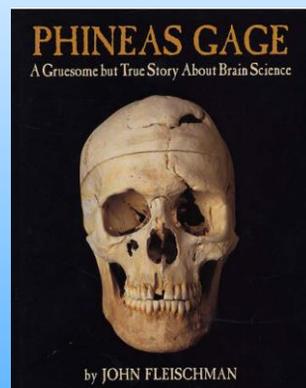
The Curious Story of Phineas Gage

➢ 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
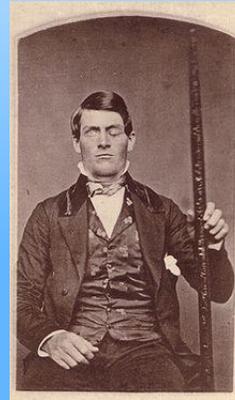
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Fleishman (2002, p 70)

➢ 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


Fleishman (2002)
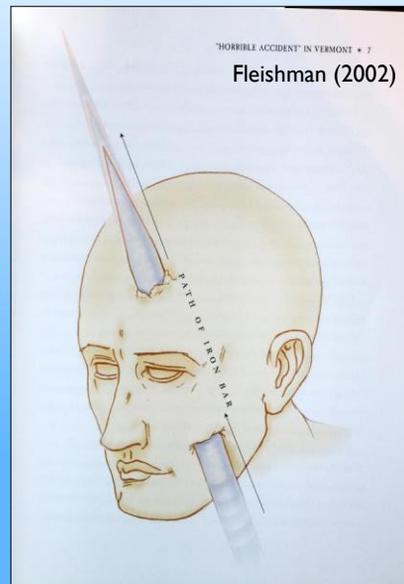
Before . . . & . . . After

➢ **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

conclusions   25

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.
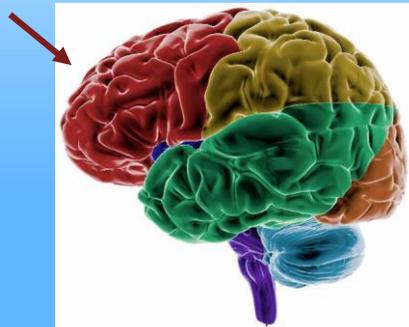
usions   26

More Specifically

Dorsolateral prefrontal cortex

➢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.
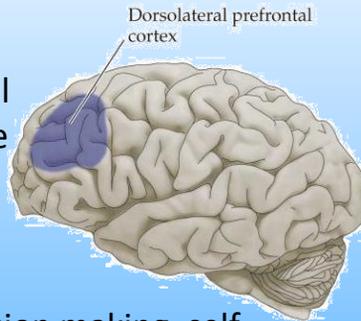
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The Curious Story of Phineas Gage

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.   28

Frontal Lobes and Executive Function(s)

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

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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

HIGHER CORTICAL FUNCTIONS IN MAN
ALEKSANDR ROMANOVICH LURIA

http://www.elkhonongoldberg.com/

THE NEW EXECUTIVE BRAIN
FRONTAL LOBES IN A COMPLEX WORLD
Elkhonon Goldberg, Ph.D.
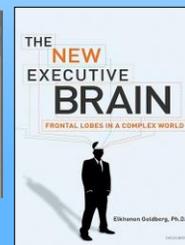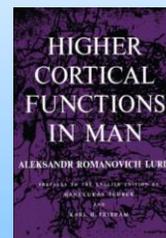
conclusions

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…"

THE NEW EXECUTIVE BRAIN
FRONTAL LOBES IN A COMPLEX WORLD
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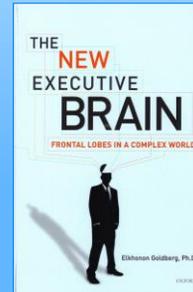
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What is Executive Function(s)

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

conclusions 32

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)

Sam Goldstein · Jack A. Naglieri
Editors

Handbook of
Executive
Functioning

Springer

conclusions

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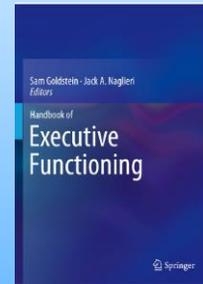
Executive Function

➢ 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 Function**s** is a **multidimensional** model (Friedman et al., 2006) with independent **abilities** (Wiebe, Espy, & Charak, 2008).

conclusions

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Executive Function(s)

➢Given all these definitions of EF(s) we wanted to address the question…

　　Executive Function*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)

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CEFI (Naglieri & Goldstein, 2012)

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CEFI Adult (Naglieri & Goldstein, 2017)

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

1. Consistency Index
2. Negative Impression
3. Positive Impression

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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   39

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

CEFI Item & Scale Analyses

➢ Item Level Analysis

➢ Scale Level Analysis
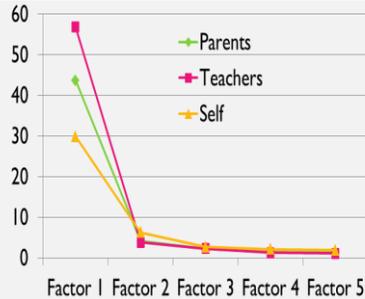
Table 8.2. Eigenvalues from the Inter-Item Correlations

Form	Factor						
	1	2	3	4	5	6	7
Parent	43.7	4.1	2.3	1.5	1.3	1.3	1.0
Teacher	56.8	3.8	2.3	1.3	1.1	1.1	0.8
Self-Report	29.9	6.3	2.7	2.1	1.9	1.8	1.5

Note. Extraction mojpal Axis Factoring. Only the first 10 eigenvalues are presented.
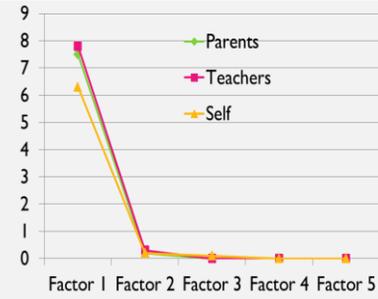
Table 8.4. Eigenvalues of the CEFI Scales Correlations

Form	Factor						
	1	2	3	4	5	6	7
Parent	7.5	0.2	0.0	0.0	0.0	0.0	0.0
Teacher	7.8	0.3	0.0	0.0	0.0	0.0	0.0
Self-Report	6.3	0.2	0.1	0.0	0.0	0.0	-0.1

Note. Extraction method: Png.

conclusions

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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

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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
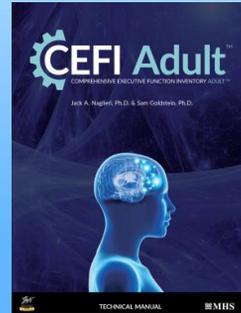
conclusions

Adult CEFI Normative Samples

➤ Self (N = 1,600) and Observer (N = 1,600)
➤ Results: **1 factor**

Ratio of first to second eigenvalue:
5.50

Ratio of second to third eigenvalue:
2.52

Ratio of first to second eigenvalue:
8.58

Ratio of second to third eigenvalue:
1.75

conclusions

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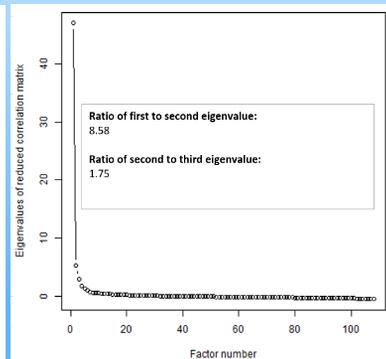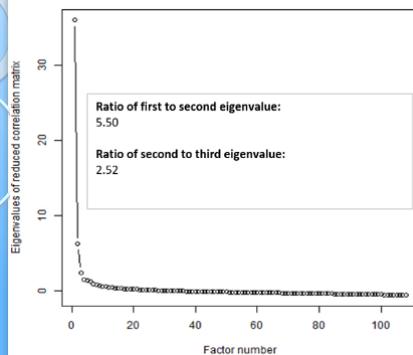
CEFI Adult Consistency of Loadings

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.

Table 8.6. Consistency of Factor Loadings Across Groups

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

conclusions

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FACTOR ANALYSES INDICATE

➢CEFI:
- Parent (N=1,400)
- Teacher (N=1,400)
- Self (N=700),

➢CEFI Adult:
- Self (N = 1,600)
- Observer (N = 1,600)

➢From nationally representative samples aged 5 to 80 years (N = 6,700) ➔ Behaviors related to Executive Function form a ONE dimensional concept

