

Dina Ingber

## COMPUTER ADDICTS

*Dina Ingber (b. 1948-), a freelance author and editor, spent three years in Jerusalem, where she worked for the Jerusalem Post. Her articles have appeared in Science Digest, Cosmopolitan, and America's Health. In the following essay from a 1981 issue of Science Digest, she looks at what was then a relatively new phenomenon: computer "hackers," speculating that they may represent the wave of the future.*

It is 3 a.m. Everything on the university campus seems ghostlike in the quiet, misty darkness — everything except the computer I center. Here, twenty students, rumped and bleary-eyed, sit transfixed at their consoles, tapping away on the terminal keys. With eyes glued to the video screen, they tap on for hours. For the rest of the world, it might be the middle of the night, but here time does not exist. As in the gambling casinos of Las Vegas, there are no windows or clocks. This is a world unto itself. Like gamblers, these young computer "hackers" are pursuing a kind of compulsion, a drive so consuming it overshadows nearly every other part of their lives and forms the focal point of their existence. They are compulsive computer programmers. Some of these students have been at the console for thirty hours or more without a break for meals or sleep. Some have fallen asleep on sofas and lounge chairs in the computer center, trying to catch a few winks but loath to get too far away from their beloved machines.

Most of these students don't have to be at the computer center in the middle of the night. They aren't working on assignments. They are there because they want to be—they are irresistibly drawn there.

And they are not alone. There are hackers at computer centers, all across the country. In their extreme form, they focus on nothing else. They flunk out of school and lose contact with friends; they might have difficulty finding jobs, choosing instead to wander from one computer center to another, latching on to other hacker group. They may even forgo personal hygiene.

"I remember one hacker. We literally had to carry him off his chair to feed him and put him to sleep. We really feared for his health," says a computer-science professor at MIT.

Of course, such extreme cases are very rare. But modified versions are common. There are thousands of them—at universities, highschools, even on the elementary school level—wherever young people have access to computers. One computer-science teacher spoke of his three-year-old daughter who already likes to play endlessly with his home computer.

What do they do at the computer at all hours of the day or night? They design and play complex games; they delve into the computer's memory bank for obscure tidbits of information; like ham radio operators, they communicate with hackers in other areas who are plugged into the same system. They even do their everyday chores by computer, typing term papers and getting neat printouts. One hacker takes his terminal home with him every school vacation so he can keep in touch with other hackers. And at Stanford University, even the candy machine is hooked up to a computer, programmed by the students to dispense candy on credit to those who know the password.

At the high-school level, students have been known to break into the computer room after

school and spend hours decoding other systems. By breaking the code, they can cut into other programs, discovering the computerized grading system of their school or making mischievous (and often costly) changes to other people's programs.

Computer-science teachers are now more aware of the implications of this hacker phenomenon and are on the lookout for potential hackers and cases of computer addiction that are already severe. They know that the case of the hackers is not just the story of one person's relationship with a machine. It is the story of a society's relationship to the so-called thinking machines, which are becoming almost ubiquitous.

Many feel we are now on the verge of a computer revolution that will change our lives as drastically as the invention of the printing press and the Industrial Revolution changed society in the past. By the most conservative estimates, one out of three American homes will have computers or terminals within the next five to ten years. Electronic toys and games, which came on the market in 1976, already comprise a more than half-billion-dollar business. And though 300,000 Americans now work full time programming computers, at least another 1.2 million will be needed by 1990. Many of them are likely to come from today's young hackers.

The computer hackers who hang out at university and high school computer centers are, for the most part, very bright students. They are good at problem solving and usually good in mathematics and technical subjects. And they are almost always male.

There is a strong camaraderie and sense of belonging among hackers. They have their own subculture, with the usual in jokes and even a whole vocabulary based on computer terminology (there is even a hacker's dictionary). But to outsiders, they are a strange breed. In high schools, the hackers are called nerds or the brain trust. They spend most of their free time in the computer room and don't socialize much. And many have trouble with interpersonal relationships.

Bob Shaw, a 15-year-old high-school student, is a case in point. Bob was temporarily pulled off the computers at school when he began failing his other courses. But instead of hitting the books, he continues to sulk outside the computer center, peering longingly through the glass door at the consoles within.

Pale and drawn, his brown hair unkempt, Bob speaks only in monosyllables, avoiding eye contact. In answer to questions about friends, hobbies, school, he merely shrugs or mumbles a few words aimed at his sneakered feet. But when the conversation turns to the subject of computers, he brightens—and blurts out a few full sentences about the computer he's building and the projects he plans.

