Touch the Unreachable
- Looking for the Finnish identity

Designing Art Educational Learning Experience

Virva E. Auvinen
Master Thesis - MediaLab 2009
University of Art & Design Helsinki
# Table of Contents

1 Introduction ................................................. 4

2 Understanding The Museum as an Interactive Learning Environment .................................................. 5

3 Tools For Designing Interactivity In a Museum Environment .............................................................. 7

   3.1 Dialog with visible elements .................................................. 7

      Museum and Images ................................................. 7

      Virtual world and images ........................................... 7

   3.2 Facing and Questioning the Past ........................................ 8

   3.3 Storytelling and Playing ............................................... 9

      Storytelling and History ........................................... 9

      Storytelling, Actions and the Virtual World ............ 10

      Storytelling and Characters in a Virtual World .... 10

      Learning by playing ............................................... 11

   3.4 Interactivity by Doing ............................................... 11

      Interactivity in a Museum Environment .................. 11

      Virtual interactivity ............................................. 13

4 Challenge: Create an Interactive Art Education Learning Experience ...................................................... 14

   4.1 Objectives ..................................................... 14

5 Touch the Unreachable – Finding the Finnish Identity Design Process ..................................................... 16

   5.1 Reading Historical Material and Understanding the Key Issue ..................................................... 17

5.2 Storytelling Structure ............................................. 18

   Cause and Effect ..................................................... 18

   Design Requirements ............................................... 19

   Talking Photographs ............................................... 20

   Characters ......................................................... 20

   Player’s and Characters Motivation ........................... 20

   Multi-linearity Introduced ....................................... 21

   Connection to the Present ......................................... 22

5.3 Finding a Suitable Visualization Style ........................................ 22

      Interface Visualisation ........................................... 22

      Texture and Colour ............................................... 24

      Locations/Settings ............................................... 25

      Illustrating Characters ......................................... 27

5.4 Definition Logical Interaction ..................................... 28

      Support ......................................................... 28

      Flow and Mechanics ............................................. 29

5.5 Documenting Concept ........................................... 30

6 Results ................................................................... 31

7 Conclusions ...................................................... 32

8 Pavilion’s Panels ................................................... 33

9 References .......................................................... 35

In Attacment

Design & Content Document
DVD - 3D Characters and Video & Interfaces and Scenario
1 INTRODUCTION

My interest towards art and art education has its roots in my childhood. During the 1970-80's I visited many museums with my mother in Italy and in other European countries. The only memories I have of those trips are negative. I remember very boring visits where usually an elderly man or woman was speaking in a very complex way about the artwork. There were too many people around to see the paintings, and the environment was hot and noisy. One spring day, when we were visiting the Bardi and Peruzzi Chapels in Santa Croce Church in Florence (Italy), my mother asked if I could explain to her what I saw in Giotto's fresco. Following the instructions, I looked at the fresco and started to tell her what I really saw. Of course, the eyes of an eight year old girl see funny buildings and strange-figured people, but the main point was that I learned to see the artworks and not only look at them. In this way I took my first steps towards understanding how to read a work of art.

After many years, I graduated from the University of Helsinki in Art History. Since then I have been researching how to give people this same delightful experience of understanding, finding and learning from art. My interest was leaning towards the gesture of touch, as art can rarely be touched.

My work consists of two parts:

1. Written part of the theoretical section and process description
2. Design Document - Concept and content design and visualisation in dvd attachment
In today’s Western culture, young people live surrounded by digital objects. Many have their own mobile phone or mp3 player, and most play video games daily. They use the Internet and chat rooms without problems, and share photos and videos using social networking and on-line communities. As Presky defines, young people are habituated to live in a multitask-digitised world. According to him, the environment and culture in which people grow up affects and even determines many of their thoughts and processes. Therefore the media and culture that surrounds people or children also affects their thinking patterns.¹ Prensky affirms that to understand today’s generation of learners, the starting point is to distinguish and separate two different kinds of learning traditions: “minds that come from television tradition and minds that are influenced by interactive technologies such as video and computer games and the Internet.” He addresses that young people are used to living in a world that combines visual dynamism with an active, participatory user role. They are users and generally want to see the results of their actions.² Prensky concludes that today’s youngsters belong to the gaming generation and they think in a hypertext way and therefore their cognitive structures are parallel, not structural, as it used to be in the past.³

There is another important change in our society - use of time. In his book, Falk identifies that during the last decade, Western culture has changed above all how we spend and consider time. Time thinking dominates our life and it is even given the value of money. In this scenario, leisure time has become a central and fundamental part of our lives.⁴ This fact is fully understood by the entertainment industry. We are surrounded by a vast range of possibilities to choose from (books, television, video game, music, sports, etc.). Newsom and Adele summarize that the decision to go to an

1 Prensky, 2007, 43-42
2 Prensky, 2007, 46-47
3 Falk, 2000, 198 - 217
4 Falk, 2000, 13
art museum and spend some time visiting exhibitions or learning is a choice that is deeply related to the person’s background, culture, geography, and time. Therefore the visitor’s learning experience in a museum is based on the free-choice-to-learn concept. Generally this kind of learning tends to be fragmented and is highly personally motivated.

Having said that, we should think about the fact that an interactive art education application has to somehow take into consideration all these matters mentioned above. The application must be easy to use, and above all must use a common communication language to explain concepts which are often difficult and abstract. Unifying storytelling, animation and some game elements should give interactive exhibition designers some good tools to play with. In her book Art History in Code Binary, Sbrilli underlines the importance of the reproduced image through decades. These images were used as a method for aesthetic and artistic education. The first reproductions were tableaux-vivants, or theatrical reproductions of famous paintings, and were largely used in European courts and salons. With the birth of prints, reproduced artwork became the most efficient channel of education through the ages; even more than photographs, posters or gadgets which came later on. Prints, Sbrilli continues, were easily distributed and gave people a simple way to enjoy artwork. Above all they served as a tool for art and aesthetic education. Sbrilli concludes that digital reproduction today has the same value as prints had in the past, with the difference being that interactivity allows people to approach the work better. Sbrilli maintains that the value of digitally reproduced interactive artwork lies in how the content is organized and explained in the virtual world.

Norman underlines that in order to give pleasure and increase positive emotions of the user, objects should generate positive effects. Therefore they should be beautiful, fun and enjoyable to work with. Positive emotions reduce many negative emotions and are essential to wake up people’s curiosity. He suggests that during the product’s design, the designer should take into consideration pleasure of body, social context, the reactions the object produces, and how users recognise and feel towards it. A long lasting positive effect, according to Norman, results when a cute and nice object turns out to also be functional.

The museum as a learning environment is a rather complex location and requires some additional knowledge from the designer in order to design an interactive application. Considering the fact that young people who visit the museum with their parents or teachers are often not there by their own choice, this gives the designer the challenge of attracting these little visitors and tying them into the exhibition’s environment. Therefore, before the design process begins, the interactive designer should take in consideration several aspects regarding visits to a museum as well as the visitors themselves. To understand the project’s requirements better, I addressed the following topics:

- Understand how people generally address the artwork and how they behave in a museum environment
- How people learn in museums
- How storytelling and gaming is used in learning

These initial requirements gave me the baseline to follow and an opportunity to look for tools I could use during my design process.

---

5 Sbrilli, 2005, 83-91
6 Sbrilli, 2005, 122-23
7 Norman, 2005, 101-105
8 Sbrilli, 2005, 122-23
9 Norman, 2005, 101-105
3 TOOLS FOR DESIGNING INTERACTIVITY IN A MUSEUM ENVIRONMENT

3.1 DIAlOG WITH VISeBLE ELementS

MUSEUM AND IMAGES

According to Falk, a visit to an exhibition or museum is an overall experience. Experiencing art and how a person interprets and feels about the work is deeply related to the visitor’s own background. Observing artwork is an interaction between the artist and the viewer where the role of the observer becomes important. In the end, the observer gives meaning to the artwork by his/her personal interpretation. Levanto underlines that it is important for the visitor to have experiences that reflect his/hers past by observing the work of art. According to her, the main goal of a museum visit is not the sharing of knowledge, but the experience. During the visit the visitor learns something about him/her self, about humanity and the world that surrounds him. Eileen Hooper-Greenhill adds that interpreting art is related to the familiarity of the artwork. She compares the interpretation process to a game. When a visitor is looking at artwork, he/she is searching for the common figurative elements from his/hers memory and knowledge. Having found the right connections, the key elements, the interpretation process will continue and the observer will look for new details and try to connect them to his/hers previous experience. Attitudes, values and beliefs affect what the visitor is looking for and how the artwork is interpreted. Ylitensiö affirms that the process is somehow a dialogue and game among all visible elements. Therefore as in a good conversation, the importance is in how long the visitor stays and deals with it. Newsom and Silver assume that to fully understand a work of art, much ancillary knowledge is required. The artwork is connected with culture, social history, philosophy, science, and literature and carries with it cultures of past and present history.

