

STRATEGIES TO IMPROVE PROCESSING SPEED

Processing speed is a basic cognitive process that subserves many other higher-order cognitive domains. It involves the ability to rapidly and efficiently respond to basic stimuli with reasonable accuracy and the ability to perform tasks requiring sustained concentrated visual attention or work rapidly under timed conditions. A student with a deficit in this area may have difficulty with different types of tasks that require the rapid processing of symbols, searching for and responding to specific targets, as well as rapid naming of visual stimuli. Thus, processing speed may be a more fundamental cognitive process that underlies the efficiency with which one can read and write. Slowed processing speed has been described as a sensitive but not specific characteristic of a broad range of disorders.

Problems that can contribute to slow processing speed include difficulty in visual-motor integration, distractibility, anxiety, visual defects, visual-perception, fine-motor use, low motivation, or excessive concern for detail. Often times attention, concentration, speed of mental operations, cognitive shifting, and/or short-term memory for new learning are concerns.

Strategies for use in the Classroom:

- Emphasize quality over quantity on work and social interactions.
- Extend the time for completing assignments or allow reasonable extra time to complete tasks.
- Provide ample time for responding on written tasks.
- Allow sufficient time for the student to formulate verbal responses.
- Shorten assignments so that they may be accomplished in a reasonable time period.
- When reading, encourage the student to sound out unfamiliar words, rather than rushing through them.
- Articulate verbal directions clearly; avoid speaking quickly.
- Word directions succinctly and in simple terms.
- Maintain eye contact when giving directions; get down on his/her level whenever possible.
- Present verbal directions in small manageable chunks (individualized for the student). This may begin as providing short, one-step directions to start.
- Emphasize transition words in directions (ex: **First** get your backpack, **then** go back to your desk...). Slowly begin to string together longer chains of directions.
- Have the student repeat directions back in his/her own words to ensure understanding.
- Paraphrase his/her responses in order to increase communication and vocabulary and to decrease scripting.
- Encourage the student to ask for repetition and clarification as needed.
- Tell the student which question will be his/her several minutes before he/she is expected to respond.
- Develop individualized visual cues/reminders regarding common behavioral expectations.
- Use concrete examples before moving to more abstract examples.
- Use multi-sensory instructional techniques whenever possible.

- Games: BLINK, Catch Phrase, Dutch Blitz, SET, Spot it! Scrabble Slam, Pass the Bomb and Wiz Kids.
- For any review exercise, do oral recitation while tossing a Nerf ball or Hackey-sack ball, or beanbag back and forth with the instructor, another student, or toss up and catch himself or say in a rhythmic pattern, trying to say the next item on the next beat (can also use a metronome).
- For any review exercise, ex: saying basic facts, times tables, memory verses, poem or lists, history dates, names of states or presidents, or whatever-- do oral recitation, then after doing it the first time, say, "Now say it again, but faster this time."
- Reviewing times tables (or whatever): Student and teacher use a slow paced clap- for each clap say a number or a word, then allow 2 claps for the answers (because they are often more than one syllable). Ex: 9 times 2 is 18 - that requires 6 claps.
- Practice quickly scanning information and responding to what is seen: Where's Waldo, Find the
- Differences (between 2 pictures), or a picture or paragraph in a textbook. Then see how many things the student can list in one minute. Do repeatedly to try to beat the last number of items in a minute.
- Give a topic like "mountain words" or "night words" or whatever topic (can be related to science,
- history, literature...). Have students write how many they can think of in one minute. Do repeatedly
- with different topics to beat the record.

Strategies to reduce distractions and enable students to work more rapidly and efficiently in the classroom:

- Provide clearly duplicated worksheets that contain only a few problems and plenty of white space.
- Double-space all printed directions. If needed, type words in large letters with extra spaces in between.
- With some students, the use of large-print books may improve performance.
- Seat the student in the front row near the chalkboard for all copying activities.
- Eliminate copying or limit the amount of material that a student is required to copy from the chalkboard or from a textbook.
- Do not require speed or accuracy in copying.
- Provide practice with simple copying activities. Chart performance and reward the student for improved speed and accuracy.
- Cut a window or box in a piece of cardboard so the student can frame and separate each problem as
- needed or have the student cover the part of the page that is not being worked on.
- Point to all words and phrases while reading from the board.
- To develop visual recall and perceptual speed, have the student reproduce words or phrases that are
- flashed on a tachistoscope or computer. Gradually reduce the exposure time.
- Allow the student to use an index card or finger for keeping his or her place in reading.
- Encourage the use of graph paper in mathematics.
- Use visual clues to organize worksheets, such as instructing the student to place each answer in a box or folding the paper to make boxes.

- Recommend visual tracking exercises or computer games that require rapid visual scanning.
- Have the student copy letters, word sequences, or sentences using a typewriter or computer.
- Teach the use of verbal mediation when copying materials. The student should say each number, letter, or word as it is transferred from one place to another.

Strategies for use in ET sessions:

- Rhythmic Writing: The rhythm and coordination of voices with strokes is especially powerful with the 1-2 count motifs.
- Rhythmic Writing: As visual-motor skills improve, so will processing speed.
- 8s and math questions- the faster the student solves the mental math, the better
- Keep track of the number of techniques completed and encourage student to beat the record of completed tasks.
- Transition quickly from one technique to another.
- Blue Book recitation: recite, student beating his own time
- Recite Blue Book with a rhythm. Therapist says one keyword, the student says the next keyword, in time to a slow rhythm.
- Use a metronome as student recites Blue Book pages or multiples of ____
- Recite multiples of ____ in Math Block to a steady rhythm.
- Math Block: Throw a ball back and forth in a steady rhythm. As student catches the ball they must say the answer.
- Buzzer: Encourage student to scan the Morse Code faster each time, processing the letters to spell the Buzzer Word
- Auditory Exercises: These work with working memory and processing speed.
- Games: Blink, Spot It!, Pass the Bomb, Wiz Kids, Scrabble Slam, Catch Phrase, Dutch Blitz, SET
- Teach the use of verbal mediation when copying materials. The student should say each number, letter, or word as it is transferred from one place to another.
- Allow sufficient Wait Time.
- When reading, encourage the student to sound out unfamiliar words, rather than rushing through them.
- Articulate verbal directions clearly; avoid speaking quickly.
- Word directions succinctly and in simple terms.
- Maintain eye contact when giving directions; get down on his/her level whenever possible.
- Present verbal directions in small manageable chunks (individualized for the student). This may begin as providing short, one-step directions to start.
- Emphasize transition words in your directions (ex: **First** get your backpack, **then** go back to your desk). Slowly begin to string together longer chains of directions.
- Have the student repeat directions back in his/her own words to ensure understanding.
- Paraphrase student responses in order to increase communication and vocabulary and decrease scripting.
- Encourage the student to ask for repetition and clarification as needed.
- Practice quickly scanning information and responding to what is seen: Where's Waldo, Find the

- Differences (between 2 pictures), or a picture or paragraph in a textbook. Then see how many things the student can list in one minute. Do repeatedly to try to beat the last number of items in a minute.
- Give a topic like “mountain words” or “night words” or whatever topic (can be related to science,
- history, literature...). Have students write how many they can think of in one minute. Do repeatedly
- with different topics to beat the number.