



Executive Functioning

Region One ESC



Objectives

Participants will:

- Explore and develop a common language on Executive Functioning
- Deepen their understanding of how EF impacts student success in young children
- Enhance their ability to effectively support their young students in developing their EF skills
- Discuss and practice strategies/games to build and support EF skills



What Do We Want for Children?



Affectionate
Altruistic
Careful
Considerate
Courteous
Desire to excel
Emotional fearful
Gets good grades
Intelligent
Obedient
Proud
Refined
Self-confident
Has a sense of humor
Socially well-adjusted
Timid
Is a visionary
Is a good guesser
Asks questions
Competitive
Cooperative creative determined
Energetic
Friendly
Industrious

Intuitive
Persistent
Quiet
Receptive
Self-satisfied
Sensitive
Stubborn
Thorough
Is a risk-taker
Adventurous
Competent in basic skills
Conforming
Courageous
Critical
Domineering
Fault-finding
Healthy
Independent
Negative
Physically strong
Rebellious
Remembers well
Self-sufficient
Sincere talkative

Versatile
Helpful



Factors in Early Childhood

- Social Skills/Problem Solving
- Early Academic Skills
- Curriculum
- Vision (Campus; District)



Factors Contributing to Drop Out

1. *Attendance
 2. *Course performance
 - Course failures
 - Low grade point average (GPA)
 - F's in core courses and credits earned in 9th grade
 3. Failure to be promoted to the next grade
 4. Disengagement
- * High Yield



Annual Dropout Rates, by Grade Span Texas Public Schools, 2011-12

Grade span	Dropouts	Students	Rate (%)
• Grades 7-8	1,991	742,667	0.3
• Grades 9-12	34,285	1,407,697	2.4
• Grades 7-12	36,276	2,150,364	1.7



What is Our Dropout Rate?

Annual Dropout Rates, by Grade Span, 2014-15, ESC Region 01 - Edinburg

Grade span	Dropouts	Students	Rate (%)
Grades 7-8	123	65,318	0.2
Grades 9-12	2,426	121,769	2.0
Grades 7-12	2,549	187,087	1.4

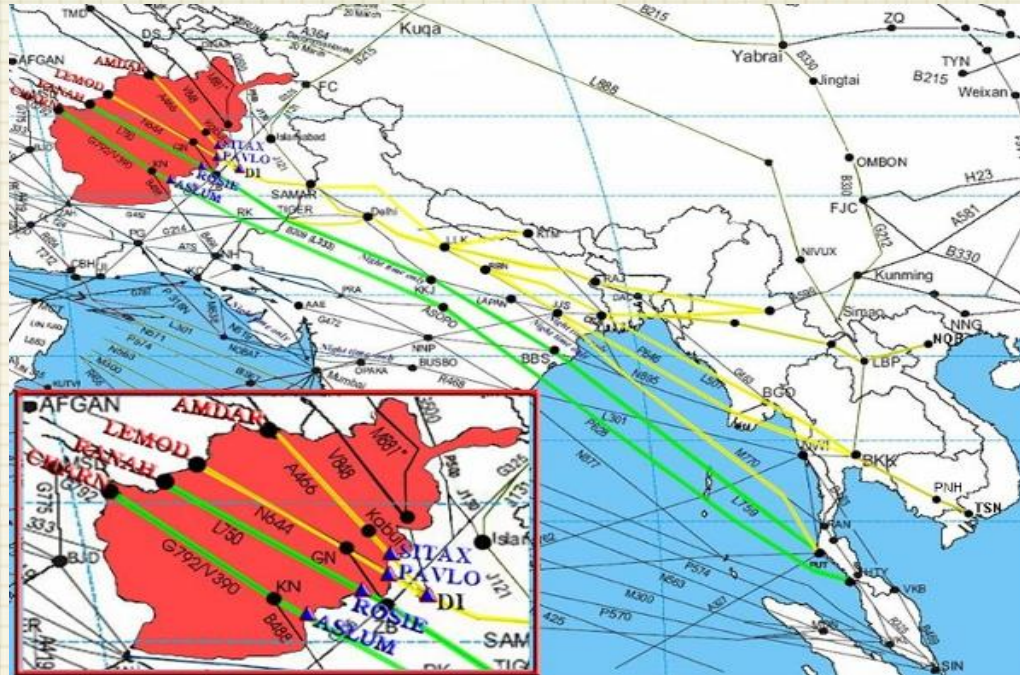


Let's See Your District!

- http://tea.texas.gov/acctres/drop_annual/1415/level.html



Executive Function



IQ is what you know. EF is how you show it.....





SCHOOL

Executive Function



“Having **executive function** in the **brain** is like having an air traffic control system at a busy airport to manage the arrivals and departures of dozens of planes on multiple runways.” -

Center on the Developing Child at Harvard University (2011).



