Disclosing digital archives on an iPod: pilot results from the Dutch Glass Museum

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Abstract

Museums are active online in numerous ways, but the experiences that are offered often take place outside the physical location of the museum. The Glass museum has aimed at creating an iPod application that should enrich the experience in the physical location of the museum by means of using their recently digitized collection. During the pilot of the iPod application TNO carried out research in order to find out to what extent and how the digitized collection could be used to allow visitors to explore a wide range of content in their visit to the museum.

The pilot resulted in some valuable insights that were used in optimising the iPod application to a redesign. The main finding was the necessity in creating a seamless experience between the online and offline experience. The fact that in the redesign the visitor needs fewer clicks to come to the information they are interested in, and the fact that the information that is offered on the iPod application could not be offered by any other means in the museum, made sure that the iPod application focuses on the specific elements it can add to the museum experience. Because the application could be tested in the physical location of the museum, it was possible to identify what was of most value to the visitors of the museum in an early stage of the development.

Introducing the mobile application in the museum as a way to use a digital collection of data is only the first step towards a different museum experience.

1. Introduction

The gap between the use of internet technology inside and outside museums is considerable. A substantial number of museums is still organized as a 'last resort' to which citizens can flee and find refuge from the ratrace in the 'real' world. Although museums are active online in numerous ways (Lisemot 2008, Limonard, 2009, BMICE, 2009), these activities are mainly aimed at creating an experience outside the physical location of the museum, which sometimes links back to the offline experience, for example the recently launched iPod application of the van Gogh Museum that is available through the iTunes store[1]. The tours offered in the museum are focussed only on the multimedia tours, which is not yet using the full collection and extra information to a great extend, as we can see from the multimedia tour that the Tate Modern offers[2].

The question is to what extent this is a problem, and to what extent museums should integrate the services enabled by the web into the 'offline' experience they are currently offering. The current rise of applications stores on mobile devices as well as the embracement of these applications by the general public holds the promise to enrich the offline museum experience.

The challenge for museums is to explore how these developments fit the strategies, target groups and ultimately the identity of museums to serve their current as well as new visitors. On how to do this is limited knowledge, and development processes are based on regular software development.

This paper describes an exploration by the Dutch National Glass Museum which carried out a pilot with an internet enabled iPod device from May to September 2009. By applying an iterative design process, the developers of the service went through a learning curve in which the boundaries between testing and designing blurred. By sharing this learning curve we intend to contribute to the discussion on how to blend the affordances of online technology and the current museum experience into a viable service concept.

2. Vision, Pilot, Research Set-Up

2.1 Vision

In 2005 and 2006 The Glass Museum has put its entire collection in a digital database, including additional drawings, old factory catalogues and a reasonable amount of pictures. In 2006 the Glass Museum was the first museum in the Netherlands to disclose the 72.000 database entries online for the whole world to explore it. For the Glass Museum this was only the start as the ambition is to grow into a knowledge centre 2.0[3]. Instead of having a knowledge centre 2.0, this museum wants to be a knowledge centre on the modern art and industry glass.

[1] http://www.vangoghmuseum.nl/vgm/index.jsp?page=202079&lang=en

[2] http://www.tate.org.uk/modern/multimediatour/re_techdetails.htm

[3] http://www.stichtingglas.nl/detail.php?id=185&category_id=24

The digitization was the first step towards the knowledge centre 2.0 The second step is to create a relational database that will meet the needs of a museum and its visitors. This will be done by making logical links between the different objects, drawings, pictures, catalogues, anecdotes, movies, etc. in the database. Next to that the database will include User Generated Content aspects, such as leaving comments, and interaction with other visitors. As the Museum opens its new location they also want to make the entire collection accessible for the visitor in their transparent depot. This means that the whole collection can be seen for real. The database that is available online will be made available through an iPod Touch application in the museum.

