| STUDENTS WITH NEURODEVELOPMENTAL DISORDERS: |
| SELECTED COGNITIVE CHARACTERISTICS and CORRESPONDING TEACHING STRATEGIES |
| Teresa Bolick, Ph.D. |
| March 2000 |

Inefficient deployment of attention

⇨ Use visual frames to highlight the area of focus
⇨ Provide graphic organizers for listening tasks
⇨ Use "story grammar" sheets for listening to fiction
⇨ Always label the purpose of the task/activity
⇨ Provide meaningful cues to assist with shifting attention—ideally within the sensory modality that the student is using at the time
⇨ Use visual schedules to help the student know what comes next
⇨ Use task cards to assist with sustained attention and effort and to reduce responses to irrelevant input
⇨ Use preferential seating to reduce auditory, visual, and tactile tactile distractions
⇨ Use "zoom in/zoom out" metaphor to help the student establish the appropriate level of detail

Inefficient understanding of time

⇨ Use visual schedules and "first-then" cards
⇨ Link transition cues with concrete events (e.g., "After you finish that math paper, it will be time for spelling" rather than "You have two more minutes, then it's time for spelling")
⇨ Use social stories to help the student understand timing and sequence
⇨ Use a "finish later" box and a specific time for unfinished work for tasks that cannot be finished in one sitting

Limited understanding of cause/effect and other "connecting" concepts	⇨ Use "first-then" or "if-then" charts liberally ⇨ Preteach and then use graphic organizers for cause/effect ⇨ Concept maps can help students understand categories, attributes, and connections ⇨ "Self-talk" out loud (e.g., "I have to use the yellow chalk because I can't find the white" or "Since I can't remember the capital of Missouri, I'll look it up in the book") ⇨ Use storygrams to illustrate interpersonal cause/effect ⇨ Make charts for emotional cause/effect
Confusion regarding abstract communication	⇨ Introduce new information in concrete, literal language ⇨ Directly teach multiple meanings, figures of speech, and gestures ⇨ Use pictures, props, and hands on experience to teach abstract concepts ⇨ Write/draw accounts of student's experiences that illustrate a given concept or expression ⇨ Create a "notebook" of expressions and figures of speech ⇨ Avoid sarcasm when speaking with the student about critical issues. ⇨ In more relaxed contexts, teach the student how to identify sarcasm, good-natured teasing, and irony.

Inefficient generalization of concepts
and skills

⇨Teach formats for learning (e.g., an approach to math word word problems, a paragraph template, a way to answer "wh" questions). Use task cards or algorithms to illustrate each format, and cue the student regarding appropriate use of a given strategy. Gradually fade out adult assistance, reinforcing the use of the task card or other models.

⇨Teach the skill of looking to one's peers for modeling or help.

⇨Whenever possible, teach new information/skills within a meaningful context.

⇨Present new information/skills under "low load" conditions (e.g., in a quiet area, without requirements of written response, without social demand)

⇨As the student masters the information/skill, gradually increase load.

⇨Provide multiple opportunities for the student to work with a variety of adults and peers.

Strong rote memory but limited
representational memory

⇨Take advantage of strong rote memory by teaching important facts and skills to the point of overlearning

⇨Whenever possible, teach rote information/skills in meaningful context (e.g., teach money concepts in the context of a class store)

⇨Attach affect (feeling) to learning experiences

⇨Explicitly teach part-whole and part-part relationships

⇨Use graphic organizers to emphasize connections between facts, concepts, events, and/or feelings

Inefficient processing in one or more
   Input modality

⇨Present information initially within the strongest modality. Allow processing time and then present within the second modality.
⇨For students with relatively stronger verbal skills, teach self-talk as a problem solving skill.
⇨For students with relatively stronger visual perceptual skills, encourage them to draw a picture (or make a mental image) to assist with problem solving.
⇨Use lists, task cards, visual schedules, and graphic organizers to help the student "hold onto" critical information.

Limited working memory

⇨Provide critical information (in print, pictures, or props) for problem solving.
⇨Use word/answer banks (in print or picture form)
⇨Use task cards to help the student remember the steps in a process.

Inefficient management of materials

⇨Provide clearly labeled places for all materials.
⇨On any task card, include the materials needed. Encourage the student to gather materials before starting to work. For students with greater challenges, break these steps down further, but continue to work toward independence.
⇨When teaching/reinforcing a process, include the final step of putting things away.
⇨Reinforce handing in papers, etc. as much as you reinforce the work itself.