What is Executive Function?



Executive Function skills are a group of skills which are critical for lifelong learning.



State Penn (2014)



Executive Functioning

- Non-academic in nature
- Cognitive processes involved in regulation of thoughts and actions
- Enables individual to proceed steadily through life and confront any problem
(Encyclopedia of Mental Disorders, 2012)



Executive Functioning

- Processes involved in goal-directed behaviors
- Directive capacities of the mind
- Cue the use of other mental abilities
- These need to be in place to access academic knowledge
- Not a direct correlation between IQ and EF



Factors of EF

- Initiation
- Focus
- Sustained Effort and Attention
- Emotional Control/Inhibition
- Working Memory
- Planning/Organizing
- Analysis
- Social and mental flexibility



Focus and Self-Control

Focus

Working memory

Cognitive flexibility

Inhibitory Control



How do we promote this life skill?

Step 1

- Group A will read p. 3 of article – start with second bolded statement.
- Group B will read p. 4 of article

Let's Play a Game!

- Make two straight lines
- One for Group A
- One for Group B

Step 3

- Group A: each person will walk to one person on Group B line.
- Take turns and share the info you read.



EF Comprised of 3 Core Abilities

A. Inhibitory control (self-control) the ability to resist a strong inclination to do one thing and instead do what is most appropriate or needed

Makes it possible for us to resist acting on our first impulse so we do not do something we'd regret.



Diamond (2009)



It take Discipline!

1. Staying on task despite boredom, initial failure, interesting digressions, or tempting distractions
 - Requires the ability to inhibit strong inclinations to give up or to do something more fun.



2. Being able to inhibit acting impulsively & instead make a more considered response enables you to:

- Resist grabbing another child's toy
- Resist saying something socially inappropriate (or hurtful)
- Resist hurting or hitting someone else to get back at that person for hurting or hitting you
- Resist a luscious dessert when you want to lose weight.

3. Being able to pay attention despite distraction e.g., suppressing attention to what others are saying

- Such as screening out all but one voice at a cocktail party
- So that you stay focused on what's important

Selective or Focused Attention



EF Comprised of 3 Core Abilities

B. Working Memory:

Holding information in mind while mentally working with or updating it.

- WM is critical for making sense of anything that unfolds over time, requires holding in mind what happened earlier & relating what is happening now.

Working Memory

Makes it possible to...

- Consider things from different perspectives
- Understand what you are reading (relating beginning, middle, & end)
- Remember our good intentions, why we are doing what we're doing
- Translate instructions into action plans

EF Comprised of 3 Core Abilities

C. Cognitive Flexibility

- Being able to easily & quickly switch perspectives or focus of attention
- Flexibly adjusting to changed demands or priorities
- Being able to think outside the box

Cognitive Flexibility

Critical to creative problem - solving

- What are other ways I can react when something happens?
- What are other ways I can conceptualize a problem?
- What are other ways I can try to overcome a problem?

Executive Functions

Important for **School success**

Working memory and inhibitory control each independently predict both math and reading competence throughout the school years.



Diamond 2009



goosechase



To play this game you will need to do the following:

1. Download the GooseChase **iPhone** or **Android** app.
2. Register for a personal account with a username & password of their choice.
3. Search for the "**Executive Functioning Game**" game & follow the prompts to select your team.
4. Join a team view the **Team Lobby**, entering the appropriate team or game password as required
5. The password is "RegionOne".



Debriefing GooseChase



Let's take a few minutes to share your experience:

1. How did you feel during the activity?
2. What was the purpose of the activity?
3. What executive functioning skills did you use during the activity?
4. Will this activity help you with your learning skills.



Vygotsky: Engaging in social pretend play is critical for developing executive function skills in very young children.