The goal for disclosing the whole collection, physically as well as digitally, is to make information available for all types of users. The fascination of different types of glass lovers is the guiding principle in structuring this knowledge centre. Instead of limiting itself to the perspective of the art historian, the museum wants to include the perspective of the glassblower, the collector, the glassworks factory manager, the designer, the glass cutter and anybody else with a passion for glass objects. This wide range of fascinations and perspectives on the objects are able to arouse the public's interests and address the needs of the great variety of visitors that come in the museum. It is therefore the museums explicit goal to use the affordances of the internet to blend these perspectives into the museum's offline experience. Without a story, a certain pot stays a piece of earthenware. What is the pot's story, what's the potter's story or the story of the woman who dropped it? And what did the restorer make of the restauration process?

With this ambition the Glass Museum wants to allow all visitors to explore the Museum and the content in his or her own way. It is essential that the interface that is used by the visitors to explore the content fits this experience and allows for the exploration. The usability and right user experience are essential.

2.2 The pilot

In the pilot, the database is disclosed with a multimedia application on an iPod Touch. Using this device enables the visitor of the museum to access the perspectives and fascinations that match their own interests.

The overall goal was to explore to what extent and how the digitized collection could be used to allow visitors to explore a wide range of content in their visit to the museum in such a way it would enrich their visit to the museum.

- how to deal with the large amounts of information that are available for the exhibited artefacts on mobile devices?

- How to deal with different types of visitors that have different levels of experience with ICT?

- How to convey fascination and different perspectives?

Technical building blocks

The application developed to meet these purposes is a web application that is accessible from an iPod Touch. Video and Audio content is stored on a local server and is only accessible when the visitor is in the Museum. The application is made with CSS that contains some javascripts.

It was decided to use a web based application to allow for easy updates without having to do too much on the iPod Touch itself.

Location

The pilot was carried out in the temporary Glass Museum in Leerdam in May 2009. Part of the collection was exhibited in an exhibition called "Leerdamse Legendes" (Legends of Leerdam). Visitors often combine a visit to the Museum and the Glass blower that is only a 5 minute walk from the Museum. The iPod Touch was only available in the Museum.

2.3 Methodology

The basis for the research and development methodology follows the Human-centred Design ISO standard[4]. The ISO standard states that Human Centred Design needs a variety of skills, in which several roles are defined. For the development of the iPod application the roles of the graphic designer, sales person, user interface designer and the systems engineer were involved. In the pilot also end-users were involved. The end-users were involved as co-creators. This means that designers and everyday people work collaboratively throughout the design development process5. The end-users were not only asked for the feedback on the existing system, but also for input on how the application should work and look like in their opinion. In this way it is easier to make decisions on the new direction to take on the basis of the pilot results.

Another basis for the research was in situ testing. With mobile application it is important to take into account the context (e.g. museum) or different contexts where the application is used. The way the user (e.g. visitor) will use or is using the application is to a great extent depending on the external factors that influence his behaviour. To be able to take this into account the research should take place in situ; observing people as they are using it, asking what they have done, or experienced, as they have just done it, in the location where the mobile device will be used in the future as well.

For the pilot real user feedback was gathered to evaluate the design. By means of contextual enquiry and interviews feedback of visitors was gathered in the Glass Museum. With contextual enquiry the visitor is more free to tell what (s)he thinks about the service he is using. The researcher is open to new ideas, rather than to find answers on a set of questions that is made prior to the pilot. Users were not only asked for feedback on the existing application, but also on their ideas to make it better. In three days approximately 25 people were observed and interviewed.

[4] ISO 13407 Human-centred design processes for interactive systems

[5] Sanders, E. B. N. 2006b, 'Design serving people,' in *Copenhagen – Cumulus working papers*, E. Salmi and J. Anusionwu, eds., University of Art and Design Helsinki, Helsinki, pp. 28-33. http://www.maketools.com/pdfs/DesignServingPeople_Sanders_06.pdf

3. The lessons learned

The pilot has resulted in insights that have lead to major changes in the navigational structure of the application. We will not go into depth about all the results of the pilot, as a lot of feedback goes too much into detail for the goal of this paper. Instead we focus on the high level changes and reasons for these changes; the learning curve.

