

will be "no more great solutions from Washington." It is going to come down to "your personal behavior today, tomorrow, next week, and next month." His agenda for educators to make the transition to the information age calls for us to:

1. Learn from the future.
2. Build a vision of what we want to do.
3. Learn to be comfortable with chaos.
4. Take this once-in-a-lifetime opportunity and run with it.

The critical questions we must ask are: What capacity does the school system have to adapt to the volcanic eruption of new technologies, new industries? To make creative leaps from

where it is now to where it will be in the future? To solve complex, nested problems? And finally, what capacity does the school system have to make the needed capital investments? Gillespie (1983) writes that although computer hardware is becoming less expensive, "the uses and number of users are expanding, and the cost of support (labor) is increasing. If every student and faculty member needs 5 to 10 hours access, the costs will be easy to estimate."

These, then, are the challenges. As you prepare to meet them, you might keep these thoughts in mind:

"Revolutions Never Retreat" (*Business Week*).

"Dogs and Computers Can Smell Fear" (Gillespie). □

References

"A New Era for Management." *Business Week*, April 25, 1983, pp. 50-80.

Annison, Michael. "The Information Society." Presented to the ECS annual meeting, August 1982.

Gillespie, Robert. "Computing and Higher Education: The Revolution Is Through the Gates." *Forum* 5 (1983).

"Ideas You Can Use: A Marketing Tool." *Inc.*, June 1983.

Naisbitt, John. *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books, 1982.

Peters, Thomas, and Waterman, Robert, Jr. *In Search of Excellence: Lessons from America's Best Run Companies*. New York: Harper and Row, 1982.

Buy 'Em While They're Hot!

Computers have a lot of potential for education, but for now....

KERRY M. JOELS

Come in, Mr. Snively." "Nice of you to see me, Mr. Blankenship. How are things here at Jefferson Junior High?"

"Better now that you're here! The parents and school board have been all over me to get computers into the classrooms. By the way, you're looking different somehow."

"It's probably the gold chains and leisure suit. When I shifted from Prosaic Publishers to Lemon Computers, I spent some time in a training session in Silicon Valley, where everything is laid back and high tech to the max. But let me tell you about the Lemon IV."

"Right. What can it do?"

"As you already know, the whole world runs on computers. Everyone needs to be computer literate."

"Well, that's what they say, but I don't know; I can certainly drive my car even though I don't know much about its insides or how to tune it up. What I

want to know is, what can a Lemon IV do for our curriculum?"

"Well for sure it's going to help your teachers teach. Computers are probably the greatest teaching machines ever devised. You have games, drills, games, programming, uh... games..."

"Programming? Why do the kids have to know how to program? I thought that's what your software people did for us. Are there a lot of those kinds of jobs out there—a lot of programming jobs? You know, I tried to program a Lemon computer once. All it kept saying was 'Syntax error, syntax error, syntax error.' What in blazes is a syntax error?"

"Oh. Ha ha. That just means it didn't like what you typed in."

"But I was only copying a program from your How to Program in Five Easy

Steps Manual."

"Were you using Version 2? You probably were. Version 2 hasn't been debugged, so you've got to expect things like that to happen. You should've been using Version 3. Version 3 has been debugged."

"Debugged?"

"Right. Look at this list here, Mr. Blankenship. Why, there are over ten thousand programs available on the Lemon IV. This is just a sample."

"'Zorgon, ZZLappoo, Kill the Kyr-eneans?'"

"No, no. Look here, under Education."

"'Math Drill, Spelling Drill, Power Supply Design, Hexadecimal Conversions.' How will this help my seventh-graders?"

"Our math drill goes all the way up to fractions. It's really good—there's this little clown who dribbles the numbers like basketballs. If the kid gets the prob-

Kerry M. Joels is President, J-Systems, Inc., Alexandria, Virginia.

lem right, the clown smiles; if he gets it wrong, the computer makes a Bronx cheer. Cute, huh?"

"Uh, well . . . don't you have anything a bit more challenging?"

"Oh, definitely. Our new version of *Math Drill* will be ready in just a year. Of course, then it will run only on our new Lemon V with 64K."

"64K?"

"Yeah. The Lemon IV has only 48K. 'Course, it's a terrific machine and now's a great time to buy. We can offer a super deal for your school on the Lemon IV."

