Art Education in the Digital World. A picture book as app

[Long Abstract]

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1. INTRODUCTION
In Art Education the possibilities offered by the *'digital world'* are widely neglected. Taking up this negligence, the thesis concerns an aesthetic media almost every child, teacher and parent is familiar with since infancy: the picture book. [12] We combined the picture book with the interactive elements of a game and transferred it into the realm of the digital world. The goal was to create a unique experience for children that neither a game nor a printed picture book could accomplish by itself. It combines elements of reading, hearing, pictures, interaction, game and art.

The digital picture book, especially the book-game, is more than an aesthetic object. My hypothesis is that the digital picture book is an *aesthetic experience*[13] in itself, consisting of five elements: *ludological, narratological, visual, acoustic* and *social elements*. To evaluate the theoretical hypothesis whether such an interactive picture book is able to create new creative-aesthetic experiences, we conducted a user study with 3rd grade primary school children aged 8-10.

2. PROTOTYPE
The interactive picture book named *'Journeys to Elsewhere'* (see figure 1) has been realized as an iOS-Application for the iPad. Concept and graphics were done by Tina Kothe, implementation and the configuration of a user study with 20 school children were done by Ida Buchwald. The story of the book evolves around a child, that is swept away by a creature named *'Grölm'* to the world *'Elsewhere'*. There the child - or the reader of the app - has to help the inhabitants to solves their problems. There are three problems to be solved in the app: mushrooms have to be sorted, a labyrinth crossed and bottles in a desert uncovered. Grateful for the help, the inhabitants give the child a gift in form of mushrooms, stones and bottles. These gifts can be used in the creative part of the app to shape the *'homeworld'* of the child, a bleak town, as the reader/player wishes.

For the implementation *'Xcode'* was used as a developers platform. Some structures for apps are already existing in this platform, like storyboards, the possibility to *'drag-and-drop'* graphical elements to the right place and a *PageViewController* for turning the pages of the digital book. Difficulties where the strict structures of the page turner, that should not always be active (especially not during the riddles). For that reason Ida Buchwald constructed a costumized page turner that is only active in parts of the picture book where the story develops.

The digital picture book app *'Journeys to Elsewhere'* contains five elements: there are parts of *ludology* in collecting items, solving riddles, embedded into the *narrative* elements of the story of a child going to the place 'Elsewhere'. The *visual* element concentrates on the 'pages' or 'screens', which are designed like classical picture books: pictures and text