<http://www.anera.org>

Diamond 2009



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During Social Pretend Play



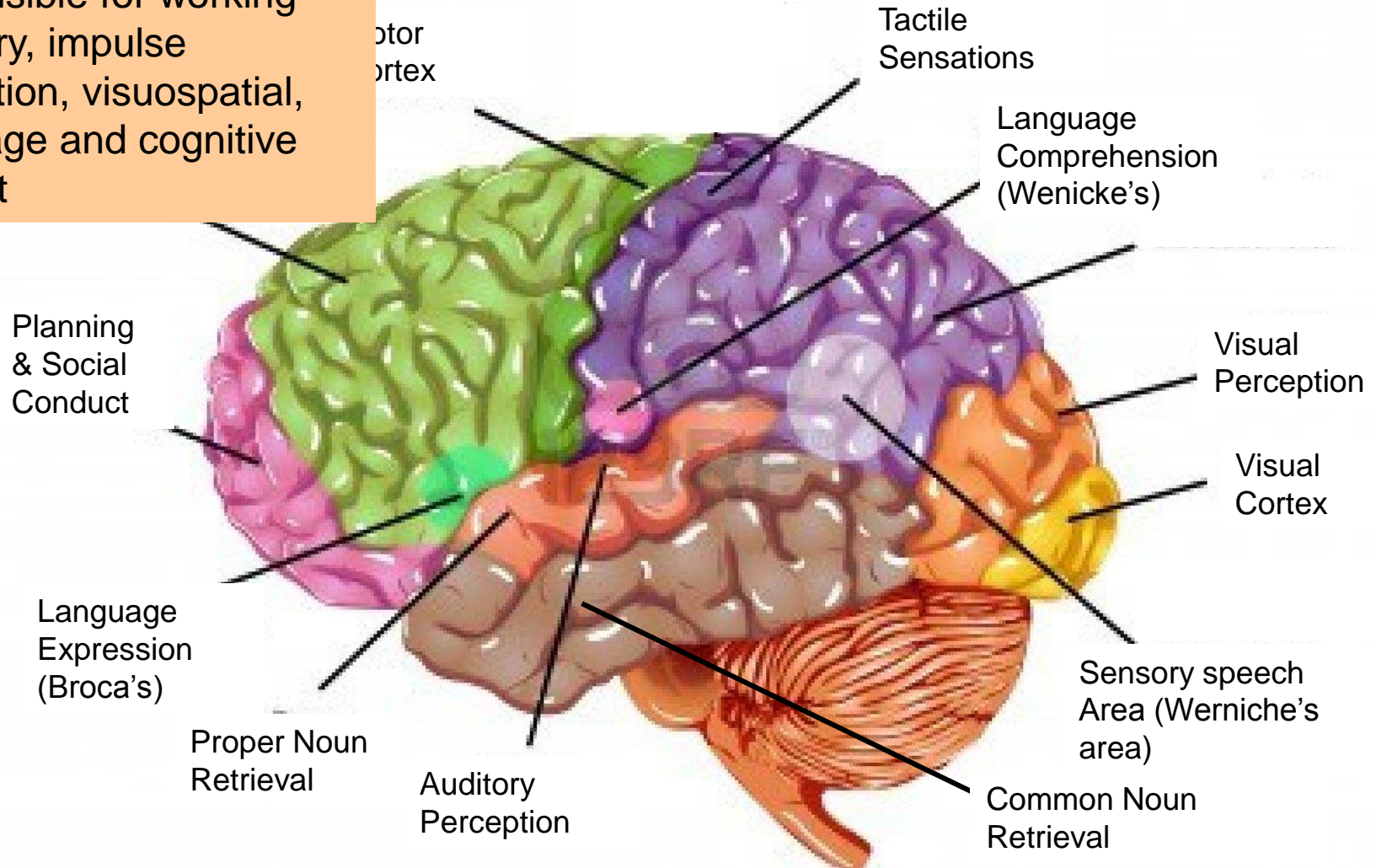
<http://thehappytoystore.com>

- Children must hold their own role and those of others in mind (working memory)
- Inhibit acting out of character (employ inhibitory control),
- Flexibly adjust to twists and turns in the evolving plot (cognitive flexibility)

Regions of the Human Brain

Areas include those responsible for working memory, impulse regulation, visuospatial, language and cognitive conflict

<http://marocepa.blogspot.com/>



Noble KG, Norman MF, Farah MJ (2005) Neurocognitive correlates of socioeconomic status in kindergarten children. Dev Sci Jan;8(1):74-87



Reward/punishment systems work for children who need motivation and structure, but **WILL NOT** work with children who are lacking **core self-regulatory** skills (EF).



Why is active learning important?

Take a few minutes to discuss at your table and be ready to share out to the whole group.

- A. Practice decision-making skills
- B. Move at their own pace
- C. Discover their own interests
- D. Engage fully in what they want to pursue
- E. Problem solve with materials
- F. Practice skills in resolving conflicts



~When children spend time in make-believe play, they develop a critical cognitive skill called executive function. (Private Speech)



Peer/Pretend-play is critical in development of EF!



- Planning ←
- Organizing
- Working memory
- Inhibition/self-control
- Flexibility



ADD/ADHD

- EF considered central to this disorder
- Barkley, 1997, states ADHD is “**fundamentally a deficit in executive functioning**” and notes attention is regulated by the supervisory system of PFL (pre-frontal lobe)
- Barkley, 1998, estimates up to 30% delay in several EF areas for kids with ADD



7 Essential Life Skills

1. Focus and Self-Control
2. Perspective Taking
3. Communicating
4. Making Connections
5. Critical Thinking
6. Taking on Challenges
7. Self-Directed, Engaged Learning



(Galinsky, 2011)



LUNCH TIME



EF Activities for 3 to 5 Year Olds

1. Imaginary play

- a. Read books, take field trips, and use videos.
- b. Have children make props for their play.
- c. Have children **plan** what they will play.



