



Bill Gates

When I look at what technology is beginning to offer children, I wish I were a kid again.

Children start out with lots of talent and curiosity. They are built to explore the world and figure out how they fit into it. They devote amazing energy to things of interest. Some kids can recite dozens of crazy dinosaur names, for example.

As they get older, children lose some of their curiosity. This is unfortunate because in today's world a person with a curious mind can go further.

When a child's questions are answered in an engaging way, the questions keep on coming. This is one reason attentive teachers and supportive parents are so important.

But if an adult is too busy or can't answer a question, or if a textbook fails to meet a child's particular needs, curiosity often withers. When curiosity is frustrated time after time, the pleasure and incentive to learn may be lost.

I've held on to some of my childhood curiosity but I wish I had more of it. I'm sure a lot of people feel the same way about themselves.

Children worldwide today can look forward to tools that help sustain curiosity by satisfying it in deeply engaging ways. These "multimedia" tools are just now becoming available as people finally figure out how to marry the strengths of the computer with the enormous need for better education.

A multimedia computer can play interactive titles that combine text, pictures, motion video and sound. "Interactive" means a title is organized in such a way that the person using the computer controls what he or she sees and hears.

For example, a girl wondering about the solar system could use a title that let her choose any planet or moon she wanted to study. She could see photos, listen to narrations, examine diagrams and read details. If she didn't know something, such as the difference between a planet and a moon, she could look it up.

In order for this to work, abundant information must be available almost instantly. Today this is most often accomplished by storing information on CD-ROMs, which are identical to audio compact discs except that they also provide text, pictures and video.

But within a few years, most multimedia information will be delivered by high-speed information networks connecting every school and business as well as most homes. These networks, known collectively as the "information highway" hold the promise of delivering virtually unlimited quantities of information.

I know there is scepticism. There was a backlash against the original computers in schools because they were drill-oriented. The computers really weren't used to impart knowledge. Instead, they just tested knowledge. This put the computer in a negative role, which did little good.

But when the computer can satisfy curiosity and make learning fun, the possibilities get exciting.

Kids enjoy a sense of prowess. They are proud to know more about something an admired adult does. A computer can feed that sense of accomplishment by reminding the child how much he or she has learned -- and encourage more study.

Positive reinforcement unleashes a desire to find out more. Even 3-year-olds can be rewarded with surprises such as characters that pop up on the screen and applaud them. Kids get a blast out of that.

I'm always impressed when I watch toddlers play with great titles, like the Living Books series published by Broderbund and Random House. With just a little practice kids who are hardly old enough to string sentences together can use a mouse to explore friendly worlds -- clicking here or there on the screen to see what happens.

Multimedia tools won't replace teachers and parents any more than textbooks do, nor will they make reading any less important that it is today. But pictures and sounds add immensely to the educational experience.

Many schools already offer at least a few computers, and PCs are invading homes in impressive numbers. Recent surveys indicated that about a third of all U.S. households have a PC. In homes with a teenager, half have a PC.

This is a worldwide phenomenon. In Korea and Taiwan, for example, more than a quarter of PC sales are for homes. Around the world, people buy more personal computers than automobiles.

Not every family can afford a computer now but falling PC prices may eventually rival those of televisions. Schools, libraries, government offices and community centers will have abundant computers so that no child is deprived.

I'm always an optimist. I believe kids growing up with access to these resources will retain more of their curiosity in adulthood. It makes me a little envious, frankly.

Sometimes I get mail from kids telling me they want to be like me when they grow up.

But when I look at what is going to be possible in the next few years, I wish I were a kid growing up now.

The Importance of Reading

Q. As the father of a teen-ager who, in my opinion, spends too little time reading as opposed to programming, I wonder if you would speak to the benefits of gathering information by reading (in all kinds of media) and the benefits of acquiring good reading skills? - Stephen J. Ransford

A. It is pretty unlikely that people will become knowledgeable without being excellent readers. Multimedia systems are beginning to use video and sound to deliver information in compelling ways, but text is one of the best ways to convey details.

I try to make sure I get in an hour or more of reading each weeknight and a few hours each weekend. I read at least one newspaper every day and several magazines each week.

I make it a point to read at least one newsweekly from cover to cover because it broadens my interests. If I read only what intrigues me, such as the science section and a subset of the business section, then I finish the magazine the same person I was before I started. So I read it all.

Q. What books do you enjoy? - A number of readers
A. Biographies and autobiographies interest me because it's amazing the way some lives develop. For example, it's fascinating to read Napoleon's own views of what he did. He had an unusual opportunity at the end of his "career" to reflect at length on all he had done and these reflections make interesting reading.

Business figures such as Alfred P. Sloan Jr., the former chairman of General Motors, intrigue me. His book, "My Years at General Motors," is one of the best books about business.

Sloan dealt with issues such as organizing, measuring progress, dealing with risk and keeping individuals in his organization challenged and productive. He understood his business in a rational way that I find inspiring.

Sloan represented an instance of the best rising to the top, but it doesn't always work that way. The most talented people don't necessarily end up in the most critical positions. It always interests me when an organization doesn't have the right feedback loops to draw out its talent.

I read the most about scientists. The purity of their thinking makes them very attractive. I dreamed of becoming a scientist once, and my hobbies include biotechnology, understanding evolution, the brain and DNA. I also enjoy reading about economics.

My favorite recent fiction book is "A Lesson Before Dying" by Ernest J. Gaines. My favorite best-seller is "The Shipping News" by E. Annie Proulx.

Q. What kind of computer do you have? - Wei Huang, Seattle

A. My only computer is a 486 laptop, a kind you buy off the shelf at a computer store. I will probably upgrade to a Pentium laptop when they become more common.

My laptop has 12 megabytes of RAM, an acronym for 'random access memory'. It also has a 240-megabyte hard disk, which lets me store about 60,000 times as much information as there is in this standard newspaper column. This disk is fairly small by today's standards.

I use a laptop because it is portable. On the road I can connect into Microsoft's computers from almost any place in the world using the laptop's built-in modem.

At home and in the office, the small machine slips into a docking station which connects it to a full-size monitor, keyboard and mouse.

A couple of years ago I started using a high-speed telephone connection, known by the acronym ISDN, to connect to Microsoft's computers from home. This connection lets me send more than 100,000 bits of information (about four pages of text) per second to and from my laptop.

In the future the high-speed transfer of large amounts of digital data will be very important. At work and at home.

Q. A co-worker of mine mentioned that she leaves her computer on all the time. She says that "since I read that Bill Gates does it, it must be right." Is this true?

- Michael Alladio, Kaiserslautern, Germany

A. Some people leave computers on for weeks or months at a time. I don't because I carry my computer with me.

If your computer stays put, leaving it on reduces wear and tear on electronic components. But turning it off saves electricity and causes a simple diagnostic test to run when the machine is restarted.

Evolving technology will help resolve the quandary of whether to leave a computer on or turn it off. An emerging standard, called Energy Star, lets computer equipment 'idle' with almost no power consumption, and yet turn on instantly when needed.

Questions may be sent to Bill Gates by electronic mail. The address is askbill (AT) microsoft.com. (Be sure to use the "at" symbol on your keyboard for the "AT" in parentheses.) Or write to him care of The New York Times Syndicate, 122 E. 42nd St., 14th Floor, New York, N.Y. 10168. Please include your name, city and country whether you communicate electronically or by postal service. Questions of general interest will be answered in this column. Bill Gates regrets that unpublished questions cannot be answered individually. © 1995 Bill Gates ☺=

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