"Apparently there is a class of people who would rather use the computer than watch TV, go bowling, or even go out on a date," says Ralph Gorin, Director of Computer Facilities at Stanford University. "They find that the computer has a large number of desirable properties. It's not terribly demanding, and it does what it's told, which is much nicer than human beings. I mean, when was the last time someone did what you told him to do?"

"People are afraid inside," explains Lizzy, a 16-year-old high-school computer-science student. "Sometimes it's easier to be a friend to a computer that won't make fun of you. It's easier than the pressures of a peer group."

"The computer will never insult you," says another youngster.

"Everyone has problems socially to some degree, and the computer can act as just another

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escape mechanism,” Gorin explains. “The youngster feels like ‘I just can’t stand it anymore,’ so he runs down to the computer room. The computer doesn’t care what time it is or what you look like or what you may have been doing lately. The computer doesn’t scold you or talk back.”

Are the hackers just a group of social outcasts who hook up with machines because they can’t make it with people? That would probably be a gross exaggeration—and yet, “Most hackers do have problems adjusting socially,” admits J.Q. Johnson, a graduate student at Stanford. “Perhaps because they don’t have much social life, they spend more time at the computer center.”

Joel Bion, a sophomore at Stanford, explains how he got hooked: “I’ve been working with computers since I was eight. I grew up in Minnesota and I didn’t have many friends. I wasn’t into sports and couldn’t participate in gym class because I had asthma. Then I found a computer terminal at school. I bought some books and taught myself. Pretty soon I was spending a few hours on it every day. Then I was there during vacations. Sure, I lost some friends, but when I first started I was so fascinated. Here was a field I could really feel superior in. I had a giant program, and I kept adding and adding to it. And I could use the computer to talk to people all over the state. I thought that was great social interaction. But, of course, it wasn’t, because I never came into face-to-face contact.”

Joel managed to break his addiction after a few years and is now a peer counselor at Stanford. But his lack of interpersonal relationships during the hacker period is common and this problem has led Stanford psychologist Dr. Philip Zimbardo to take a closer look at the hacker phenomenon.

Hackers at Stanford have what is known as an electronic bulletin board that allows them to send each other messages on the computer. What struck Zimbardo was that the programmers could be sitting right next to each other at adjacent consoles, but rather than talking directly, they communicated via computer.

Zimbardo also noticed that the messages left on the bulletin board lacked emotion, and the thoughts were expressed in formula like terms similar to programming language. “It could be,” says Zimbardo, “that people who become hackers already have social deficiencies and becoming a hacker is a way of coping out of having intimate relationships.”

“I’ve known some hackers whose addiction to playing with the computer and thinking exclusively in terms of information transmission makes it impossible for them to relate to anyone who’s not a hacker,” Zimbardo continues. “The danger is that they can come to think about people in much the same way that they think about computers. Computers are always consistent, so they begin to expect that consistency from people, which by virtue of human nature is not possible or even desirable.”

Zimbardo describes the case of a computer student who was working with him on a special assignment. The student interacted with excessive formality. He couldn’t deal with small talk, and all his conversations were task-oriented: “You will do this. This must be done.” He gave commands rather than making requests or suggestions. And he couldn’t deal with the “fickleness” of human nature. All this, according to Zimbardo, was a reflection of the way the student interacted with the computer. Ultimately the student was dismissed because of his inability to get along with others.

“In some extreme cases, hackers exhibit elements of paranoid because people can’t be trusted the way computers can,” says Zimbardo. “When people don’t do just what he orders them to do, the hacker begins to perceive hostile motives and personal antagonism.”

It would be absurd to label all hackers paranoid or even deviant. But it would also be naive

to shrug off the hacker phenomenon as meaningless. Perhaps this attachment to a machine could be viewed as just another side of man, the technological animal, who has always been obsessed with tools, machines, gadgets and gimmicks.

“There used to be a time when the term hacker referred to someone who was just enthusiastic about computers. It wasn’t pejorative. Some people feel that way about cars or music to some degree,” says Ralph Gorin.

Certainly the outstanding members of any creative field—the Picassos and the Beethovens—spent extraordinary amounts of time at their craft and were considered somewhat odd. And as Gorin points out, the computer, by its very nature, has an even stronger pull.

“Computers are attractive because, to a higher degree than any other object, they are interesting and malleable.”