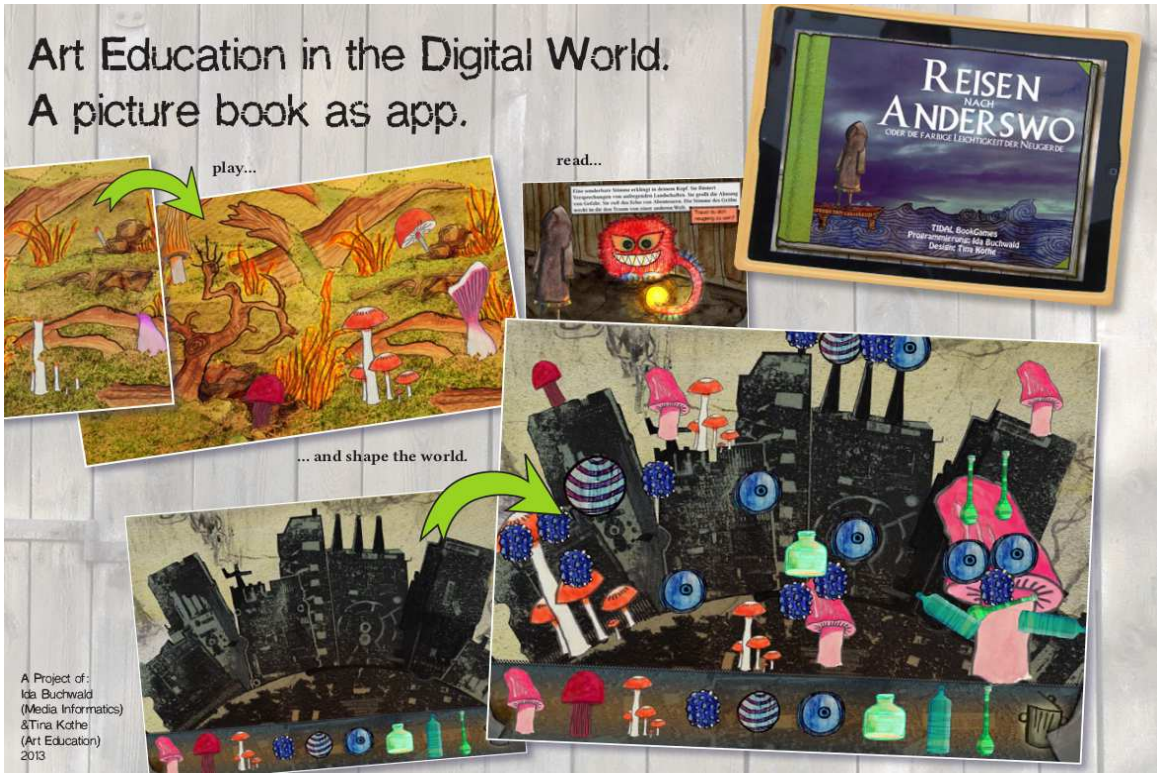

Figure 1: View of the Prototype app *'Journeys to Elsewhere'*

invite to see and interact with the characters. Unlike in a classical picture book, the option to turn a page is restricted during riddle-sections. They only unlock when the riddle is solved. It also contains a sole art educational part, where the collected items can be freely positioned and arranged onto the background and thus the *'world be shaped'* (see figure 1). The *acoustic* element both is a sound feedback and creates a certain mood of the story. The *social* element mostly exists outside the digital picture book.

3. USER STUDY

In our study pairs of altogether 20 primary school children (3rd grade, average age 9) collaboratively interacted with the picture book. The study was conducted as a qualitative study after the *grounded theory method* and *qualitative empirical social research methods*. Important for Ida Buchwald was the interaction (and difficulties) of the children with the ipad and the app itself. Tina Kothe's main focus where the previously mentioned aesthetic experiences of the children and their approaches to the creative parts of the story.

For the study, the children groups were selected at random, but all children knew each other from the classroom. The number of boys and girls were equal, the testing pairs were two groups of girls, one pair of boys, the other groups were mixed boy and girl. 70% of the children previously had contact with a tablet-pc, the other had never used one before. Each pair of children was video-recorded and at the same time monitored by an observer. The observer did not interact with the children, unless they asked something. The children's task was simply to 'play the app and tell us how they liked the app (text, sound, pictures, story), what they liked best and what not'. All groups spent about 30 minutes to read and play the app. The evaluation consists of the answers of the children, as well as the analysis of the video material.

Ida Buchwald's findings here are very diverse. It depends on the children if they act together or try to do everything alone. The implementation of the picture book did encourage cooperation as it allowed both children to act at the same time. Not only collaboration but also the reflecting communication of the children with us was of great importance to the results of the study. We integrated the children as valued testing persons, whose opinions were essential to us. The children's feedback in form of a questionnaire and recorded conversation was uniformly positive. They provided constructive criticism concerning the improvement of the content and implementation. This demonstrated their good understanding of the digital and aesthetic processes.

4. THE ART EDUCATIONAL VIEWPOINT

The art educational viewpoint is concerned with the *new aesthetic experience* a digital picture book can offer. Analysing the video material of the study[8] showed many structural moments of creative-aesthetic behaviour, but the question was, if those moments differed from those experienced while reading classical picture books. Based on studies of Anja Mohr concerning *'Digital Drawing with Children'*[3] and the hypothesis of the five elements of a digital picture book, an analysis of the study confirmed three new possibilities for aesthetic experiences.

Depending on the approach of the children, one 'creative-aesthetic activity' is *staging, integrating and arranging* just like in digital drawing[3, 4]. The children used the items they collected during the story to arrange and stage them in the environment. The second activity is a *mixture of process oriented playing and experimenting*, not concerned with a result but out of accidentally discovered functions (like tilting or enlarging) or new thinking. The third activity is called *'artistic approach'*. It seems that this activity does need some encouragement from the outside. It mostly appeared in a more informal environment and not inside the restrictive school hours.

5. CONCLUSIONS

Our study confirms that a digital picture book can act as *creative-aesthetic experience*, a very important aspect of art education. Cooperation between informatics, art education[4] and other fields of study like music, pedagogy and social sciences has greatly improved the results of this master thesis.

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