conclusions

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EF and its components

➢ Abilities, cognitive processes, and behaviors

```
                    ┌─────────────┐
                    │  Executive  │
                    │  Function   │
                    └─────────────┘
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Working Memory	Attention	Emotion Regulation	Inhibition
Flexibility	Impulse Control	Self-Monitoring	Organization
Planning	Self-Control	Initiation	And more?

conclusions

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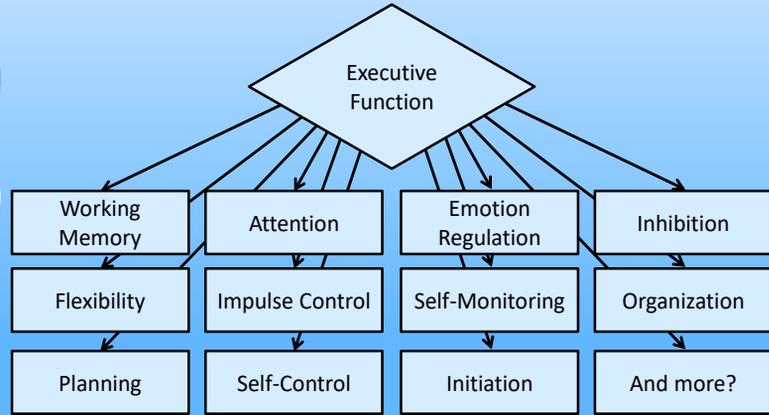
Naglieri & Goldstein, 2012

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

Consider Solutions

Select a Plan

Apply the Plan

Gather Information

Problem Solved

Start with a Goal

If Goal is Met

Modify if Necessary

Monitor the Plan

conclusions

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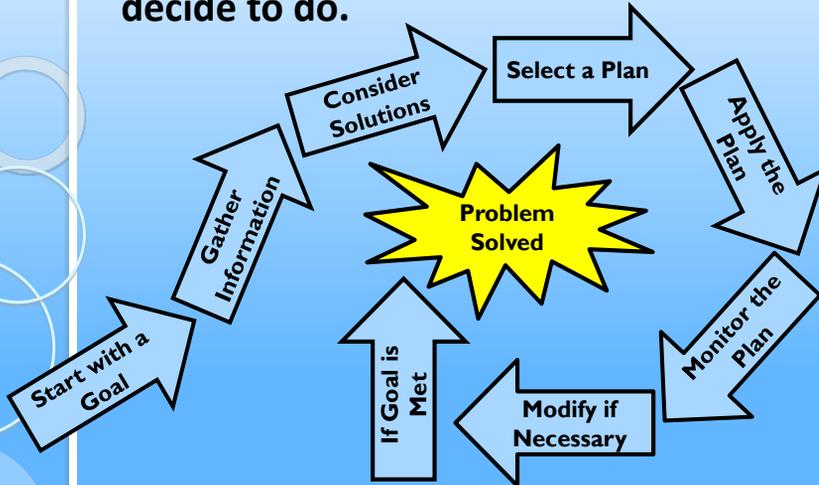
Does a13 month old have EF?

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Age 19 months: Knowledge & EF
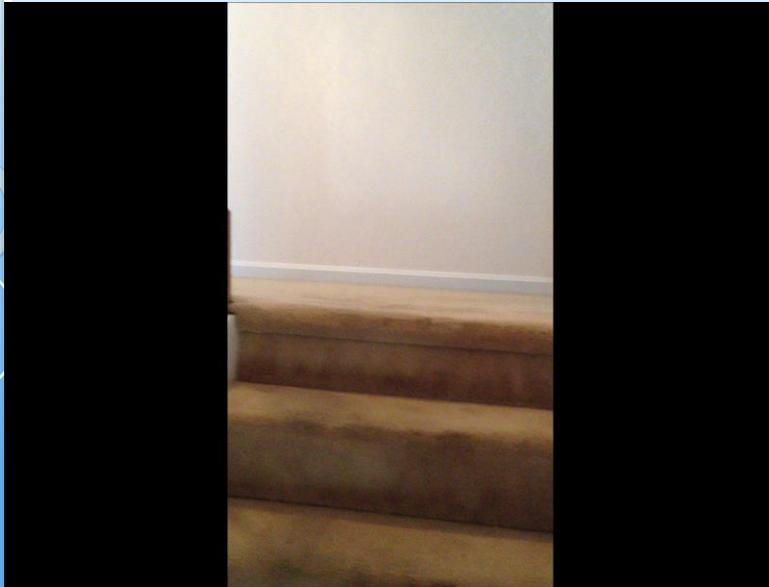
conclusions   50

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

Maximum Use | **Role of EF** | **Role of Knowledge and Skills**

Minimum Use

Novel Task | Well Learned Task

Over time and with experience
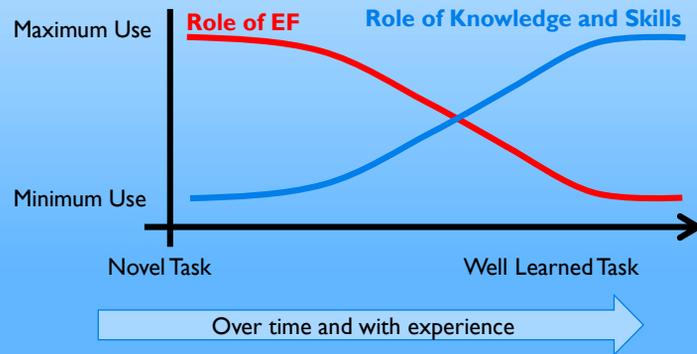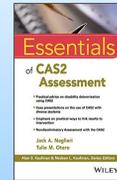
conclusions

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
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Which Lemming has good EF?

conclusions   53

Time to Think and Talk

➢**Task:**

➢Talk with your partner(s) about the findings that EF is one concept?

➢How do you feel about EF as one concept not many concepts?

➢What instructional implication does this information have?

➢Your own questions and thoughts..

conclusions

What do Core Groups do?

➢ The use of core group discussion is itself a way to encourage the use of EF because you
- identify the question(s)
- develop your own ideas
- Evaluate the ideas of others
- Discuss and reflect
- Perhaps modify your initial thoughts
- Think.. Think.. Think…
- LEARN MORE !

➢ I am using a method that encourages EF

conclusions   55

Decades of Research shows…

➢ In most classrooms, 20% of the students do 80% of the talking and thinking.

➢ Today, we will all be talking and **Thinking Smart** together, using strategies you can use in your schools.

conclusions   56

EF: ability, behavior, social-emotional skill?

All are reflections of FRONTAL LOBE activity

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

Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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

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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.
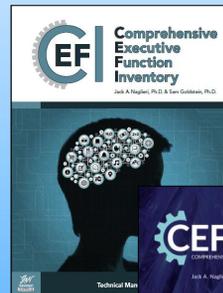
conclusions   60

CEFI & CEFI-Adult Scales
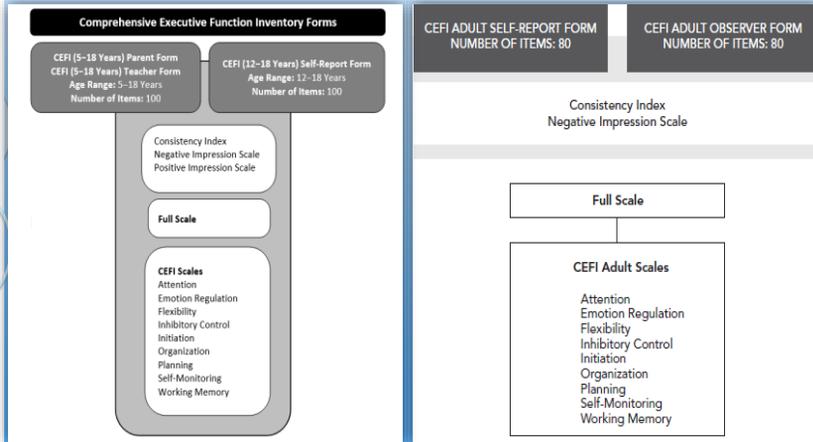
CEFI Normative Samples

➢ 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 62

CEFI Administration & Scoring

CEFI Administration & Scoring Methods

Paper and Pencil Administration

Online Administration

Hand Scoring Using CEFI Record Form

Examiner enters responses in MHS Online Assessment Center: Automated scoring and report

Examiner enters responses into CEFI Scoring Software Program: Automated scoring and report
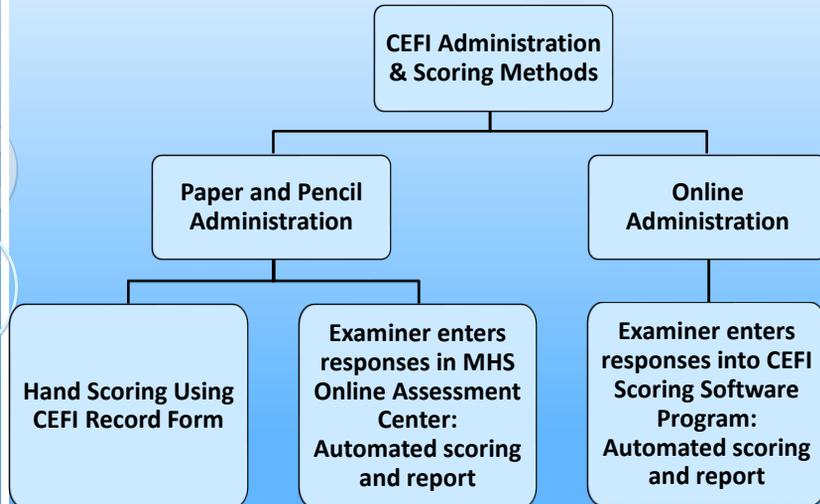
conclusions

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

1. Consistency Index
2. Negative Impression
3. Positive Impression
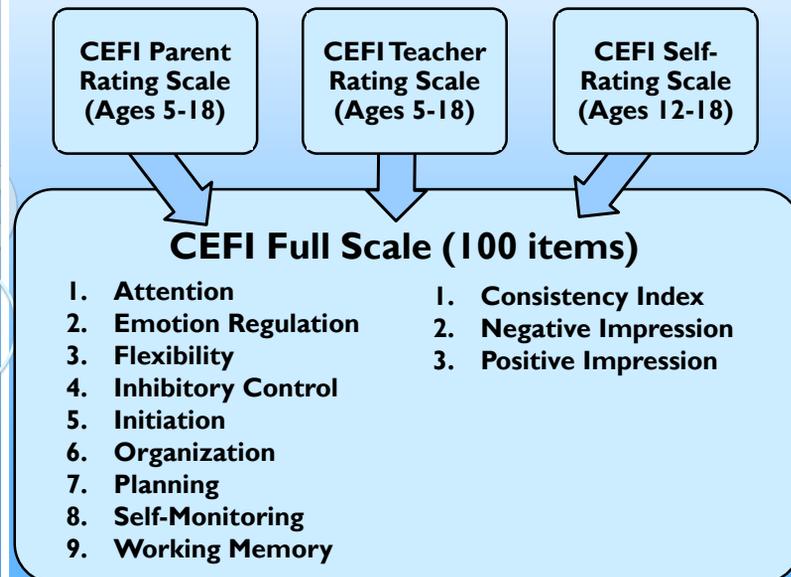
conclusions

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

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CEFI Items by Scale

Table C.4. Attention (12 items)

Item #	Parent/Teacher Item *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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 *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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 *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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

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CEFI Items by Scale

Table C.7. Inhibitory Control (10 items)

Item #	Parent/Teacher Item *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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?
38		
49		

Table C.8. Initiation (10 items)

Item #	Parent/Teacher Item *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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 *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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

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CEFI Items by Scale

Table C.10. Planning (11 items)

Item #	Parent/Teacher Item *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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 *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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 *During the past 4 weeks, how often did the child...*	Self-Report Item *During the past 4 weeks, how often did you...*
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?

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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   69

CEFI Characteristics

➢Automated scoring and reporting includes intervention suggestions

➢Scores are based on nationally representative normative sample that is representative of the US
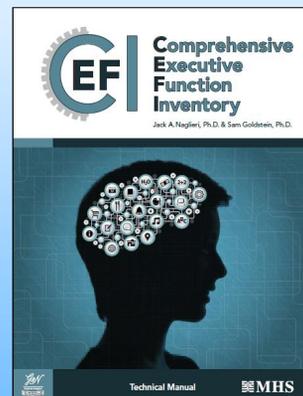
conclusions   70

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

Free Use of CEFI: mhs.com/cefi

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

conclusions

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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

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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 under-estimate the child's behavior. This rating pattern is not typical and should be further investigated.	...atings is typical.
Positive Impression Scale	The pattern of ratings may over-estimate 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.

Time to Completion is only for online administration