Interesting and malleable: two key words if you want to understand the hacker's addiction and the increasing allure of the computer for all segments of our society.

The computer can be almost as interesting as a human being. Like people, it is interactive. When you ask it a question, it gives you an answer. And because it stores great quantities of information, it can often answer more questions, more accurately, than human friends.

This interaction has led some to attribute human characteristics to the machine. Such anthropomorphizing of inanimate objects is not unusual. Ships, trains and planes, for example, are often given human names.

But humanizing the computer seems much more natural because the machine does appear to “think” and “talk” like a person. As a result, some students form strong emotional attachments to their computers. “Some kids probably think the computer ‘likes’ them,” says George Truscott, a math and computer teacher in Palo Alto, California.

Hackers are not the only ones interacting with the computer on a personal level. The amazing powers of the machine have enticed even the most sophisticated scientists into wondering just how human it can become. The newly developing science of artificial intelligence aims at programming the computer to think, reason and react in much the same way that people do. Computers can diagnose a patient’s ailments and recommend treatments. They can mimic the dialogue of a psychotherapist or the reasoning of a lawyer.

If computers can replace our most admired humans, the professionals, then why shouldn't the hackers feel close to them and invest emotional energy in them? After all, the computer seems to have unlimited potential. Already, with today’s technology, tens of thousands of words can be stored on a tiny silicon chip measuring less than a centimeter square and millimeter thick. And any item of information on the chip can be called up and displayed on a TV screen in a fraction of a second. So the computer user has access to worlds of information within reach, literally, of his fingertips. And the computer can rearrange that information and interrelate facts or draw conclusions at the programmer’s command. It is, as Gorin points out, extremely malleable.

By programming a computer, a youngster can create a world of his own. That is, he feeds a set of rules in, and it acts according to those rules only. It is bent to the will of the programmer.

A favorite hacker pastime is playing computer games; these are not the games you see in pinball parlors but much more complex versions that hackers invent. At Stanford, for example, hackers stay up into the wee hours playing Adventure. The object is to find various pieces of treasure

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hidden in different parts of a cave. To do this, you must instruct the computer (that is, type instructions into the console) as to what direction to take North, south, east, west, up, down, jump, run, etc.). After each command, the computer describes the area you have reached and what lies around you. You encounter obstacles along the way—snakes, dragons, darkness, slimy pits—but you also encounter magical objects that can help you overcome the obstacles.

“With a computer, the possibilities are limited only by your imagination,” Gorin explains. “You can be a spaceship pilot, a great explorer or a treasure hunter. It can lead you into the world of fantasy all of your own making.”

Joseph Weizenbaum, professor of computer science at MIT, thinks that the sense of power over the machine ultimately corrupts the hacker and makes him into a not-very-desirable sort of programmer. The hackers are so involved with designing their program, making it more and more complex and bending it to their will, that they don't bother trying to make it understandable to other users. They rarely keep records of their programs for the benefit of others, and they rarely take time to understand why a problem occurred.

Computer-science teachers say they can usually pick out the prospective hackers in their courses because these students make their homework assignments more complex than they need to be. Rather than using the simplest and most direct method, they take joy in adding extra steps just to prove their ingenuity.

But perhaps those hackers know something that we don't about the shape of things to come. “That hacker who had to be literally dragged off his chair at MIT is now a multimillionaire of the computer industry,” says MIT professor Michael Dertouzos. “And two former hackers became the founders of the highly successful Apple home-computer company.”

When seen in this light, the hacker phenomenon may not be so strange after all. If, as many psychiatrists say, play is really the basis for all human activity, then the hacker games are really the preparation for future developments.

Sherry Turkle, a professor of sociology at MIT, has for years been studying the way computers fit into people's lives. She points out that the computer, because it seems to us to be so “intelligent,” so “capable,” so . . . “human,” affects the way we think about ourselves and our ideas about what we are. She says that computers and computer toys already play an important role in children's efforts to develop an identity by allowing them to test ideas about what is alive and what is not.

“The youngsters can form as many subtle nuances and textured relationships with the computers as they can with people,” Turkle points out.

Computers are not just becoming more and more a part of our world. To a great degree, they are our world. It is therefore not unlikely that our relationship with them will become as subjective as that of the hackers. So perhaps hackers are, after all, harbingers of the world to come.

## Diction

Look up the definitions for the following words: *delve*, *ubiquitous*, *paranoia*, *pejorative*, *malleable*, *anthropomorphizing*, *nuances*, and *harbingers*