3.1 Pilot Version

The pilot version allows the visitor to choose between three different options to browse and search for background information on the exhibited objects. Based on their own preferences visitors could make a decision on how to access the content:

- Choose an Exhibition ("een zaal verkennen"): the visitor picks an object from a list and then comes to the object information. The visitor gets a suggestion for the next object.
- Choose a Tour ("leid mij rond"): each tour leads the visitor through a selection of the exhibited objects
- Type the Object number ("een nummer kiezen"): visitors are able to browse the information on objects in more detail by entering the number associated with an object

The Object Information displays content that shows viewpoints of different sorts of experts (glass blower, expert, designer), in different types of media (audio, video, text or pictures).

The visitor could go back to the start menu, type the object number or help from any screen in the application.

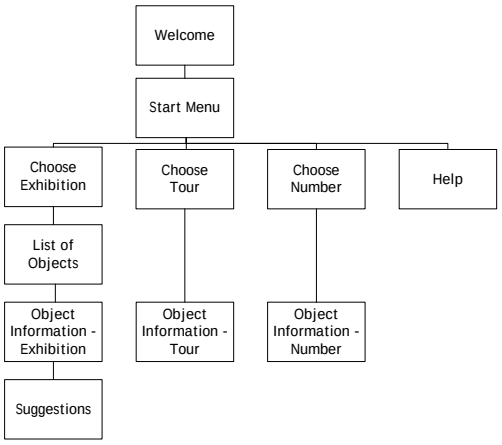

Figure 1: Flowchart Pilot Version

Figure 2: Start menu Pilot Version

Figure 3: Object Information Pilot Version

3.2 Redesign

The redesign allows the visitor to choose between two different options to browse and search for background information on the exhibited objects. Based on their own preferences visitors could make a decision on how to access the content:

- Choose a Theme ("overzicht thema's"): Visitors can choose a theme (e.g. an exhibition or specific topic) they are interested in.
- Type a Number ("zoek op nummer"): This functionality is the same as in the first version

The Object Information displays content that show viewpoints of different sorts of experts (glass blower, expert, designer), in different types of media (audio, video or pictures) as well as a few suggestions for the next object. The suggestions are based on choices the visitor has made previously. The visitor can switch between choosing a theme or typing a number at any point in time, by means of tabs at the top of the screen.