"How much do they cost?"

"Like I said, the Lemon IV is a great deal right now. We group them in units of ten. We call it a Lemon Tree. When you turn on a Lemon, it plays a little tune: 'Lemon tree, very pretty. . . . Cute, huh?' Let's see: ten Lemons at \$999 is ten thousand. Then you'll need the disk drives, the data cassettes, and ten monitors. A mere \$25,000 should cover it. And of course, we throw in the software for free. Now that's a real bonus. You get ten copies of our math drill, a \$500 value."

"Can't we just get one copy of ten programs and duplicate them?"

"Oh, no, Mr. Blankenship. That would be illegal."

"So we'd need to pay \$500 for every new program?"

"You have no idea how expensive development is. The cost is just enormous. Five hundred dollars is not such a high price for what you're getting."

"But for what I'd pay for a few programs, I could hire a special teacher, buy a computer, and just have a demonstration class."

"Ah, but the hands-on experience in problem-solving techniques is fantastic. You can't deny that to your students. Of course, you should have a few rules in your computer classroom. We advise: no food, no drinks, no chewing gum. Also, you should make sure there are no game programs around."

"Is that all?"

"Well, a controlled environment helps. You'll also need a service contract for your machines, especially for your disk drives."

"This all sounds rather complicated."

"Oh, gee, no. The kids will have it figured out in no time at all. In fact, we've found that many go out and buy their very own Lemons after they've used them at school. They practically teach themselves."

"Can we write our own programs?"

"Surely! We offer a free two-hour seminar on programming for the new computer teacher, and a simplified macro-assembler course for the more advanced teachers."

"Macro-assembler?"

"You bet. And next year we'll even have a macro-assembler debug tool out for the programming support on the Lemon IV."

"Uh, great."

"I've got a machine set up outside. Would you like to see a little demo? Your secretary has been playing *Zzaappppoo*."

"What do I do?"

"It's real easy. Just turn on the monitor here, then insert this disk in the slot. Close the little door. Turn on this switch, and that little light means the disk is working. See?"

"It stopped. Are we ready?"

"No, you booted the DOS."

"DOS?"

"The disk operating system. Now we're ready to load the program—*Addition Drill*. See the clown? Wasn't I right—isn't he cute? You know, both Washington and Lincoln High schools will have their own Lemon Trees this semester."

"I guess if the students will see them in high school, we'd better get them."

"Right you are, Mr. Blankenship. You know, it's a real pleasure for me to get to work with such an innovative educator as yourself."

"Yes, well, I was the first in my district to have instructional television."

□

Cars, Computers, and Curriculum

The computer may be today's darling, but its value for tomorrow has yet to be tested.

CHARLES SUHOR

In 1900 an enthusiastic futurist might have made some predictions about society and education as follows:

By 1950 the automobile will influence every aspect of our lives. Those who have no knowledge of the automobile will be at a serious disadvantage in their personal, social, and vocational lives. Every household will have one (or even two!) cars. Vast industries of auto production, sales, and maintenance will grow. The automobile will enable individuals to live at ever greater distances from their places of employment, as "commuters" simply jump into their cars each morning, drive at speeds up to 40 miles an hour, and

return by the same routes on an expanded network of macadamized roads.

Moreover, new vistas of recreation will be open to families. Advanced technology and mass production will make cars affordable to the average American family. We can look forward to driver-friendly devices (no-crank ignitions, automatic chokes and transmissions) that will breakdown resistance to car use in our society.

But pity the poor midcentury citizen who lacks fundamental knowledge of

Charles Suhor is Deputy Executive Director, National Council of Teachers of English, Urbana, Illinois

the automobile. Such a person will be stymied by the overheating of a radiator, the deflation of a tire, or the simplest unplugging of a wire in the car's complex electronic circuitry. People who are knowledgeable about the basic workings of the automobile will have incalculable advantages over "auto-illiterates." The car-wise individual will arrive on time, make more professional contacts, and engage in sparkling conversation about radiators and batteries. The non-driver and non-car owner will be ill-suited to successful 20th century living.

The implications of the automobile for education are mindboggling. And yet it is clear that our schools are not

Copyright © 1983 by the Association for Supervision and Curriculum Development. All rights reserved.