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CEFI Interpretive Report

**Comprehensive
Executive
Function
Inventory**

G&N
Goldstein & Naglieri
Excellence in Assessment

**(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

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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.

Description	Indicated	Not Indicated	
Consistency			110
Negative Impression		89	
Positive Impression			111

Standard Score	50	60	70	80	90	100	110	120	≥130
Percentile Rank	1ST	1ST	2ND	9TH	25TH	50TH	75TH	91ST	≥98TH
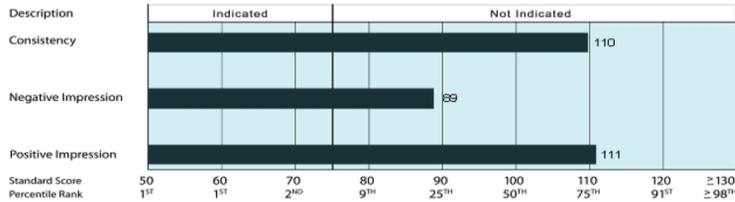
Scores	
Consistency Index	Standard Score = 110
	Inconsistent response style is not indicated.
Negative Impression Scale	Standard Score = 89
	Negative impression response style is not indicated.
Positive Impression Scale	Standard Score = 111
	Positive impression response style is not indicated.
Number of Omitted Items	Number of Items Omitted = 0
	None of the items were omitted.

conclusions

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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

	Well Below Average	Below Average	Low Average	Average	High Average	Superior	Very Superior
Full Scale	75						
Attention	79						
Emotion Regulation	74						
Flexibility	80						
Inhibitory Control	72						
Initiation		84					
Organization	76						
Planning	77						
Self-Monitoring	71						
Working Memory	77						

Standard Score	50	60	70	80	90	100	110	120	130	140	150
Percentile Rank	1ST	1ST	2ND	9TH	25TH	50TH	75TH	91ST	98TH	99TH	99TH

conclusions   79

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   80

Report

Intervention Strategies are provided for each of the 9 CEFI scales

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

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   81

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	—	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.

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   83

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

CEFI – ADULT FORM (2017)
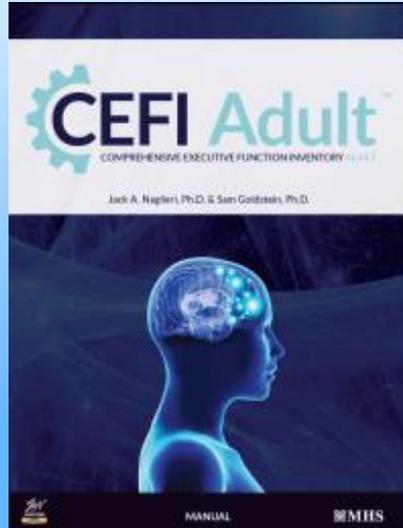
CEFI Adult (ages 18+)

➢ 80 items in same 9 scales

Observer Form

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	Sometimes	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

CEFI Adult (ages 18+)

➢ Same interpretation method

CEFI ADULT RESULTS

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

1. See the circled raw scores in the appropriate Norms Conversion Table to find the **Standard Score, Percentile Rank**, and **Classification** for each scale.
2. **Individual's Average:** Sum the CEFI Adult Scales' standard scores and divide the total by nine. Round to one decimal place.
3. **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.
4. Determine if **Differences from Average** are **Statistically Significant** (see Table 3.4 in chapter 3).
5. 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).
6. **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	÷ 9	Individual's Average					

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Interpretive Report

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Interpretive Report

Interpretive Report

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. r	Cor. r	Online		Paper-and-Pencil		d-ratio	F (1, 53)	p
			M	SD	M	SD			
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.

conclusions   91

Time to Think and Talk

➢Discuss in your groups
- EF behaviors…
- What EF behaviors have you seen in your students?
- Why are we using Core Groups to reflect on EF Behaviors?
- Your own questions and thoughts..

INTERVENTIONS FOR EF BEHAVIORS

www.efintheclassroom.net

➢ Start with Awareness of thinking about thinking

Structure of the lessons

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

conclusions   95

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
▪ Panning	▪ Planning
▪ Self-Monitoring	▪ Response Inhibition
▪ Working Memory	▪ Working Memory
	▪ Goal Directed Persistence

conclusions   96

Other Lessons from www.efintheclassroom.net

Working Memory Lesson
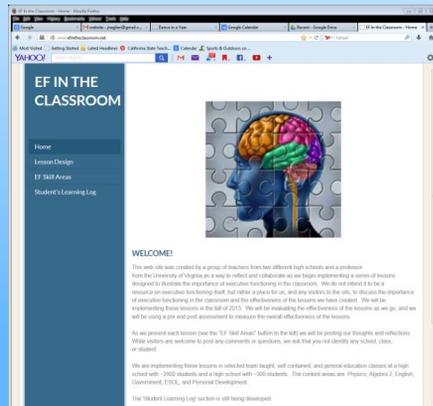
conclusions

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Interventions for EF Behaviors

➢ CEFI Scales
- Attention
- Emotion Regulation
- Flexibility
- Inhibitory Control
- Initiation
- Organization
- Panning
- 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

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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

conclusions

STOP

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   108

Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➡ ➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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
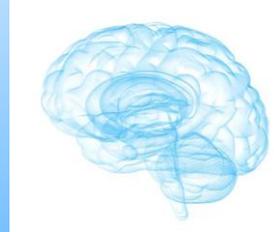
conclusions   109

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   110

Thinking or Knowing

➤ 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 (especially EF)*

A Theory of Learning

100 Years of Intelligence and IQ
http://www.jacknaglieri.com/cas2.html

Handbook of Intelligence

Sam Goldstein
Dana Princiotta
Jack A. Naglieri
Editors

Evolutionary Theory, Historical Perspective, and Current Concepts

Springer

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

7, is remembered as the day the ... entered World War I. On that same ... of psychologists held a meeting in ...ersity's Emerson Hall to discuss the ... they could play with the war effort ...). 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

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).

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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.

Simultaneous processing Ability

Planning ability

Attention

Successive Processing Ability
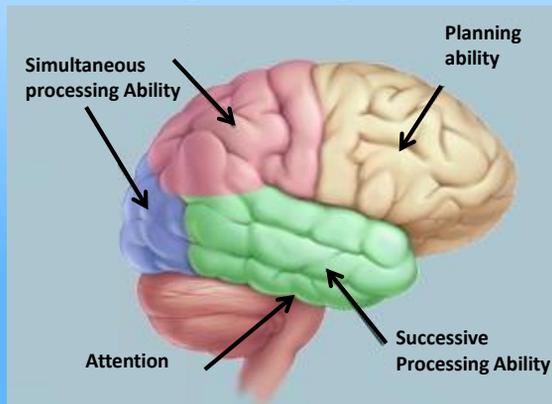
IQ defined by BRAIN function

➢**PASS** theory is a modern way to define 'ability' (AKA – intelligence)

EF

➢**P**lanning = THINKING ABOUT THINKING

➢**A**ttention = BEING ALERT

➢**S**imultaneous = GETTING THE BIG PICTURE

➢**S**uccessive = FOLLOWING A SEQUENCE

conclusions   115

PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)

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

