An Evaluation of Digital Cuddly Toy Museum Guides

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Abstract. We present the results of an evaluation of digital cuddly toy-like museum guides for young school children. The main result is that the concept is promising, but that it is important to consider the children's prior expectations of the characters given to the guides in future designs.

1   Introduction

The project Visions for Museums at The Interactive Institute in Stockholm has the aim to experiment with and develop new ways of using digital technology in museums' public service. As part of this project two digital museum guides for children have been developed (for a short presentation see Gottlieb et al, 2001). The guides are intended for children between seven and eleven years old, and are formed as two cuddly toys, looking like a bat and an owl. In this paper we present an evaluation of the digital guides, both as a design concept and for these particular designs.

2   The Design Concept

The guides were developed by Gottlieb, Öjmyr, Becker, and Söderberg within the project Visions for Museums at The Interactive Institute in Stockholm (www.interactiveinstitute.se/emotional/v4m/). The aim of the project is to make young visitors at the museums more interested in visiting museums, and especially looking at art and paintings. For the youngest children they wanted to develop a soft museum guide in form of a cuddly toy. The guides have distinct personalities, reflected in their dress and the way they talk. They tell the children stories about the paintings from their own point of view and their own interests. The aim has been to abandon linear story telling or fact presentations, and instead mix facts and fiction. The focus is on the child's experience. It should also be a tactile experience; therefore the guides should have many details, which should invite the child to closer investigations. A difference between this project and e.g. PETS (Druin et al, 1999) is that PETS are reacting and showing emotions at the story the child tells it, but can not tell stories itself.

The Interactive Institute hopes that the children will get positive associations to paintings and museums, and that they therefore would like to come back. If the children also learn something about the paintings this is a secondary result of the tour at the museum with the guide. The intention with the guides is also that it should be a meeting between the child, guide (animal) and the painting, not with the art historian, museum, and the intention of the artist.

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Their idea is that in the future there could be up to ten different characters to choose between at the museums. In this way the children could get different experiences at the museum depending on which guide they selected. In a first step two prototypes were developed: a bat and an owl.

2.1 The technology in the guides

The intention is that the guide should start talking when the child get close enough to a painting, and stop either when it has finished its story, or when the child walks away. In the final design, the guides will have a radio receiver that via a microprocessor (Basic Stamp II) controls an MP3-player (RIO PM300). Every object at the museum will have a radio transmitter that for each object emits a unique ID within a limited radius. When the child is close enough the guide's radio receiver receives the ID, and the microprocessor identifies the object, and then chose the right MP3-file to play. In the present case the radio control was not implemented, and the guides' talk was activated manually in the study.

2.2 The design of the bat and the owl

The bat is a boy, with an anxious and restless personality. He wears sunglasses and a cloak. The owl is a girl, and thinks she knows more than she actually do and she is quite cocky. She wears white shoes, has big wings, and is shaggy, see Figure 1. The digital guides talked, at the time of the study, about three paintings at the National Museum in Stockholm. The paintings depict the fire in Stockholm's castle 1697, a waterfall, and a still life. The bat and the owl report their own experiences of the paintings. The bat has a *describing* story, that means he talks about what he has experienced in the paintings earlier, but the owl also has segments, which are *dramatized*, that means parts of her stories occur to her in the paintings. For instance, she "meets" the prince and princess in the painting with the fire in the castle and talks to them, and she is "flying" in the storm in the painting with the waterfall. The owl also refers to modern phenomena like mobile phones and the fire brigade when she visits the castle. The languages the guides are using are normal spoken languages with elements of slang, in the same way young people talk. The recordings of the voices were made with two professional actors.

Figure 1. Children with the Bat and the Owl.

3   The Evaluation

Since this study was made at an early stage at the development of the guides The Interactive Institute also wanted to know, not only about the children's experience of the guides and the museum, but how the children actually used the guides. We were

interested both in what the children thought about the guides and what they remembered about the particular stories and paintings. The guides were evaluated both as a design concept, and as particular designs.

3.1 Participants

20 children from a fourth grade school class, from a middle class area, participated in the study. The children were between 9 and 11 years old.

3.2 Procedure

The study was run in two steps. First the class visited the National Museum in Stockholm for three hours, during which they used the digital guides. Ten of them used the digital guides individually, the other ten used them in pairs, see Table 1. The children who used the guides in pairs decided themselves with whom to share it. In order to ensure an even distribution of the use of the two guides, the children were not allowed to choose which of the two guides to use. For each child/pair of children the session took about 15 minutes. The whole session was recorded with a digital video camera, and observation notes were taken.