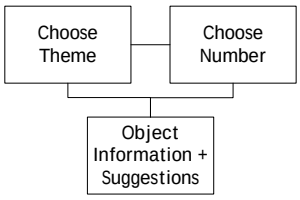

Figure 4: Flowchart redesign

Figure 5: Choose Theme Redesign

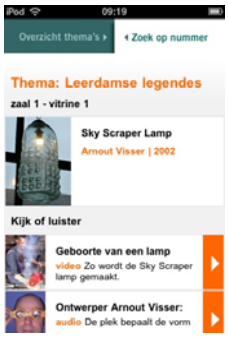

Figure 6: Object Information Redesign

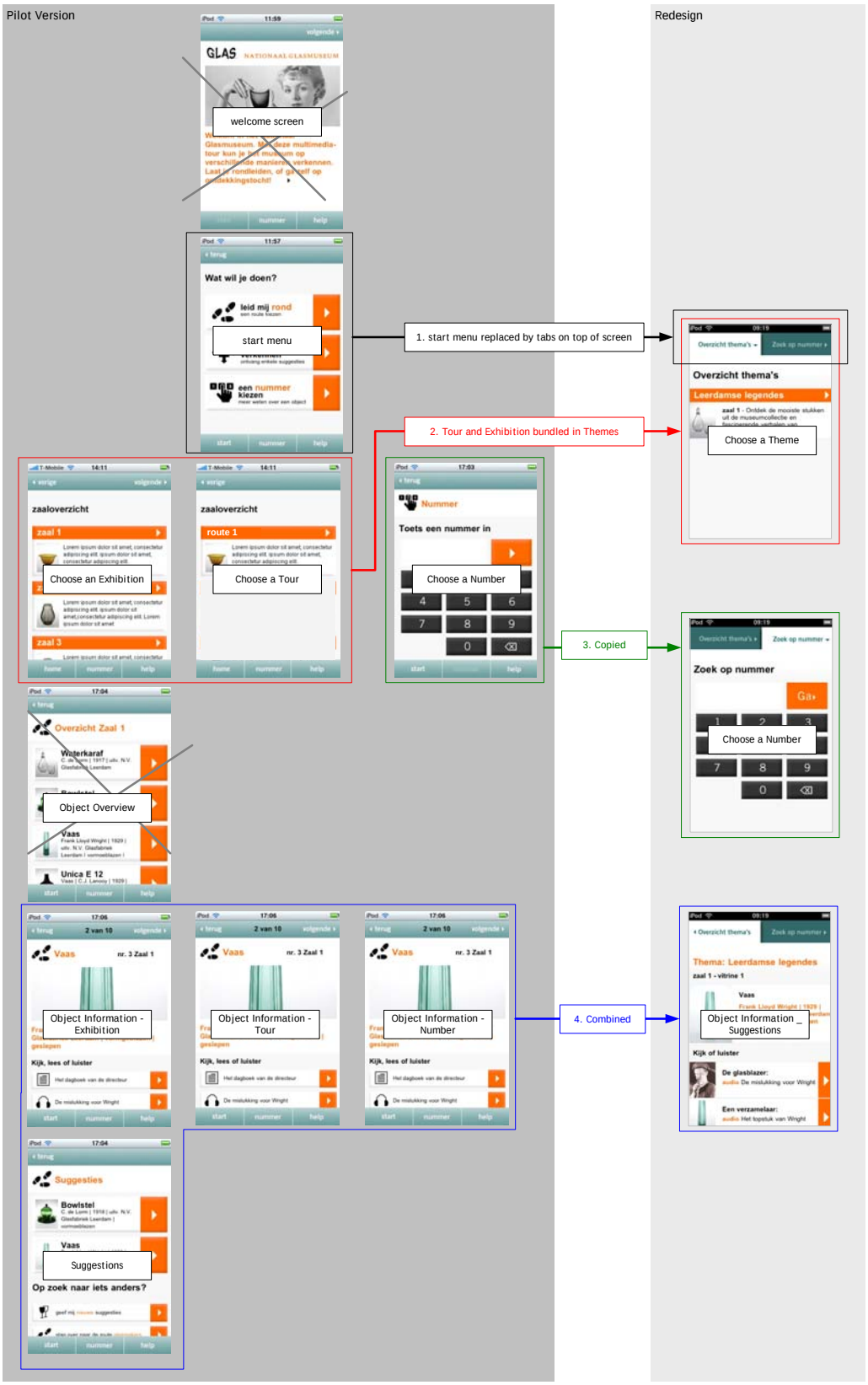

Figure 7 Transition from pilot version to redesign

3.3 Transition pilot version to redesign

In figure 7 the transition from the pilot version to the redesign is displayed. It shows how the pilot version merges into the redesign, without losing on functionality but creating a more simple navigation that solved most of the problems encountered by the visitor.

1. The start menu was deleted and a standard navigation between two different browsing options was placed at the top of the screen in form of tabs. The visitor will not get confused when returning to the iPod application after walking around, he will always have the possibility to select a number, without losing track of the theme he had chosen.
2. Tour and Exhibition are combined into Themes. The visitor can choose any theme, this can be an exhibition or a tour, but to visitors this will mean the same
3. The Number option is not redesigned. This is a functionality visitors were familiar with and hence should be included to relate to their own context.
4. There is one way of representing the object where suggestions are given immediately.

3.4 Learning curve

The results of the pilot have lead to major changes in the navigational structure of the application. Whereas the pilot version is strongly hierarchical, the redesign has a much more flat structure. This has caused a better user experience and usability because:

1 Seamless experience

2 The right content

3 Fewer clicks

3.4.1 Seamless experience

The redesign creates a more seamless experience between the offline and online experience. The visitor encountered several difficulties with the pilot version that are related to a mismatch between the offline and online experience. The main reason for this was that the pilot version was designed as a stand alone application, whereas using the application is part of the total experience of visiting the museum. This is illustrated by the following findings.

First of all, visitors encountered difficulties in finding the object they saw on the iPod Touch when starting a tour or browsing an exhibition. This was caused by unclear visual representations in the iPod Touch as well as insufficient information on where to find the object in the offline world.

Secondly the pilot version included a welcome message and help, however in the Glass Museum all visitors are welcomed by enthusiastic and dedicated volunteers that explain the iPod application. With problems the visitor never used the help, but always returned to the counter to ask for help. Hence these screens were of no use in the iPod Touch.