Cognitive Assessment System: Rating Scale — Examiner's Manual

Cognitive Assessment System: Brief — Examiner's Manual

Cognitive Assessment System — Examiner's Manual

CAS2 Cognitive Assessment System Español
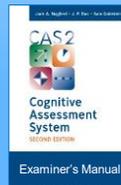
conclusions   11 6

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 Webus, Ph. D.

	Year	Month	Day
Date Tested	2013	4	18
Date of Birth	2006	10	22
Age	7	10	24

Section 2. Subtest and Composite Scores

Subtest	Raw Score	PLAN	SIM	ATT	SUC
Planned Codes (PCd)	34	7			
Planned Connections (PCo)	145	8			
Planned Number Matching (PNM)	10	8			
Matrices (MAT)	20		10		
Verbal-Spatial Relations (VSR)	18		11		
Figure Memory (FM)	16		10		
Expressive Attention (EA)	48			9	
Number Detection (ND)	74			10	
Receptive Attention (RA)	49			9	
Word Series (WS)	11				7
Sentence Repetition/Questions (SR/SQ)	8				7
Visual Digit Span (VDS)	10				6

	PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores	23	31	28	20	102
PASS Composite Index Scores	84	102	96	74	87
Percentile Rank	14	55	39	8	19
Upper Confidence Interval	92	108	104	87	92
Lower	79	96	89	74	83

Section 3. Subtest and Composite Profiles

Index Score Profile   Scaled Score Profile

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 118

CAS2: Rating Scale Attention

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

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

	Never	Rarely	Sometimes	Frequently	Always
21. work well in a noisy area?	0	1	2	3	4
22. stay with one task long enough to complete it?	0	1	2	3	4
23. not allow the actions or conversations of others to interrupt his or her work?	0	1	2	3	4
24. stay on task easily?	0	1	2	3	4
25. concentrate on a task until it was done?	0	1	2	3	4
26. listen carefully?	0	1	2	3	4
27. work without getting distracted?	0	1	2	3	4
28. have a good attention span?	0	1	2	3	4
29. listen to instructions or directions without getting off task?	0	1	2	3	4
30. pay attention in class?	0	1	2	3	4

___ + ___ + ___ + ___ + ___ = [ ]

Attention Raw Score

conclusions

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Planned Codes 1
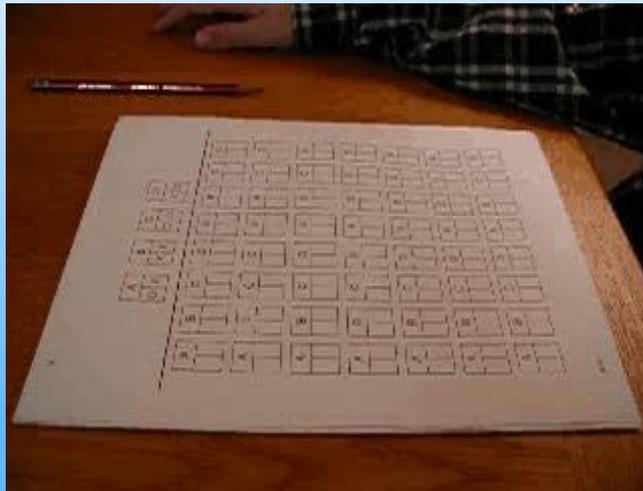
conclusions

120

Planned Codes Page 2

61
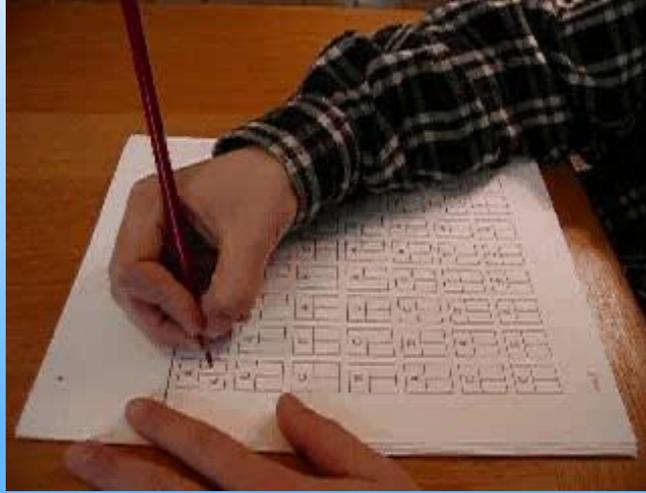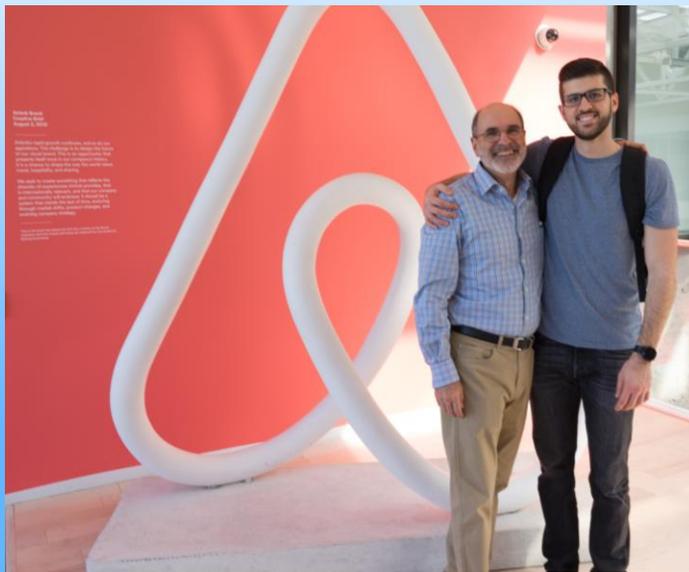
Math Strategies

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.

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

Naglieri, J. and Pickering, E., Helping Children Learn, 2003
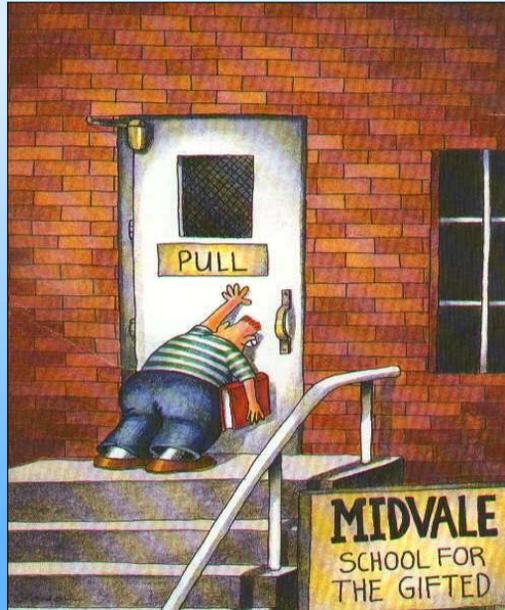
124

POOR PLANNING

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.

Antwerp train Station (2009)

conclusions 127

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 128

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   129

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   130

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   131

EF Instruction

➢We use posters like this one to remind the students of the importance of PLANNING
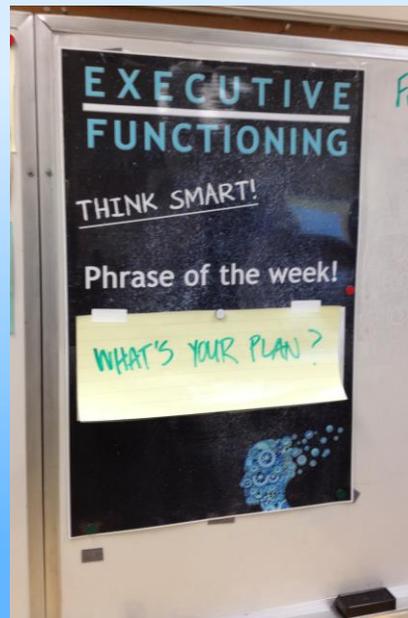
conclusions   132

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.
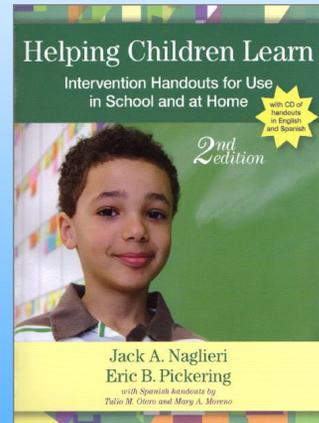
conclusions

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Step 1 – Talk with Students

How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Step 1 – Talk with Students

How Can You Be Smarter?

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

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

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

Think smart and use a plan!

I figured out how to do it!

Use a plan.

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

Give students hope

➢ If we want to grow their *skill set,* we must also shape their *mindset!*

➢ *If you don't try you will fail*

➢ *Mindset + Skillsets = Results*

▪ kathleenkryza.com
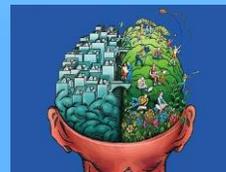
Measure of Mindset – Child Adolescent
(Naglieri & Kryza, © 2015)

Measure of Mindset (MOM-CA)
Jack A. Naglieri & Kathleen M. Kryza - Copyright © 2015

Name _____
Date _____

Instructions: These 10 questions ask about how you think and feel. The answers you give can help us know your thoughts about how you learn. Please read every question carefully and circle the number under the word that tells what you do.

		Never	Sometimes	Most times	Always
1	I don't give up easily.	0	1	2	3
2	When things get hard I say "I can do it!".	0	1	2	3
3	When I fail I try harder until I get it done.	0	1	2	3
4	I believe that I can learn from my mistakes.	0	1	2	3
5	I think I can do almost anything if I try hard enough.	0	1	2	3
6	When I don't understand something I give up.	0	1	2	3
7	I do not like to be challenged.	0	1	2	3
8	When work is hard I think, "I can't do it".	0	1	2	3
9	When things get hard I do something else.	0	1	2	3
10	When I fail I do something else that is more fun.	0	1	2	3

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conclusions   137

Measure of Mindset: Teacher Parent
(Naglieri & Kryza, 2015)

Measure of Mindset (MOM-TP)
Jack A. Naglieri & Kathleen M. Kryza - Copyright © 2015

Name _____
Date _____

		Never	Sometimes	Most times	Always
1	He/she doesn't give up easily.	0	1	2	3
2	When things get hard he/she says "I can do it!".	0	1	2	3
3	Failure leads him/her to try harder until the task is finished.	0	1	2	3
4	He/she views failure as an important part of learning.	0	1	2	3
5	He/she believes that you can do anything if you try hard enough.	0	1	2	3
6	He/she is afraid of failure.	0	1	2	3
7	When things get hard he/she avoids the work.	0	1	2	3
8	He/she believes that hard work usually does not pay off.	0	1	2	3
9	He/she is fast to give up on a task.	0	1	2	3
10	He/she views failure as an important part of learning.	0	1	2	3

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conclusions   138

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

No Response

Response

No Response
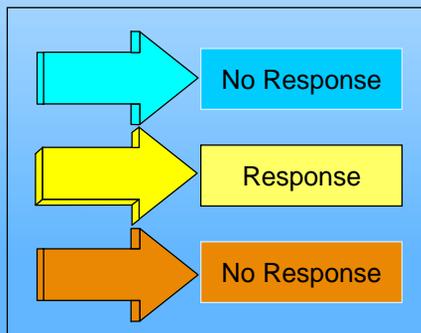
Attention Test Instructions:
You will see words like

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   141

BLUE!
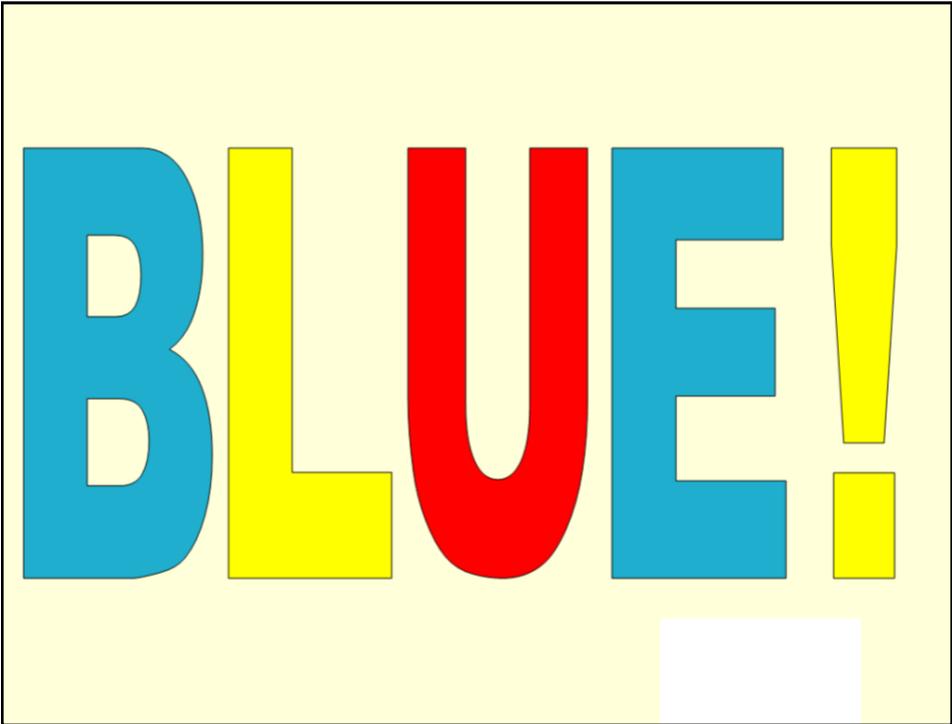
Expressive Attention - Italiano

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

conclusions   143

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   144

