

The concept of MediaArtLab@School as a didactic tool to integrate digital media, interactive systems and arts in education

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MediaArtLab@School as a didactic concept, Aesthetic Research with hypermedia in urban Mixed Reality projects, practice-oriented initial art teacher training with digital media

Abstract

The paper is based on the research project MediaArtLab@School – Creative Media Competence with Hypermedia and Mixed Reality Systems in Aesthetic Research and Media Projects at School and University”. It represents a didactic approach which aims to link aesthetic strategies and media technologies at both school and university level in order to link initial teacher training to school scenarios. The paper introduces the overall didactic concept as well as a school scenario developed in the project, based at the Department of Visual Arts at the Institute of Aesthetic and Cultural Education at the University of Flensburg.

Introduction

In the past, art and media education have been developed separately from each other. The paper is looking at an innovative approach to an integrated art and media education reflecting technological developments as well as contemporary media arts and their potential for a future media education based on aesthetic concepts and artistic strategies. The Media ArtLab@School is a continuous laboratory for shaping, using and reflecting digital media in a multisensory way. It offers an experimental learning space bringing together students of initial art teacher training and pupils at lower secondary school.

Current technological developments and their impact on future learning scenarios

The concept of the personal computer currently undertakes a paradigm shift: The computer as we know it today is moving beyond the standard PC including a screen based graphical user interface, mouse and qwerty keyboard modalities towards more graspable, Tangible User Interfaces which turn intelligent in the context of personal intelligent agents. The Internet is developing from a hypertext- based medium towards a shapable 3D- Hypermedium. The concept of the interface as a screen-based user interface is expanding towards an embeddedness in our physical world and is implemented inside of physical objects of everyday use. Information and Communication Technologies (ICT) are merging towards more complex interactive and intelligent environments for learning and shaping. However, such developments require a more differentiated perception and mediation as we only know little about effects of such Mixed Reality systems and their impact on learning and aesthetic shaping processes. Previous research has been undertaken by Reimann, D., Winkler,

T., Herczeg, M. and Höpel, I. (2003A, B, 2004) in the area of an integrated art and media education linked to the key discipline of digitalisation, that is, computer science. MediaArtlab@School aims to systematically expand such approach to aesthetic research projects (as realised by Blohm, M. in the context of initial art teacher education at the University of Flensburg) and apply it by linking art education at school to teacher training at university level.

Goals to aspire to

As technology is moving beyond technical standards, education and especially art education has to respond to such developments in order to enable children as well as the future generation of teachers to multi-dimensionally perceive, shape, use and reflect the digital technologies and their impact on the pupils lives in the framework of a wider learning culture. Furthermore, an innovative art education needs to mediate opportunities and constrains as well as the specific enrichments opening up using such interactive media in a creative way. We suggest to link impulses from contemporary media art for an innovative media art education.

The didactic concept of the research project MediaArtlab@School

The term of a Media Art Lab at School implies the idea of perceiving, shaping, using and reflecting aesthetic processes with digital and other media in a continuous process which is realised bringing together students of art education as personal tutors of the pupils.



Students and school kids working together in projects

The approach of media art education realised gets its impulses from contemporary media art as well as from computer science to develop models of good practice (school scenarios) for an innovative art education with digital media. The idea of the Media ArtLab at school intends to regularly interviewing the pupils to make them think and talk about the creative processes as well as the art objects and produced to stimulate articulation and discussion with artefacts of discourse accompanied by the students. It allows for intensifying the exchange between pupils who normally use media rather than reflecting what they are doing with such tools.

A school scenario linked to online computer games, 3D-Internet and fictious spaces of investigation

Children and teenagers love to play computer games. Watching children, playing LAN games, we found that the pupils, especially the boys of age 12-14 we work with, are concentrating on the game, are happy to make something happen on the screen and seem to forget about time and space, which is the immersive effect of virtual spaces. The same can be realised watching girls the same age when accessing online chats.

However, the motivation of the pupils to use such media at school where computer games are mostly forbidden and controlled by teachers is very high, though the

activities are constrained to a more instructed use according to the functionalities supported by the games.¹ According to the market research company IDC, 87,3 Million people currently participate in online games. 400.000 already pay a monthly amount of 13 Dollars to EverQuest, one of the most successful online games. (cp. Kushner, D., 2004, p.54) While the ministries of education still discuss whether the impact of computer games on learning can be integrated to curricula, online and offline computer games already represent an increasing part of the kids' daily reality which is in terms of time and interest.



