Ideas for Future Museums by the Visually Impaired

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ABSTRACT
The subject of study in this paper is the material created by visually impaired participants in two workshops and the approach of bringing participatory design to museums for this particular user group. These two workshops were organized as part of the research activities of the project Äänijälki[1].

Clay pieces and models were used in the workshops to build a map of ideas and to describe future museum exhibitions accessible to visually impaired people. The analysis of the materials together with the participant's interpretations is an exploration into visually impaired people's perceptions. This analysis provides preliminary suggestions for planning future collaboration in the design of future museums with visually impaired people.

Author Keywords
Participatory design, museum, visually impaired, accessibility

ACM Classification Keywords
H5.2. Information interfaces and presentation (e.g. HCI): User interfaces.

INTRODUCTION
In the process of designing for visually impaired people in the context of museum exhibitions we had some questions: how to include visually impaired people in the activities of museums? And how to discuss about their perception of space and the exhibited pieces in the museum with them? In an attempt to look for these answers we organized two workshops during 2005 in Ateneum Art Museum, The Finnish National Art Gallery, in Helsinki. The workshops were based on Participatory Design methodologies. Researchers such as Hulcrantz and Ibrahim have been using workshops of this type in order to evaluate future concepts [5]. Our workshops were based on the model that Taxén proposed for introducing participatory design in museums [7]. Taxen describes methods for evaluating museum exhibits and for developing exhibition concepts. He utilizes model building using low-tech materials and video scenarios in his technique. Taxen's method has many good points but it did not fit our purposes directly. We chose the method because we assumed that a process in which some specific aspects are first identified and then worked on, could bring answers to our practical design problems, and also because it was easy to adapt and inexpensive to implement. We modified the process by reducing the amount of phases, by reserving more time for the workshops, by adapting the materials used to create the idea maps and models and by devoting a moment for feedback at the end of the workshops.

The workshops were planned in order to use the audio material produced in them as part of the content of Äänijälki. We have video and audio documentation of both workshops.

Äänijälki is an interactive audio service for museums that allows the exchange of comments within present, past visitors and museum staff. These comments relate to the pieces in the exhibition and the navigation inside the museum. "Äänijälki will be used for sharing hints about the experience of going to and being in an exhibition. The goal is to motivate visually impaired people to visit museums by providing a tool to get information about museum spaces and exhibitions, with their 'comments.' " [6]. It is now in a prototype stage.

Participants did not get to use the actual Äänijälki PDA application in the workshops. They were informed about the concept and basic functionality. The workshops are an attempt to gather research material that can be useful for the project and to obtain inspirational ideas for making museums accessible for the visually impaired people's community. The aim of the workshops is to enable us designers to create a thorough understanding of the users', their opinions, emotions and the challenges that they face when visiting museums. Participatory Design as a method considers users' perceptions, feelings and attitudes towards

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[1] Sound traces

technology just as important as the functions of the technology [3].

DESCRIPTION, COMPARISON OF THE SITUATIONS

We think it is relevant for the analysis to take contextual factors as data because they influence people's behavior. Anna Salmi and Mariana Salgado coordinated the workshops, and one person was responsible for the documentation. The participants in the first workshop were five visually impaired people and one sighted person. In the second workshop there were nine visually impaired and assistants (sighted people). Assistants and visually impaired persons participated in the workshop in equal terms. Participants were mainly adults and three of them were teenagers. The degree of vision varied among the participants in both workshops. Both workshops took place in Ateneum. The atmosphere was quite relaxed and informal, although most of the people had not met before.

The first workshop lasted for three hours and the second for four hours. In the second workshop we added a guided tour in the museum as part of the program. The additional hour allowed us to have a lengthier open discussion. Both workshops started with a brief presentation of the participants and Äänijälki project. In the first workshop we also had a round of questions in which participants named examples of good exhibitions that they had enjoyed and identified what had made their experience pleasant.

First Task

The aim of the first task of the workshops was to shed light on the factors that for the visually impaired make up a good museum visit in terms of the guiding services and the design of the exhibition. In the first workshop the first hands-on task was to describe the features of an ideal future guide for museums. It could be a person, a dog or a device. In the second, the task was to describe features of a good exhibition. In both workshops clay was used as material for visualizing thoughts. We chose clay because it utilizes visual medium, essential in design, for conveying ideas and also because neither of us knows Braille. Participants were asked to make a piece for each aspect they wanted to present.

The pieces were placed in the middle of the table one by one, in the order of being finished. Participants modeled the clay and spoke about their ideas. After this activity, we asked the participants to start dividing the pieces into groups. The task was, first, to classify the objects according to some commonality and then to give each group a title. We participated in the classification task as facilitators. Collaboratively with the participants we went through the pieces on the table one by one repeating the title and asking suggestions a group for each. Together with the participants we formulated titles for each group. At the end of the task we confirmed that everyone agreed with the titles given. This activity was based on the technique of making an affinity diagram [2]. Most often such a diagram is put together on a wall using e.g. Post-It Notes. The aim of building the diagram is to organize individual notes into a hierarchical structure that reveals the common issues and themes in the subject that is being studied [2].

