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SignSpace

Digital Media in Study Environments: the Case of Computer Art

Keywords

computer art, generative aesthetics, space, semiotics, digital media, semiotic machine, study environment, aesthetic laboratory, media education, art education

Abstract

The potentials of digital media in educational contexts, and particularly in art education, constitute the focus of this thesis. Computer art is used throughout as an example. The concepts of sign and space play a central role for the theoretical part. I consider media as abstract spaces of a semiotic character. Sign as well as space are subject matter of perception, experience, and cognition; in those capacities they meet with processes of education.

We need such a theoretical foundation to understand the shift in individual and social existence from the directness of things to the indirectness of relations. Such a shift has been going on over the last few decades and it is still determining educational processes. The experience of difference and acquaintance with semiotic systems have gained importance in education.

The thesis is based on the following assumptions:

- 1) Potentials of digital media can be derived from products of the computer. This is demonstrated by the example of early computer art (generative aesthetics). Such potentials are *computability*, which is an absolute precondition of any computer work; the *twofold existence* of algorithmic things as program and as perceivable presentation; and *variability* and a status of *unfinished* of digital media. These features describe the specific aesthetics of the media, and the fluid character of computer objects. They make us think of the computer as a *functional space of possibilities*, which lead us to the sign character of all computer objects.

- 2) In the context of learning, potentials of digital media unfold only when they are considered to be *means designed* to support learning, as well as *subject matter* yet to be designed. The project "compArt: a space for computer art" at the University of Bremen serves as my background. In the course of this project, we designed hypermedia, video installations, and interactive installations. There is a recursive component: potentials of the computer are used as means to introduce its peculiarities as ends. The computer as medium may be used as a means to represent some external phenomena; it may also become subject matter and thus stimulate ideas about the computer. Designing software is to create a source of potential arrivals: software as text is the source, software as process becomes the arrival. Software is a space of signs inviting to action and transaction. Here the computer appears as an *interactive space of action*.

Computer art (in the sense of Max Bense's Generative Aesthetics) plays a central role and is taken up from the perspectives of theory, practice, history and education. Works by Frieder Nake and Manfred Mohr are explored for their peculiar sign character. They appear as potential signs of their own structure, which is a possible structure for other signs. It seems to be a twisting process, in which a formal description becomes accessible through sensual apprehension. It is about looking-at an abstract appearance in combination with looking-in a formal structure. Computer art stands for a logical concept that moves into the foreground possible structures and statistical relations. In such a process, the actor's role is changing: he facilitates processes, but he doesn't complete them.

Computer art is chosen as the case for study since it is elementary, fundamental, and exemplary. It therefore fulfills the requirements of a fruitful educational object. As an object of history, it allows us to compare the past with the present. As an interdisciplinary object it makes necessary the study of two disciplines (computer science and art) to investigate digital media. Finally, computer art is simple enough to get started with practical work, but still challenging enough, so that great ideas can emerge.

As a practical consequence, first steps are taken towards developing an "aesthetic laboratory" which combines principles of pragmatism with potentials of digital media in the aesthetic domain. The study environment features open and flexible structures by emphasizing difference, variability, and transformation.