

USING COMPUTERS TO TEACH LEARNING- DISABLED STUDENTS IN YOUR CLASSROOM

BY CAROLYN S. KEARBHEY

In her book, *Introduction to Computer Literacy*, Helene G. Kershner points out that computers are here to stay and are going to affect our lives more and more.¹

For those of us who work daily with students who struggle to learn, the computer has opened doors in the education process. This article will show you how to use these tools to help learning-disabled students in the regular classroom.

Who are these exceptional students? Although they look like other students, and have normal vision and hearing, average to above-average intelligence, and no educational or cultural disadvantages, they are unable to learn in a normal way due to some impairment in perception, conceptualization, language, memory, attention, and/or motor control. They are frequently accused of not listening, of being lazy, daydreaming, or being just plain “weird.” Often their self-esteem is very low because they, too, do not understand why they do not learn the same way as everyone else. While some have learned to compensate for their disabilities, many have simply given up.² You, their teacher, must give them back their dignity, their belief in themselves, and their education.

Begin by writing an IEP (Individualized Educational Plan) for each child with learning disabilities. Set some goals for both you and the child to reach during the school year, and

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plan strategies that will help in achieving those goals.

As you make these plans, look at what you have in the way of computer technology:

1. Do you have a computer in your classroom? Or does your school have a computer lab where groups of children work?

2. Are you in charge of the software or will you have to work with a computer teacher?

3. What programs are available right now? How can you use those programs in helping your learning-disabled student(s)?

4. How can you find and purchase more programs that benefit learning-disabled children?

Only after looking carefully at your present situation and evaluating the potential for future use can you plan intelligently how to help your learning-disabled students to use computers.

Classroom Activities

Word Processing. Learning how to keyboard is a must for learning-disabled students. If they can type their papers on a computer, their work will no longer be hampered by their lack of motor skills. I have been amazed at the higher level of work produced when students can finally write without having to focus on what to do with a pencil. Even their editing skills have improved dramatically as they learn to use a word-pro-

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cessing program. A number of programs can be used to teach students how to keyboard. Be sure to select one that not only aims at accuracy, but also at speed. Being able to type smoothly and quickly becomes vital when a student is trying to record and organize ideas.

This important skill can be taught as early as the first grade, as soon as disabilities have been identified. The student should be allowed to do as much writing at the computer as possible, including brainstorming, idea clustering, note taking, and even spelling tests. Learning disabilities do not disappear with maturity, and the student will need to work with a computer the rest of his or her life. The prevalence of laptop computers can help facilitate this.

Reading. A number of programs are available to help beginning readers learn phonics, word structure, and vocabulary. More and more programs foster reading comprehension at all levels. Some basal reading programs also include computer software that is not specific to the program and can be used

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with any reading book. Using one of these programs in place of a workbook can be helpful for learning-disabled students. The more interactively involved a student is with a lesson, the more likely its goals will be achieved. This can be especially true for a child whose disability includes problems with long- or short-term memory.

Books are also being put onto computer disks with activities, comprehension questions, and even interactive pages included in the program. For the poorly motivated child, these stories can stimulate interest in literature.

Math. Many computer programs allow students to practice simple to complex math skills, while permitting the teacher to control both the level of speed and accuracy of the answers accepted. If the student learns to use a spread sheet, he or she can also take word problems from a book or worksheet, organize them on the page, and print out legible answers. Some publishers now print task cards that can be used with spread sheet programs to facilitate higher math lessons.³

Data Base Management. Getting organized is one of the greatest problems for learning-disabled students. Try as they may, they simply cannot keep up with all of the papers, information, and products necessary to survive in school. But once these students learn to use a data base, much of that organization is taken care of for them. Computer software publishers are now designing data base management systems aimed specifically at students. They are easy to use, are flexible in terms of format, naming of fields, and file sizes, and use graphic or pictorial symbols. Students can begin by learning to use a data base set up by someone else, then building a data base with the help of a template, and finally designing and using their own data files.⁴

