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Ten Indications of an Emerging Computer Culture

The Ars Electronica Computer Culture Days aim at discussing and trying to represent the possibilities and consequences of the changes in our culture and in our society, caused by the basic technology of micro-electronics.

The explosive technical development leads to an ever-growing information deficit of the possibilities, but also of the consequences of the computer in all spheres of our life. Thus, the Computer Culture Days want to be a forum for discussing possibilities and problems.

Focal point of Computer Culture Days 1986 at the ORF—Upper Austria Regional Studio is the new world of images. A new driving force is added to the art form of video by the possibilities generated by the computer. For the first time in the German speaking area, the ORF-VIDEONALE within Computer Culture Days intends to introduce the broad television audience to the art form of video: a television week with different images.

Today, the image has become a battleground of different cultures. Not only does the perception of reality change, a new world of images is evolving.

Computer culture is understood in the broader and in the narrower sense of the word: in the broader sense asking the question in how far the computer changes our lives, our society and our attitudes; and in the more narrow sense in how far the computer as a tool influences cultural and artistic processes and artistic creation and in how far a new creativity is emerging. The application of the computer in the sphere of art and in the media has become an integral part of overall development.

For this reason, a set of ten indications is to attempt a by no means complete outline of the computer culture environment—to be understood as reflection stimuli, environmental determinatives and impulses.

1. Computer Culture is an emerging culture.

Generally speaking, the computer as key technology is still in its initial stage. Would we determine the computer age by a period of hundred years, we would find ourselves somewhere around the year ten of this era. Today's pre-school children, growing up with video clips and home computers, will consider the computer as an ever-ready instrument and tool.

They will have daily contact with the computer - on their jobs and at home. A culture is evolving that is characterized very decisively by the computer in its requirements as well as in its possibilities. When today's computer kids will be grandfathers, computer culture may well be in its prime.

2. Computer Culture calls for a new alphabet, a new language, a new way of thinking.

The Computer as a tool has brought forth a new alphabet, a new language, i. e. the binary alphabet, binary thinking. The computer develops a language of its own, a specific computer language. Hardly any other technical key innovation has produced such a variety of new terms, expressions, etc. at so great a speed. The children who grow up with the computer learn the computer language as they learn other skills. They grow up with the computer alphabet.

The computer creates a new language. In technical discussions on the computer terms are being used that otherwise only serve to describe human thinking and human behavior. The computer develops a jargon of its own, the jargon of thinking. New terms, such as

"reprogram", are smoothly integrated into colloquial language.

3. Computer Culture demands the computer-literate learning society.

Compared to other technical innovations, the computer is a machine with intelligent products. It is focussed on information, on knowledge. New technical developments have taken place at all times; what is really new is the rapid succession of these quantum leaps. The change brought about by the computer requires understanding the computer, its language, its thinking, its alphabet. In fact, we are really living in a time of upheaval: therefore, computer culture leads to pro's and con's in our society: on the one hand, its followers, the computer-literates, and on the other hand, its adversaries, the computer-illiterates. The computer thus requires constant learning.

In a century of upheaval, computer culture causes the temporary emergence of elites, similar to the elites that had formed after the invention of the printing press, those people who had command of the alphabet. To be able to make use of the medium "book", of the written word, it is necessary to be able to read, to be literate. The teaching of the alphabet to ever-increasing groups of the population led to a reduction of elites, this process took place in the course of several centuries: and still, even today little more than half of the world population are literates. While the transmission of knowledge through the book required reading as pre-requisite, the next major media innovation, the electronic medium television, through its world of images, once again made knowledge accessible without preconditions.

And the computer, regarded as a medium, offers a new possibility of gaining knowledge: Here again, as was the case 500 years earlier when the printing press was invented, the knowledge of the alphabet is necessary - the knowledge of the computer alphabet. Those who master the language of the computer are therefore to be counted among an elite, an elite that is steadily growing.

It is the simultaneous existence of two classes, that of the computer-literates and that of the computer-illiterates, that confronts our century of upheaval, the century of the key technology micro-electronics with all the problems that are, at present, related to the introduction of new technologies into discussions in our society and in economy: The threat of the individual by new technologies, the worry about loss of job, the feeling of being at the mercy of an inscrutable global system.

The capacity of using the computer, however, is not equal to the simple skill of being able to read and write. The computer alphabet is far more complex: it needs the overall understanding of the computer's mode of operation. The computer alphabet is more than the capacity to use it, it is a question of an overall understanding, especially when the computer of the fifth generation will practically be an intelligent machine.

The computer alphabet does not call for the mathematician, for the well-trained calculating genius, it calls for homo universalis.