But most importantly was that the application was not made for the way visitors explore a museum. A visit usually starts by just looking around or they go one cabinet after the other. When the visitor sees an interesting object they want to get more information. The pilot version then only allows to type a Number and get the information, which leaves the other two browsing options with their functionality unused. Also when the visitor did decide to go through the exhibition with a Tour, he was often distracted by other objects that were not included in the Tour. The pilot version didn't allow to look up this object by the Number option and then return to the Tour, which leaves the visitor unsatisfied and disrupts the Museum experience.

The redesign allows for more flexibility in going through the content by having less options to browse the content. By having them always available on top of the screen, the visitor does not need to go back to the start menu and remember where he came from in the application.

3.4.2 The right content

The content of the redesign focuses on what is suitable to disclose on the iPod Touch. The results of the pilot showed that using the iPod application stimulated visitors to explore a wider variety of content and information. Especially the visual material not available in the regular exhibition seems to appeal to the iPod users. However, a significant number of people also feel less inclined to put effort in getting acquainted with an iPod in a museum, as they are used to a regular audio tour.

Visitors had a preference for mainly audio or video content instead of text. Text and pictures are information that is usually already present in the cabinets and visitors prefer to read it there. Other than that, with audio the visitor can listen and look at the object at the same time. As video usually has a beginning and end, visitors liked the fact they could start and stop the video themselves, instead of having to wait for video to start over again.

3.4.3 Fewer Clicks

The visitor needs fewer clicks to access the content. One of the reasons for this is that a lot of visitors are not familiar with the iPod Touch or touchscreen devices in general. This caused difficulties in tapping on the screen and going through the application. It has happened more than once that a visitor has returned the iPod after only a few minutes of fruitless trying.

Next to the difficulties with the piece of technology, needing fewer clicks also has other advantages. The accessibility of the video and audio content is improved in the redesign. This will have the effect that even if visitors have difficulties with the technology in the first minute, they will soon see what the added value is of using it, because they can open a piece of content. Visitors acknowledged they appreciated the amount of content very much. As a visitor only uses the iPod application once, except when he is a regular, he doesn't want to spend much time to get acquainted with the application, and hence the added value of using it should be clear immediately. By having the actual content more upfront, instead of forcing the visitor to go through a menu, makes the chances higher for the visitor to appreciate the application and not get frustrated by the technology.

Fewer clicks also has a positive effect on the time the visitor has to wait for the screen to load. The loading time is something a visitor can not get used to, even if it is only a very short time and regarded as "normal" from a technical perspective. The team had

to make a decision on scrolling or clicking. Visitors encountered more difficulties in clicking then in scrolling, hence the amounts of clicks needed to be reduced. Instead, more information is on one screen which forces visitors to scroll.

4. Conclusions and future work

Based on the pilot result the Glass Museum was able to make decisions on changing the application structure without giving in on functionality and added value. The most important driver for the changes that were made is to realize that the online and offline world need to be complementary to each other, and to find a balance between technical possibilities and desired functionality. This has caused major changes in the navigational structure.

The overall goal was to explore to what extent and how the digitized collection could be used to allow visitors to explore a wide range of content in their visit to the museum in such a way it would enrich their visit to the museum.

As it turns out, it is necessary to help the visitor in choosing between all the different options he has to explore the content. To determine this we see it as a crucial step in the design and development process to do a pilot in the Museum, to be able to see what fits in the experience of the Museum and what should be the focus in the application. Involving visitors of a museum in this process while they were visiting the museum was even of more value as they have different backgrounds, needs and experience with ICT. The visitors are eventually the people that use the application; the application has to create added value to their experience of visiting the museum.

Introducing the mobile application in the museum as a way to use a digital collection of data is the first step towards a different museum experience. A lot more is possible within a few years that can enhance and extend this experience beyond the physical location of the museum itself. Future possibilities are that visitors are empowered and stimulated to create their own thematic tours in a museum, interact with other visitors, and extend the experience of their visit to their home environment. These are just a few examples of what can be made possible, however it is up to Museums and their visitors to find the right combination and bridge the gap between the use of internet technology inside and outside museums is considerable.