Pacing. The rate at which a lesson progresses is an important element for the learning-disabled student. If the pace is too fast, the student becomes confused and discouraged. If it is too slow, he or she loses focus and interest. Most computer programs can be controlled by the teacher to match the pace at which the students work. Other programs allow students to select the pace at which they are most comfortable. This flexibility gives both the student and the teacher some power over an aspect of learning that is less controllable in the regular class setting.⁵

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Specific Disabilities. Certain programs have been designed to help learning-disabled students in the areas of their greatest weaknesses. For example, there are programs that help build short-term and long-term memory skills. To do this, some display a design that must be recreated by the student on the computer. Some play a kind of “Concentration” game, in which pairs of symbols or words are hidden on the screen and students must remember where each item is located. Other pro-

grams assist in visual discrimination. Some ask the student to compare words to find those that have similarities, locate the placement of one letter in a word, or identify the number of items on the screen. Students can also develop their visual skills with programs that ask them to select parts of a face to make a whole picture. The child decides which eyes go best with which nose and mouth, etc. Auditory discrimination is strengthened by programs that read words, and sometimes whole stories, to the student. Eye-hand coordination is strengthened through art programs that have the student manipulate the computer mouse and a variety of computerized art tools in order to design a picture or poster.

Classroom Guidelines

How can you ensure success when using computers with learning-disabled students? The following are some general guidelines suggested by teachers who have successfully used computer technology for students with special needs:

1. Maintain high expectations for each student.
2. Write lesson plans that focus on problem solving and the learning process as well as on curriculum content.
3. Solicit the support of your administration.
4. Involve the parents of the learning-disabled student as you develop a program for their child.
5. Clearly state your goals for each student’s achievement level, after involving the student in developing these goals.
6. Select the best software and support materials possible for each student’s needs, and then familiarize yourself with the materials.⁶

Keeping Students Social

A legitimate concern about computer use is the isolation that can occur if a student interacts only with a machine and not with other people. This can especially be a problem for learning-disabled students, who are frequently shunned by their classmates for being “different.” Yet the computer can help

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these students to finally gain acceptance on an equal footing with other children in the class.

Teachers can facilitate social interaction for their learning-disabled students through cooperative learning. A small group of three or four students can work together at a computer to attain a group goal set by the teacher.

The teacher can encourage positive interdependence among the group members in a number of ways. Students can all be assigned to learn how to use a specific program, which requires them to help one another to develop the necessary skills. Each person in the group can be made responsible for a part of an activity, such as putting a face together (one person does the eyes, one the nose, and so on) or writing a story (separated into plot, characters, settings). Or a single worksheet can be required of the group. The computer can record contributions of each group member, using the computer to set up a data base or assist with calculations.⁷ Since at least one person in the group must be knowledgeable about computers, a learning-disabled student who has been using the computer for other lessons can become an important group member in this situation. His or her “differences” can be used to teach the other group members the necessary skills for the group to successfully achieve their goals. As a result, the learning-disabled student’s self-esteem, self-confidence, and motivation for further learning are all enhanced.

Conclusion

As teachers, we must keep a simple focus on the most important reason why we enter our classrooms every day—the students. If we serve their needs, we have fulfilled the true mission of our profession. Meeting the needs of learning-disabled students does not come easily, but it can be accomplished successfully if the teacher takes the time and effort to examine those needs one by one and find the best possible strategy to develop the necessary skills. The computer can be a helpful adjunct in helping students with special needs to achieve their full potential. ☞

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REFERENCES

1. Helene G. Kershner, *Introduction to Computer Literacy* (Lexington, Mass.: D. C. Heath and Co., 1990), pp. 394, 395.
2. Joan M. Harwell, *Complete Learning Disabilities Handbook* (West Nyack, N.Y.:

The Center for Applied Research in Education, 1989), p. 3.

3. Mary Male, *Special Magic—Computers, Classroom Strategies, and Exceptional Students* (Mountain View, Calif.: Mayfield Publishing Co., 1988), pp. 68, 75.

