Executive Function
Processing Speed

Kris Baker, Autism Consultant SSJCSS
What is processing speed?

Processing speed is the pace at which you take in information, make sense of it and begin to respond.

“There is no simple way to increase someone’s speed of processing, but accepting, accommodating and advocating are some general ways to cope with processing speed deficits in a variety of settings.”

Kate Kelly, Understood for learning and attention issues.  www.understood.org
Ellen Braaten, PhD. The Clay Center for Young Healthy Minds, http://www.mghclaycenter.org/2
Its important to teach the difference between unwilling and unable!
<table>
<thead>
<tr>
<th>Subtest</th>
<th>Scaled Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarities</td>
<td>7</td>
<td>Average</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>12</td>
<td>Average</td>
</tr>
<tr>
<td>Block Design</td>
<td>9</td>
<td>Average</td>
</tr>
<tr>
<td>Visual Puzzles</td>
<td>11</td>
<td>Average</td>
</tr>
<tr>
<td>Matrix Reasoning</td>
<td>9</td>
<td>Average</td>
</tr>
<tr>
<td>Figure Weights</td>
<td>10</td>
<td>Average</td>
</tr>
<tr>
<td>Digit Span</td>
<td>8</td>
<td>Average</td>
</tr>
<tr>
<td>Picture Span</td>
<td>9</td>
<td>Average</td>
</tr>
<tr>
<td>Coding</td>
<td>3</td>
<td>Significantly Below Average</td>
</tr>
<tr>
<td>Symbol Search</td>
<td>5</td>
<td>Well Below Average</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Composites</th>
<th>Standard Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Comprehension (Gc)</td>
<td>98</td>
<td>Average</td>
</tr>
<tr>
<td>Visual-Spatial (Gv)</td>
<td>100</td>
<td>Average</td>
</tr>
<tr>
<td>Fluid Reasoning (Gf)</td>
<td>97</td>
<td>Average</td>
</tr>
<tr>
<td>Working Memory (Gsm)</td>
<td>91</td>
<td>Average</td>
</tr>
<tr>
<td>Processing Speed (Gs)</td>
<td>66</td>
<td>Significantly Below Average</td>
</tr>
</tbody>
</table>
Steps to Responding

- **Register** – the information or stimulus
- **Orient** – to the input – where the information is coming from
- **Interpret** – the sensory information
- **Organize** – or response via physical, emotional and/or cognitive means
- **Regulate** – modulate our response
- and the **Respond** – (motor planning) to the incoming information
  - Voluntarily – with thought
  - Automatically – without thought

When you think a student is avoiding, they may “stuck” in this process.
• Require significantly more time to respond to stimulus (i.e. cue, prompt, request, demand etc.)
• Keeping up with conversations, especially when multiple people are involved
• Require significantly longer time to complete an activity or work
• Requires more time to connect/orient thoughts in an organized method
• Loses track or gets stuck when trying to find the correct words or answers, especially when having to go back through text
Processing Speed Difficulties/Struggles

- Reading for comprehension
- Listening/reading *and* taking notes
- Understanding and follow multi-step directions or instruction
- Completion of multi-step assignments or problems
- Easily overwhelmed with too much information or too many instructions
- Impaired ability to make quick decisions

*What may LOOK like a lack of effort may be SLOW PROCESSING!*
**Intervention Options**

Prime/pre-teach lessons:  *(antecedent based intervention)*

- Provide an outline of the lesson prior to class
- Provide an example of the finished product for assignments or tasks

Give the student a **visual prompt** before they are called upon to answer, preferably a visual cue/prompt

- You will be answering question____ on page______.
- You will be answering the question below.
Intervention Options

• Teach, coach and practice organizational skills (See Executive Functioning Skills: Organization handout)
• Allow wait time/time delay with directions, instructions, requests to perform
• Allow additional time for tests or longer written assignments or tasks (Time Delay)
• Allow oral responses, offer a word bank, eliminate penalties for spelling errors
• Eliminate timed tests

Ask a student a question on a preferred topic – then count how long it takes the student to respond. Then multiply this by 2 to 4 to establish a starting expectation of wait time.
**Intervention Options**

- Use of visual schedules or to-do lists to help reduce anxiety (defines expectations, breaks up assignments, helps with sequencing difficulties).

- Create calendars **WITH THE STUDENT** for longer projects or assignments, or multi-step projects (color code subjects or even different calendars for different subjects).
Limit repetitious practice once mastery of the skills is demonstrated
• Or have the student set an individualized baseline goal, then the goal is to improve that baseline time, not beat a randomly established time
• Or have set dates to review mastered skills for maintenance purposes

Eliminate or reduce penalties for spelling on written assignments

Use text to speech software or apps (Technology Aided Intervention)

Allow one re-do per assignment giving the student the opportunity to improve grades (this also allows for more time to process the work)
Teach **social scripts** for self-advocacy:

- I need more time . . .
- Can you come back to me . . .
- Could you say that again please . . .
- Can you give me a clue/hint . . .
- I don’t understand the question . . .
- Please show me an example . . .
Request to Retest

Student Information

Name: __________________________
Date: __________________________
Class Period: __________________________
Test Date: __________________________

Test Information

Test Number: __________
Previous Score: __________

Explanation for low test score:

These activities I did to improve my understanding of this concept:

I request the opportunity to retake this concept. I have worked hard to improve my understanding of this concept.