Attention

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

P**A**SS Theory: Attention

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

Examples of classroom problems related to <u>Attention</u>
· 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   147

Attention Lesson

OK

conclusions   148

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 you 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 149

PRACTICE

SIT

FOCUS ON YOUR BREATH

How Mindfulness Helps

Without Mindfulness **Stimulus** → **Reaction**

With Mindfulness **Stimulus** → **Mindfulness** → **Response**

Mindfulness creates space…
…replacing **impulsive reactions** with **thoughtful responses**.

www.kathleenkryza.com

Put Your Phone's Down!

➤ "People can't multitask very well, and when people say they can, they're deluding themselves," said neuroscientist Earl Miller.

➤ "The brain is very good at deluding itself."

conclusions 152

Focus: Attention on the Text

➤ Notice and Name (call attention to…)
- Text Features
- Text Structures

➤ Read in **Chunks**/Stop and **Chew**
- Annotate – Text in report covers
- Sticky notes
- Reading logs
- Double Entry Journals

"Education is not the learning of facts, but the training of the mind to think."

- Albert Einstein

cp4f.com
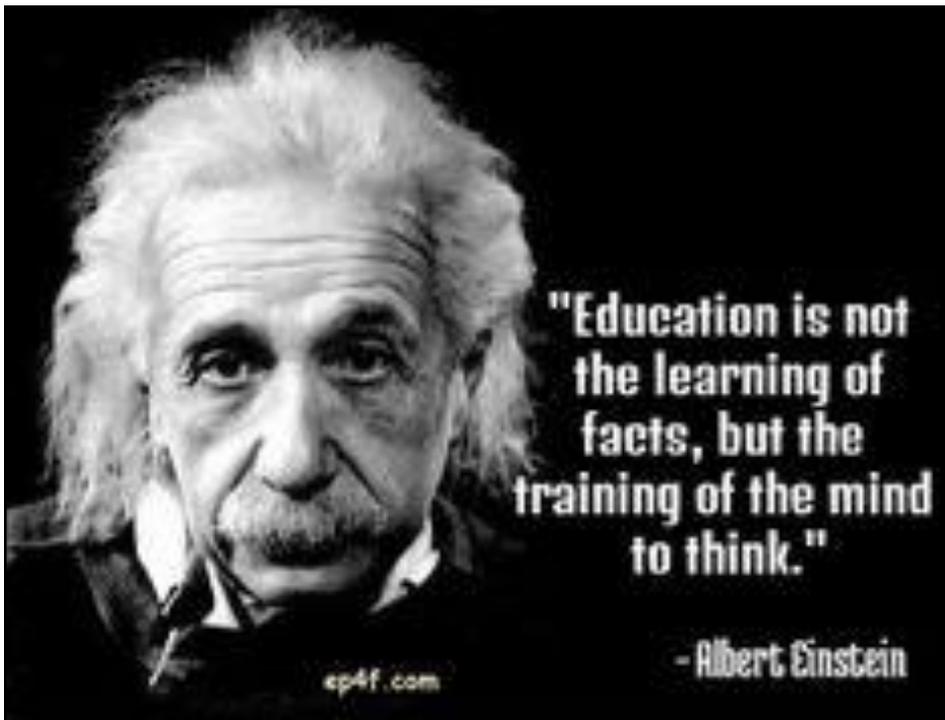
Time to Think and Talk

➢**Task:**

➢HOW can you use EF to help students improve their focus and resistance to distractions?

➢What strategies (EF) can you encourage?
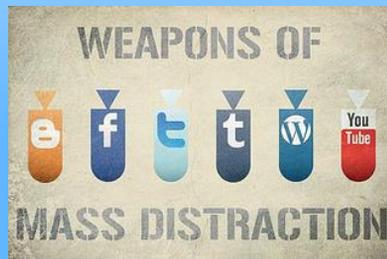
conclusions

WHAT IS NOT EF IN PASS

conclusions

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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 157

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 158

Progressive Matrices

PASS Theory

➢**Simultaneous** processing is what Gestalt psychology was based on

➢Seeing the whole
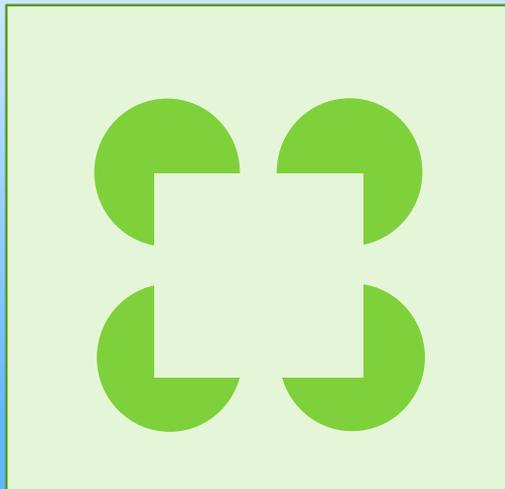
Verbal-Spatial Relations
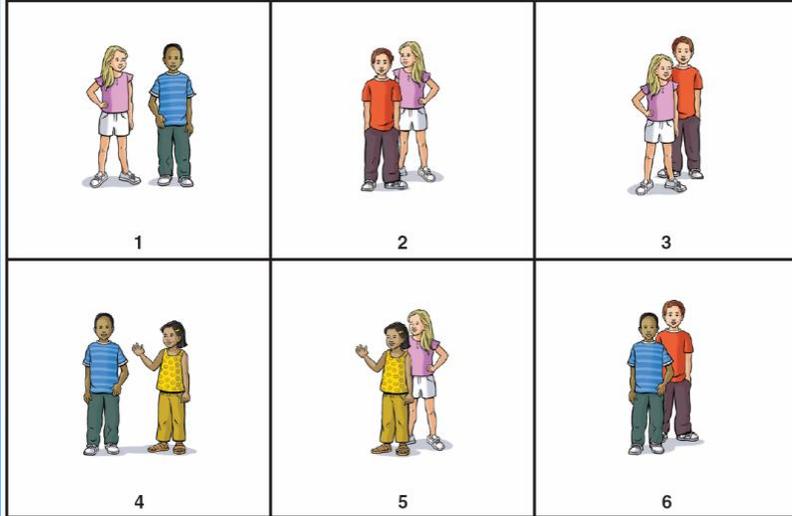
Which picture shows a boy behind a girl?

Numbers from 1 to 100

How can EF be brought to this Work sheet?

Use Simultaneous processing to see that patterns

PA**S**S Theory: Simultaneous

Simultaneous Processing

➢ Relate separate pieces of information into a group

➢ See how parts related to whole

➢ Recognize patterns

Examples of classroom problems related to _Simultaneous Processing_

· 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

conclusions   163

Core Group Reflection

➢How do you use EF to help a child with low simultaneous ability?

➢Ask students to think of STRATEGIES they can use to solve problems that require seeing how things go together.

➢What kinds of strategies could you use for tasks that require seeing the whole?

conclusions   164

Slide 1: Use EF

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 graphically.

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

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Slide 2: Venn Diagram

Venn Diagram

Graphic Organizers for Connecting and Remembering Information (continued)
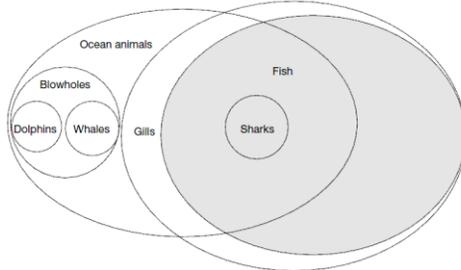
Figure 2. A Venn diagram used as a graphic organizer.

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

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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

Cow → Wall → Car → Girl
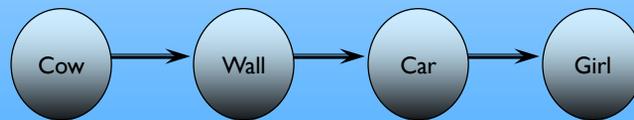
conclusions 167

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 168

Successive

The sequence of the sounds is emphasized in this work sheet
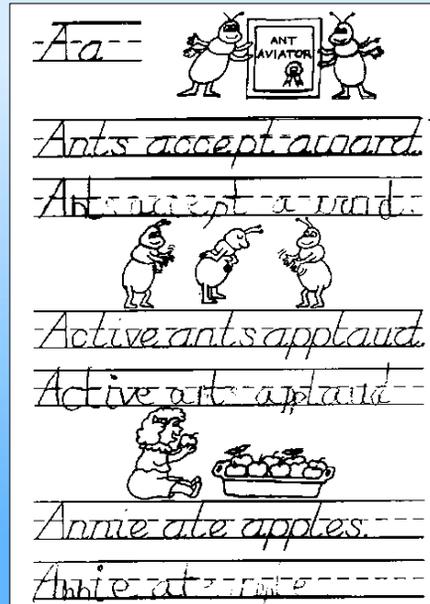
conclusions   169

PAS**S**   Theory: Successive

Successive Processing

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

Examples of classroom problems related to   Successive Processing

· 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

conclus   170

6/3/2018

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

Scores (M = 100, SD = 15)

EF "Ability" is good but he isn't using this ability to solve problems

Categories (left to right): Decoding, Successive, Math Calc, Math Reasoning, Reading Comp, Simultaneous, Attention, Planning

conclusions

172
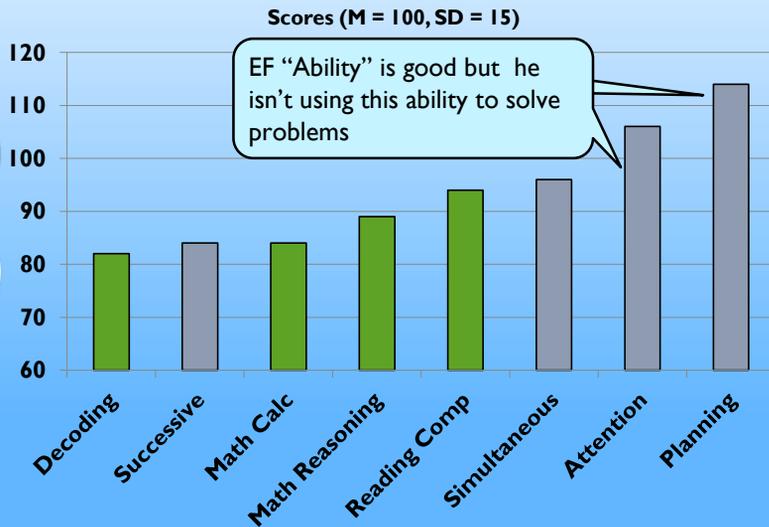
Case of Ben

➢ 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	

conclusions   173

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   174

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.
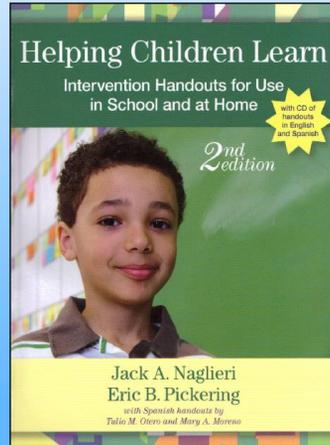
conclusions   175

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   178

Ben's Problem with Successive Ability

➤ Teach him to use strategies

Chunking for Reading/Decoding

Readir
stand
quence
more n
easily
units f

How

Teache
be rem

Segmenting Words for Reading/Decoding and Spelling

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

How to Teach Segmenting Words

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

Plan

Look at
Find the
Sound

Winning Formula for Using EF*!*

Mindsets

+
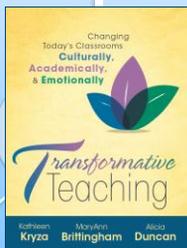
Skill Sets

─────────

= RESULTS!
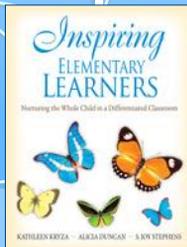
www.kathleenkryza.com

conclusions

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

Time to Think and Talk

➢Discuss in your groups

- EF is a part of intelligence?
- What does this mean for our understanding of student performance in the class?
- Can students change?
- How can they change?
- How do strategies help?

Think smart and use a plan!

I figured out how to do it!

Use a plan.

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Teaching from a Neurocognitive Perspective

Using Mindsets and Metacognition for Student Success

July 9-13, 2018
Santa Barbara, CA

THINK SMART: USING MINDSETS AND METACOGNITION FOR STUDENT SUCCESS

JULY 9-13

On the campus of UCSB, Santa Barbara, CA

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

conclusions   183

Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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   184

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
- looses control in interactions with others

conclusions   185

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'

THE NEW EXECUTIVE BRAIN
