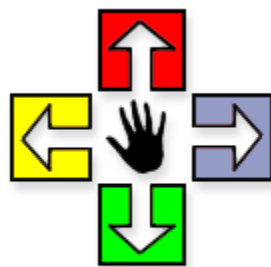


# Meeting the Needs of Students with Learning Disabilities



**Special Needs  
Technology  
Assessment  
Resource Support  
Team (START)**

Annapolis Valley Regional School Board

## **ACKNOWLEDGEMENTS**

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## CLOSE-UP

### ***MEETING THE NEEDS OF STUDENTS WITH LEARNING DISABILITIES***

*Nicole is a third year High School student with 23 credits. All subject areas are difficult for her, because she has a learning disability.*

*This year Nicole interacts more with her teachers and peers and she now speaks up in class more frequently. She is becoming a good self-advocate and is able to express the level of support she needs in order to be successful in school.*

*Because her reading disability makes access to texts very difficult, Nicole feels she is more successful when someone reads what is written in the text to her. When this is not possible, she becomes frustrated.*

*Nicole also has difficulty taking notes from lectures. Often a class peer with good penmanship uses NCR (non-carbon paper) so Nicole can have a copy of the notes for her binders.*

*Nicole has begun completing her written work using a word processor. The program has spell check and abbreviation expansion. During her leisure time, Nicole can be found listening to her walkman while drawing. She is quite a talented artist, and would like to pursue study at an Art College after high school.*

# MEETING THE NEEDS OF STUDENTS WITH LEARNING DISABILITIES

A student with a learning disability often displays a cluster of characteristics over time, in various intensities, which interfere with his/her overall development and achievement. This lifelong disability can interfere with the students' acquisition of academic and other basic skills necessary for survival as an independent adult. He/she may demonstrate many of the characteristics listed below on one day and none on another. This uneven performance pattern often continues through adolescence and adulthood and is not primarily the result of visual, hearing or motor impairments, cognitive delay, emotional disturbance or educational disadvantages.

## CHARACTERISTICS

- difficulty in listening, thinking, reading, reasoning and/or math.
- difficulty processing language completely and accurately when *receiving* (hearing, reading), *sending* (speaking, writing) and *elaborating* (integrating new and old information)
- an uneven and inconsistent school performance profile
- poor penmanship
- forgetful, needs constant reminders by teachers, family and friends
- easily loses or misplaces school items (eg. homework, textbooks, pencils/pens, notebooks etc.)
- trouble copying from the board or copying in general
- difficulty with note-taking
- slow worker, often doesn't finish work
- reverses letters, numbers or words
- difficulty following directions

- short or long term memory problems
- problems with time concept and sequence
- problems with spelling
- trouble concentrating and paying attention in class
- lack of coordination, appears clumsy
- poor study skills
- low self-esteem and inappropriate social skills

## **TECHNOLOGY - RELATED STRATEGIES**

Many technologies are available today that can help students to cope with their learning disabilities. To effectively use the technology, the teacher and programming team should understand the nature of the learning disability through assessment and diagnosis. Technological tools only assist a student if the tool matches the student's need.

### **Technological Tools**

- tape recorder for taking notes, recording lectures and assisting students to express themselves for writing activities
- NCR or non-carbon paper for making a copy of notes
- personal stand alone electronic wordprocessor (e.g. DreamWriter by NTS Computer Systems or Alpha Smart Pro by Intelligent Peripheral Devices Inc.)
- calculator for math calculations; use talking calculator if needed
- electronic spelling dictionary (talking or non-talking)
- talking textbooks and novels (see Appendix E, check local libraries)
- A television, VCR and video tapes used creatively can be good mediums for learning.