Signature: __________________________

Reflect:
Previous Score: __________

Why?

Three things I did to improve my test score:
1. __________________________
2. __________________________
3. __________________________

When would you like to retake?

Stuff to Attach:
• Previous Tests
• Beat of your 3 Activities

Request:
I request the opportunity to retake. I have worked hard to improve my understanding of this concept.

Signed: __________________________
I can do it!

Instead of saying what I can’t do, or that I don’t want to, I can . . . .

- Share what I CAN do
- Just try it, even if I make a mistake, it is ok 😊
- I can ask for help
- I can ask someone to show me what to do
- I can watch the adult

There is always something I can try! 😊
Provide student with a social narrative covering: What do I do when I don’t know what to do or what do I do when . . .

- I can’t get into my locker
- I don’t understand my homework
- I don’t feel well
- I have lost something
- I forgot my lunch
- I don’t have money in my lunch account

Model, teach, coach and REINFORCE think aloud procedural steps

- Teach positive self talk
- Mnemonic devices
- Pair with motor movements or motions
What Can I Say To Myself?

<table>
<thead>
<tr>
<th>Instead of:</th>
<th>Try thinking:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm not that good at this.</td>
<td>What am I missing?</td>
</tr>
<tr>
<td>I'm awesome at this.</td>
<td>I'm on the right track.</td>
</tr>
<tr>
<td>I give up.</td>
<td>I'll use some of the strategies we've learned.</td>
</tr>
<tr>
<td>This is too hard.</td>
<td>This may take some time and effort.</td>
</tr>
<tr>
<td>I can't make this any better.</td>
<td>I can always improve, so I'll keep on trying.</td>
</tr>
<tr>
<td>I just can't do maths.</td>
<td>I'm going to train my brain in maths.</td>
</tr>
<tr>
<td>I made a mistake.</td>
<td>Mistakes help me learn better.</td>
</tr>
<tr>
<td>She's so smart. I'll never be that smart.</td>
<td>I'm going to figure out how she does it so I can try it.</td>
</tr>
<tr>
<td>Plan A didn't work.</td>
<td>Good thing the alphabet has 25 more letters.</td>
</tr>
<tr>
<td>It's good enough.</td>
<td>Is it really my best work?</td>
</tr>
</tbody>
</table>

The Power of YET

“I don't get it.”
“I can’t do this.”
“This doesn’t work.”

Take a deep breath. Go for a short stroll. Then add a “yet” to the end of your sentence:

As in:
“I don’t get it... yet.”
“I can’t do this... yet.”
“This doesn’t work... yet.”

It may not be easy, but it doesn’t mean you’re never going to meet the challenge.
Teach and coach time management and pair with **POSITIVE REINFORCEMENT**

Set small timed or chunked goals for the student and pair meeting these goals with positive **reinforcement**

**Visual Support & Self-Management**
Teach Expectations Regularly - and teach different expectations for different activities.

- Whole Group Expectations:
  - Look At The Teacher
  - Quiet
  - Sit
  - Raise Hand
  - Hands and Feet to Self

- Seat Work Expectations:
  - Sit at Desk
  - Quiet
  - Raise Hand
  - Hands and Feet to Self

- Station Expectations:
  - Whisper Voices
  - Walk to Your Station
  - Clean Up Your Station
  - Put Papers in Your Folder

- Read Aloud Expectations:
  - Look At The Teacher
  - Sit on the Carpet
  - Quiet
  - Hands and Feet to Self

We assume students know our expectations (can read our mind) or that students know when the expectations change!
Intervention Options

Use graphic organizers to help with organization of thoughts, ideas and sequencing

Visual Support

Provide final product samples – especially with academics to help the student comprehend the “big picture” or final expectation

SSJCSS.com
Educators

Autism Resources
Visual Supports Library
Graphic Organizers to Support Academics
Graphic Organizers to Support Students with Academics

General:
- http://www.cmrh.org/diagram/index.html#graphicorganizers
- http://www.sites.google.com/site/graphicorganizers/education/graphic_organizers
- http://www.cmrh.org/diagram/index.html#graphicorganizers
- http://www.teachersграфic_orgainers_all.html

Reading or Language Arts:
- https://sites.google.com/site/graphicorganizers/education/graphic_organizers
- http://www.sites.google.com/site/graphicorganizers/education/graphic_organizers

Autism Resources
- Autism Resources Homepage
- Visual Supports File Library
- General
- Social Narratives
- Incentive Plans and Reinforcement
- Visual Schedules
- Visual Cues
- Graphic Organizers to Support Learning
- File Folders/Structured Tasks
- Autism Library
- Behavior Documentation
- ASD Curriculum
- Autism Professional Development
- Sensory
- Parent Resources
- Executive Function Skills
Executive Function Skills on SSJCSS Website

SSJCSS.com
Educators
Autism Resources
Executive Function Skills
Questions?

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