Falk and Dearling indicate how the space of the museum influences the interpretation process. The visitor is ruled by the behavioural code guided by the exhibition environment. People change their behavioural settings when they enter a new environment in order to correspond to each specific location. Falk and Dierling claim that these behavioural settings provide security and certainty to the visitor, and in one way or another serve as physical-social glue that helps the visitor act in a new environment. In a museum, behavioural codes are respected mainly for protecting the artwork. If the artwork requires interactivity, we must usually encourage people to do it. Newsom and Silver underline that if the people need to relearn behaviour settings during a visit to the museum, it means that they need to adapt to a new behavioural code. In these situations their ability to learn other things decreases significantly. The authors identify, for example, that the first-time the attention of the visitor consists mostly of an assortment of orientation of behaviour, modelling and general efforts to cope with novelty.

VIRTUAL WORLD AND IMAGES

Sbrilli compares computer interfaces with the cathedral of Modena. The main characteristic of the cathedral is the extreme correspondence of the façade design with the interior design. She indicates that the visitor is able to understand at first sight the cathedral’s inside structure only by observing it from the outside. According to her, the same structural division should also be applied to the historical multimedia/game environment. The interface of an interactive medium, which is based on heavy meaningful content, has to correlate with as well as reflect the content. This provides efficient

---

1 Aurasmaa, Levanto & Pettrson, 2004, 43
2 Levanto, 2009
3 Kallio, 2004, 100
4 Ylitensiö, 2004, 17-20
5 Falkan and Dierling, 200, 54-56 & Ylitensiö, 2004, 17
6 Ylitensiö, 2004, 17
7 Falk, 2000, 54-56
8 Falk, 2000, 54-56
interactivity with history. The visual world of games therefore has to connect to the meaningful visualisation that reflects a period’s style and meaning. As an example, she takes the game Crusaders where various C.D Friedrich (1774 –1840) painting elements have been assimilated into the game interface. Sbrilli indicates that the figurative elements in the interface are, in this way, part of the narrative. She concludes that the use of figurative art within the interface makes the objects recognizable, as they are part of the player’s figurative tradition.

Moreover it is important to remember that the computer interface design, as Laurel defines, is represented by the virtual world or system, in which a person may interact more or less directly with the representation. In this way the interface supports the action, which is the representation of the context. In the interface design it is important, as Laurel address, to change the visual context when the player’s focus changes (scene cuts or new environments, for example). In this way the designer transforms interaction to the construction of an environment where every object has appropriate affordances, characters, and actions. Norman reminds us that in the virtual world the ideas and concepts are presented without physical substance. Normally when we touch a physical object, it gives us a sensation that evokes our emotions. Therefore, through design it is crucial to apply good, clean graphics and beauty to the objects, unified through shape and form. The iconic understanding of today’s youth has increased worldwide as they are continuously surrounded by different visual vocabulary. Therefore for them it is natural to mix text and graphics in a meaningful way.

3.2 Facing and Questioning the Past

Newsom and Silver define that the main task of an art museum is collecting, preserving and exhibiting works of art. Therefore, its role has always been to serve as a bank of cultural heritage for visual images and human history. The art museum’s responsibility, therefore, is to organize visual images in order to serve its basic educational function. Levanto affirms that museum learning tends to create an experience and feelings for the visitor, and doesn’t teach facts and knowledge. According to Newsom and Silver, the art museum should base education on problem solving and questioning. In this way, the visitor builds new models of explaining history for him/herself.

Artwork is a mix of the entirety of human culture, which cuts across many human and scientific disciplines. Newsom and Silver believe that studying, examining, interpreting and experiencing artwork in a joyful way can stimulate reactions and involve the student’s mind to ask questions about his own culture. Therefore the art museum, following Newsom & Silver’s discussion, should unify the observed artwork and connect with history, literary or narrative description and visual imagery. According to Falk and Dierling, designing for a museum learning experience requires a thoughtful design and appropriate context because in a museum the visitor literally

9 Sbrilli, 2005, 91-95
10 Index+ 1989, series of game on CD. The game is a cultural game were the player moves forward only if he/she acquires the knowledge of the history of technology and the social behaviour related to the period. The game setting is inspired from the C.D Friedrich painting Cloister Cemetery in the Snow (1807). The Friedrich painting at the beginning of the 19th century presented the movement that wanted to recover German culture and was a protest towards the Mediterranean neoclassicism and the post revolutionary and Napoleonic policy of France. For the painting Friedrich inspired himself through German medieval culture and this was the connection of visualization to the history game. Sbrilli, 2005, 97
11 Sbrilli, 2005, 97-100
12 Laurel 1991, 8, 127
13 Laurel, 1991, 173
14 Norman, 1991, 82
15 Norman, 2005, 65-69
16 Prensky, 2007, 30, 52-55
17 Newsom and Silver, 1978, 21- 24
18 Levanto & Petterson, 2004, 56, Newsom and Silver, 1978, 22
19 Newsom and Silver, 1978, 25
20 Falk, 2000, 195
sees how things are connected with each other and in some cases can even smell and touch the historical ambience. Obviously this is an efficient learning tool. The writers continue that it is important for young people actually see and feel what people of the past looked like and how they lived and even talked.\textsuperscript{21} Falk and Dierling conclude that the art museum’s role is to generate questions and discussion. The main point lies in the ability to stimulate thinking, and to create content and not give exact responses.\textsuperscript{22} In my opinion, the same requirements can be fully applied to an interactive art education learning experience.

3.3 Storytelling and playing

Falk presumes that a museum visit is a whole body, whole-experience, and whole-brain activity. Therefore museum learning is situated within a series of contexts and is a process/product of the interactions between personal, social, cultural, and physical contexts.\textsuperscript{23} Falk affirms that knowledge and experience are often shared within communities, and is most effective if it is told in a story or narrative form.\textsuperscript{24} Egan and Campbell indicate that the story is not just casual entertainment, but reflects on the basics and gives sense to the world. The story form is the fundamental structure of our minds.\textsuperscript{25} Behmers affirms that the digital storytelling form has the same capabilities as oral and written storytelling, but above all allows for a deeper quality of teaching and learning, as the stories are told through multimedia.\textsuperscript{26}

Mello summarises storytelling and education for young people:

“Storytelling is a linguistic activity that is educative because it allows individuals to share their personal understanding with others and create transactions. Stories characterize and define identity, for both individuals and groups who identify a series of specific and formal elements within world mythologies that have become primary archetypes. Each archetype represents a core psychological function common to all humans. The fact is that many of these archetypes occur repetitively in myths from widely divergent geographical areas are evidence.”\textsuperscript{27}