FRONTAL LOBES IN A COMPLEX WORLD
Elkhonon Goldberg, Ph.D.
OXFORD
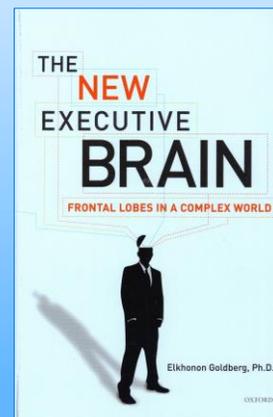
conclusions   186

Feiffer & Rattan (2009)

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

Emotional Disorders:

A Neuropsychological, Psychopharmacological, and Educational Perspective

EDITED BY
Steven G. Feifer, D.Ed.
and Gurmal Rattan, Ph.D.

www.schoolneuropsychpress.com
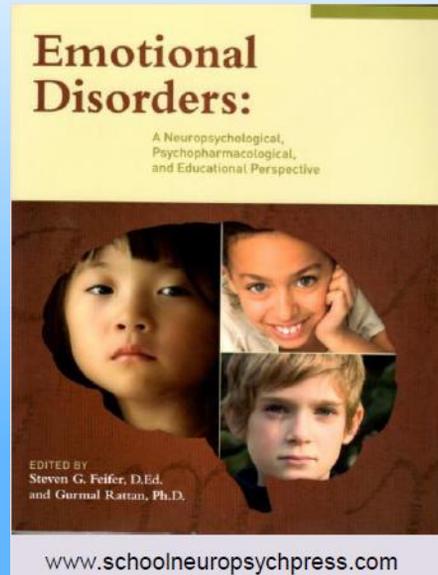
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Feiffer & Rattan (2009) on EF and Frontal Lobes

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   188

Social Emotional Skills: From Conceptual to Assessment to Instruction

conclusions 189

www.casel.org

190

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**

The Positive Impact of Social and Emotional Learning for Kindergarten to Eighth-Grade Students
Findings from Three Scientific Reviews

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

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Relationship Between Academic Achievement and Social-Emotional Competence
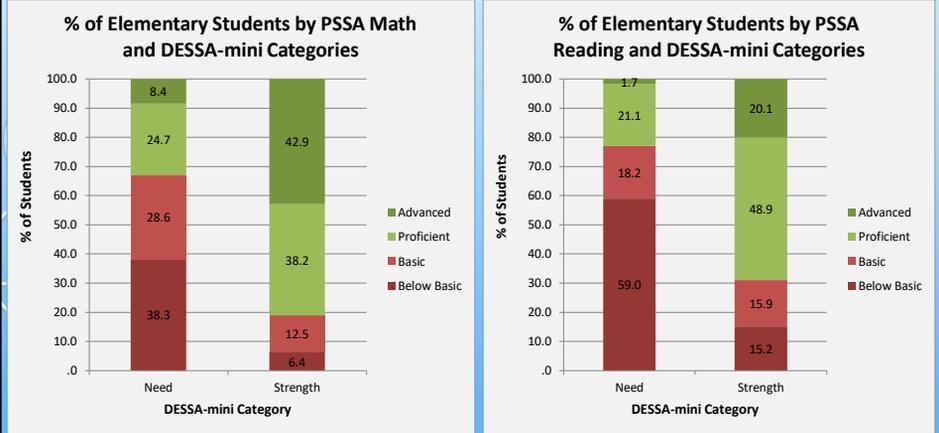
% of Elementary Students by PSSA Math and DESSA-mini Categories

% of Elementary Students by PSSA Reading and DESSA-mini Categories

Relationship Between Academic Achievement and Social-Emotional Competence

% of Middle School Students by PSSA Math and DESSA-mini Categories
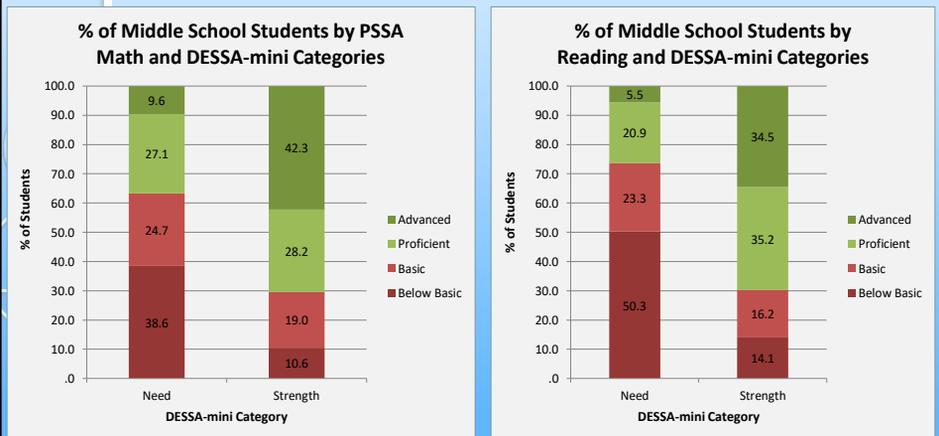
% of Middle School Students by PSSA Reading and DESSA-mini Categories

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 <u>Need for SEL Instruction</u> in October were <u>4.5 times more likely</u> 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 ($p<0.001$)

➤ These students are POOR in EF !

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

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Ability, Social Emotional & Skills

Series 1

Bar chart with y-axis from 80 to 140. Bars: Verbal IQ ≈126, Quantitative IQ ≈124, Nonverbal IQ ≈125, CogAT Tot ≈130, Social Emotional ≈108, SAT10 ≈110.

Legend: ■ Verbal IQ ■ Quantitative IQ ■ Nonverbal IQ ■ CogAT Tot ■ Social Emotional ■ SAT10
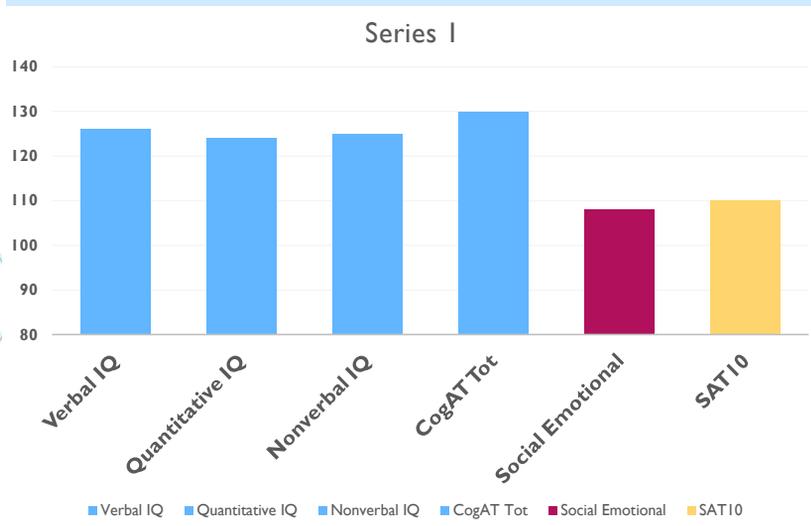
conclusions

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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

200

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
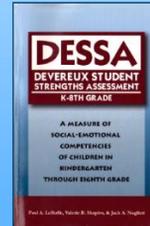
conclusions   201

http://www.centerforresilientchildren.org/

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Assessment of Social Emotional Skills with the DESSA
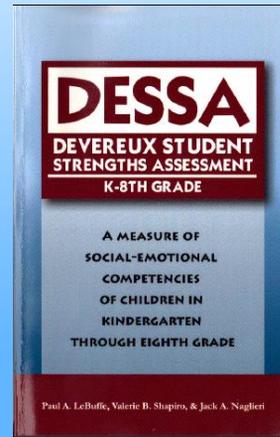
conclusions

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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

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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

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CASEL   and   DESSA Scales

1 **Self-awareness**—being able to ac
and strengths; maintaining a well-

2 **Self-management**—being able to
control impulses, and persevere
progress toward personal and ac

3 **Social awareness**—being able to
others; recognizing and appreciat
differences; recognizing and usin

4 **Relationship skills**—being able t
relationships based on cooperatio
preventing, managing, and resolv
needed

5 **Responsible decision-making**—b
consideration of reason, ethical
for self and others, and likely con
making skills to academic and so
one's school and community.[1]

	Self Awareness
	Self Management
	Social Awareness
	Relationship Skills
	Decision Making
	Goal Directed Behavior
Social Emotional Composite	**Personal Responsibility**
	Optimistic Thinking

conclusions

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DESSA Strategies

- Provided as part of Apperson EvoSEL assessment platform
- 5 different levels of strategies for each of the eight DESSA scales
  - Teacher Reflection & Action
  - Universal
  - Group
  - Individual Student
  - Home
- 3 different age groupings: primary, intermediate elementary, and middle school

conclusions

Interventions for DESSA

conclusions

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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

conclusions   213

Time to Think and Talk

➢ Discuss in your groups
- If EF is the basis of social emotional skills **HOW** do we teach it (use our EF)?
- Should we TEACH social skills?
- Should we encourage thoughtful examination of social situations by asking questions?
  - What questions?

Social Skills

Accepting differences
Asking for help
Communicating clearly
Complimenting others
Disagreeing politely
Encouraging others
Following directions
Listening actively
Participating equally
Resolving conflicts
Sharing materials
Staying on task
Taking turns
Taking risks
Using quiet voices
Waiting patiently

conclusions

Presentation Outline

➢Comprehensive Model of EF
- Historical Perspective and Definitions

➢EF as Behavior

➢EF as an Ability (an intelligence)

➢EF as Social Emotional Skills

➡️➢EF and Academic 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   215

EF & Reading Comprehension

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

➢**EF & Reading -** read with a specific question or purpose in mind when seeking specific information. In other words, plan a strategy!!
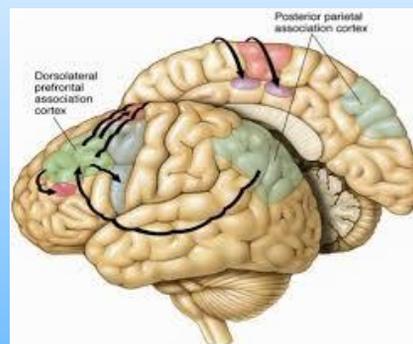
conclusions   216

Far Word Recall Involves EF (Planning)

❑ PK–Grade 2

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

Trial 2: Bicycle words

			Intrusions
chain	❑	R	
wheel	❑	R	
brake	❑	R	
3rd+ handlebars	❑	R	

Trial 2: Musical instruments

			Intrusions
drum	❑	R	
guitar	❑	R	
trumpet	❑	R	
3rd+ piano	❑	R	

❑ Grades 3+

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

Trial 2: Fruits and vegetables

			Intrusions
pepper	❑	R	
celery	❑	R	
tomato	❑	R	
3rd+ carrot	❑	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	=	Repetitions	Intrusions
	Number correct		

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
1
8

conclusions

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

Significant Discrepancy

Significant Discrepancy

AVERAGE SCORES in Basic Psychological Processes and Achievement

BELOW AVERAGE scores in academic skills