Guide/Sex	Boys	Girls
Bat	7 (4)	4 (2)
Owl	4 (2)	5 (2)

Table 1. Number of children using which guide.
In parenthesis: how many of them who used the guides in pairs.

Immediately after the session 17 of the children were interviewed in smaller groups with three or four children in each (three children preferred to participate in other activities instead, but the distribution between the groups was not affected). In these interviews the aim was to catch the children's experience of the digital guides, what they liked and did not like about them. The interviews were filmed with a digital video camera.

Three weeks later 13 of the children were visited and interviewed, in groups of four or five, in their school. The aim of the second interview was to find out not only about their experience with the guides, but also how much they remembered of the guides' stories from each painting. The interviews were recorded with a Mini Disc-player. Because of other school activities some of the children could not participate in the second interview.

4 Results and Discussion

In this section an overview of the results is presented. For a more detailed analysis, see Sundholm (2002). The digital museum guides were in general received favorably. When the children laughed at the things the guide told them, they often looked at the guide like you do when a person tells you something. The children who used the guides in pairs showed more emotions (laughed more and looked more often at the guide) while using the guides than the ones who used them individually. The children expressed their liking of them, asked when they would be available for the general public, etc**.** They

liked the concept of cuddly toys, and they also liked the guides' appearance, especially the bat's. However, some of them thought that they were more appropriate for younger children, around 8 years of age. (Or was this a polite way of saying to an unknown adult that they did not like them?) They were also critical to details in the design of the guides (see below).

4.1 The guides' way of talking

The children appreciated the advanced features of the guides' communication, e.g. the that one of the guides not only talked about the painting, but also acted out as if being a part of the activity the painting depicted. They had no problems following these perspective shifts. They also liked the anachronistic elements, like the owl talking about mobile phones in the painting from the 17th century. The children also expressed their liking of the guides' way of using "their" language with slang (and not like the more adult like language they had expected to hear).

While the children liked the fact that the guides were designed primarily to create a positive emotional experience, more than half of them said that they would also have liked to learn more facts about the painting and the painter. So in this respect the young museum visitors echoed Norman's (1993) criticism about museums being today too concerned with emotional and experiential aspects, and too little with facts and explanations.

Some design features were less successful. The bat's asking questions to the children caused confusion among them. Since the bat could not hear or understand any answer, the children wondered to whom they should answer. The possible conclusion seems to be that without any support for connected dialogue, attempts to engage the children through asking questions should be avoided. Or at least be confined to rhetorical questions.

4.2 The guides' personalities

The major criticism from the children concerned the guides' personality characteristics, since they did not match their expectations. This was to some extent true of the owl, who some thought should be more knowledgeable and smart in the way owls usually are presented in books for children, instead of just pretending to be bright and knowledgeable. But the primary criticism concerned the design of the bat. Both by being a bat associated with Batman and ghost stories, and by being dressed as a really cool character, the expectation was of a personality different from the shy and worried character they encountered. This shows the need to design these kinds of guides with an eye on the expectation created by the children's culture. It is important to remember that in the future the children will choose a guide themselves, and they will do this on the basis of earlier knowledge about the characters. This means, a child will choose a bat because it is interested in hearing a spooky story, or an owl if they want to hear a story from a smart character. When not taking this into account there is a risk that the children's expectations not will be fulfilled when using the guides.

4.3 Memory of the guides' stories

In the follow-up interviews three weeks later, we also looked at how much the children remembered of the guides' stories. Because of the small number of children in the study, and the fact that the guides' stories were not equal in length or content, it is not

possible to compute any quantitative difference between the children's memories for the two guides' stories.

The children remembered very much, and sometimes they almost quoted verbatim what the guides had been telling them. But the children who had used the bat remembered some things consistently wrong. Sometimes the bat was not actually as scared or as cowardly as the children remembered. To take one example, all the children claimed that bat had been afraid of the thunderstorm in the painting with the waterfall, when he in fact had enjoyed it. This is probably not only a consequence of the children's expectations in the character beforehand, where they expected the bat to be braver and cooler, but also because he was not designed as a consistent character.

5   Summing Up

The concept of a cuddly toy like museum guide seems like a promising concept worth further development. The children expressed their liking of them, and asked when the guides would be available at the museums. The evaluation also showed that the children asked for more facts although they did enjoy the made-up stories.

However, the criticisms voiced by the participants in the study illustrate the importance of including the users at the early stages and all through the design process also when working with children (c.f. Druin et al. 1997, Druin et al 1998, and Scaife et al.1996), as well as showing the importance of taking the children's earlier knowledge, experience and expectations into consideration in the design process.

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