Weizenbaum examines computers and society

Interview

By Diane ben-Aaron

Professor Joseph Weizenbaum is well-known both as a teacher of computer science and as an activist for scientists and educational responsibility. He designed the first computerized banking system before coming to MIT in the 1960s. He invented ELIZA, the first "psychiatrist" program, and was moved to the reaction of it to write the best-selling Computer Power and Human Reason.

Q: What, if anything, do you think should be the role of the computer in education?

A: Yours is an often-asked question. In a sense, it is up-side-down. Just start with the instrument; the question makes the assumption that of course the computer is good for something in education, that is it solves some educational problem. Specifically, [your] question is: what is it good for?

But where does the underlying assumption come from? Why are we talking about computers? There is something about the computer — the computer has almost since its beginning been basically a solution looking for a problem.

The question should start the other way — perhaps start with the question of what education is supposed to accomplish in the first place. And once one has identified the urgent problems, then one can perhaps say, "Here is a problem for which the computer seems to be well-suited." I think that the way it has to begin.

Q: What are the problems of the educational establishment?

A: The first priority has to be, it seems to me, to tend to those that are to be educated a mastery of their own language so that they can express themselves clearly with precision, in speech and in writing. The second priority is to give students an entree to and an identity within the culture of their society, which implies a study of history, literature, and the humanities.

And the third, very close to the second, is to prepare people for life in a society in which science and technology, which means to teach them mathematics, or at least arithmetic, is a fundamental skill important to observing the world.

A school system which meets these main objectives might still not be very well. Much of the time, we might not do our homework, might not do our schoolwork. It is rare to have a whole generation of schoolchildren especially as bright as the one we have today.

In this respect, my position is based on my belief that primary and secondary schools teach about computers now is either useless or can be learned by a reasonably educated person in a few weeks.

Now how well are our schools fulfilling the first priority? Certainly the answer with respect to language is miserably, absolutely miserably.

It is terribly important to ask the reasons the schools are failing so miserably. I think that even if one could show that schools are not teaching language as they should, that question, "Why can't Johnny read?" must still be asked.

There is a very good reason that questions of that kind are uncomfortable. When we ask this question, we may discover that Johnny is hungry when he comes to school, or that it is too hot or too cold, or that he is missing something else. Meanwhile, researchers should certainly work on innovative educational designs that would not only help poor kids but also help those who are in no immediate need. I hope that the computer can be used to make this change.

In this respect, this is fundamental to my belief that the population was growing at a very fast rate and, in fact, many would have written that there was no way to handle it. In 1960, there was no way to bring the computer to the world. By the help, I helped four of my own computers in over 10 years at MIT. I came here in 1963. Much of that time, much of the next 10 years were very turbulent politically. Soon after I went to Harvard, President Kennedy was assassinated. Here was the dream of the Great Society that President Johnson enunciated, and the civil rights movement, and the war in Vietnam and so forth.

The knowledge of behavior of German academics during the Hitler time weighed on me very heavily. I was born in 1936 and 1937. The concentration camp and the extermination of Jews was the first in which I participated in the behavior of my family and friends and many young people were concerned about these things today. But I think very deeply about these things.

Of course, the support that the Institute generally gets from the military, which is to say the Department of Defense and to a certain extent the Department of Energy, makes it pretty clear that it is not only computer science which is involved here.

By the way, let me say an additional rationalization for the work we do on this things is that there will be no more wonderful fallouts. We get the space program, and out of the space program we get missiles which can devastate the earth in a matter of hours. So therefore we have very little way of measuring it. I hope I am wrong.

Q: How can people continue to do this, knowing that the computer is creating a technological world where these machines are being used every day, as opposed to the technical invention.

A: It is also safe to say, it is simply a matter of fact, that to talk about issues of this kind, some realities became increasingly clear to me.

We live in a concrete society, and in this society it is perfectly obvious that when something like a computer comes into use, it will be adopted to be used for good or evil. It is true that a helicopter can be used as a gunship and it can also be used to rescue people from a mountain pass. And if the questions are asked, "Why is it that Johnny comes to school looking sad, miserable, absolutely miserable." It might be necessary to introduce a social invention, a computer, to change the system in any way. So in that sense, the computer has acted as fundamentally a conservative force, a force which kept power or even solidified power where it already existed.

Q: When did it occur to you to design the computer system at MIT — I came here in 1963. Much of that time, much of the next 10 years were very turbulent politically. Soon after I got to Harvard, President Kennedy was assassinated. Here was the dream of the Great Society that President Johnson enunciated, and the civil rights movement, and the hard-fought, and I of course participated, and the Vietcong War.

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Q: What is your greatest fear?

A: The computer is very deeply involved with the military. Today it becomes the beating heart of virtually every modern military system you can think of. What with the exception of the foot soldier.

Q: What about computers and the military?

A: The computer was of course born to the military, so to speak. It was born in the Second World War. The computer, as opposed to one can think of it as coming into American hands, and from that point to this thing is that the military has far more of the research and development of computers has been done by the military because money, directly or indirectly. It is also a safe to say, it is simply a matter of fact, that to date weapons which threaten to wipe out the human species altogether could not be made and could certainly not be delivered with any sort of precision were it not for the computers which guide these weapons.

But the computer is very closely linked with the military. Today it becomes the beating heart of virtually every modern system you can think of with the exception of the foot soldier.

Q: What should the computer science professional very often mean when he is working in the military?

A: I would endorse that sentence, except that I would add that you either keep your words in quotes, or that you change the sentence to read "...to be involved in the military system." The computer is very closely linked with the military. Today it becomes the beating heart of virtually every modern system you can think of with the exception of the foot soldier.

Q: What is your greatest fear for the future?

A: Certainly not just the ... the computer has become a technical problem and the military, and the military, say one cannot know.

I call an abstract ideal society, then one might very well say that mankind has developed in the last 50 years, atomic weapons which threaten to wipe out the human species altogether could not be made and could certainly not be delivered with any sort of precision were it not for the computers which guide these weapons.

But the computer is very closely linked with the military. Today it becomes the beating heart of virtually every modern system you can think of with the exception of the foot soldier.