BELOW AVERAGE scores in basic psych processes

Consistent Scores

Essentials of CAS2 Assessment

- Practical advice on disability determination using CAS2
- Case presentations on the use of CAS2 with diverse students
- Emphasis on practical ways to link results to intervention
- Test administrator Assessment with the CAS2

Jack A. Naglieri
Tulio M. Otero

Alan S. Kaufman & Nadeen L. Kaufman, Series Editors

WILEY

conclusion 219

Rowan has SLD – a disorder in basic psychological process of EF

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

Significant Discrepancy

Significant Discrepancy

Simultaneous = 105
Successive = 100

Silent Reading
Fluency = 75
Word Recall = 82
Far CI Index = 84

Planning = 85
Attention = 77
CEFI = 81
DESSA also low

Consistency
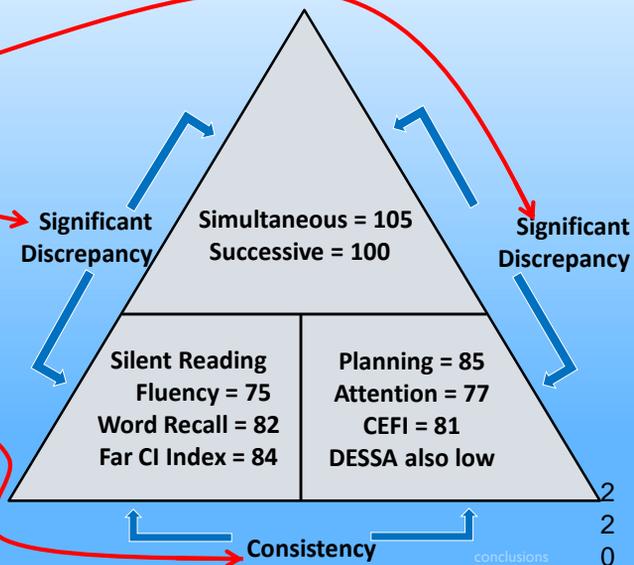
conclusions 220

Time to Think and Talk

➢Discuss in your groups
- How would you use Rowan's ability to work with information in a sequence (Successive processing) to improve EF?
- How would you use Rowan's ability to get the big picture (Simultaneous) to improve EF?

➢Your own questions and thoughts..

conclusions

Planning Interventions

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

conclusions

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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**
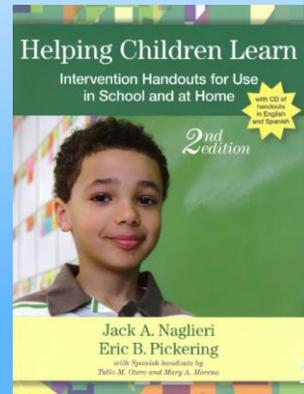
conclusions

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Presentation Outline

➢Comprehensive Model of EF
   • Historical Perspective and Definitions
➢EF as Behavior
➢EF as an Ability (an intelligence)
➢EF as Social Emotional Skills
➢EF and Academic 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
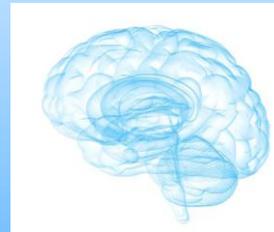
conclusions

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Rating Scale of Impairment & EF

➤EF and Impairment …

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

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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

Take Away Messages

➢Social emotional skills and behaviors related to EF are strongly correlated with levels of impairment

➢EF MATTERS !!!

conclusions 228

Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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   229

Executive Function Behaviors, Intelligence, and Achievement test scores

conclusions   230

EF and Achievement (Naglieri & Rojahn, 2004)

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   231

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	Planning	Simultaneous	Successive	Attention
	CAS Standard Battery subtests			
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   232

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	4.8	8	4.6	9	5.1
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

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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

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

conclusions

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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   235

Sex Differences in Executive Function

conclusions   236

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

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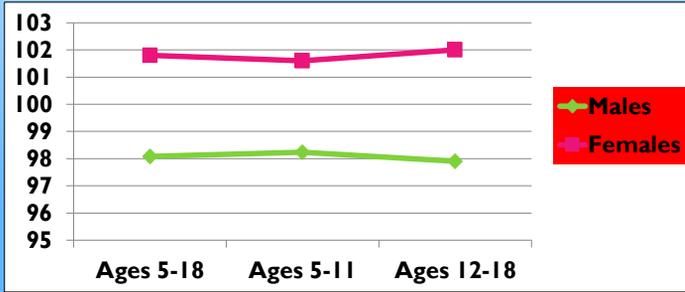
CEFI Sex Differences: Teacher Raters

➢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

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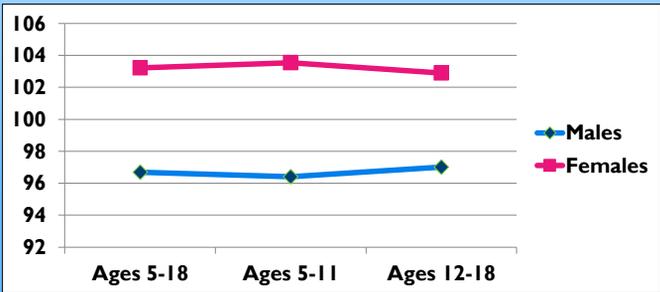
Gender Differences: Self Raters

➢Girls are better EF than Boys

	Mean	SD	N
Male	98.9	15.4	350
Female	101.0	14.6	350

conclusions   239

Sex Differences: Ability

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 Proofing (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

Chart with y-axis from 94 to 104. Two lines: Boys (blue) and Girls (pink) across categories: Planning, Attention, Simultaneous, Successive. Planning and Attention grouped as "Executive Function".
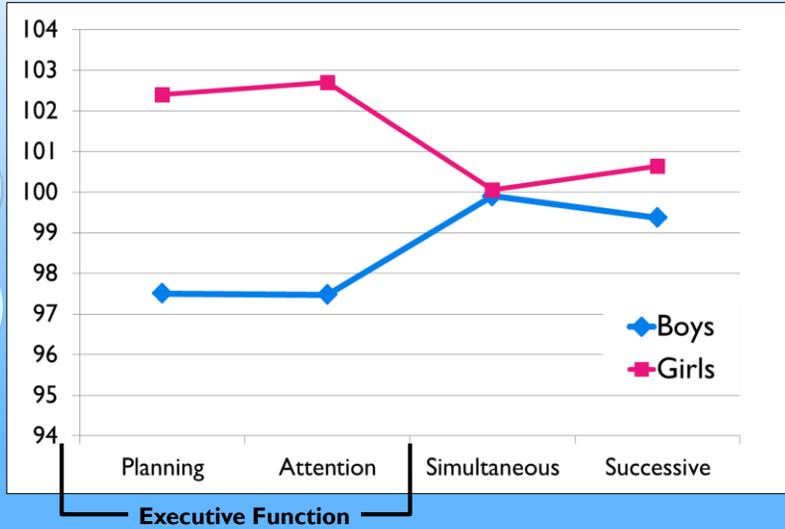
conclusions

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Sex Differences: Social Emotional

DESSA
DEVEREUX STUDENT STRENGTHS ASSESSMENT
K-8TH GRADE

A MEASURE OF
SOCIAL-EMOTIONAL
COMPETENCIES
OF CHILDREN IN
KINDERGARTEN
THROUGH EIGHTH GRADE

Paul A. LeBuffe, Valerie B. Shapiro, & Jack A. Naglieri

KPRESS

	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

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Sex Differences: Social Emotional

Parent & Teacher Raters Females

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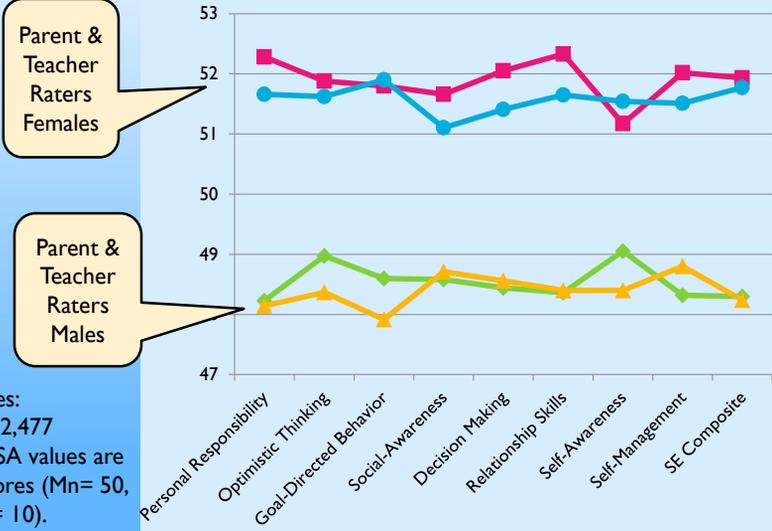
Notes:
N = 2,477
DESSA values are T-scores (Mn= 50, SD = 10).

Chart y-axis: 47, 49, 50, 51, 52, 53

Chart x-axis categories: Personal Responsibility, Optimistic Thinking, Goal-Directed Behavior, Social-Awareness, Decision Making, Relationship Skills, Self-Awareness, Self-Management, SE Composite

conclusions

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Sex Differences

conclusions

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Developmental Differences in Executive Function

conclusions 245

Developmental Changes in EF

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

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.

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   247

Developmental Changes in EF
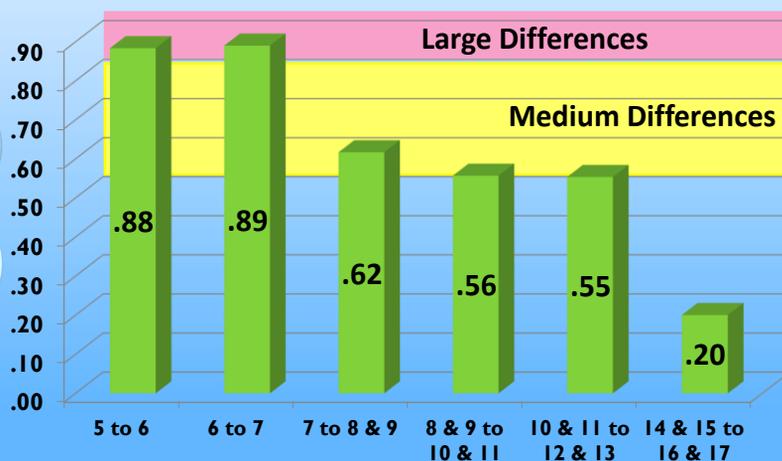
conclusions   248

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

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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

CEFI Adult Scale Raw Score for Self Ratings

CEFI Adult Raw Scores for Observer Ratings
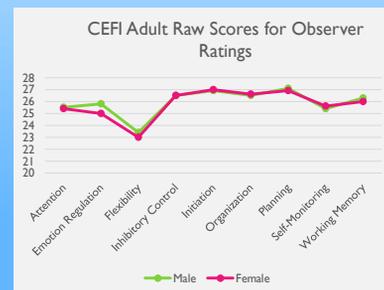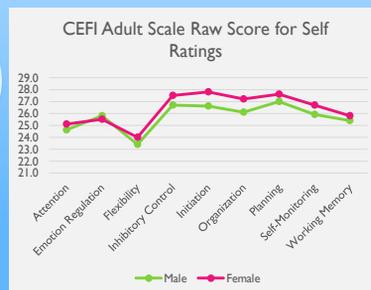
conclusions

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ADHD and EF…

➤ Smart students with ADHD

➤ Are they functioning?

➤ What do they look like on PASS?

 • Low Planning and slightly low Attention

Essentials of **CAS2 Assessment**

• Practical advice on disability determination using CAS2
• Case presentations on the use of CAS2 with diverse students
• Emphasis on practical ways to link results to intervention
• Nondiscriminatory Assessment with the CAS2

