ACADEMIA ENGELBERG

2nd Dialogue on Science – 15 - 17 October 2003
in Engelberg, Switzerland

Lecture

(Extract)

Prof. Dr. Joseph Weizenbaum

Emeritus Professor MIT, Cambridge

Contact:

Rathausstr. 25, DE-10178 Berlin

E-Mail: joseph@mit.edu

Ladies and Gentlemen

I find it astonishing that almost everything we have heard so far could also have taken place at an event that might be entitled “The computer now and in the future“. I see hardly any association with Pervasive Computing. My experience with computers – which stretches back over 50 years – has so far shown that, while physicists and mathematicians and other scientists speak and write about what they have done, in computing we speak about what we shall do tomorrow. And about how beautiful the world – at least the world of computing – will be next year or in ten years.

I would like to start with a preliminary remark: the word “pervasive” is an adjective, not a noun. And pervasive computing is not a thing, nor an object. It is a condition, a state that a system arrives at at a certain point in its development.

Pervasive computing is something that happens to us. It is something that has developed. And here I offer a very useful example:

In 1988, there was a huge stock market crash on Wall Street – perhaps you remember it – from one day to the next the best shares were almost worthless. It was a terrible crisis, which almost destroyed the entire system of finance throughout the world. But the American government stepped in – which was actually illegal, but no one was complaining – and saved the global economy as it were.

What happened? It went like this: the PC was around and a few stockbrokers on Wall Street and other stock exchanges were observing and monitoring the market and certain shares with the aid of the PC. They also learned to buy and sell very quickly with the PC. Imagine this stockbroker who has a PC and he is doing very well with it and he tells other brokers about it, and then suddenly there are three brokers and then suddenly six brokers who have a PC and so on and so forth. And eventually almost all brokers have PCs and are using them. The interesting thing about this was that the computers were not networked.

At the time, no one – except me – thought of connectivity, there was no network system in place. There were just independent standalone computers.

I recognized the opportunities of network systems and drew attention to this some months beforehand in an article in an English-language newspaper. I also predicted something which a few months later actually took place: I wrote in this article that the system was actually connected in to a network in a sense, that computers were connected to each other – through the market.

In other words, you have someone who buys 10,000 shares in General Motors, the market picks this up. And the GM share price rises. Other brokers see the movement on their computers and then they react. In fact computers are connected to a network, i.e. what is done on a computer is reflected by the market and this in turn is reflected on another computer standing at a completely different location. They were not connected by wires, but in this sense.

If one takes up this idea, then one sees that this system – now I am talking of a system – is unstable. In other words, it may collapse. It is not like a yacht with a heavy keel, for example, which regulates itself, as it were, even when faced with abrupt manoeuvres. Like what happened in 1988 on the stock market, it collapsed.

I am taking now about the banking system and I am talking about pervasive computing today. The same principles apply.

1. No one wanted it. No one did not want it. We simply did not think about it.

2. No one designed it.

3. And there is also no mechanism in place to switch off the system.

4. We no longer have to ask ourselves whether we want it or not. It is already so pervasive that it can no longer be switched off.

That is “the tragedy of the common”.

The world-wide web, too, has become a mass medium, which in my opinion is one gigantic scrap-heap. There is no policy control or monitoring of chat rooms.

Today’s programs are almost all impenetrable. Even production is a puzzle – a process in which programmers from all continents all over the world are involved, but unfortunately independently of each other. Too many people are working on them, there is no unity any more. If we do not know the programs in their entirety, how can we rely on them?

We urgently need the capacity to think critically: high-tech often doesn’t work. Technology alone is not enough.

Extract from the discussion that followed

Questions to Prof. Weizenbaum: You have shown us some examples of disastrous computer programming errors. Do you not have any confidence that humans can learn from their mistakes? And my second question: do you have any current examples that show how stupid humans are?

Answer: I do not believe that humans are any cleverer today and no longer make such mistakes. The answer is no, they are not more intelligent and no longer make such mistakes. They are just as stupid as ever. You see, one always thinks: now I've thought of everything. But it's not possible to think of everything.

I believe that in the plane crash close to here at Lake Constance not only was there a failure of computers and the entire technology, but humans also made fatal errors. Today we are in a much more dangerous position, which this example also shows. And the answer which I receive from many colleagues to such problems is that the human element has to be eliminated, that everything has to be automatic.

I am not upbraiding the computer for being stupid. I am upbraiding humans for their greed in creating artificial needs, for example that we must have beautiful weather and lots of examples which we have heard at this congress; that is just complete nonsense.

A question on the tragedy of the common: Is this about no one feeling responsible for something, but everyone wanting to profit from it?

Answer: I spend several hours a day on the internet and do not just accept every bit of junk. Not for example like children in school, who believe everything. If children for example see something black and white, then probably it is black and white, they don't question! Trusting the computer is a dangerous thing!

What we need, what we urgently need and I am quite serious about this, is the capacity to think critically. Can young people today, for example, read with a critical eye? A study from America has found that 60 percent of young people in America believe that Germany fought side by side with America in the Second World War!
We have to abandon various rules of politeness, and we have to tell those people who talk nonsense that they are talking rubbish. We have become too uncritical, most people can no longer think, read and write critically. We have to get smart.