Motivating to Enhance Executive Function in Gifted Children
Presented by

Julieann Ash, M.S., BCET

Dr. Carol Strip Whitney, Ph.D.
Additional Resources – Dr. Carol

A Love for Learning
Motivation and the Gifted Child

Helping Gifted Children
A Practical Guide for Parents and Teachers, 2nd edition

Carol A. Strip Whitney, Ph.D., with Gretchen Hirsch

Midwest Educational Therapists and Associates
Definition

What is *Motivation*?

- Initiation, direction and intensity of human behavior
- The intrinsic desire to act in a particular way
Motivation

- What do we do when the child is gifted but has blocks within the brain which inhibit the giftedness from manifesting itself?
- How do we motivate in such cases?
What is Executive Function?

The processes responsible for guiding, directing and managing cognitive, emotional, and behavioral functions.
What is Executive Function?

The Big Three

INITIATION

PLANNING

ORGANIZATION OF MATERIALS
Initiation

- Initiation helps us get started on things.
  - How we begin a task or independently generate ideas for a task

- What do issues look like?
  - Stalled out - Just can’t get going

- Two main types -
  - Neurologically-driven and Anxiety-driven
Planning

- How we anticipate the future, set goals, take a systematic step-by-step approach to tasks
- It’s *today?!?:* No time sense
- Seem to live in an eternal now

Neurologically typical sense of time

Past

Future

Midwest Educational Therapists and Associates
Planning Effective Strategies

- Make Time Visual
  - Visual Calendars
  - Color coding on website/portal

- Use Electronic Reminders
  - iPhone/iPod/cell phone
  - Email/text self
  - Personal time multiplier
Organization of Materials

- How we keep our workspace, personal areas and materials in an orderly way
- What do issues look like?
  - “I just had it…”
## Organization of Time

### How it Impacts You

<table>
<thead>
<tr>
<th>Important</th>
<th>Urgent: ½ to 48 Hours</th>
<th>Less Urgent: 24 hours – 1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- List tasks to-do beside matrix.
- Put matrix results on calendar or in reminder system.

Developing Potential
Gifted Education Services
Midwest Educational Therapists and Associates
Classroom Management
- Project Management-style

R - Record the assignment
E - Examine requirements and choices
A - Ask questions to better understand
C - Create a goal to improve/match performance
T - Target a time to begin, end and evaluate
New Understanding

- Recent research into neuroplasticity provides new insights
- To understand how twice exceptional can keep up with typical gifted required strategies and research
Our Research

- We compared Twice Gifted Exceptional to Neurotypical Gifted students
Combining CLOZE and Keywording Strategies

Alex:
Read with deliberation
Often got exact word or meaningful alternative

Both:
OK with strategy.
Both remember article for few weeks.

Alan:
Showed interest in article
Often got exact word or meaningful alternative
Hesitated, “I don’t know” on last word
Didn’t want to risk mistake

Both OK with strategy.
Both remember article for few weeks.
## Conclusions

<table>
<thead>
<tr>
<th>Twice Exceptional</th>
<th>Neurotypical Gifted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adds extra keywords</td>
<td>Missed only a few keywords</td>
</tr>
<tr>
<td>Extremely literal</td>
<td>Not overly literal for details</td>
</tr>
<tr>
<td>Ethical for every detail</td>
<td>Ethical, but not worried</td>
</tr>
<tr>
<td>Needs transition time</td>
<td>Moves easily between tasks</td>
</tr>
<tr>
<td>Goes off-topic to chat</td>
<td>Stays the course for the most part</td>
</tr>
<tr>
<td>Other person perspective difficult at first</td>
<td>Other person perspective quite natural once clarified</td>
</tr>
</tbody>
</table>
What’s happening in the brain during these strategy sessions?
The Adolescent Brain

Insight, judgment, abstraction and planning – frontal and prefrontal lobes

Movement and feeling: motor and sensory cortex – parietal lobes

Hearing: Auditory cortex – temporal lobes

Seeing: visual cortex – occipital lobes
Thinking vs. Reactive Brain

- Sensory input enters the brain and is routed to one of two areas:

- The *prefrontal cortex* (thinking brain) which can consciously process and reflect on information, or

- *Lower brain areas* (reactive brain) which reacts to information instinctively rather than through thinking.
Thinking vs. Reactive brain

- Low stress levels and high interest
- When one is not stressed by negative emotions, one can control which information makes it into the brain, and influence which information is directed to the prefrontal cortex.
- The most valuable information tends to pass into the ‘thinking brain.’
Thinking vs. Reactive Brain

The Amygdala

- The amygdala routes information based on one’s emotional state.
- Negative emotions (fear, anxiety, boredom, etc.) puts the brain in survival mode, blocking entry of new information into the prefrontal cortex.
- A stressed brain closes off the pathways through the RAS leading to a reduced ability to learn and store new information.
Thinking vs. Reactive Brain

The Hippocampus

- The amygdala lies next to the hippocampus, where the brain links new sensory input to stored memories in order to make new *relational memories*, ready for processing in the prefrontal cortex.

- When one is focused and in a positive or controlled emotional state, the prefrontal cortex can more successfully organize newly coded memories into long-term knowledge.
Thinking vs. Reactive Brain

Dopamine

- The brain releases extra dopamine when an experience is enjoyable.
- As positive emotions cause dopamine to travel to more parts of the brain, additional neurons are activated.
- A boost in dopamine not only increases one’s sense of pleasure, but also subsequently increases other neurotransmitters that enhance alertness, memory, and executive functions in the prefrontal cortex.
Thinking vs. Reactive Brain

Brain Structural Development

- Increased learning, especially via the ‘thinking brain,’ leads to increased development of brain interconnections and memory formation.

- Increased dendritic connections are believed to lead to more learning and be an actual mechanism for production of long-term memory formation.
Executive Functioning

Think of it as the conductor of the orchestra
Myelination: Myelin – fatty substance coats axons

- Insulates axons – increase speed of a neuron

UCLA Researchers find Myelin Production Continues past adolescence into the 30s, increasing communication efficiency.
Pattern of Brain Development

- Bottom up – By age 2, much of brain myelinated
- Language and fine motor coordination next few years
- Major areas need to be connected
- Back to front
- Frontal lobe connection delayed until age 20 or older
STIMULATED NEURON

UNSTIMULATED NEURON
Sternberg’s Triarchy Theory

- Cognitively Gifted
- Creatively Gifted
- “Street Smart”
Plan Addresses

- Temperament
- Behavior
- Autonomy
- Executive Function

- Socio-cultural content
- Perception
- Empathy
- Emotion
- Language
- Deep Learning
- Memory
- Development
References


References


