Modems, Megabytes, and Multiple Intelligences

Mike is in third grade, and cannot sit still for even a few minutes. He hates reading, writing, and spelling, and consequently does poorly in all three. To help Mike master spelling and writing, the teacher had him copy each spelling word a number of times. When Mike (and his mother) asked if he could practice his words on the computer, the teacher said, “No, he has to write them out longhand.” Mike would give almost anything to work on the computer, but his teacher has not yet seen the value of incorporating it into her teaching.

A partial answer to Mike’s learning problem—and his teacher’s teaching problems—is literally at his fingertips. Unfortunately, his teacher knows nothing about computer technology or the Multiple Intelligences Theory. Mike will probably not finish school unless someone helps him learn to use technology and his own intelligences.

Teachers feel, and rightly so, that students must master certain basic skills and knowledge. They also know that students learn in different ways, and thus seek to provide creative experiences to help them learn more effectively. A persistent problem in education is how to accommodate the learning needs of each child.

A solution to both of these problems lies in integrating Multiple Intelligences Theory and computer technology. Students can thereby master basic skills while teachers adapt instruction to the learning needs of all of their pupils.

Curriculum approaches to MI theory incorporate activities from a wide range of areas to help students learn material and develop skills through the use of as many intelligences as possible. Integrating computers (and technology in general) into the curriculum offers excellent opportunities to teach through the seven intelligences. Listed below are some ideas for various computer activities and software programs that utilize a variety of intelligences. (A profile of the Multiple Intelligences Theory described by Howard Gardner can be found on page 10.)

Linguistic—Word Smart
Every age group can benefit linguistically from the use of a computer. Early-grade students can have their oral stories
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Network. They can create their own WWW pages and share information, projects, and research with the local community and the Internet community in general. (For suggestions, see the Summer 1996 issue of the JOURNAL.)

Logical/Mathematical—Logic Smart
In the early days of computer use, only logical/mathematically smart people worked with computers. Programming and spreadsheets were what computers were all about. At the present time, there are a number of ways to enhance and display students' logical/mathematical intelligence. Spreadsheets (e.g., Microsoft Works, Lotus 1-2-3 Release 5), which are the basis for business software, can also be used for problem solving. Simulation programs that combine linguistic, spatial/visual, and logical/mathematical skills (e.g., Sim City, Oregon Trail, and Colonization) offer endless opportunities to stimulate logical and rational thinking at both elementary and secondary levels. Concept mapping is a valuable learning strategy whose usefulness may be limited by traditional
paper-and-pencil methods that get in the way of ideas students want to represent. Using a program such as Inspiration allows students to graphically represent their understanding of an area of knowledge and to modify concepts and logical links at will. LOGO, a much-acclaimed artificial-intelligence program, is frequently used in the primary grades. It combines spatial/visual, linguistic, and logical/mathematical intelligences to do programming.

“Drill and practice” is still a useful way to build mathematical skills. But now, it is combined with color, animation, and sound. The old programmed instruction, which used only linguistic intelligence to teach basic math facts, now incorporates kinesthetic, musical, and linguistic intelligences (e.g., Math Ace, Mastering Math, Clock).

Musical—Music Smart
Music can be creatively taught via the computer, and using music with computer programs enhances the teaching of other subjects and material.

While much software uses music as accompaniment, the most exciting software allows the user to compose on the computer screen, with immediate playback of the composition and subsequent printing out of the score! Being able to immediately hear one’s own composition is an incentive to anyone who deals with music. Composing is not restricted to writing notes on a staff and hearing the results. Students can hum a tune into a synthesizer, then have the computer reproduce the tune with any instrument they choose and a full rhythm accompaniment. This gives a whole new dimension to music composition! Even very young children (3 years old) can compose music by drawing colored shapes on a musical staff, then having the computer change their work into musical notation by using Mendalay’s Musicland from Computer Systems Research Institute.

Kinesthetic—Body Smart
Of particular importance in technology education is the bodily/kinesthetic intelligence, which is so often overlooked or disregarded in Western culture. Gardner suggests that bodily/kinesthetic intelligence provides the third member of a trio of object-related intelligences: bodily/kinesthetic, spatial/visual, and logical/mathematical. A number of programs utilize eye-hand coordination to teach science or English. Highly interactive compact disk (CD) programs not only provide movement on the screen but also can be controlled by the student. Examples of such programs include:

• **Body Park CD**, which combines the linguistic, musical, logical/mathematical, and kinesthetic intelligences to teach about anatomy.

