# The Amiga as a Teaching Tool

**By Guy Wright**

*With its versatility, speed and power, the Amiga will enhance and enliven the learning process for a new generation of students—and not just in the classroom.*

If you read the projections and surveys about the future of personal computing, you will notice that the trends indicate people will be playing fewer games and devoting more time to business, personal productivity, "expert" systems and educational applications. It can be argued that the Amiga computer is ideal for each of these applications, and some of the other articles in this issue of *AmigaWorld* have explored the ways that the computer can be used in these areas. This article will focus on education, pointing out some traditional—and some not-so-traditional—ways that the Amiga will be used as a teaching tool.

When most people hear the term "educational software," they think of a first-grader sitting in front of a school computer solving simple arithmetic problems or guessing the names of state capitals. They think of drill and practice, for the most part, and when you look at the majority of the educational software out there for the various computer systems, drill and practice is what you find. There are some companies producing educational software of a more interesting nature, and a few companies are marketing some very good programs, but most of the software in this genre is less than impressive. Children in schools learn more by trying to break into the programs so they can cheat than they do by running the programs and following instructions.

There are a number of reasons why the educational software in existence today is so weak. A primary reason is that educational software is not as profitable for a manufacturer as business or entertainment software. One software developer and distributor said that he had dropped his entire line of educational software because the home market was too small, and selling to school systems was a nightmare. As he put it, "School systems are probably the worst software pirates out there. They usually only buy one program and then copy it for each computer lab, then the teachers make copies and the students make copies, and before long, there are dozens of copies of the program floating around. While all this is happening, I am waiting for the school board's approval of the original check. It's like selling them a driver's ed film. You know that it is going to be shown over and over and over again for years to come, but you only get paid for one copy."

Software companies make their profits on volume sales, and schools are notoriously money conscious when it comes to new ideas. Most computer departments spend the little money they have on hardware rather than on software.

Another reason why good educational software is lacking is that the people writing the software are using old methods with a new technology. Few software developers have made use of the interactive capabilities of the computer. Typing tutor programs are the major exception to this; they are an example of how the computer can be used to teach a valuable skill more effectively than a teacher in a classroom (especially if the program is done well).

### The Future

So, educational software is in a dreadful state. What does this have to do with the Amiga computer? The Amiga should encourage advancement of educational software art in ways that other computers cannot. The Amiga will put powerful computing, ease of use and features found in no other personal computer into the hands of not only software companies, but also thousands of users. Many will now have the tools to develop sophisticated software of their own without having to learn assembly language to get the speed and special effects they want. The Amiga from Commodore should change the way that we think about educational software. Combined with some of the newer technological breakthroughs, such as CD-ROMs, all the predictions about the future may not be as bleak as drill and practice, drill and practice, drill and practice.

Why is the Amiga going to be any different from any other computer in influencing the way computers are used for learning? The Amiga's features are going to lend themselves to software changes in all areas. The Amiga User Interface is going to make using any program easier and more "self-documenting." As far as I know, there are very few people who think that software ought to be harder, rather than easier, to learn how to use, and as one other famous computer has shown, the mouse and menu system can be much more efficient than banging away at a keyboard. So, learning how to use software will be easier—for business, home and educational purposes. The mouse and menu system of getting information into the Amiga will be much easier for children and adults who have not yet learned to type.

### Sights and Sounds

It is easy to see how the sound and graphics capabilities of the Amiga can be used to enhance even the most tedious programs, taking a simple tune played as a reward a few steps further. With the MIDI interface and some of the innovative software that is coming out for music and sound, the Amiga is an ideal computer for teaching music in universities, high schools or any other grade level. From the fundamentals of music theory and scoring to sight reading and band practice. The Amiga will be a valuable teacher for anyone who always wanted to learn how to play a musical instrument, but for one reason or another, didn't wish to hire a private tutor or take lessons. The advances in computer/music interfacing do not limit the instruments to keyboards or synthesizers, either. Audio input devices now let you play almost any instrument into the Amiga, from guitars to flutes. The music and sound capabilities of the Amiga, as creative tools, will also influence film, video and even drama departments.

The graphics capabilities of the Amiga will not only brighten a standard display, but with easy and fast animation, a student can see results in real time. High resolution and multiple colors will give more meaning to images, leaving block-graphics pictures far behind. Learning mechanical drawing will not be a lifelong career.

