

Herbert F. Johnson Museum of Art at Cornell University Final Usability Report

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Summary of Research and Deliverables

Note: Italicized text is our conclusions and recommendations.

Reason for the project

The Johnson Museum of Art at Cornell University broke ground for an expansion to the museum in Spring 2008 and plans to open the three-floor, above- and below-ground extension to the public in 2010. They plan to offer an "open-storage" exhibition in this new building that will include hundreds of objects that will have limited or no information provided on the tombstones for the objects. The museum education department wants to offer a hand-held information resource so that visitors can view more information about the objects if they want. They wanted to build and evaluate a hand-held interface that could provide such information. The Johnson Museum is working with Spotlight Mobile to develop the production version of the interface that will be implemented by the museum. This report will serve to inform their design decisions for that system.



Objectives

- Build a pilot version of the hand-held interface and user-test with museum visitors to get feedback about the usability of the interface we build.
 - This will help inform how the production version of the interface is designed.
- To evaluate how visitors to the museum navigate through the objects in a particular collection.
- To determine who visitors trust to guide them through a collection via recommendations.
- As a side-effect, to gather information about the usability of the iPod touch (or more generally, hand-held devices) as a platform for this use-case.

Hypotheses

- Providing information in the form of a hand-held interface will be more space efficient for both the museum and visitors who are seeking the information, and more time efficient for visitors because they can pick and choose which information they want to see.
- Visitors would be more likely to trust a curator's recommendations about which objects to visit, as opposed to an aggregate of past visitors' opinions.

Evaluation of Research Results

Evaluating the User Interface

- **The buttons are too small or too close together to touch for some people.** *Buttons on a small device, or one a user interacts with using their fingers, should be large and well separated.*
- **The text is too small to read for some people (zooming is possible, but was rarely used).** *The default text size should err on the side of being too large. Zooming and text scaling properties for Mobile Safari can be controlled with meta tags in the HTML.*
- **Users would end their session by accidentally pressing "end tour".** *Exiting the tour should be harder to do by placing the end tour button further away from other buttons or creating a "Do you really wish to end your tour?" alert.*
- **Users often complained that they could not skip to any object they wanted in the tour regardless of tour order (random access).** *Navigation for first-time and one-time users (like visitors to museums with such hand-held tours) should be extremely consistent. Next buttons appeared on most 'more information' pages, but not on the last 'more information' page for each object. We recommend that the last page have a 'Next object' button where the 'next/more information' buttons are on other pages. In terms of random access, unless outside conditions dictate (like a school tour, ex), such a device should allow users to view an index of objects and randomly access them. Object call numbers would make sense as an identifying index.*
- **Users wanted the "previous object" and "next object" buttons to be at the top of each page.** *On a small screen, repeating navigation links at the top and bottom (and even on a long page, in the middle) is effective. Users should not have to scroll to go looking for navigation elements. Also, navigation on interfaces familiar to the users (like a web site on a desktop browser) most frequently appears at the top or left of the page - imitating familiar interfaces has been shown to be effective in having first-time users interact successfully with a new interface.*
- **People want to visit any object they want that are not on the tour.** *This is possibly aided by allowing access to a museum-wide random access index (see above). Having a map view for the tour, and for the museum, is also recommended (view 'Navigation' below for more details).*



Evaluating the Content for the Guide

- **Wording of "questions" (the sub-section headers on an object's home page that linked to more detailed information):**
 - Sometimes users were unclear as to the sort of information they would be linked to.
 - Some thought that they had to answer the questions, rather than that the links led them to information answering the question.