Behmer suggests that in learning based on storytelling, despite the story format, young people learn new morals and life instructions. The main point is the transfer of meaning.\textsuperscript{28} According to Egan, the younger generation has the conceptual tools to make history meaningful and has a sense of causality that holds the stories together. During the learning process, Egan continues, young people use binary opposites between which they mediate. Generally they first tend to learn opposites such as hot and cold, and only afterward come up with the concept of warm. As Egan suggest, during story building, we should first create a mental process between opposites. For example, when we are dealing with life and death we should use ghosts and spirits, as they are both alive and dead. The young person’s mind is programmed to learn and process generated mediations that require imaginative creation.\textsuperscript{29} Egan suggests that storied history teaching should start with an opening conflict, in order to capture youngsters’ interest and clarify the basic concepts and main structural elements.\textsuperscript{30} He concludes that the story should provide some kind of ending lesson or unit, which has something in common with the

\begin{itemize}
  \item\textsuperscript{21} Falk, 2000, 195
  \item\textsuperscript{22} Aurasmaa, Levanto&Pettrson, 2004, 45
  \item\textsuperscript{23} Falk, 200,8-9
  \item\textsuperscript{24} Falk and Dierling, 2000,51
  \item\textsuperscript{25} Egan, 1986, 2 Campbell Joseph: The Power of Myth with Bill Moyers ( DVD)
  \item\textsuperscript{26} Stacy Behmer, 2005
  \item\textsuperscript{27} Mello, 2001, Campell address the same issue in: The Power of Myth with Bill Moyers ( DVD)
  \item\textsuperscript{28} Stacy Behmer, 2005
  \item\textsuperscript{29} Egan, 1986, 13-16
  \item\textsuperscript{30} Egan, 1986, 26-28
\end{itemize}
way the stories generally end. In this way the story covers all of the content that is relevant for teaching history.31

According to Baga, storytelling is not just telling real and moral stories of our communities; it permits youth to create their own moral stories based upon evidence. Historically, learning is important to open pupils’ views about how he or she sees the world and how they see themselves within it. History learning should somehow connect their everyday matters with historical facts. Bage considers that learning history by making one’s own historical story can potentially transform information into meaningful, motivating, and therefore educational experiences. Exploration around the problem gives young people an understanding of particular knowledge, and the stories become individual experiences. Moreover, emotional investment makes the stories even more memorable.32 Falk and Dierling indicate that stories and artefacts play a critical role in transmitting culture. Much of culture is told through story forms using cultural artefacts; the stories themselves can become the cultural artefacts.33 Narrative history is a powerful device for teaching youth about unfamiliar concepts and issues. The story experience can make complex ideas manageable and meaningful. The story leads to a greater understanding and provides a route to discussion and debate about the artefacts, history, the specific countries, cultures and traditions, habitats and environments.34

In history teaching, following Baga, it is important to enable young people to value but also interrogate stories, and to give them the possibility to develop their own story. The storied pedagogy, as he indicates, is about combining the story form with interrogations. He underlines that stories are powerful on their own but will be truly educational when they are made susceptible to questions.35

31 Egan, 1986, 29-31  
32 Bage, 1986, 20-24 & 30-32  
33 John Falk and Lynn D. Dierling, 200, 48-49  
34 Kallio 2004, 134  
35 Baga,1986,38-39

**Storytelling, Actions and the Virtual World**

According to Laurel, in human-computer experience the main importance to the designer is to shape what people do and feel in a particular virtual world or context. For example, while playing a game, the player develops emotional tension in the game itself by his/hers actions. Laurel underlines that the player’s actions are the main issue that builds relationships and feelings between humans and machines. She maintains that when designing for digital media, first we need to simulate the user’s imagination and emotions, and secondly we need to take into consideration the emotional pleasure of the completed action. These representational actions, Laurel continues, provide emotional and intellectual satisfaction and are the main elements for plot creation. The actions create an illusion and keep the player inside the virtual environment. In short, the story form should follow the actions that the player makes, because actions are an interpretation of the content. Therefore the goal and the length of the player’s actions should be clear and not too long as the player could forget the meaning of them. Laurel concludes and assumes that the plot is formed by a cause-effect relationship that is experienced by the player’s actions.36

**Storytelling and Characters in a Virtual World**

Thomas stresses that in the game world the audience does not only consist of the fundamental narrative but also includes the story characters. The characters are, naturally part of the story but also devices that enable the player to orient himself in the story space (other characters, objects, space).37 Moreover, following Sbrilli, the tutors are important elements for the user as they help intermediate between past and present and guide the player to connect with the historical artworks’ world.38 Laurel adds that fantasy characters are helpful guides and increase visual appeal, especially if they are cartoon likes. She underlines that the designer should select and

36 Laurel, 1991, 45, 67-75  
37 Thomas, 2003, 100  
38 Sbrilli, 2005, 95-97
represent those traits which are appropriate to the character’s particular set of actions and situations. This way the character is coherent and whole and sits within a planned interaction.\textsuperscript{39}

**LEARNING BY PLAYING**

The Edutainment, according to Sbrilli, is educating with entertainment.\textsuperscript{40} The main issue in the edutainment application is that there are no wrong answers. The point is that every choice, wrong or right, gives the player feedback that enriches his/her knowledge of the discussed issue. In short, any action that the player makes adds some useful information or curiosity to the treated argument. Sbrilli assumes that transforming the historical content to the edutainment game requires lots of screenwriting and adapting. Above all it is important to remember that the contextual set supports history and interactivity. The designer should, therefore, concentrate on revealing step by step the hidden content of the artwork which is not understandable to the visitor at first sight.\textsuperscript{41} Ranta & Virtanen divide the educational games into Knowledge and Deduction games\textsuperscript{42} and affirm that the learning outcomes do not differ despite applied teaching methods (traditional classroom teaching versus gaming.)\textsuperscript{43}

Playing, according to Norman, is a common activity through which humans and animals learn everyday skills to survive.\textsuperscript{44} Prensky affirms that digital game-based learning works primarily because it is a goal oriented, interactive learning process. He determines that the cycle: Initiate->Persist-> Succeed involves the player with the game and consequently with the issues that need to be learned. During play, usually the player: 1) adopts the role, 2) controls the game, 3) practices skills to solve the problems and tries to persist to the end and 4) wins. This experience, Prensky points out, is fully transformable into a learning experience.\textsuperscript{45} Laurel adds that in learning game design we have to find intrinsic motivation by interesting problem solving or tutorial segments.\textsuperscript{46}

Storytelling and gaming are used as an alternative learning method in schools and museums.\textsuperscript{47} Their fundamental nature is the aspects of being a fun and enjoyable way of doing things, as well as being associated with leisure. To summarise, the tools described above help designers combine animation and video smoothly into a larger picture of narration. Moreover, using storytelling and game elements in a museum environment narrows down the borders which facing complicated issues such as art.

### 3.4 Interactivity by doing

**Interactivity in a Museum Environment**

Miles argues that museums spend large sums of money to provide educational material for their public (books, lectures, guided tours, videos and audio tours) in order to ensure a pleasant exhibition visit and experience. This additional material reduces sensations such as intimidation, frustration or even foolishness when a visitor cannot understand the exhibited artwork.\textsuperscript{48} The core, Miles continues, therefore, depends on how the museum visitor sees and experiences real things within a meaningful physical context. Therefore,

---

\textsuperscript{39} Laurel, 1991, 143-47  
\textsuperscript{40} Sbrilli, 2005, 103  
\textsuperscript{41} Sbrilli, 2005, 104-9  
\textsuperscript{42} Knowledge Games are goal oriented and focus on a player’s knowledge and skills. During the game the student should remember, understand and apply his/her knowledge in order to win. Deduction games, instead, are based on inductive thinking. The goal is to create synthesis by combining different parts and create an entity. Deduction games are following the investigative attitude. It generally starts from the existing theory and during the game the player must gather the facts. In the end of the game the result is the interpretation and synthesis of collected material. The game is based on asking and answering questions and analysing the content.  
\textsuperscript{43} Ranta & Virtanen, 1980, 7, 14-16  
\textsuperscript{44} Norman, 2005, 130  
\textsuperscript{45} Prensky, 2007, 147-155  
\textsuperscript{46} Laurel, 1991, 45, 67-75  
\textsuperscript{48} Miles, R. S, 1982, 2-323-24
museums ought to guarantee a tranquil atmosphere to ensure the visitor has a good learning environment and should find a smooth teaching sequence that encourages the visitor to stay in the museum space. Dodd underlines that learning is directed by motivation and is connected to social activity and engagement with the specific context. Therefore interactivity helps to both motivate people and include them in the museum environment.