Animated, high-resolution color representations of machinery, tools, circuits or most anything, combined with mouse-driven software, should cut hours off training time, which means that businesses and manufacturing plants will be looking for a new kind of educational software. It is easy to imagine a line of business training software with titles like "How to Organize a Meeting," "How to Use a Spreadsheet," "How to Write a Business Letter," "How to Compile a Profit and Loss Statement," "How to Plan a Marketing Campaign," etc. Just about anything that is taught in a business school could be brought to the Amiga in one form or another, and with so many opportunities for selling to business, it won't be long before software companies start to announce "business education" software.

The built-in, software-driven speech synthesis capabilities of the Amiga are ideal for teaching languages and reading. There have been programs that have tried to use speech synthesis as a key to learning, but their advance has been hampered by the extra costs involved with hardware add-on synthesizers or unintelligible software-driven synthesizers that try to make the computer do something that it wasn't designed to do. The Amiga was designed to reproduce an extremely wide range of sounds and human voices; it's not child's play, but it's easily within the machine's capabilities.

**New Technology**

These things are only the start. CD-ROM (Compact Disk-Read Only Memory) is a technological advance that will no doubt find its way to the Amiga. At a recent electronics show, spectators were treated to a demonstration of a CD-ROM player that contained an entire encyclopedia on one nearly indestructible compact disk. No one has to explain the educational value of an encyclopedia, but imagine an encyclopedia, with pictures, fitting inside a 5¼" diskette jacket, which can be accessed in moments. Combine this with a software "course" designed to lead you through a series of the encyclopedia's entries in a logical order and you have a teaching tool like no other.

CD-ROM leads to other teaching tools that the Amiga not only supports, but encourages—interactive video and simulations with a new level of realism. The first interactive videos were presented to the public in the form of video arcade games. One of the first was a graphics cartoon adventure where the player could control the action to varying degrees. The system worked by using the rapid video access of a laser disk player. Various screens were animated and recorded on the laser disk, and depending upon what the player selected, the software controlling the game would jump to that section of the disk in a second or two. There was still a very noticeable delay between action and display of the results, but it was effective enough for one major car manufacturer to use the system not to slash dragons, but to train assembly line workers, using a program where this delay was not critical. On a laser disk, they put real video images of auto parts in every imaginable configuration. The software was designed to train the employee not only how to do things correctly, but also to show them what would happen if they did things incorrectly.

The costs involved in making your own laser disk are still prohibitive, but the Amiga, with gen-locking hardware, will be laser-disk compatible right out of the box. When read/write or write-once laser technology arrives (and this is only months, not years, away), interactive video will be in the hands of everyone owning an Amiga computer. A program that teaches users about the Renaissance artists will bring up video images of their paintings, highlight brush strokes or important features, then bounce around the video disk and quiz you about each one, letting you go backward or forward, zoom in, study or just browse through the paintings at will.

At the heart of the Amiga is a very powerful 68000 chip that can perform complex mathematical operations better than almost any other personal computer. With its multi-tasking abilities and a hard disk, the Amiga will be an ideal computer for setting up a school LAN (Local Area Network). For the serious engineering, physics or mathematics student, the Amiga will be invaluable, regardless of the commercial software available. Computer science students? They won't need any convincing.

**The Best for Last**

The Amiga will be a key in the future of educational software because of the people who own the machine. The versatility, speed, interfacing capabilities, custom chips, user interface and ease of programming are all going to combine to give even the most casual Sunday programmer the tools of a high-power software developer. (Of course, this means that high-power software developers are going to have tools that no other developers have ever had before.) What would take an experienced assembly language programmer months to accomplish on any other machine can be done quickly on the Amiga using Basic or Pascal. The graphics, sound and animation, being hardware-driven, do not depend on a lot of fancy programming skills. With sophisticated techniques available to those with less-than-sophisticated skills, more and more people will have a computer that will let them write the kind of software that they always wanted to write, but didn't have the knowledge of programming to accomplish. Managers with a little computer experience will be able to write tutorial programs for new employees, parents will be able to write educational programs for their children, teachers will be able to write courseware for any grade level, and the "real" educational software writers will be able to go a lot further than they could ever go before.

If nothing else, educational software will become more and more sophisticated as time goes on, and it will have to run on whatever computer is current and capable. The Amiga is, without doubt, capable of handling whatever a programmer can come up with, and it is a sure bet that the Amiga will be around for a long, long time.

The concept of software in education is not just a child doing number problems on a computer in a classroom—it is an office worker polishing his skills, an assembly-line worker learning how to operate a new machine, an art department offering "computer painting" courses, a businessperson learning a few new tricks of the trade, a grad student learning about the universe, a musician learning a new instrument, a traveler learning a new language, a junior-high student learning how to type and a journalist learning the capitals of the states.

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