- computer-based learning as an instructional alternative
  - reading comprehension software
  - writing composition software - provides a structured environment to enhance ability to produce written material.
  - math software
- word processing software with spell check, grammar check, word prediction, and/or abbreviation expansion to assist with writing activities; talking word processor
- screen reading software with speech synthesizer to provide verbalization of everything on the screen including menus, text and punctuation.
- electronic reference tools - in addition to dictionaries and thesaurus, atlases, encyclopaedias, etc. are available in multimedia format.
- electronic organizers for schedules, reminders, lists etc.

## **Computer Related Compensation Tools for Students With Learning Disabilities**

A number of computer related tools which can help students with learning disabilities to perform reading or writing tasks are discussed below. The tools selected should be determined by individual needs.

**Standard keyboard modifications.** For students with fine motor difficulties releasing keys quickly enough to prevent unwanted key strokes is often a challenge. AccessDos or Access Utility for Windows (see Section IV of handbook) allow the auto repeat feature to be slowed down or deactivated.

**Menu management programs.** For students with memory and/or organizational difficulties, menu programs can make it easier to find specific software programs because DOS commands no longer need to be memorized and programs are listed in an orderly fashion. Icon displays allow menu access for a non-reader.

**Screen Reading Software and Speech Synthesizer.** Screen reading software used in combination with speech synthesizers can read back characters, words, lines, command prompts, menus and messages appearing on the screen. The speech feedback helps learning disabled students bypass reading requirements of the software. Many of the screen readers are designed specifically for blind users. These packages can be complex and provide too

much feedback. Soundproof [Humanware inc.] is a screenreader which has a less complex command structure than most others and it highlights text as it is being spoken.

**Word Processors.** Many students with learning disabilities find the writing and editing process to be an arduous, time-consuming task. Some students also experience great difficulty with the physical act of writing. Word processors provide these individuals the opportunity to write without being concerned about making errors during the writing stage. Errors can be easily corrected and information can be reorganized and edited before being printed. Relatively inexpensive stand-alone word processors can be purchased, (e.g. Dream Writer, AlphaSmart Pro) or various software options for a computer can be selected.

**Talking Word Processor.** A talking word processor is a software program that uses a speech synthesizer to provide auditory feedback of what has been entered. Feedback can be by letter (character), word or complete sentence. These programs can help students with their writing - e.g. notice omissions, dropped endings, etc. They also offer the multisensory experience of hearing the writing while seeing it on the screen. Examples are: Write Away [Boston Children's Institute] Write: Out Loud [Don Johnson Inc.] and Intellitalk [Intellitools] A talking word processor does not generally have all the capabilities of a screen reader.

**Word Prediction.** Word prediction programs reduce the time, effort and frustration for students with spelling difficulties to produce written work by providing an on-screen list of possible words to use in a piece of writing. The student types a letter or two and the program provides a list of words beginning with that letter(s). If one of the choices is a word the student wishes to use, he/she selects it. If not, the student enters another letter which produces a new set of choices.

**Abbreviation Expansion.** This software can be used to create abbreviated forms for frequently used words or phrases for students who are slow workers and poor spellers. For example, if a student consistently misspells "individuals" he/she could type "ind" and space bar in its place and the word "individuals" will automatically appear on the screen. Co: Writer [Don Johnson Inc.] is one program offering all of these supports.

**Voice Input.** Voice input software and hardware may be useful to students experiencing extreme difficulty producing written compositions by hand, but who have strong verbal expressive skills. It is appropriate for students who have poor spelling skills, but have the ability to read and recognize the correct word when presented. Voice input also frees student from remembering function command sequences because voice macros can be defined for a series of keystrokes. For example, the student has to only remember a voice command eg. "save document". Voice recognition is expensive software which requires training. It should only be used if the student has a severe learning disability and all other less expensive and less complex options have been tried.