4. *Ibid.*, pp. 65, 67, and 68.

5. Lawrence J. Johnson and Anne M. Bauer, *Meeting the Needs of Special Students: Legal, Ethical, and Practical Ramifications* (Newbury Park, Calif.: Corwin Press, Inc., 1992), p. 30.

6. Male, pp. 168-170.

7. *Ibid.*, p. 126.

RECOMMENDED COMPUTER PROGRAMS*

ASSESSMENT PROGRAMS

ASSESS

IBM

A diagnostic reading test based on phonics principles. In three to five minutes, it measures a student's accuracy and speed in naming letters, decoding words and phrases, and reading non-phonetic or sight words. Available from Meeks Associates, P. O. Box 643, Lincoln, MA 01773.

COMPUTER-BASED READING ASSESSMENT INSTRUMENT

IBM

Designed for teachers with prior experience in administering, scoring, and interpreting various reading assessment instruments, particularly reading inventories. Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516.

KEYBOARDING PROGRAMS

ALL THE RIGHT TYPE, by Didatech

Apple II; MacIntosh; IBM

4th to 12th grade

Includes lesson plans, record keeping, testing, word processing, and flexibility for custom lessons. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

STICKYBEAR TYPING by Weekly Reader

Apple II; IBM

1st to 6th grade

Three games to develop and sharpen keyboarding skills. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

ULTRAKEY, by Bytes of Learning

Apple II; MacIntosh; IBM

3rd grade and up

Teaches all aspects of keyboarding with skill checks and student progress feedback. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

MATH PROGRAMS

BASIC SKILLS MATHEMATICS COMPLETE WITH MANAGEMENT

by Courses by Computer

Apple II; IBM

K to 8th grade

Covers number ideas, addition, subtraction, multiplication, division, whole numbers, mixed numbers, fractions, decimals, percents, measurement, and geometry. Also includes a tutorial and drill management system. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

HANDS-ON MATH, VOLUMES I, II, AND III by Ventura

Apple II; MacIntosh; IBM

Elementary level

I = simulates colored rods, tiles, counters, geoboards, and tangrams.

II = simulates two-color counters, color tiles, attribute blocks, and base-10 blocks.

III = simulates hundreds chart, graphing, and fraction bars. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

MATH COMPUTATION I by EPC

MacIntosh

1st to 4th grades

Computing skills from simple addition to upper-level division. Includes tutorials with remediation. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

MEMORY SKILLS AND ART PROGRAMS

KIDPIX 2 by Broderbund

MacIntosh; IBM

Pre-K to 8th grade

Includes special-effects art tools, picture stamps, and sounds. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

MEMORY CHALLENGE! by Critical

Thinking Press

Apple II; MacIntosh; IBM

K to Adult

Strengthens basic visual-memory skills. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

MEMORY MATCH by Hartley

Apple II; IBM

1st to 5th grades

"Concentration" at three levels of difficulty. Teachers can edit to add new content. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

READING PROGRAMS

CONSONANT MULTIPLES

IBM

Designed as a computer reinforcement program for students who need direct instruction in reading and spelling. Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516.

EASY AS ABC by Queue

Apple II; IBM

Pre-K to 1st grade

Five games for learning the alphabet. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

LEXIA

IBM

1st and 2nd grades

Designed to facilitate the acquisition of early decoding and phonics skills for primary-grade levels and remedial readers of all ages. Programs focus on early decoding skills of beginning readers. Available from Lexia Learning Systems, P. O. Box 466, Lincoln, MA 01773. 1-800-435-3942.

READ-N-ROLL

IBM

Improves reading comprehension in

the five main skill areas—recognizing the main idea, recalling facts, identifying the sequence of events, drawing inferences, and building vocabulary. Available from Davidson and Associates, 3135 Kashiwa Street, Torrance, CA 90505. 1-800-556-6141.

