

Executive Function Skills in Children and Adolescents: Assessment and Treatment

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Additional Handouts:

- Development of Executive Control Skills
- Developmental List Of Executive Function Skills
- Developmental Time Skills Chart

Development of Executive Control Skills

EMERGING FOUNDATIONS

First Two Years

- Reflexive at first
- Inhibition and simple, focused attention emerges between 6-12 months
- Understand and respond to no
- Simple shifting of attention emerges between 1-2 years
- PLanning: emergence of intentional action to gain a result or resolve a problem

Two Year Olds

- Life is here-and-now
- Impulse-driven
- Distractible
- Perseverative
- No flexibility
- No self-correction
- Immature, but developing attention
- Inhibition reliant on adult mediation
- Planning: creates multi step sequences to attain goal: collects chair, climbs on it to attain out of reach cookie jar
- Emotional self regulation: tantrums emerge; frustration with handling and demands of inhibition on them

Three Year Olds

- Attention, environmental awareness, and language continue to develop.
- Verbal fluency and impulse control improves
- Recount experiences in sequences
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Four Year Olds

- Language is really starting to help
- Follows simple rules

Five Year Olds

- Impulsivity is declining
- Language, verbal fluency, and now processing, is increasing
- Better balance between internal needs & external demands
- Follow simple, multi-step directions

Six Year Olds

- More self-controlled; less other controlled
- Attention much better; span is longer
- Language processing is of great help
- Begin to use silent, verbal mediation!!!
- Simple problem solving appears

Elementary School Age:

Planning

- Carry out multi step directions
- Work in learning centers independently
- Carry out daily routines for school and home
- Become increasingly strategic in board games and sports

7 -9YearOlds

- Typically, language is well-developed
- Attention skills more selective and deliberate

Ten Year Olds

- Nearing maturity in ability to selectively attend and identify relevant information

11 – 12 Year Olds

- Ability to learn from mistakes
- Ability to generate alternate strategies
- Goal-setting for complex issues
- Problem solving, and planning & organization complexity

Adolescents

- Significant increases in all skills and relative maturity of:
 - Attention & inhibition
 - Working memory
 - Language processing
 - Cognitive flexibility
 - Decision-making
 - Deliberate behaviors
 - Multi-goal oriented efforts
 - Multi-strategy development

Early 20's Executive function skills come into full maturity!

- Self-control
- Adaptive to change
- Goal-directed behaviors Avoid sabotaging efforts Ethical, moral, legal decisions
- Behave within parameters of society
- Long range planning and time management
- Integrate information from multiple sources and demands

Developmental List Of Executive Function Skills

From Executive Function Skills in Children and Adolescents, by Peg Dawson and Richard Guare

Preschool

- Run simple errands (e.g., “Get your shoes from the bedroom”).
- Tidy bedroom or playroom with assistance.
- Perform simple chores and self-help tasks with reminders (e.g., clear dishes from table, brush teeth, get dressed).
- Inhibit behaviors: don’t touch a hot stove; don’t run into the street; don’t grab a toy from another child; don’t hit, bite, push, etc.

Kindergarten

- Run errands (two to three step directions).
- Grade 2
- Tidy bedroom or playroom.
- Perform simple chores, self-help tasks; may need reminders (e.g., make bed).
- Bring papers to and from school.
- Complete homework assignments (20-minute maximum).
- Decide how to spend money (allowance).
- Inhibit behaviors: follow safety rules, don’t swear, raise hand before speaking in class, keep hands to self.

Grades 3—5

- Run errands (may involve time delay or greater distance, such as going to a nearby store or remembering to do something after school).
- Tidy bedroom or playroom (may include vacuuming, dusting, etc.).
- Perform chores that take 15—30 minutes (e.g., clean up after dinner, rake leaves).
- Bring books, papers, assignments to and from school.
- Keep track of belongings when away from home.
- Complete homework assignments (1 hour maximum).

Grades 3—5 (continued)

- Plan simple school project such as book reports (select book, read book, 'write report).
- Keep track of changing daily schedule (i.e., different activities after school).
- Save money for desired objects, plan how to earn money.
- Inhibit/self-regulate: behave when teacher is out of the classroom; refrain from rude comments, temper tantrums, bad manners.