Jack A. Naglieri
Tulio M. Otero

Alan S. Kaufman & Nadeen L. Kaufman, *Series Editors*

WILEY
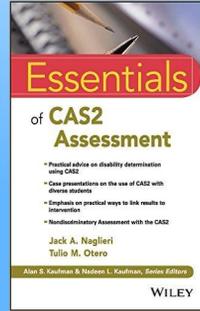
conclusions

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Profiles for students with ADHD

ADHD

ADHD

WISC-V | WISC-IV | WJ-III | KABC-II | CAS
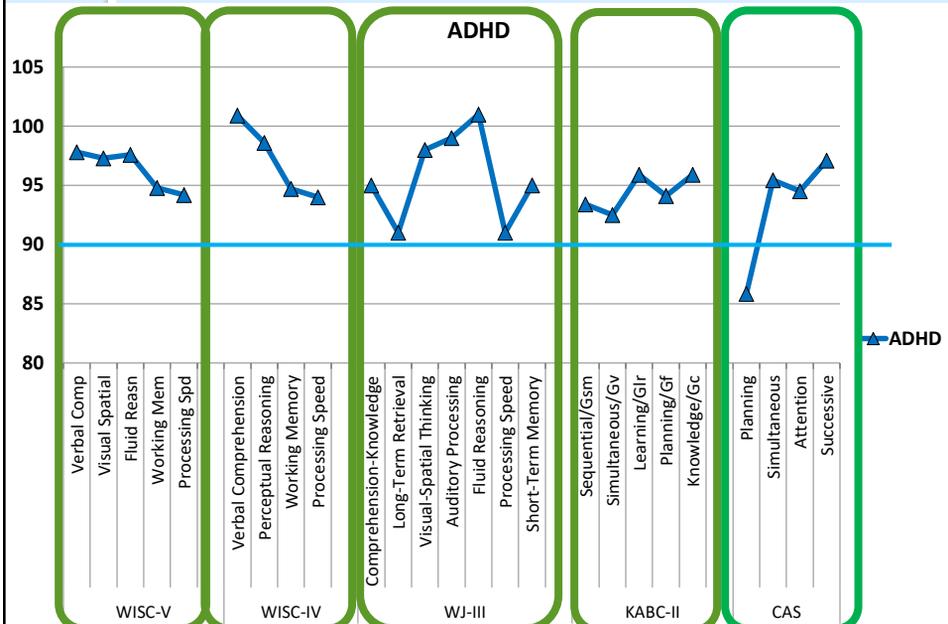
EF Lessons for High School

Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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

www.efintheclassroom.net

➢ **Start with Awareness of thinking about thinking**
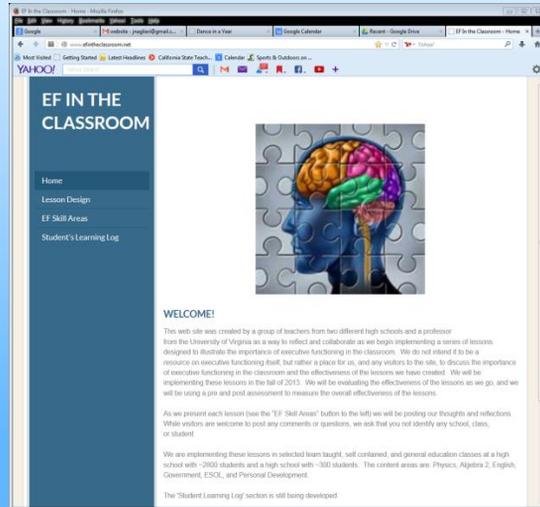
conclusions
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Structure of the lessons

- Each topic is discussed for one week
- Monday – class lesson
- Tues-Thurs reminders
- Friday – class reflection
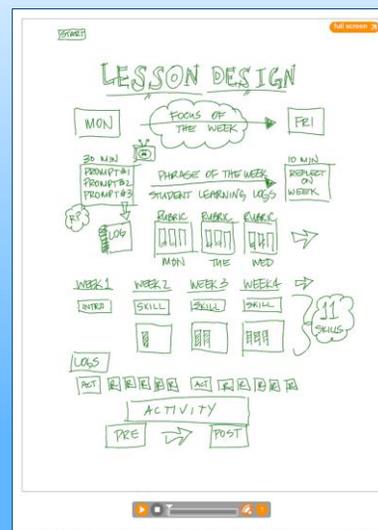
conclusions
256

EF Lesson Plan *Themes*

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

conclusions   257

EF Posters in the Class

Mountain View Alternative HS
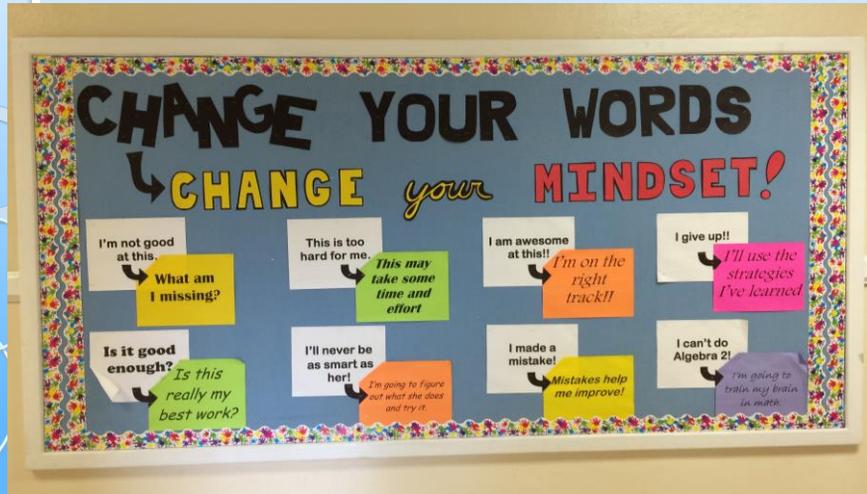
Introductory Lesson: "Are you Aware"

• Ask for volunteers to NOT look at the video and report what word they hear
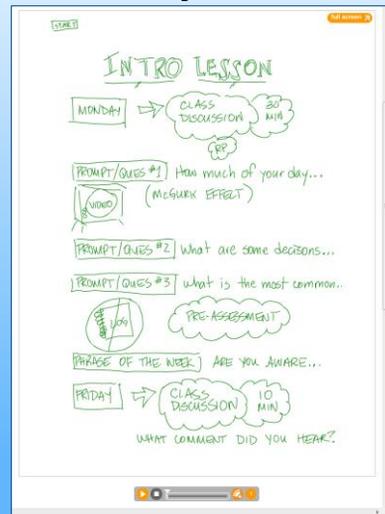
Introductory Lesson: "Are you Aware"

conclusions

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Other Lessons from www.efintheclassroom.net

www.Efintheclassroom.net

Research support?
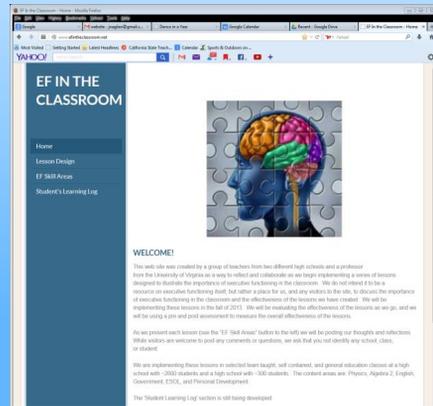
conclusions

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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   263

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.

ons   264

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

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

Abstract

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

Design of the Study

Experimental and Comparison Groups

7 worksheets with Normal Instruction

Experimental Group

19 worksheets with Planning Facilitation

Comparison Group

19 worksheets with Normal Instruction

conclusions   266

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   267

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   268

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   269

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   270

Worksheet Means and Effect Sizes for the Students with ADHD

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

WIAT Numerical Operation Means and Effect Sizes for Students with ADHD

ES = -0.2

ES = 0.4

Raw Scores for WIAT

18
17
16
15
14
13
12
11
10

15
14
14.4
16.6

Normal Instruction   Planning Facilitation

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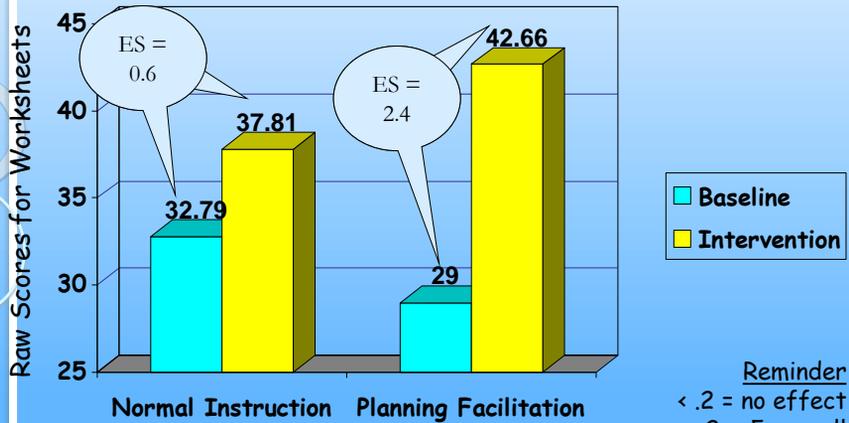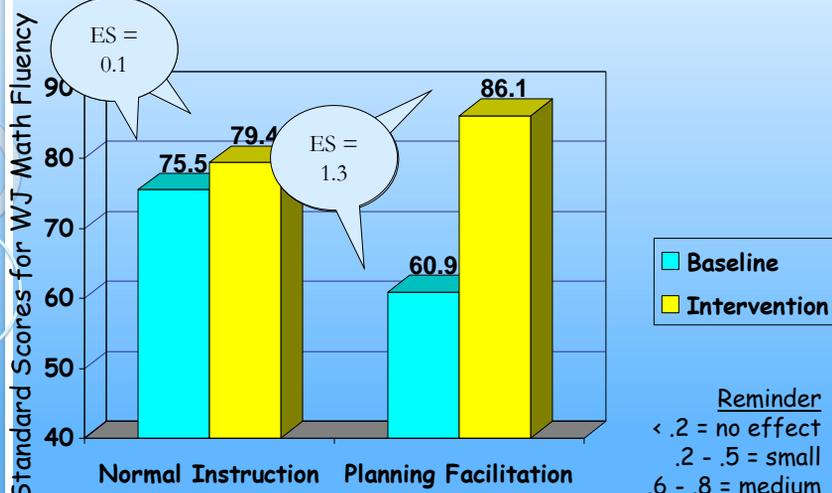
Reminder
< .2 = no effect
.2 - .5 = small
.6 - .8 = medium
> .8 = large

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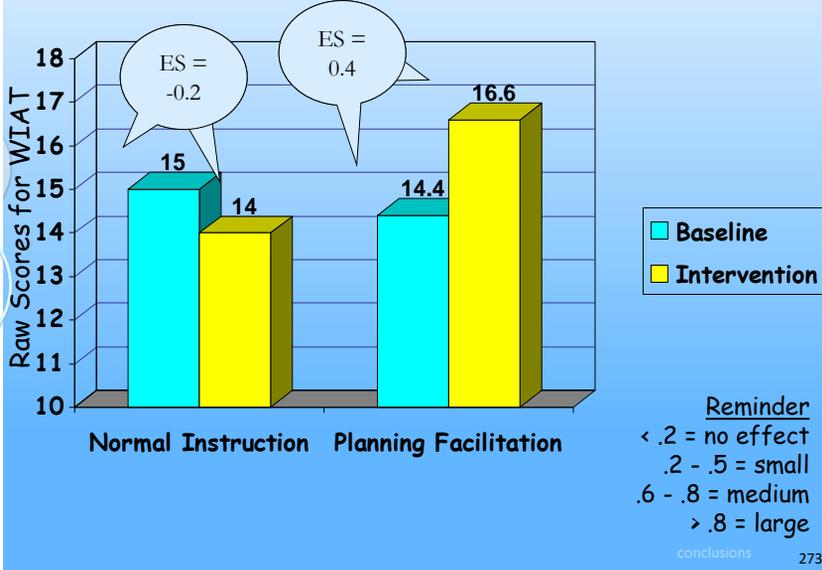
Iseman (2005)

➢ Baseline Intervention means by PASS profile

➢ Different response to the same intervention

70
65
60
55
50
45
40
35
30
25
20

LowP
LowSim
LowAtt
LowSuc

Baseline Mean   Intervention Mean

conclusions   274

137
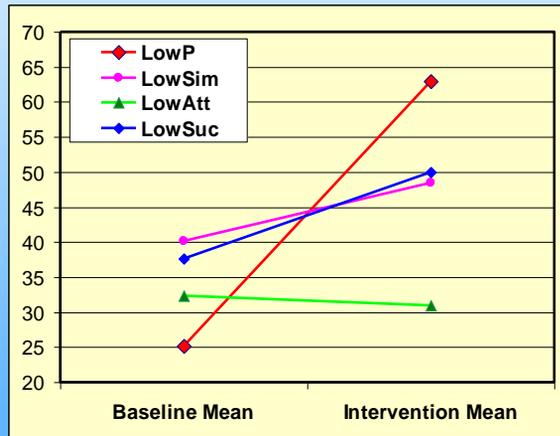
One Year Follow-up

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

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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)

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EF and Reading Comprehension

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

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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

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Time to Think and Talk

➤ Discuss in your groups
- EF instruction or facilitation?
- Why does facilitation maximize EF in the student?
- Why is Planning facilitation is encouraged not taught?

conclusions

EF Sayings

Mistakes are proof that you are *Trying*

The 6 P's
Proper
Prior
PLANNING
Prevents
Poor
Performance

"He who fails to plan is planning to fail."

A GOAL WITHOUT A PLAN IS JUST A
WISH

conclusions

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Other Lessons from www.efintheclassroom.net

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 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 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 2013. We will be evaluating the effectiveness of the lessons as we go, and we will be using a pro 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 ~2600 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

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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

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Low EF and an Enabled Society

conclusions   282

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."

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Presentation Outline

➢ Comprehensive Model of EF
  • Historical Perspective and Definitions
➢ EF as Behavior
➢ EF as an Ability (an intelligence)
➢ EF as Social Emotional Skills
➢ EF and Academic 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

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Teach Kids About Their Amazing Brains!

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

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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.
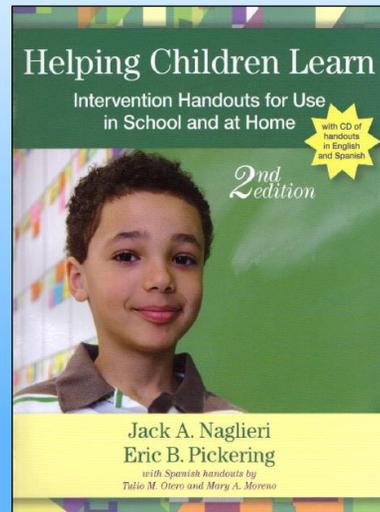
conclusions   287

Step 1 – Talk with Students

How to Be Smart: Planning

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

What Does Being Smart Mean?

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

Step 1 – Talk with Students

How Can You Be Smarter?

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

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

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

Think smart and use a plan!

I figured out how to do it!

Use a plan.

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

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**

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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**

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