THE READER

IBM

Teaches important reading skills. The adaptability of the program enables the teacher to tailor reading material to the needs of the student. Available from Micro School Programs, Bertamax Inc., 3647 Stone Way North, Seattle, WA 98103.

READER RABBIT 1 AND 2 by Learning Company

MacIntosh; IBM

1 = Pre-K to 1st grade; develops fundamental reading, spelling, and thinking skills.

2 = K to 3rd grade; emphasizes word building, vowel sound recognition, and early dictionary skills. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

WORD MAGIC! by Mind Play

Apple II

1st to 4th grades

Uses games to practice initial consonants, consonant blends, prefixes, suffixes, and compound words. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

SPELLING PROGRAMS

SPELL IT

IBM

Activities allow student to review spelling rules, study words in syllables, and use words in sentences. Available from Davidson and Associates, 3135 Kashiwa Street, Torrance, CA 90505. 1-800-556-6141.

SUFFIX SPELLING PATTERNS

IBM

Designed as a reinforcement program for helping poor spellers to internalize four common consistent suffix spelling patterns. Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516.

SYLLABLE PLUS

IBM

Designed to help students practice breaking words into syllables in all subject areas. Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516.

WORD PROCESSING PROGRAMS

BANK STREET WRITER by Scholastic

Apple II; MacIntosh; IBM

2nd grade and up

Includes 60,000-word spell checker, 50,000-synonym thesaurus, and teacher's guide. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

HUMAN AWARENESS

IBM

Student types in a story, sentence, etc. and the computer will read it back. If there are any misspellings, the computer will pronounce the word phonetically so the mistake can be found. Available from Bernie Mangano, Northeast Regional Manager, 48 Downing Place, Harrington Park, NJ 07640. 1-800-722-3393.

STUDENT WRITING CENTER by Learning Company

Apple II; MacIntosh, IBM

5th grade and up

Includes bibliography maker, grammar tips, writing topics, title page maker, and student journal. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

OTHER PROGRAMS

APPLEWORKS 4.x by Quality Computers

Apple II

All levels

Full-featured word processor, data base, and spreadsheet. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

IEP MANAGER, by Super School Software

MacIntosh

Teacher

Contains all goals and objectives needed to write IEPs. Can be edited. Available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-

843-5576.

BOOKS ON CD-ROM BY BRODERBUND

All of the following CDs are available from Creative Computer Visions, CCV Software, P. O. Box 6724, Charleston, WV 25362-0724. 1-800-843-5576.

ARTHUR'S TEACHER TROUBLE, by Marc Brown. Ages 6-10. Arthur learns that having a tough teacher is not so bad. English and Spanish.

DR. SEUSS'S ABC, by Seuss. Ages 3-7. More than 400 alphabetically-inspired surprises.

JUST GRANDMA AND ME, by Mercer Mayer. Ages 3-8. Little Critter has a day at the beach. English, Spanish, and Japanese.

THE NEW KID ON THE BLOCK, by Jack Prelutsky. Ages 6-12. The first Living Book of Poetry; includes 18 children's poems.

OTHER RESOURCES

ALLIANCE FOR TECHNOLOGY ACCESS

A national network of nonprofit resource centers that provide information and consultation about computer use by children and adults with disabilities. 2173 East Francisco Blvd., Ste. L, San Rafael, CA 94901. 1-415-455-4575.

CLOSING THE GAP

Publishes a bimonthly newsletter and conducts an annual conference focusing on the use of computer technology by and for individuals with special needs. P. O. Box 68, Henderson, MN 56044. 1-612-248-3294.

HEATH RESOURCE CENTER

A national clearinghouse for information about assistive technology, offering material to consumers, organizations, and universities. 1 Dupont Cir., NW, Suite 800, Washington, DC 20036. 1-800-544-3284.

MAC ACCESS PASSPORT

Apple provides an information packet free of charge that contains a comprehensive data base of access products. 1-800-600-7808.

** The above programs have all been used and recommended by SDA teachers and educational administrators.*