## Word Processors: Factors to Consider

- Word processors allow students to enter, edit, format, save, retrieve and print text.
- Before purchasing/acquiring a word processor for a student, determine features needed in the software that will be used.
- Word processors requiring a sequence of function keys to execute functions may be frustrating for students with memory problems. Pull down menus, or windows are easier to use.
- The built-in spell checker found in most word processors helps students find and correct misspelled words within the document before printing the final product.  
**Note:** Student has to be able to at least recognize the correctly spelled word in a word list to use a spell checker successfully. The student's approximations of the word must also be close enough to generate the correct word.
- Some spellcheckers indicate spelling mistakes as they occur. This can be very distracting and thus interfere with writing. This feature can generally be de-activated if this is the case.
- Grammar checks are available in some programs. This should be carefully evaluated to determine whether it is helpful to the student.
- Outlining/brainstorming features can be a built-in or an add-on feature. It can help the student to organize written work.
- Some features that can provide additional support for students with learning disabilities include: word prediction, abbreviation expansion, voice output. These can be built-in to some programs or purchased as add-ons.
- Teach keyboarding. Word processing for students with learning disabilities is most useful when it becomes a kinaesthetic (motor) process. Hunting and pecking involves spelling (visual/auditory process), and is therefore much less effective.
- Dedicated access to a computer for all students with learning disabilities will be difficult to achieve. A low cost alternative, Alpha Smart Pro (Intelligent Peripheral Devices, Inc.) allows the student to enter and edit text, then transfer it later to the computer for formatting and printing.

- A scanner with OCR (optical character recognition) software can allow the student to do worksheets on the computer. (OmniForm by Caere Corporation is one software program that enables this). These tools can also be used to scan text into the computer, which can then be read to the student using screen reading program.

## **GENERAL STRATEGIES**

- Teach using student's strengths.
- Know the mode through which the student learns best; visual, auditory, tactile/kinesthetic.
- Make sure print material is at student's reading/level.
- Encourage student to develop his/her special talent. This will help the student experience success and thus improve self esteem.
- Provide repetition when teaching new concepts and skills.
- Design tasks/assignments to ensure success, then gradually increase difficulty. This is very important for students who have developed "learned helplessness" and have given up trying because of repeated failure.
- Break work/assignments into small segments.
- Be an empathetic and understanding instructor.
- Provide frequent feedback to keep student on task.
- Provide a consistent structured environment.
- Provide visual & graphic aids when teaching.
- Help student to sequence/organize assignments projects, homework and other independent work.
- Provide alternate materials (e.g tape recordings of text) to help student deal with print.

- Assist student with time management.
- Allow student to use aids (calculators, electronic dictionaries) to compensate for skills which the learning disabled student may never master.
- When necessary, use special seating or remove student to a resource room to minimize distractions in environment.
- Encourage the student to use a highlighter or highlighting tape to mark important information.
- Provide additional time to complete assignments, tests.
- Reduce amount of copying required when possible.
- Provide student with copy of peer's or teacher's notes.
- Provide study guides.
- Encourage student to use homework book/agenda to record homework.

## **SPECIFIC STRATEGIES**

### **Math**

- For an older student who has never mastered Math Facts (+,-,x,÷) paste a copy of multiplication table or add/subtract math facts table inside student's textbook or exercise
- Give permission to use a calculator for computations.

### **Reading**

- Adapt textbooks to meet needs of students by:
  - highlighting information in the book
  - tape record textbook chapters if student's reading level is well below classroom peers, but he/she has no difficulty with content. Tape recording can be done by parent volunteers, an older student or an efficient peer reader.
  - \*(When tape recording a book, the teacher, parent or peer volunteer should

provide an overview of selection, read text, then stop periodically to summarize important information and/or ask student to provide answers to questions)

scan material into computer to be read through screen reader.