<http://membership.highscope.org/app/Default.aspx?id=2>



What It is: Planning

- Establishing a problem or goal
- Imagining and anticipating actions
- Expressing personal intentions and interests
- Shaping intentions into purposes
- Deliberating
- Making ongoing modifications



Why Is Planning Important?



- Encourages children to articulate their ideas, choices, and decisions
- Promotes children's self-confidence and sense of control
- Leads to involvement and concentration on play
- Supports the development of increasingly complex play

EF Activities for 3 to 5 Year Olds



2. Storytelling

- a. Encourage children to tell you stories.
- b. Tell group stories.
- c. Have children act out stories.
- d. Bilingual families can tell stories in their home language.

EF Activities for 3 to 5 Year Olds

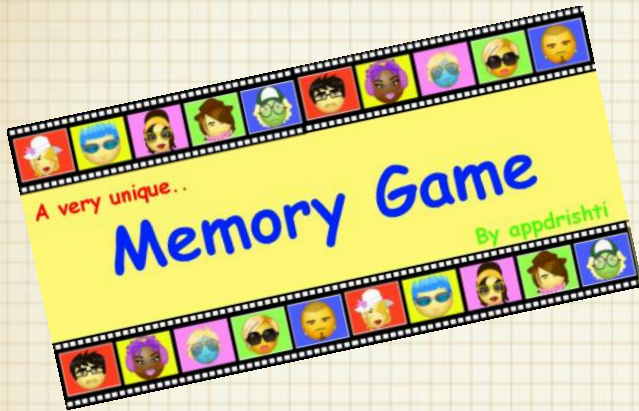
3. Movement challenges: songs and games
 - a. Provide opportunities for children to test themselves physically through : the use of climbing structures, balance beams, seesaws, etc.
 - b. Encourage attention control through quieter activities: practicing slow breathing.
 - c. Play music.
 - d. Songs that repeat and add on.
 - e. Traditional song games.



EF Activities for 3 to 5 Year Olds

4. Quiet games and other activities

- a. Matching and sorting activities
- b. Increasingly complicated puzzles
- c. Cooking is also a lot of fun



EF Activities for 5 - 7 Year Olds

Games exercise children's executive function and self-regulation skills!



- Card / board games
- Physical activities / games
- Movement / song games
- Quiet activities



Game Time!!!

- Teams will rotate around the room to different stations.
- You will record on your paper which EF skill(s) you are using after doing the activity.
- When completed, return to your seats and we will debrief the games.



Resources Web Links

- <https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/executive-functioning-issues>
- <https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/executive-functioning-issues/key-executive-functioning-skills-explained>
- <http://developingchild.harvard.edu/science/key-concepts/executive-function/>
- <http://46y5eh11fhgw3ve3ytpwxt9r.wpengine.netdna-cdn.com/wp-content/uploads/2011/05/How-Early-Experiences-Shape-the-Development-of-Executive-Function.pdf>
- <http://www.neurodevelop.com/File/e53e8b64-2e60-44a8-a14a-c728bb2979ce>
- https://www.youtube.com/watch?v=efCq_vHUMqs
- <http://developingchild.harvard.edu/resources/activities-guide-enhancing-and-practicing-executive-function-skills-with-children-from-infancy-to-adolescence/>
- <https://www.scholastic.com/ispy/games/mystery-match.htm>
- www.coolmath-games.com
- www.pbskids.org/lab/games



Resources

- Center on the Developing Child at Harvard University (2011). Building the brain's "Air Traffic Control" system: How early experiences shape the development of executive function: Working Paper No. 11. <http://www.developingchild.harvard.edu>. Center on the Developing Child at Harvard University (2014). *Enhancing and Practicing Executive Function Skills with Children from Infancy to Adolescence*. Retrieved from www.developingchild.harvard.edu.
- Diamond, A. (2009). Cognitive control and self-regulation in young children: ways to improve them and Why. Downloaded from http://www.excellence-earlychildhood.ca/documents/diamond_2009-11ang.pdf
- Galinsky, E. (n.d.). Good Guidance: The 7 Essential Life Skills | National Association for the Education of Young Children | NAEYC TYC | Teaching Young Children Magazine. Retrieved January 31, 2017, from <http://www.naeyc.org/tyc/focus-self-control>.
- Penn State Extension, (2014). Building brain power: executive function and young children. Downloaded from <http://extension.psu.edu/youth/betterkidcare/news/2014/building-brain-power-executive-function-and-young-children>.