- *These links to detailed subsections should (a) clearly look like links (using arrows, or underlined text, ex), and (b) should consistently be questions or statements rather than a mix. If they are questions, it may be helpful to include small text in the link like 'click for answer' or 'learn more'.*
- **Some users found the hand-held device distracting them from connecting with the artwork, or that they spent more time (even 'too much' time) looking at the iPod vs. looking at the artwork.**
 - *The hand-held should regularly direct visitors' attention back to the object in question. This can be explicit or more subtle just by changing the wording of the descriptions to use phrases like 'consider the red marking under the left eye of the mask', or 'the damaged section you see near the base of the statue...'. Previous studies by the HCI lab, for example, have incorporated the objects into puzzles and games for children's tours, requiring the young visitors to pay close attention to the objects on display to accomplish the game objectives. The hand-held is supplementary to the artwork; the tour should be carefully designed to keep bringing visitors' attention back to the art.*
- **Distribution of information was not even**
 - Too little information about some objects.
 - *Missing information irritates visitors. It may be that a 'high-tech' device that is missing information may be more frustrating than normal. It is important that visitors' expectations for the tour be met.*
- **Many visitors cited that they were looking for a narrative about the objects.**
 - They wanted the information to describe common themes among many objects and draw comparisons among objects.
 - *Our tour was not in this way a real tour, but a loose collection of objects. The phrase 'tour' has a strong implication of narrative or theme. Future tours should be designed around such a theme.*
- **Some people wanted an audio option.**
 - *This point would aid in keeping visitors' attention on the artwork, and in minimizing the visitors' dependency on potentially unfamiliar devices and interfaces.*
- **Some people looked at the objects that had more information when they otherwise wouldn't have.**
 - *As the amount of information available to a user on a hand-held device is not limited spatially, it is a good idea to have a lot of information available for as many objects as possible. Visitors can ignore information they do not want to learn, but interested visitors shouldn't leave a museum wishing there had been more details.*
- **The most popular categories for extra information:**
 - "background, origin, cultural information"
 - "interesting facts"
 - "how the object was used"
 - *Context of creation and use connect the visitor to the artwork and to the artwork's creators and users, making the piece more relevant. It is likely that visitors will also appreciate visual (pictures or even movies) cues as to*



the context of the piece. Visitors appear to enjoy interesting facts about an object, perhaps because these facts are short and easy to remember, or because they mentioned an unusual case or quirkiness, or because such facts are most easily shared with friends at a later time.

Evaluating User Behavior

Expertise/Trust

- Some people think they could create a helpful/interesting tour for others and that they would even have fun doing it.
 - Other people felt that they did not have the proper expertise to make a tour for others.
- Some people want to receive recommendations from other visitors because they want to know what other people find more interesting or because "we're on the same level" (in terms of art education or interest).
- Some people would find creating tours fun and enjoyable. *This may also be a great education method for students.*
- People trust curator's recommendations because:
 - More knowledgeable.
 - They would recommend more important, interesting, valuable, and/or popular objects.



Navigation

- A lot of people used what "looked" interesting to govern which objects they got more information about.
- Some people looked at some objects only because they were on the tour.
- Some people will follow the tour blindly just because it's a tour and not look at other objects that are not on the tour.
- There wasn't always a clear mapping of object-on-device to object-in-museum.
 - *There is a need for trails or maps on the device to orient people.*
 - *RFID tags could also be a great way to remedy this problem.*

User Characteristics

- Age-related issues
 - Older demographics tended to have more trouble using both the iPod Touch in general and our interface.
 - *Providing visitors with a "cheat sheet" or the option of taking an audio version of the tour (at least to start out with) might make them more comfortable with the technology.*
- People moving about the museum in pairs or groups
 - They sometimes get annoyed with having to share a device, and sometimes they get annoyed with having to use different devices.
 - *Syncing more than one device to keep everyone on the same page could be a good solution.*

Evaluating the iPod Touch

- Sometimes the screen would switch from portrait mode to landscape mode and would not return to portrait mode easily.
 - *There is a way to prevent this from happening using a "meta" tag in the html of the page.*
- It is fairly easy to click something by mistake when you're trying to scroll or when you're just holding the iPod.
 - However, some people reported that when they would try to click a button ("next item"), the iPod would not recognize it.
 - *Again, making buttons and links bigger and more obviously 'actions' will help.*
- There is no way to "lock" a user into our program, meaning that they can escape from it easily and visit other websites or use other applications on the iPod Touch.
 - *Converting this web application to one that lives locally on the iPod Touch could make this less of a problem, though not get rid of it completely. Updating information, adding new functionality, and tweaking bugs would all be more difficult for a non-web-based application however.*



Knowledge or Technology Transfer

Research Results in the Public Domain

- BOOM (2008)
- NCUR 22 (2008)

Other Institutions Directly Related with the Project

- Spotlight Mobile