

Processing Speed

Processing Speed is one of the measures of cognitive efficiency or cognitive proficiency. It involves the ability to automatically and fluently perform relatively easy or over-learned cognitive tasks, especially when high mental efficiency is required. That is, for simple tasks requiring attention and focused concentration. It relates to the ability to process information automatically and therefore speedily, without intentional thinking through.

A student with processing speed needs has difficulty in performing simple cognitive tasks fluently and automatically, especially when mental efficiency in focusing concentration is required.

Indicators:

The key indicators of this need relate to the time and speed taken to perform tasks.

Students with processing speed needs may take more time to:

- recognize simple visual patterns and in visual scanning tasks
- take tests that require simple decision making
- perform basic arithmetic calculations and in manipulating numbers, since these operations are not automatic for them
- perform reasoning tasks under time pressure
- make decisions that require understanding of the material presented
- read silently for comprehension
- copy words or sentences correctly or to formulate and write passages

Instructional Strategies:

The key instructional strategy for students with slow processing speed is to reduce the time pressure associated with a task. This can be done in three essential ways:

Give the student more time for their work:

- Allow longer response time for the student to
 - respond orally to questions in class
 - complete seatwork assignments in class
 - make decisions when offered a choice of activities
- Allow extra time for tests, usually time and a half
- Provide extra time for the student to complete in-class assignments
- Reduce the amount of work the student is required to do.
- Shorten the assignment so it can be accomplished within the time allotted
- Focus on quality of productions, rather than quantity

- Shorten drill and practice assignments that have a written component by requiring fewer repetitions of each concept
- Provide copies of notes rather than requiring the student to copy from the board in a limited time

Build the student's efficiency in completing work through building automaticity.

- Provide instruction to increase the student's reading speed by training reading fluency, ability to recognize common letter sequences automatically that are used in print; and sight vocabulary
- Provide timed activities to build speed and automaticity with basic skills, such as:
 - reading a list of high-frequency words as fast as possible
 - calculating simple math facts as fast as possible
 - learning simple math calculations through flash cards and educational software exercises
 - charting daily performance for speed and accuracy

Train the student in time management techniques to become aware of the time that tasks take.

- Teach the student to use a stopwatch or to record his or her start and end times for assignments to monitor the time spent on each activity. Set a goal for the student to gradually reduce the time needed to do these tasks

Other strategies:

- Have the student participate in games that require varying levels of processing speed (e.g. tic-tac-toe, checkers, chess, with increasing time limits on the next play)
- Use markers with windows to block out other visual distracters
- Use visual language strategies (Draw what you need to remember)
- Solve word mazes or word-finds where you circle words that you find either up/down, across, or diagonally. Time yourself.
- Practice using your finger to keep your place on worksheets and in books; use cards to underline where you are reading
- Use a large uncluttered format
- Use 3-D manipulatives
- Use color coding.
- Find all the mistakes in "What's wrong with this picture" pictures, as fast as you can.

Assessment Strategies:

Assessment strategies emphasize power tests that focus on the knowledge the student has, rather than on speed tests to complete a large number of questions within a limited time.

- Emphasize accuracy rather than speed in evaluating the student in all subject areas

- Replace timed tests with alternative assessment procedures
- Allow extra time for tests and exams. Give the student supervised breaks during the test
- Use test formats with reduced written output formats (e.g. multiple choice, True / False, fill in the blank) to accommodate for slow writing fluency