The pieces were a tool for enabling dialogue and discussion, as well as organizing the communications. Díaz-Kommonen proposes that objects in this role can be described as boundary objects [4] Participants described themselves, their intentions and their personalities through these pieces. In the process of analyzing the clay elements that the participants had made we created cards. Each card had a picture of the particular clay piece, a title given by the participant who made the piece and a fragment of the oral information chosen and translated by the researchers. In this process of manipulating the cards some of the interpretations took shape. These cards were boundary objects for the analysis.

Second Task

The goal of the second task was to get innovative solutions to the design of an exhibition space. With this task we were aiming to get hold of the aspects that guide the use of space for the visually impaired. The task was to design a solution for a future museum. Participants could focus on some particular issue they thought was important. The idea was not to design a museum building, but a generic solution that would fit in different museums. There were no constraints in terms of money, resources, and technology that could be used. The participants got together in groups of three or four. There was a set of materials available: wooden pieces, cloth, screws, clay, Duplo bricks and other items. The participants subsequently presented the models and we discussed them in the whole group.

MODELS

First Workshop

In the case of "Via Art" the concept is that the learning experience of being in the exhibition guides the visitor forward. This is represented by the linear organization and one door from which the visitor enters and another from where he goes away. There is a spacious place with natural light, where everything can be touched, and there are no obstacles in front of the objects, or glass cases. "It is an easy place to go around, knowing that you cannot get lost. It is so clear that you can move about alone, without a guide", said Jouko. In "Via Art" there is a guided audio tour that recognizes the visitors approaching and starts the tour, embedded in the environment.

In the case of the model with circular shape (the model has not got a title) the participants took into consideration visitors moving around with wheelchairs and with babies' trolleys inside the exhibition space. There is a clear space, with natural light and the titles of the art works are available in Braille and in high contrast writing. "The walls are covered with smooth material to avoid echo, that affects conversation in some spaces", said Elina. There is a big

terrace with view to the sea to take a tea and listen to the swans.

Second Workshop

"Ketola group" has the idea that the museum decides on a theme for an exhibition and provides some exhibits but visitors are the ones who complete the exhibition by drawing and painting on the walls. The exhibition will be in constant change. There are two bulletin boards, one inside and one outside the museum space. Through these boards people can have access to information by reading the big letters or by listening. Visitors can also leave their comments in a guest book using audio and Braille. Inside the exhibition there are audio descriptions of the pieces.

"The Museum of Atmosphere" is an open-air space in the middle of the city. It has different kind of exotic birds that are extinct, a palm tree, a water fountain and a construction that holds a cafeteria with panoramic view. It is a place to relax, to talk with friends and to smell different aromas. The colors in the museum are well contrasted in order to avoid confusion to each other. There is no extra information. Everything is about feelings in this museum.

"The Multifaceted Museum" has two main spaces that are separated by a lake. The arrangement in the exhibition is particular. One of the sides is specially designed for touching and climbing in the exhibited pieces. Children are welcome to this side while their parents are encouraged to visit the other side. People can swim in the lake and go from one side to the other through the bridge. It is mostly an open-air museum, only the elevator has a roof. The roof is translucent, allowing the light to come through. The elevator moves freely in the whole museum space also in horizontal direction and when called for, it descends. It works as a cable railway. This group showed clear accessibility solutions in their model, like the stripes in the floor marking the route.

The common points that most of the models addressed were the clarity in the layout of the exhibition space, the possibility to touch, the existence of natural light and contrast, an entrance with clear indications of where to go first, and the autonomy for walking and getting information through out the exhibition. For the visually impaired person and for the one accompanying the possibility to be and walk alone for some time in the exhibition is appreciated. It was also notable that in most of the models the nature element was prevalent. Almost all groups highlighted the importance of the cafeteria, by placing it in a high place allowing for a nice view. In the cafeteria they told about the possibility to enjoy with all senses. Participants were sensible to mothers with babies moving with trolleys. They included this group as part of the special groups that museums need to pay attention to.

DISCUSSION

In the first workshop it appeared to be difficult for the participants to concentrate on telling about the positive sides of museum exhibitions. Participants immediately began describing problems they had faced in museums, and the positive was left aside.