Pupils presenting their favourite LAN games

However, the school scenario developed in the area of urban Mixed Reality projects is linked to the area of 3D-Internspaces and interactive virtual representatives (avatars) delivered through the Internet. The overall issue is 3D-perception as well as 3D-self-perception in particular.

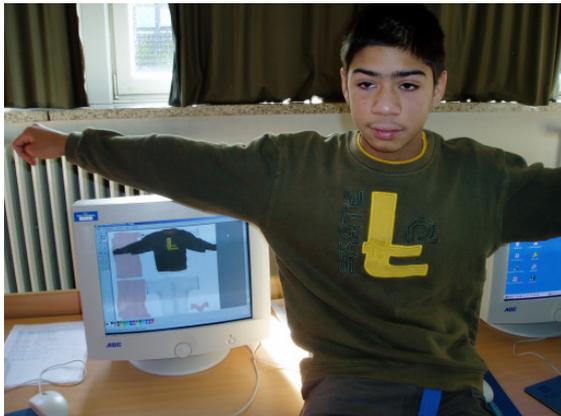
Therefore pupils were asked to develop digital avatars as representatives based on either self portraits as well as on fantasy images. The programme then generates a 3D-model of the head based on side and front view.

¹ In Germany the discussion concerning computer games is still focussing on the issue of violence in the context of ego shooters, rather than on the shaping aspect linked e.g. to the development of game levels invented by users.



Shaping digital models of oneself

The didactic approach was in terms of body perception and prepared in a multisensory way, that is, pupils were asked to turn themselves around on a turning platform (wheel). Afterwards the performance was recorded on video in order to address the issue of self perception coined by the medium video as well as to initiate a discussion of self perception.



Integrating a texture of a sweatshirt to add it to the avatar



Pupils recording each others' performances on video

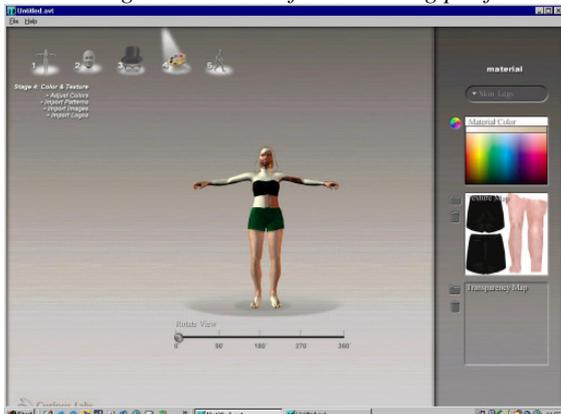
Afterwards the kids were introduced to the digital tool to shape an interactive avatar which behaves according to a programmed variety of gestures and body stance.



Girl moving around herself on a turning platform



Creating a digital model of oneself in virtual space



Corresponding graphical user interface for shaping and programming an avatar

Afterwards a phase for the initiation of aesthetic research projects was introduced

to the kids who then were asked to collect images and textures in their city quarter to address the issue of fictitious places as well as invented memories and worlds of imagination to be created.



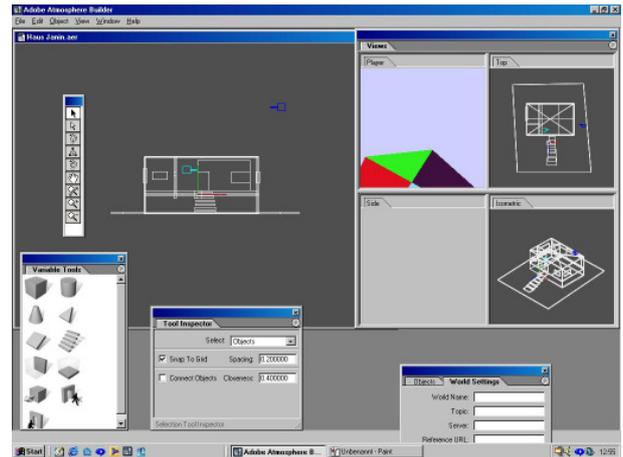
Collecting images and textures in urban space

The textures and images represent the interface between real, imaginary as well as digital spaces. Integrated in the 3D-software to construct Internet-worlds, they allow for linking the environment to the virtual space of the computer.