Kallio and Levanto argue that workshops are a fundamental tool for young people to experience museums in a positive way. During Marjatta Levanto’s lecture, she underlined the fact that for youth, the most important thing during a museum visit is the possibility to touch, act, and interpret the works of art. Dodd considers that a carefully planned and structured interactive education session, therefore, is powerful and effective. Use of visual, tactile, and physical support reinforces the visitor’s sense of belonging to the museum. Dodd assumes that for people who are not familiar with exhibited subjects, it is vital to find an initial connection to help them cope with and understand the novelty. Therefore, non-traditional displays in an exhibition environment offer the visitor the possibility to look at and study objects without previous knowledge. Kallio explains that in a digitalised museum environment the visitor is observing digital representation of artefacts, and by clicking and touching linked words or images he/she navigates through the exhibition. He confirms that the learning outcomes are the same as during a traditional museum visit and, above all, the virtual experience reinforces the learning experience and judgment towards the museum.

According to Miles, a novelty aspect keeps humans’ minds busy and is a way to avoid people feeling stressed or bored. Museum visitors have the same attitude during their visit, as they are looking for a unique experience. However Miles warns that it is vital the designer not add too much novelty, as it may create frustration or even fear towards the handled argument. Therefore during educational exhibitions, the designer has to keep in mind how much novelty people can handle when dealing with new content.

Hornecker & Stifter highlight in their studies the importance of offering engaging, physical handles and interfaces for visitors. The most popular physical set-up is interaction with active media and bodily interaction (particularly attractive to children). The core methods to obtain successful interaction in a museum environment utilise user-generated content that offer the ability to perform in front of others visitors. Young people tend to spend most of their visit time in the digital room. Moreover the hands-on interactive exhibits are the only exhibits that succeeded in reaching all types of visitor (children, teenagers and adults). Hornecker & Stifter also noticed that the interactive exhibits helped people overcome potential inhibitions towards computers. The interesting point in Hornecker & Stifter studies is that most visitors came in groups to spend time and have fun together in a museum environment. The interactive installations, with a physical setup which could host small groups, allowed the visitors to act out different roles and consequently provided a successful group experience. The main point of the study is that the interactive hands-on exhibitions interested all kinds of visitors, despite age or interest profile. Mixed media with interactive content, above all addresses the visitor’s interest towards unfamiliar topics.

49 Miles, R. S, 1982
50 Dodd, 2002
51 Kallio, 2004, 133, Levanto & Peterson 89-97
52 Spring 2009 Taideteollinen korkeakoulu, Some exhibitions held in Ateneum - Finnish National Gallery, where non digital interactive was applied with good results: TOISIN In different way, 1994, Noonarkki Noas acr — Norbert Pohl sculptures, veistoksia, Mitä näkyy? What you can see.
53 Dodd,2002
54 Kallio, 2004, 111-114
55 Miles, R. S, 1982, 23-24
56 Hornecker & Stifter, 2006
57 Hornecker & Stifter, 2006
**Virtual Interactivity**

Sbrilli points out that a digitally reproduced image and new technology serve as effective tools to explain art history. The works of art are related through many topics and elements (painting and representation, materials used to make the paintings, restoration history of the art works, histories of the painters, society, etc.). She concludes that the digitalized art works should transfer the art’s historical culture and not stop at merely reproduced photographs with linked text.\

Spatial navigation, according to Murray, depends on the player’s actions, the game structure, and the digital environment. She indicates that the designer should give the player the ability to move through the virtual landscape with pleasure. She continues by stating that a linear-type story journey should have some sort of end, as in films, to give to the player the sensation of finishing an activity. The linear story moves forward by actions made by the player, shaping his/her understanding of the story. It is the story plot that guides the navigation. Therefore, the transition between places (arrival and departure) should be clear and meaningful for the player. In digitally based stories, the journey and pleasure through navigation is connected to problem solving and the active process of navigation. Each move the player carries out is a plot event and engages the player within the story. Murray reminds us that often games require some skills to carry out the given tasks.

Sbrilli assumes that touch sensitive screens connect the museum visitor directly with the artwork’s content. In her book, she only handles the possibility of zooming in on the artwork’s surface to bring it physically closer to the visitors. Norman points out that touch and the feel are also significant parts of identifying products, as it gives physical pleasure and a sense of control. We could invert his point in a contest of touch screen and history. The touch gesture could turn out to be a sensation of knowing and physically touching history.

The tools described above gave me a clear vision of how to grasp the Touch the Unreachable design process.

---

58 Sbrilli, 2005, 136
59 Murray, 1997, 129-139
60 Murray, 1997, 140-149
61 Sbrilli, 2001, 114-120
62 Norman, 2005, 79
4 CHALLENGE: CREATE AN INTERACTIVE ART EDUCATION LEARNING EXPERIENCE

The main topic of the previous chapters concerning the teaching of history stated that connecting people’s present culture with the past helps them better understand the modern society where they live. To provide this understanding, art is one way to generate questions and dialogs about the handled subject. The Touch the Unreachable project aims to design an interactive art education application as an introduction to the Lilly Diaz’s Systems of Representation research group work of 3D reconstructed Finnish Pavilion in Paris, 19001, using the tools listed in the above chapters.

4.1 OBJECTIVES

The last decade of the 19th century was a time of fluctuation in Finland, which was under Russian rule. In 1898, Bovrikov became Finland’s general-governor and harsh policy changes began to blow into the country, threatening the autonomy that Finland had previously enjoyed. In 1899, Nicholas II signed the February Manifesto which marked the beginning of the first Years of Oppression. The manifesto evoked a silent opposition among Finnish artists which was expressed in their work. The communication styles they developed could not be touched by censorship. Although it was not the original intention, the Finnish pavilion in Paris in 1900 became a symbol for Finnish cultural identity and a vehicle that reinforced Finnish self-confidence.

The events between 1899 and 1900 were full of intrigue and mark an important point in the development of a specifically Finnish art aesthetic and vocabulary. Finland’s current identity and image is mainly based on the image vocabulary that was created at the end of 19th century.

*Touch the Unreachable* aims to research and investigate the possible application of interactive storytelling techniques, video/animation, and graphical visualization in a multi-touch context and how to apply this to a learning experience. My starting point for the project is 14 panels painted for the 1900 Paris world exhibition. The real challenge of the project is to illustrate the historical situation in Finland in 1899-1900 and show how artists reacted towards it, creating for Finland, for the first time, an identity and a symbolic image vocabulary.

In today’s Finland, the Finnish identity and image is an actual and widely discussed phenomenon as Finland is attempting to remodel a new brand for itself. The Finnish image in media, marketing, and reporting, in spite of everything, is following the traditional well known image vocabulary where

---

1 University of Art and Design Helsinki (TaiK), Media Lab has produced a virtual reconstruction of the Finnish Pavilion at Paris World Fair in 1900. The reconstruction is a three-dimensional, digital installation presented in virtual reality environment. Wearing circular polarization glasses and using a mouse the visitor is able to access a space created using a stereoscopic display. The virtual model of the pavilion can be examined both inside and outside. Spatial sounds are used to make the experience feel real, as if one would be moving inside a historical building. [Last visit: 19.09.2009]

2 Suomen Hisorian Pikkujätiläinen, 1987, 552-555

3 Konttinen, 2005, 280
the central theme is based on untouched nature, lake views, and the pure white snowy forest as depicted in the 1900 Paris panels. The identity of the nation is a changing phenomenon that is strongly related to time, cultural and historical flow, and social context. It is never univocal. It is often hard for new generations to perceive why the nation built itself an identity during certain periods which differs so much from the present one or why the well-known identity is tied so tightly to the nation. Therefore the history of the Finnish Pavilion is about how a determined and ambitious group of artists created the Finnish identity under a heavy political situation.

*Touch the Unreachable* leads the player right to the end of the 19th century’s historical situation and through the player’s actions, he/she experiences the historical situation. The concept is developed on a touch wall that uses Flash technology, video/animation and simple game elements. The design provides the possibility to run the application on the web as well. The application’s goal is to familiarize young people and adults with Finnish history and cultural heritage by actively participating and experimenting. The concept design will also include the study of graphical visualization and examples for two 3D characters.  