4. Computer Culture requires re-structuring of work, leisure time and society.

We today live in an age in which the question is not the further development of existing inventions but a transition to entirely new techniques. While, for example, mechanical control has constantly been improved over the years, the electronic regulator suddenly brings the transition to a new era, at the same time disqualifying the work of decades. The computer replaces wide fields of mechanical work.

Therefore, computer culture is marked by a decisive change in the world of work, and thus in economy and in the effects on leisure time, on our entire life. As any other period of upheaval,

computer culture may have a drastic impact on the individual - loss of job, changes in the sphere of work, the necessity of on-the-job re-education.

5. Computer Culture requires the screen as major tool in home and office.

The significant universal tool of computer culture is the electronic screen. The screen is the pet of computer culture - at home as well as in the office. The television screen has developed into the universal communication medium of the information age, the screen is the paper of the Gutenberg age.

Its applications are more or less unlimited. And the screen has also become a new medium for the artist.

6. Computer Culture permits a new type of artist.

Using the term "artist", most people think of the painter, the composer, the architect, the poet, the singer or the actor. The computer programmer becomes a new type of artist. His potential is creativity. His art can be the program. Software is the "hottest" commodity of computer culture, product of a creative process.

Painters, designers, composers, graphic artists working as computer programmers in their relevant spheres of art do not only receive a new tool - the computer also demands a new way of thinking. The computer brings forth a new type of universal artist - in the understanding of Leonardo da Vinci.

Mathematical-logical thinking as well as artistic concept are integral parts of the artistic process. Proceeding from the programmer, computer culture thus allows for a new type of artist, conventional limits being partially abolished.

7. Computer Culture permits a new world of images and sound.

"New instruments and new technologies", says Pierre Boulez in an interview with "Newsweek" in 1986, "bring something into music that had not been there before." The computer permits a new world of sounds in music. However, the computer's most revolutionary impact is that on images: the computer-generated image contains a new reality; it creates a new image-reality.

For centuries, artists had dreamt of the electronic creation of images: to be able to move a picture, to transform a picture, to give a dynamic dimension to the picture. By combining video and computer graphics and television technology with computer, the artist is offered new possibilities - a new synthetic world of images is created.

The synthetic images have an autonomous degree of reality, they are products of the digital image creation. Television provides us with a secondary reality, with a reality that consists of the elements of primary reality.

The computer-generated image, on the other hand, creates an autonomous primary world of images that does not exist in our reality: the world of images of computer culture itself turns into a primary reality. We no longer deal with elements of an actual reality but with a synthetically generated new reality. A reality in three-dimensional space, in any imaginable motion, dynamism and transformation.

An essential condition for creating the new world of images is to be seen in the combination of video and television, computer graphics and animation. A new world of images, created by media artists, results from the concurrence of these spheres.

8. Computer Culture permits new networks.

The computer is a meta-machine, a metaphysical machine, as Sherry Turkle calls it. Being a universal machine it opens up new possibilities of communication, new networks. The world of computer culture is surrounded by global networks, distances change, space and time are being set into new relations.

The computer networks create an entirely new level of communication by combining computer, circuits, and satellites. The global networks are still in their infancy, telecommunication, electronic mail, tele-conferencing, etc. create a new virtual space determining life in the computer culture - full of opportunities, but also full of threats.

9. Computer Culture permits New Media.

The computer establishes itself in computer culture as a universal machine, containing and integrating all media and permitting new media. Only the combination of media creates new possibilities in quantum leaps. The magnetic storage media are still in their beginnings. They may well become for electronic information what the pencil is for paper.

Beside the book, the CD-ROM disc might become a new cultural medium. In the future, CD discs will be able to take over several functions of the book. CD discs will be data-storage devices for everyone. Dictionaries, encyclopedia, libraries will become accessible to everyone through the development of the computer's storage technology.

10. Computer Culture allows new experiences in art and culture.

The computer as a universal machine will become an effective tool in practically all spheres of art; in music, in literature, in theatre, in film - new, up to now unthinkable cultural experiences will evolve.

The computer as a tool and its universality as a meta-machine causes a revolution as it finally influences all fields of art and culture. The spectrum comprises the new world of images, the new world of sounds, but also the multimedia and video theater and large-scale projects in the open space. A new environment art is emerging and developing, as well as new events in the open space - in Austria, the spectrum reaches from the open-air events of the Linz Sound Cloud to André Heller's "Fire Theatre" of the large-scale events by Jean Michel Jarre. He characterized his five-million-dollar multimedia spectacle that he created on the occasion of NASA's 25th anniversary in Houston, Texas, in 1986 as follows: "in this event, the computers are not only necessary to safeguard the technical functions; the computer is the instrument as such, with which the event can be created."