Abandoned places as objects for stimulating imagination

The construction level of the software implies the continuous change of one's perspective, which is represented by top-, side-, and isometric views. The artefact constructed immediately can be viewed and tested in the player level of the programme. The player modus allows the pupils for checking and correcting their own work processes. (s. figure below)



Construction level of 3-D-Internet-software Including different perspectives such as side-, top- as well as isometric views

However, the overall idea of the software is in terms of launching a community in 3D-Web spaces. Pupils represented as avatars meet online in a 3D-chat space. The latter is realised by the third part of the software which is the connectivity server allowing for text based Interrelay chat as well as for interactive avatar representation communicating with gestures.

From the digital image towards networked interactive virtual space

What does the development from digital image towards the simulated surrounding virtual space mean for contemporary art education when most pupils have never been taught the characteristics of the digital image? The digital still is not still at all, but interactive, which is actually the opposite. It can be manipulated, combined, sent, networked, shared and stored using computers. However, the issue to be addressed by art educators working with digital media is the digital image as being an algorithmic image which is interactive. Pupils may have been taught how to use image editing software tools such as Photoshop, Paint and the like. Pupils may learn about 10 per cent of the complex software functionalities after having attended such courses. However, the nature of the algorithmic images is not addressed, neither is there an attempt to be noticed that makes transparent to the pupils that computers do not deal with images, rather than with informatic models.

The mediation of editing informatic models, rather than the objects represented on the screen is an issue for contemporary art education in the context of digital media.

The 3D virtual space shows us as educators and artists, that the metaphor of the image is too narrow. The still image is moving towards simulated, surrounding space which is interactive. It implies the publication of an exe-file which is adding the issue of motion to the digital space, but not in the linear way as realised in film, but according to non –linear structures.



Pupil representing himself in 3D-Internet space

First lessons learned from school kids

As we found, quite a few male 8 graders at lower secondary school have high applying skills acquired by playing computer online and offline games. However, our first findings we came up with are in terms of the impact of such digital tools on creative shaping processes in terms of the variety of design opportunities opening up.

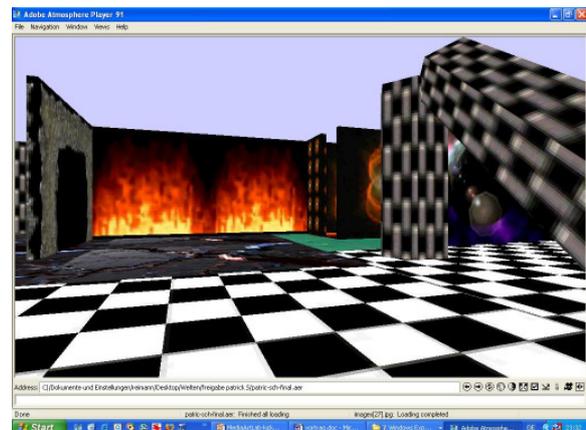
The pupils love to play around with the software in a more experimental way. Therefore art education is challenged to focus on basic shaping and design rules as well as on the aesthetic research issues addressed as work tasks.

The mediation of editing informatic models rather than the objects represented on the screen is an issue for contemporary art education in the context of digital media.

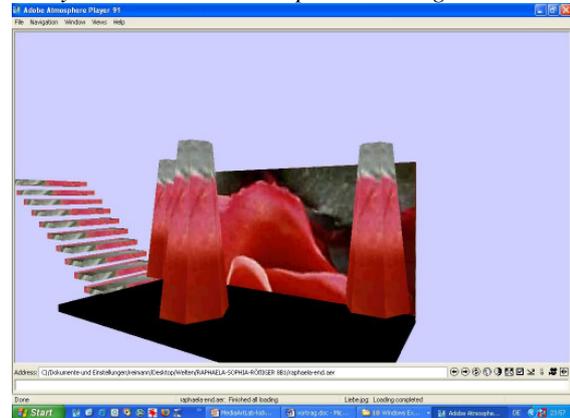
As the development is moving from still image towards simulated, surrounding

space which is interactive a responsive art and media education is required.

Art and media education is challenged by the simulated space of surrounding images which go on the Web and are interactive. The latter means that such spaces can be programmed and – accordingly behave as programmed before by the pupils themselves. The 3D-space shows that the metaphor of the image is a too narrow term which does not include characteristics of virtual simulated environments.



A boy's sketch as an attempt to imitate game levels



A girl's sketch using images such as roses as textures applying them to objects rather than walls

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