4 Before reading further this part of thesis, it is useful for reader to familiarize oneself with the design document.
5 Touch the Unreachable — Finding the Finnish Identity Design Process

My design process started from understanding how young people generally learn in a museum environment and how storytelling and game elements could be connected in this context. The next step was to understand what kind of rules and conditions I should apply in order to invite the visitor to play with the interactive, digitally reproduced image. I focused on establishing the object's relationships and narrative structure.¹

It is worth pointing out that it was rather challenging to start designing an experience for an artwork that didn’t exist anymore. Seeing the physical artwork, I immediately got a mood and impression that I consequently apply to my design work. Now I had the virtual work to deal with. Due to a difficult theme and content, I understood from very beginning that the structure of the application should be simple, visually connected to history and easy to use. Thinking over and over about the design, I found myself drowning in a thousand ideas and could not proceed with the design work. In order to overcome this swamp and to understand how the main issues connected to design work, I decide to split the problem into two meaningful parts: Content and Physical Interaction.

The visual mind map served as a guideline for me to follow and fully understand all the problems and phenomena that are connected to the work. The documentation and history related to the pavilion is vast² and complicated. Therefore, I chose first to focus on the story structure and the content and only afterwards face the visualization and interaction design following the story elements.

---

¹ Murray, 1997, 152-53
² I had about 400 pages of art and cultural history documentation in books and letters to reconstruct fully the historical situation. Please see Design document Sources.
5.1 **Reading historical material and understanding the key issue**

The pavilion’s is by some means a summary of the historical processes and happenings that occurred in Finland between 1809-1900, and figures as an end point to this particular period in Finnish history. The ideology and artistic expression used in the pavilion’s decoration has its origin in 1860-90 century ideologies and artistic research.\(^3\) For this reason it was difficult to establish where to start the narration and give for it an expressive meaning. The tools described in the chapter *Facing and Questioning the Past* helped me focus on the core historical elements and understand the main issues within the collected documentation. In particular, I partially followed the story of the model guidelines of Egans and Bages\(^4\) for historical teaching, and Brenda Laurels’*Formal Cause*\(^5\) points for story plot creation.

Reading books about the pavilion’s construction and letters written among the artists (Albert Edefelt, Luis Sparre and Akseli Gallen-Kallela), the element that stands out is the word battle. Finnish artists continuously compare the pavilion’s design and construction to Kalevala’s defence of the Sampo theme and how it was seen as an important event in the effort to save Finland (Sampo).\(^6\) At first sight, this kind of anger is very difficult to understand and cope with because it happened so long ago. I was struggling with the question “Can I use this theme in a design without falling into patriotism and nationalism?” On the other hand, it was a really painful historical situation for the artists. Another point that stands out from reading the letters, which was mentioned several times by Edelfelt, was that Finland did not have a specific style or identity to present at the Paris exhibition.\(^7\) To conclude, the two main points in the pavilion’s construction were as follows: artists battling under heavy oppression, and creating an identity and style for Finland. This historical situation is well summarized in Gallen–Kallela’s fresco, Defending Sampo, painted on the pavilion. The analysis above became my background for the story writing and structure design. Having clarified the main historical argument in my mind, I started to think about how to put the facts into a virtual context.

The purpose of *Touch the Unreachable* is to bring the visitor closer to the 1899-1900 historical situations using the touch gesture. Therefore, for me the touch gesture is the decisive action element. My aim is to create an understanding and evoke the same emotional tension in the player as the Finnish artists had: The desire to find a way to go to Paris using diplomacy, the feeling of frustration with censorship and Russian governance, and the creation of an identity for Finland. The player’s action is to represent the player’s thoughts and attitude towards historical issues and through this, to produce an emotional experience. The player’s role is a role of an active participant. The story’s plot, therefore, follows the historical stages where the artists made their decision. Murray argues that to experience a virtual world in an interesting way, we should add some curiosity and adventure.

---

\(^3\) Konttinen, 2002. In her book “Sammon takojat” Konttinen summarizes the Finnish art and cultural history in Finland during the 1860-1900.

\(^4\) Egan, 1986, 41, Bage, 1999,83-84

\(^5\) Laurel, 1991, 42, 85-86 “Formal cause: The complete plot – that is, the whole action that the playwright is trying to present” and the modern style Freytag-style graph.

\(^6\) Smedes, 1996, 286-87

\(^7\) Smedes, 1996, 284-286, Konttinen, 2005, 52
elements to it. Following Thomas’ and Bagas’ advice, I decided to base the players’ journey on different tasks (deduction game) to shape the learning experience and suspicion levels in a way that would give some tension.

5.2 Storytelling structure

Following Prensky’s reasoning regarding new ways of learning, it was crucial for me to find a suitable story structure that could be easily navigated while at the same allows time for a smooth learning experience. First, I listed requirements regarding the issues I needed to address according to the chapters Dialogue With the Art, Facing and Questioning the Past and Storytelling and Play. The structure should:

- Keep the historical narration interesting
- Engage and keep the player within the artwork
- Give the player a specific role in the game
- Create the experience based on how the Finnish artists resolved the identity and style problem
- Let the player create their own interpretation
- Game flow should be easy, as handled argument is complex

Thomas points out that the audience tends to recognise the structure which is in use, and likely will organize the features and generic rules in order to follow the story easily. Thomas indicates Philip Parker’s four basic narrative structures that are in use in screen narratives:

- Linear - the events of the narrative take place in chronological order
- Circular - the narrative is formed from repeated events
- Episodic - a collection of discrete episodes form the narrative
- Associational - the narrative is formed from a series of moments which are linked by common elements and do not follow chronology.

According to him, interactive narration is more interesting if it is shaped somehow. Thomas refers to Parkers’ reference to Peter Howitt’s movie Sliding Doors’ (1998) narrative structure. The movie’s main character has an alternative life and the plot switches between her life’s events, connecting different scenarios together.

Cause and Effect

History, by its very nature, is based on a cause-effect model. By studying the material and historical happening sequences, the path the artists faced during the pavilion construction became very clear. Simplifying the steps, I highlighted the following facts:

---

8 Murray, 1997, 50
9 Thomas, 2003, 69-72
10 Thomas, 2003, 119
1. The February Manifesto changed the political and artistic situation in Finland – freedom of expression was drastically limited
2. There was discussion of whether Finland should participate in the exhibition and exhibit as an independent country or as a region of Russia
3. A politically correct theme was required for the exhibit in Paris
4. A proper and identifiable style needed to be found
5. There were enormous problems during the pavilion construction from the Russian and Finnish parts
6. The censorship office had to be kept in mind, with their severe politics and scrutiny of all publications and art works.
7. The success that Finland obtained in Paris

**Figure 12. Sketch for the first structure**

- **Design Requirements**

Before establishing the narration structure, I decided to choose an adequate set to facilitate the narration. The pavilion’s history was located in two different countries and in several different ambiances. During the pavilion’s planning in Finland, artistic discussions were held through written letters or discussed in diverse locations (restaurants, artist studios etc). During the pavilion’s construction in Paris, the happenings were mainly in the exhibition area. All of the artists who were working on the pavilion’s decoration were also illustrators for a newspaper called Päivälehti. This concrete fact inspired me to choose the printing house of Päivälehti as the main location for the first part of the game. The printing house serves three purposes; it is a place for creative work where the player executes his/her creative tasks, it is the linking element among all artists, and it connects the environment to history. In Paris, the location was naturally the exhibition area.

The historical events are linear sequences that have levels which the player must pass. In this way the player follows the historical facts without difficulty, moving forward in history. The main linear structure was initially created but lacked some fundamental issues: the player role was weak and the task that the player was executing in different levels did not have any reference to historical evidence or meaning. Laurel points out that, “Dramatic incidents are the characters’ goals”. Therefore the central action should be based on the characters’ goals.

In addition to Laurel’s observation, I wanted to include the Learn by doing and questioning method in the structure, which was discussed in the chapters **Facing and Questioning the Past** and **Storytelling and Playing**.