- Provide alternative high interest , low vocabulary books and articles for students with very poor reading skills. Provide heavily illustrated materials.
- For a reluctant or very poor reader, use alternate materials (videotape and CD-ROM programs which parallel or complement subject matter).
- Provide plastic colored overlays to cover printed page for students with scotopic sensitivity.
- Concrete words such as nouns, verbs and certain adjectives/adverbs might be taught using flashcards with the word and picture/illustration of word on it.
- Abstract words like *it, to, of* etc. can be highlighted and taught as part of a phrase or sentence on flash cards.
- For students with history of speech and language difficulty:
  - rewrite articles, tests and questions in simpler language so he/she can understand content and answer questions.
  - introduce new vocabulary before giving reading assignments and/or asking student to answer questions.
  - frequently rephrase questions, directions.
- Have supplemental educational materials available:
  - condensed books, novel guides
  - books on tape (see Appendix E for ordering information; also contact Recordings for Blind and Dyslexic @ 1-800-221-4792
  - picture magazines
  - color coded maps with large lettering

## Writing

- If writing is illegible, fatiguing and/or time consuming, allow student to dictate answers to tests or written assignments (to teacher or on tape.)

- Allow student with **dsygraphia** (*an inability or severe difficulty in producing legible handwriting at an age appropriate speed*), to use a wordprocessor. Incorporate additional compensation tools as required.
- If student has difficulty copying from board because of trouble with continuous far and near-point gazing:
  - eliminate board copying
  - provide a xeroxed copy of assignment
  - provide copy of homework assignments or have designated spot on board where assignments are noted well before the end of school day
  - ask a fast writer to be student's homework assignment secretary

## Spelling

- If student has a severe spelling disability, give him/her half as many spelling words to learn for the weekly spelling test.
- Refrain from penalizing spelling error in writing compositions.
- Have student use a multisensory approach when learning to spell unfamiliar words.
- For a student who continually forgets letters or number shapes, attach a strip of paper to top of desk with alphabet and numbers from 1 to 10 (adhesive strips available from many educational material companies).

## POSSIBLE EVALUATION/TESTING MODIFICATIONS

- Permit oral examinations, taped responses or provide a reader or scribe.
- Allow student to use calculators, word processors, dictionaries and spell checkers during examinations.
- Give student option to write exam in quiet room if needed.
- Provide extra time for student to complete test.
- Vary test format (eg. Multiple choice or short answer questions versus long answer).
- Use larger print and or double space tests.

- Note modifications on report card.
- Refrain from making comments like “reading is still well below grade level” or “need to put more effort into learning spelling words” if student has genuine learning disability, is working hard and making progress.

## **RELATED - DISABILITY: ADD/ADHD**

Students with learning disabilities occasionally have a related disability - ADD/ADHD (Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder). A learning disability can make it difficult for students to receive, process and communicate information creating problems in math, reading and/or writing. ADD/ADHD students are generally inattentive, impulsive and hyperactive. Over time, these characteristics cause students to experience academic achievement problems because of missing important chunks of information on a regular basis.

### **ADD/ADHD Characteristics**

- difficulty sustaining attention, frequently shifts activities
- difficulty focusing on one activity
- difficulty keeping still
- easily distracted by surrounding activity
- does not notice details, makes careless mistakes
- does not appear to listen
- often does not complete work assignments
- difficulty organizing work and activities
- often misplaces items needed for school activities
- difficulty staying seated, squirms and fidgets if required to sit for long time periods
- excessive running and climbing
- often acts before thinking

- blurts out answers in class, interrupts others conversation
- difficulty waiting turn

## **Using computers with students having ADD/ADHD**

The computer is a valuable educational tool for teachers and students with ADD/ADHD.

The computer in combination with appropriate software provides a student with:

- an individual, nonjudgemental learning environment
- immediate feedback
- repetitions as needed
- guiding questions
- an opportunity to focus attention on task
- undivided attention
- opportunity to work at own pace, whether it is faster or slower.

Research indicates that game-like software with limited animation affects students attending behaviours in a positive way (Ford, Poe & Cox, 1993 cited in Barkley, 1995). Schools should aim to use software with the following characteristics for students with ADD/ADHD.

- limited animation
- features which help student to focus his/her attention (eg. large print, color)
- multisensory format
- information presented in smaller chunks
- capability to monitor student's progress
- features to accommodate various rates of learning and skill levels.