Grades 6—8

- Help out with chores around the home, including both daily responsibilities and occasional tasks (e.g., emptying dishwasher, raking leaves, shoveling snow); tasks may take 60—90 minutes to complete. Baby-sit younger siblings or for pay.
- Use system for organizing schoolwork, including assignment book, notebooks, etc. Follow complex school schedule involving changing teachers and changing schedules.
- Plan and carry out long-term projects, including tasks to be accomplished and reasonable timeline to follow; may require planning multiple large projects simultaneously.
- Plan time, including after school activities, homework, family responsibilities; estimate how long it takes to complete individual tasks and adjust schedule to fit.
- Inhibit rule breaking in the absence of visible authority.

High school

- Manage schoolwork effectively on a day-to-day basis, including completing and handing in assignments on time, studying for tests, creating and following timelines for long-term projects, and making adjustments in effort and quality of work in response to feedback from teachers and others (e.g., grades on tests, papers).
- Establish and refine a long-term goal and make plans for meeting that goal. If the goal beyond high school is college, the youngster selects appropriate courses and maintains grade point average (GPA) to ensure acceptance into college. The youngster also participates in extracurricular activities, signs up for and takes Scholastic Aptitude Tests (SATs) or American College Tests (ACTs) at the appropriate time and carries out the college application process. If the youngster does not plan to go to college, he or she pursues vocational courses and, if applicable, employment outside of school to ensure the training and experience necessary to obtain employment after graduation.
- Make good use of leisure time, including obtaining employment or pursuing recreational activities during the summer.
- Inhibit reckless and dangerous behaviors (e.g., use of illegal substances, sexual acting out, shoplifting, or vandalism).

Stage of Time Management	Strategies
Can my child arrange events in the right sequence?	<ul style="list-style-type: none"> • Guide them to understand how to properly sequence familiar events.
Can they engage in future oriented thinking and hold concepts or ideas in working memory sufficiently to organize them or associate them with other aspects of their knowledge base?	<ul style="list-style-type: none"> • Use declarative Language • Use pictures from the visual schema strategy • Talk about goal setting and what kinds of actions could lead to achieving certain goals • Help the child to anticipate a desired outcome
How expansive is their knowledge and experience base?	<ul style="list-style-type: none"> • Use visual pictures • Use community outing questions
Can my child develop a series of strategies considering time and causal constraints?	<ul style="list-style-type: none"> • Use the travel planner • Practice cause and effect thinking: if....then..... • Teach Public vs Private Time • Teach how to estimate the Passage of Time • Teach the Allocation of time
Do they have the language skills necessary to talk to someone about their goal and their plan?	<ul style="list-style-type: none"> • Address terms expressing time factors and probability, both necessary in formulating statements expressing future events. • Develop scripts talking about someone else's plans so they come to understand how a series of strategies unfolds and leads to goal attainment. • Simulate the use of a previous plan being adapted to carry out a plan to achieve a different, but similar goal. • "talk about a plan" in past, present, and future tense. This provides practice material for stating the same event as though you're talking about this event in present, past or future time frames. • Discuss something simple and concrete from their own daily experiences in the format of a plan and talking through this with them. • Work to help them learn time language and to understand and express causal relationships
Can they identify points of initiation of events, or are their actions so disorganized that they seem never to finish things or attempting to do too many things at the same time?	<ul style="list-style-type: none"> • Can your child "see" time? If not, teach them the sweep of time. • Illustrate how to use a familiar plan to help reach a new but similar goal. • Identify the goal, the starting point and the steps toward reaching the goal. • Challenge the child to think and talk about plans where desired outcomes are more distant and abstract. Steps toward attaining these goals are more complex • Students should be encouraged to use a time line or planner to layout the steps of their plans, identifying the starting point (in time) and the time that they expect to complete the plan. Then, they should decide how long each of the steps of their plan should take. This simulates a student's experience in discussing the time constraints of a plan.
Can they regulate their impulses, stay on task, and stay focused on their goal and their plan?	<ul style="list-style-type: none"> • Refer to a time line as it illustrates how things happen over time. It's the element of a plan where you visually layout a way to use the time you have to do what you plan to do.

Stage of Time Management	Strategies
Can they comprehend and manage obstacles as they move through the steps of a plan?	<ul style="list-style-type: none"> • We can talk through the steps of a plan discussing what could be done if something goes wrong
Can they readjust their strategies if necessary, again, keeping in mind causal and time constraints? Can they ask for help or ask questions if they need help along the way?	<ul style="list-style-type: none"> • Ask your child to answer questions about problems that could possibly occur as they carry out their plan and what could be done so the plan could continue
Will they remember the steps of this plan and be able to use this experience to help plan to reach a similar goal in the future?	<ul style="list-style-type: none"> • Save planner pages with Notes to Self • Create visual schemas • Use digital photography or Google images whenever possible