---

11 Thomas, 2003 126 Thomas points out that creating virtual worlds helps designer to develop more interesting plots for the computer.
12 Konttinen, 2005, 43
13 Laurel, 1991, 29
**Talking Photographs**

From this basis I started to think about how to design the tasks for the game world. In the first place, for better historical understanding as discussed in the chapter *Facing and Questioning the Past*, I wanted to connect the involved issues to people's present world. Thinking about the question, I identified that the visitor's role should be in the centre. Through their actions, the visitors could experience history. Reading the historical documentation, I noticed that the artists enthusiastically discussed what kind of theme and figurative vocabulary they should use in the pavilion's decoration in order to avoid being censored. The discussion gave me the idea of a talking photograph where realistic images could express the artists' thoughts. Using modern photographs, I could connect familiar images with history and at the same time bring the visitor closer to the artist. In short, the visitor could touch the familiar image and hear the historical interpretation of it. The story slowly formed as a play yard where the visitor tracked history through different tasks and facts. As Thomas observes, "Creating their own stories [or in my case interpretations] the player became the hero of it."[

**Characters**

At this point, my story was missing the distinctive antagonist elements pointed out by Egan. To emphasise the conflicting situation in which Finland was in (severe censorship which tremendously influenced artistic choices), I chose to use imaginary characters to represent concrete phenomena. The Kalevala theme Defending Sampo gave me the idea to use the personalities Väinämöinen and Louhi for protagonist and antagonist characters. It is questionable if the classic heroic man/bad woman cliché suits this context. Of course I could have chosen animals or other invented creatures (the pavilion's elf and gnome, antic robots etc) but after thinking for a long time, I ended up using traditional positioning and Kalevala-characters as they are presented in 19th century imagery as a canvas for the character design.

---

14 Konttinen, 2005, 2075-80, Smedes 280-291
15 Thomas, 2003, 126
situations. The player learns his/her duty due to Wemmeri’s help and also through the events that take place in the game. Ludzia seems to be a kind little witch, but as the game plays out, she turns out to be, in fact, very devious. She is selfish and greedy for money, medieval bone, bijoux, and drums. Ludzia’s main ambition in the story is to earn money and exhibit her valuable collection in Paris. This motivation governs Ludzia’s actions in the play. Her mission is to obstruct the player’s actions and keep an eye on Wemmeri’s movements. As Thomas points out, the characters’ profiles are the combination of a background story and game goals.

MULTI-LINEARITY INTRODUCED

When I started to think over the main narrative structure, my mind was full of fluctuating elements that needed to be tied up into a meaningful virtual context. I came up with the idea that the game could have different worlds: the players’ world and the authentic, historical world. This kind of subdivision allowed me to create a slightly different angle towards the story (the visitor’s own experience and the artists’ experience). At this point, Parker’s pointed multi-linear Sliding Doors structure became helpful. It helped me to cut up history into two different linear story elements that had narrative connection points. The connection points gave me a possibility to flip the actual history world to the player’s world in order to permit the player to compare his/her experience with the real historical events. Also, the structure gave me the possibility to unify the requirements for a museum environment which were pointed out in the chapter Interactivity by Doing. The multi-linear structure gave me the possibility to divide the historical material into two different experiences: a joyful play that was aimed towards youth, and historical facts that were more suitable for adults. The story’s structure is a dramatic story and the sequence is followed to fulfil the story’s structure and requirements for a learning experience, rather than the set of conventional categories which Laurel proposes.

A. Exposition Declaration of February’s Manifesto – demonstrates the opening conflict
B. Inciting incident Prologue and meeting Wemmeri – declares the binary opposites: good and bad
C. Rising action ▪ Understand the importance of exhibiting as an independent country in Paris ▪ Select a suitable theme for the pavilion. ▪ Execute prints in a rush (choose style, colour, and objects)
D. Crisis Find the lost paintings in Paris and get familiar with the Paris exhibition area
E. Climax Compare and hang their own prints
F. Falling Action Success of Finnish pavilion and farewell to Wemmeri
G. Denouement Visit the reconstructed 3D model, visiting different web sites that promote Finland today

16 Thomas, 2003, 100-104
17 Murray, 1997, 117
19 Laurel, 1991, 82-87
Connection to the Present

Looking at the pavilion’s paintings I noticed that the historical figurative vocabulary is still widely in use in present Finnish promotional marketing. To emphasize the analogy, at the end I added the possibility of visiting the web sites that present modern Finland and illustrate how Finland is promoted abroad today. In this way I connected the history of the 19th century pavilion with the present day.

5.3 Finding a suitable visualization style

Generally, historical documents use original videos and photos to transmit a realistic vision of history. Touch the Unreachable is designed for a museum environment and projected onto a large touch wall (140x100cm). The style of the Finnish pavilion’s paintings is based on simple decorative arched lines, large volumes, and colour masses. The styles used relate to the whole pavilion’s general style. The plain style relates to the paintings’ positions, and conveys a central idea about the Finnish aesthetic. The paintings’ styles are heavily influenced by Akseli Gallen-Kallela’s Kaleva-style, and by Finnish symbolism which is a mix of Italian renaissance fresco painting tradition, Finnish textile tradition, and Japanese woodcut style.

Interface Visualisation

The graphic style of the interface is the result of long periods of research. I wanted to illustrate the historical facts in joyful way and not use typical image conventions. I started my research by consulting several web sites that provide art education learning experiences. The general style of these web sites is very clear and is based on vector and pen drawn illustration.

Figure 14. Web sites

The material is modern and observes history from the present towards the past. My own intention is to instead give the visitor an experience of history and somehow take him/her inside to a historical image environment. Before starting to work on the interface, I listed some elements I wanted to include in the visualization:

- Connect visualization to words: joyful, rub, paper, aged, stone wall effect
- Simplicity: in a museum environment, people should approach a game without fear; it should transmit a carefree feeling
- To use a style inspired by the pavilion’s design – simple, with big colour masses
- To use a colour scheme related to the pavilion’s paintings, affecting the atmosphere and feeling of the game
- To find a visual connections between 1900 and the present day
- To separate visually different worlds (game world, actual history world), countries, and locations.
My graphical style is influenced by Italian illustrators and cartoonists such as Francesca Germandi, Vanna Vinci, Gabriell Giandelli, Igort, and Francesca Salucci. To capture the general graphic mood of the period, I examined old photographs, postcards, and guides that were written for the exhibition's visitors, and watched original films on YouTube. Two important features stand out from the documentation: graininess and old, rough paper. To obtain this effect, I found inspiration from Smash online magazine in the article “Retro Rainbow Tutorials and Design Showcase”. The retro graphic style discussed in the article gave me the general style for the interface. I also included in the visualisation, advised by Sbrilli, historical image material in order to connect the virtual environment to history. Eilean Hooper-Greenhill notes that regarding observation, a person notices familiar elements first and notices the unfamiliar second. This confirmed my choice for the concrete, very tangible and nearly photorealistic illustration. In this way I help the visitor feel relaxed with the content and connect him/her smoothly to history.

http://www.flashtumetto.it/artisti/professionisti_pagina/id-59 [last visit; 19.09.2009]
http://www.vannavinci.it [last visit: 19.09.2009]
http://www.gabriellagiandelli.com/ [last visit; 19.09.2009]
http://www.igort.com/ [last visit; 19.09.2009]
http://www.flashfumetto.it/artisti/professionisti_pagina/id-44 [last visit: 19.09.2009]
As mentioned at the beginning, I knew that the interface should be very clear and easy to use as the argument itself is complex and difficult to approach. The interface design should therefore be comfortable and usable by one or more people. I divided the interface into three main segments to increase clarity:

- The background area with buttons, score, and level indicator
- The action area situated above the background
- The authentic historical world - flipping element

To emphasize the feeling of a porthole to the past, I placed the action area in the centre of the interface. The slight line around the form refers to the pavilion’s general painting style.