When making an affinity diagram, people usually write their ideas on small pieces of paper, at the same time summarizing their ideas. As we cannot read Braille we chose to use clay pieces and models as tools for communication. While working with clay modeling, participants were asked to give oral explanations of their ideas. The explanations were often lengthy which made recalling and summarizing the descriptions later on difficult. The temporality of sound as media sets high demands on the listeners' memory. When making the classification with the participants, we had to ask for a reminder or a repetition of the description given in the earlier task of making the clay pieces. Participants could remember the title but not all the meanings that the pieces carried within. Regardless of this issue we can affirm that clay pieces worked well as thinking tools for communicating and sharing ideas in the workshop. Participants found that they could make the pieces easily and could express their ideas through the pieces. Clay as material was inspirational, since most of the participants put more than three pieces in the center of the table. Also, the eagerness that they showed in contributing ideas through these pieces demonstrated the success of clay in triggering ideas.

In the second task, the models of an ideal exhibition acted as useful representations of the group's ideas. Like the clay pieces, the models too acted as good tools for thinking and communicating. The models built with lo-fi materials expressed a variety of aspects related to the design and functionality of the museum space, the design of exhibitions, the use of materials and technology inside museums, the communication of information and the roles of the museum, guides and visitors. They also drew attention to such issues as accessibility and multimodality. The models also worked well for representing the complex situation of visiting a museum exhibition and opened up the discussion in the end. They showed the compromises of design definitions to participants. It was in the dialogue during the presentation face that the ideas of the museums took shape and some inconsistencies were clarified. The fact that in each of the groups there were people partially sighted helped in the development of the models.

There was an evolution in the design of these workshops. In the second workshop the program was more compact: there were two hands-on tasks. The first task consisted of describing the features of a good exhibition in a museum and the second task in designing a future exhibition. In the results it can also be perceived that as both tasks were connected tightly, the participants used some of the clay pieces in the model. Also in this workshop some of the participants opened up themselves, presenting even very personal thoughts. Talking about loneliness, position in the society and spiritual issues are sensitive topics for a

conversation within seventeen persons that met only this day.

Additionally, we were positively surprised about the richness of the contributions and the versatility of creative material that was produced. The complexity of this analysis shows the different ways in which these multimodal materials play role in the making of meaning. The clay pieces and the models were a fertile tool for communication. They worked as boundary objects, helping to share understanding of the concepts in question and to keep the discussion alive. In this respect Arnheim confirms: "Thoughts needs shape, and shape must be derived from some medium". [1]. Clay as medium was a good choice because it gave enough flexibility and made it possible to pass around the objects. In this way all the members of the group could touch them which facilitated creating a shared understanding.

In the first workshop the clay pieces were not passing around, whereas in the second one they were. We believe this is why in the first workshop participants were not all committed to the activity of grouping the pieces, although most of them suggested titles for the groups. In the second the passing around of objects generated a lot of small side dialogues among the participants and therefore they were not all concentrated in the same main discussion at the same time. On the other hand the grouping worked smoothly because everybody understood and was aware of the pieces that others had made. Most of the participants had comments and suggestions on how to group the pieces and they gave titles to the groups.

It is relevant to highlight some issues that could fill the gap of knowledge between visually impaired people's world and sighted people's world. Preconceptions we might have had before the workshop can be used as material for this perspective. For instance, the participants asked us whether the color of the clay had any intended meaning for us, and whether we had a plan in giving a certain color to a certain person. At first we did not tell them what color each person had, because we thought that it was not important. That was a mistake, since most of them had been able to see at some period in their life and therefore liked to recall colors. Even those that had never been able to see had a relationship to colors. We explained that the colors were randomly distributed and that they did not have any special meaning.

We have to acknowledge that the participants' contributions in the workshop might have been influenced by our own ideas concerning the project: Äänijälki. Some of the participants in the first workshop had received an e-mail telling briefly about Äänijälki and the people in the second workshop had also listened to our presentation given at their school. However, we did not consider this as too big of a disadvantage. Rather, we think it was important to provide enough pre-information to enable the potential participants to make a decision about participation. It is a fact that for them even the practical arrangements of arriving to a workshop and traveling home make up a larger effort.

CONCLUSIONS

Despite our foreboding participants seemed to feel comfortable with clay as material for expressing ideas although it is highly visual as matter. As designers we need to develop processes of visualization in our research. Making the user create future situations is a way to get inspiration for designing proper solutions for interactive interventions. We believe that the material of this paper is relevant for the design of innovative solutions in the museum context in the future. Although our study focuses on an art museum context, some of the ideas presented here could be implemented in other museums as well. This kind of workshops are useful for applying accessibility in museums, not only for the visually impaired but for other groups with special needs. In addition, working with this particular group opens the question if they have "inventive visions"? For visually impaired people perception in the context of a museum involves the atmosphere of the exhibition and building, the route for arriving to the pieces in the exhibition, the things/places/colors they imagine and/or perceive and the connections that they make between their insights and previous knowledge.

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