• **Opening Night CD**, which allows the user to select actors, costumes, stage props, and lighting choices and create, direct, and perform lifelike, onscreen plays.

• **Microsoft 3D Movie Maker CD**, which allows the student to write a plot, choose sets, shoot film, and cast movies.

Many CD simulations and games build fine-motor coordination and enhance logical thinking skills.

A number of programs combine hands-on experiments with computer projects (Venier Associates and LCSI/Logo Computer Systems). Other programs offer interfaces between Lego blocks, gears, motors and wheels, and the computer. Science interfacing involves chemistry and physics; titration and acceleration experiments are two examples.

No longer does anatomy require an animal and dissection equipment; it can be effectively accomplished on the computer (e.g., Operation Frog). Vicarious kinesthetic activities
can be accomplished via electronic mail. For example, students have communicated by electronic mail with the captains of a ship that sailed from San Francisco to New York City and charted the location of the vessel. One such program, easily accessible on the World Wide Web, is http://www.terraquest.com/galapagos/ which allows students to communicate with a group of writers, photographers, and scientists as they explore the Galapagos Islands.

**Spatial/Visual—Picture Smart**

Many software programs use spatial/visual intelligence. For example, artistic-effects software programs create the illusion of paint, charcoal, and pencil. Graphic-arts programs also allow the user to work in this intelligence. Some individuals have become skilled at creating computer graphics although they seemingly have little artistic ability with paper and pencil. For example, popular and powerful programs such as Hyperstudio allow students to create multimedia projects that combine many intelligences. *Painter 4.0 CD* provides painting and drawing tools that look and feel real and has special features for animation, multiple layering, lighting, and texturing. *CorelDRAW3 CD* allows for illustrating, charting, and photo-editing, includes clip-art images and symbols, and offers a variety of lettering fonts. Recent word processing programs incorporate both graphics and text manipulation. Desktop publishing provides powerful ways to utilize the spatial/visual intelligences on the elementary level (*Creative Writer*) and the post-elementary level (*PageMaker* and *Quark Xpress*).

**Intrapersonal—Self-Smart**

Nearly every aspect of the computer allows users to explore attitudes and ideas about themselves and to successfully complete games and projects, which helps them develop confidence in their abilities. For example, a program such as *Capture the Wind* encourages students to consider the issue of energy use and conservation and offers excellent opportunities to apply Christian values in problem solving. As they construct and test their solutions to problems and projects, students typically experience a wide range of feelings, including a sense of pride and accomplishment from creating something. Additionally, online services such as Prodigy, America Online, and the Internet provide many opportunities for students to explore the ever-expanding world about them.

**Interpersonal—People Smart**

The computer nerd is traditionally considered a techno-wizard with no social skills, and computer use is often seen as a solitary activity. However, computer activities can easily be planned for cooperative learning groups. This challenges students to deal with their own feelings and those of other students working in the group. Coupling the computer with a video camera provides students with opportunity to reflect and
Online services such as Prodigy, America Online, and the Internet provide many opportunities for students to explore the ever-expanding world about them.

students can experience cooperative learning with schools across the country as they work together to solve problems and build good citizenship (http://199.44.64.3:80/itreg/tt049/itm0496.htm).

The opportunities for both isolated small schools and large schools in the Adventist system is endless, for the world is now at one’s fingertips. There need be no more “two-by-four teachers”—those who use only things between the two covers of a textbook and the four walls of a classroom. However, it is up to the educator to integrate software into the instructional curriculum process and not allow it to become an end in itself. Educators should carefully screen all programs and the intelligences they use to ensure that the technology promotes the goals of education.

Students who can examine and experience diverse approaches to learning not only have better developed skills but also develop a more positive self-concept. Once students are given permission to learn by using a number of intelligences, the computer can really enhance the process!

In summary, combining computer use and the multiple intelligences will make learning more exciting and prepare students for creative and productive lives.

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REFERENCES

1. With the exception of Colonization and Inspiration, all software referred to in this article is available through Educational Resources (Catalog). 1150 Executive Dr., P.O. Box 1900, Elgin, IL 60121-1900. Telephone: (800) 624-2926; fax: (847) 888-8499/8689; Internet: http://www.edresources.com.