Figure 6. Textures used in illustration

Texture and Colour

A definite colour pallet simplifies working and above all keeps the colour range harmonious. My colour pallet is inspired from the colours of pavilion’s paintings. The colour range is warm and velvety, but at the same time very bright. The first part of the story is situated in Finland, inside Shauman’s print, and the second part is in France outside the exhibition area in Paris. The background uses a stone texture that simulates the pavilion’s wall texture. The watercolour spots refer to the action of the player creating the prints. The colours of the background and of the action world change according to the country. In Finland the colour range mirrors the palate of Finnish nature; soft, pale blue and incisive colours, while in France the colour changes into warm ochre and other colours with a yellowish tone.
After having established the main issues of interface design, I started to study locations and settings. The Päivälehti museum sent me photography and a short description of Shauman’s printing house, but unfortunately they were lacking images from the interior design. Following the written description and studying the period’s factory and office interior design, I created a suggestive reconstructed part for the interior environments. The colour range of the interior design follows the period’s tendency; soft colours that are based mainly on pale blue and cream white. The walls are painted and mainly made of bricks and the office furniture is made of dark, heavy looking, massive wood. The objects on the wall and the table are modern cuts of photographic representations from the original paintings’ objects.

Using modern photographs, I connected the used image gallery to the present day. All of the historical material can be touched and moved with a hidden agenda in order to make the player familiar with history and the used image vocabulary.

To illustrate the 19th century exhibition area in Paris I used the period’s postcards that illustrate the exhibition area and buildings. The sets follow the storyline. For example, when the visitor lands in Paris, he/she finds him/herself in front of the exhibition entrance. The original map, at the left side, helps the player find the lost paintings and at the same time familiarizes him/her with the exhibition area. After finding the lost prints, the player moves versus his/her final goal: the Finnish Pavilion’s entrance.

The history panel brings the visitor to the present day and displays the relative history facts to the visitor. To differentiate the panel from the action world I chose to use a completely different form of texturing. The metal and graphite textures emphasize modern city life. The drastic change of the colour and material aims to give to the environment a totally different atmosphere.

---

30 ARS Suomen taide 4
31 ARS Suomen taide 4
Figure 17. Studies for Wemeri and final 3D character
ILLUSTRATING CHARACTERS

Wemmeri and Ludzia are the only fantasy characters in the story. To distinguish Wemmeri and Ludzia from the real life, video based characters, I chose to use a cartoon style character design inspired by Robert Zemecki’s film *Who Framed Roger Rabbit* (1988). The linear decorative outline gave me more room to break through the traditional 3D style model and add some discreet exaggeration. Both characters’ clothing details are stylized particulars from the Pavilion’s Iris Room decorations.

Wemmeri’s character is directly inspired by Akseli Gallen–Kallela’s painting *Departure of Väinämöinen* and from the figure of Cervente’s Don Quijote. The characters’ function is to engage the player with the story and guide him/her during the journey. The long, slim foolish figure serves to evoke empathy in the player. Wemmeri’s clothes remind one remotely of old eastern Finland’s traditional dress and the colours which reflect his inner force (yellow).

Ludzia’s figure should awaken sympathy towards the visitor, though at the beginning she appears ambiguous to the player. To create a suitable graphical presentation, I was searching for something that would fit her personality. I could not find inspiration from Finnish art, so I started my design from a round shape that would evoke some kind of sympathy towards Ludzia’s personality. One day I was sitting on the bus, thinking over Ludzia’s problematic form when suddenly a woman sat down across from me. She was well built, curious and wanted to know everything about me. During the conversation I looked at her and realised she was the perfect model for Ludzia. Furthermore I add some elements of a kind of evilness, an eagle nose and big green eyes to add some ambiguity in her personality.

Generally speaking, historical visualization is problematic. We, as observers, look at illustration with a very heavy cultural figurative background and easily interpret the style as old-fashioned, forgetting that the artists who lived in that period of time were surrounded by specific styles. In my work I chose to look for the feeling and ambience of the period.

32 http://fi.wikipedia.org/wiki/väinämöisen_lähtö
5.4 Definition Logical Interaction

Regarding interaction design, I focused, as addressed in the chapter Interactivity by Doing, on two features: the application should be easy to approach and it should attract both young people and adults. Therefore, the interaction should be intuitive and not distract from the content, as the handled argument requires the visitor’s attention in order to understand it fully.

Support

I followed Norman’s guidelines on people’s behavioural attitudes when I was selecting adequate support for the application. I especially concentrated on understanding the following problems before choosing the definite support: function, intelligibility, usability and physical feel. I considered the visitor’s physical position and how he/she could feel most comfortable in order to concentrate on the content. Moreover I needed support that could host more than one person and simultaneously keep the narration smooth. Today we have a large range of supports to select from: touch table[^34], touch wall[^35] and projected images governed by body gestures.[^36]

To interact with the touch table, people are looking downward and their heads are kept down. The visitor’s position did not convince me. It is very close to the normal sitting back decks position. Instead, I wanted to connect the person’s position to the concept of leisure time and also give the person the possibility to move and discuss different ideas during the journey. Moreover the table could host only a limited number of people, and the projected image with bodily control had some problems with the museum environment. I wanted the application be easily approachable in a large room as well.

[^33]: Norman, 2005, 69-83
[^34]: http://www.youtube.com/watch?v=-muVmbBYOVM&feature=related [last visit: 19.09.2009]
[^35]: http://www.youtube.com/watch?v=UwoAxSYCzk [last visit: 19.09.2009]

Figure 9. Sketches for the interface

The projected images could have problems with interaction in a grounded museum environment. In this case the visitor could lose their concentration and focus only on interaction movements and not on the content.

The touch wall solution gave me the possibility to design a large wall where people could easily gather in front of it, play by themselves or in a group and move sideways easily. The learning experience therefore occurred in a totally different physical position than as usual at school or in other locations. The wall also facilitated the interface design as it allowed the easy connection of simple interactive gestures with the story structure and touching the pavilion’s wall gave symbolical meaning to the application.
Flow and Mechanics

In general, multimedia products give the user the freedom to choose how to access or consult the application.\(^{37}\) In Touch the Unreachable's context, the player is an active decider but can't really decide freely how to consult the application.\(^ {38}\) During the interaction design I was evaluating two types of models:

1) Guided - where the visitor can't really choose the way she or he consults the content
2) Random - the visitor could consult the content freely

Concerning the topic of the application, simulating history and giving the feeling how the artists faced the pavilion's construction, I chose the very traditional option. The choice was based on the fact that the touch screen would be in a museum environment and should be easy to approach, and also that I wanted to pilot the player to concentrate on the task and the historical facts.

During the flow design I concentrated on clearly piloting the visitor towards the task sections. The task mechanic followed the historical outline. After choosing either the theme or the creation of the prints, censorship authorities control the content and decide if it is suitable or not. If the selected objects are not appropriate, the visitor will end up in the censorship authority's office and his/her suspicion level will increase. In this way, the cyclic movement among different locations (Editorial Room/Printing Room and Censor's Office) emphasize the historical facts. The main ideology in the task section is based on edutainment in order to avoid frustration or incapability. The given tasks do not have wrong answers, but do have non-suitable objects that the visitor can't use due to historical motives. In this way the visitor learns historical circumstances through certain tasks.

The interactions are based on common simple touch gestures: give me five, and hand pointing with one or two fingers. The gestures are consolidated within the touch screen's technology and are easy to learn as they are quite natural for people to perform. The gestures are related somehow to the person's normal behavioural code.

---

\(^{37}\) Sbrilli, 2005, 119

\(^{38}\) Norman, 2005, 132
5.5 DOCUMENTING CONCEPT

After designing the outline for the application, I faced the problem of documenting the concepts. The Touch the Unreachable project has several different kinds of requirements to convey:

- Animations and videos with lines
- Simple game tasks
- Technical support and interaction
- Narrative outline connected to the flow chart

I needed good documentation guidelines to follow in order to describe everything clearly. Mark Baldwin’s Game Design Document Outline template39 and Iuppa’s book Interactive design for New Media and Web40 gave me the general outline of how I should handle the concept documentation. I separated the relevant arguments into three main entities: Design document, Content document and Character and Interface document. The divisions helped me to organize my thoughts and separate the technical description from the interface and character design sections. During the writing process I made slight modifications to the main template outline as all the game design documents’ requirements were too specific for the Touch the Unreachable project. This method was very useful as it simplified my work enormously. At the same time I could keep track of things and verify that I did not forget the important parts of the design.

40 Iuppa, 2001, 87-89
6 Results

The Touch the Unreachable design process was full of diverse problems to resolve. My background is in art history, attribution and restoration studies. Therefore, I see the artwork as an object with its own history which is related to society and passing time. In addition it affects simultaneously its own history in the present world. Reading the historical documentation about the pavilion, I notice how much modern Finland's official image vocabulary is still connected to the tradition that was created at the end of 19th century.1 The point of view of the historical happenings that I selected therefore follows how the artists viewed the situation. The vision and choices that they formulated under passive opposition are still living in our modern society and impacting Finnish cultural life in a subconscious way. With this work I try to demystify why Finland is represented through views such as lakes and forests. I consciously leave the question open ended and do not take any specific position. My aim is not to point out or underline answers, but rather to give input to the player to reflect on fact how the history is affecting our modern society as discussed in the chapter Facing and Questioning the Past.

My aim was to focus on the question of how to create suitable narration structure, content and visualization from extensive historical material2 that could in 20-30 minutes explain main historical situations and relate to art history conventions. In this context the issues addressed in the chapters Dialog with the Visible Elements and Facing and Questioning the Past convinced me that the figurative images are a fundamental part of the narration and therefore I could not handle the content without visualization.

The tools that I used did not address how to face problems such as Nationalism. The guidelines in the chapters Storytelling and Playing or Facing and Questioning the Past did not give me any clue how to deal with it in historical teaching. It was difficult to decide how to effectively present in today’s environment the deep hostility that the Finnish people (including artists) were feeling towards the Russians. At the end of the 19th century, hostility and anger were the main motives that moved people to act. The Russians were seen as a big enemy. This conflicting situation presented the good/bad thinking model clearly, but it had also another side. The Russians had a point of view in the situation as well. When I was studying Tenishev’s role, I seriously considering applying a third linear story that could handle the situation from the Russian point of view and connect it with the established nodal points. But I would have needed more historical documentation, adaptation and time that I did not have. The additional story line can be easily added in further development.

When handling historical issues, it is important to be conscious of the risks that you are taking. At a certain point during the design process, I totally sank into the historical environment and got totally caught up in the different personalities. The historical people took advantage of my thoughts. It was tedious, frustrating and it blurred my objectiveness. I realised that it is the designer’s responsibility to think about and evaluate what issues he/she wants to bring up according to the time and period where he/she lives.

The Touch the Unreachable design document is a concept study for a historical application within a museum contest. The document outlines the main structure for further development. The next step in the design process must concentrate on content and fine-tuning of the levels, as all text and scenes need to be treated by dramaturge. I deliberately haven’t considered the sound landscape in the content section and I only indicate loosely what kind of sounds the scenes could have. Further prototype testing is necessary to establish if the planned interaction and image vocabulary is correct and understandable for the end user. The historical structure is designed based on a 2D environment, but could be easily turned into a 3D environment where the visitor navigates historical ambience in 3D while fulfilling the given

---

1 www.thisisfinland.it and www.virtualfinland.fi use the same image tradition that has been used in Pavilion paintings. [last visit: 19.09.2009]

2 Design Document, Source
Further concept development also requires more people with specific professional backgrounds.

A museum environment is a complex space within which to design a digital learning experience. When a person enters a museum environment, he/she adapts to a certain behavioural code that dictate his/hers motives to act. Therefore a digital application should be easy to approach and should not have complicated technical aspects as discussed in the chapter Interactivity By Doing. A good connection between interaction and content keeps the visitor’s interest high and ties him to the historical experience and museum environment. Therefore an art history-related learning experience requires all the tools indicated in chapter three. The application should create a dialog between the visitor and the visible elements, facilitate facing and questioning the past, and should use storytelling, simple game elements and interactivity to effectively explain complicated issues.

7 Conclusions

The design process was full of finding suitable solutions and often I had to make compromises to obtain an appropriate result or the right way to communicate the desired message. For future development I gain more information about how people learn and behave in Museum environment. This basic knowledge is helpful also in other projects and gave me the final understanding about how important, for people’s perception, is the surrounding environment. Second important discover that I made during the work was usage of time leaps in interactive contest. To make narration more fluent and efficient I noticed that it was better to cut down the happenings in one instead of two years. In this way the narration became more solid and manageable. The amount of work was vast and sometimes I noticed that I missed other person to work and discuss with about the difficult issues. No doubt this kind of project must be carried out in a larger group but my purpose was to understand the complexity of whole work. The personal experience helps me in future to comprehend better my colleague’s work and problems that this kind of project might face.
8 PAVILION'S PANELS

Albert Edelfelt: Rowing Harbor

Venny Soldan-Brofeldt: Landscape of Archipelago

Bloomstedt Vaino: Lake with the Snowy Coast

Bloomstedt Vaino: Skiing Boy

Pekka Halonen: Lynx Hunter

Pekka Halonen: Beside Hole in Ice

Juho Rissanen: Fishing Beside Ice

Magnus Encell: Elementary School

Magnus Encell: Reading Room
Juho Rissanen: Sampo Icebreaker

Albert Gebhard: Timber Rafting

Albert Edelfelt: View over the Haikko Harbor

Magnus Enckell: View from Porvoo

Blomstedt Väino: Olavinlinna

Akseli Gallen-Kallela: Ilmarinen Blows the Fields crowded by vipers, Arrival of Christianity, Defending Sampo
9 REFERENCES

NON-PRINTED MATERIAL

Campbell, Joseph, The Power of Myth with Bill Moyers (2DVDs)/

Levanto, Marjatta, History of Finnish National Galleys Education Sector - some examples about the art educational projects - Lecture. University of Art and Design Helsinki, Department of Visual Arts 05.02.2009

THESIS WORK

Hämäläinen, Perttu, QuiQui’s Giant Bounce, Concept and interaction design of a perceptually Interactive Computer game for Children, 2002 University of art and Design Helsinki, Media Lab

Pyykkö, Saara, Peli ja taide: Miellikuvapelstä Kaupunkipasianssiin, Taideteollinen korkeakoulu, Helsinki 1997

Ylitensö, Sanna, LolliPOP: toiminnallinen näyttelymateriaali taidemuseopedagogiikan osana, Taideteollinen korkeakoulu, Helsinki 2004

WEB - RESOURCES


LINKS:


Guide Lemercier: Exposition Universelle de 1900 (http://diglit.ub.uni-heidelberg.de/diglit/weltausstellung1900e/0028?sid=56f104f2c582ae147073e6693a7ad927)

Igort: http://www.igort.com/ [last visit: 19.09.2009]


THEORY & PROCESS

Vanna Vinci: http://www.vannavinci.it [last visit: 19.09.2009]


www.thisisfinland.it [last visit: 19.09.2009]
www.virtualfinland.fi [last visit: 19.09.2009]

Youtube:
http://www.youtube.com/watch?v=UwoAxSvYCzk [last visit: 19.09.2009]

ARTICLES & PAPERS

Behmer, Stacy, Literature Review Digital storytelling: Examining the process with middle school students, 2005, Iowa State University

Dodd, Jocelyn, Interactive Learning in Museums of Art and Design 17–18 May 2002 ‘Interactivity and Social Inclusion’ Jocelyn Dodd, Research Centre for Museums and Galleries, University of Leicester


BOOKS

Bage, Grant, Narrative matters - teaching and learning History through Story, Flamer Press 1999, ISBN 0 750709790 (paper)

Egan, Kieran, Teaching as Story Telling, Alternative approach to teaching and curriculum in the elementary school, The University of Chicago Press 1986


Iuppa, Nicolas V., Interactive Design for new media and Web, Focal press, 2001


Kankaanrinta Ilta ja Virvatenen Lyyli, Pelit ja simulointi koulutuksessa, Otava1980

Konttinen, Riitta, Samontakojet, Otava 2002

Laurel, Brenda, Computers as Theatre, Addison-Wesley 1993


Sbrilli, Antonella, Storia dell’arte in codice binario – la riproduzione digitale delle opere artistiche, Guerrini e Associati, 2005

Smeds, Kerstin, Helsingfors - Paris: Finlands utveckling till nation på världsutställningarna 1851-1900 , Svenska litteratursällskapet i Finland, 1996

Pavilion's Panels in Paris 1900
http://kokoelmat.fng.fi/wandora/w?lang=fi&action=gen