Smithsonian

National Museum of Natural History

Ocean Today

Usage and Satisfaction Study

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Preface

The Office of Policy and Analysis (OP&A) performs many types of studies. Some of the most effective and welcome are small, focused studies of visitors' uses of innovations in exhibits. This Ocean Today visitor satisfaction study examined the selection and viewing by visitors of videos about recent ocean-related events, such as the life of the sea otter, oil in the ocean, and exploration of the Titanic wreck site.

During the summer of 2010 the study team aimed to determine whether the overall rating of the audience improved as a result of changes made in response to recommendations offered by OP&A in 2009. Those recommendations were the outcome of baseline studies that measured attraction to the kiosk and the satisfaction of users. The team had proposed in 2009 that simple fixes, such as the improvement of sound at the kiosk, might improve satisfaction.

The work on this project was conducted under the supervision of Andrew Pekarik. He was assisted by two capable interns, Lindsay Kelly and Megan Lee, who collected the data, analyzed the results, and wrote this report.

For supporting the capture of data, changes in the kiosk, and the enhancement of visitors' experiences thanks are due to Mike Shelby and Katie Snider from the National Oceanic and Atmospheric Administration (NOAA) who commissioned this study. They are aware that far-sighted visitor studies can go beyond identifying problems and lead to desirable outcomes. Thanks are also due to Jill Johnson, an exhibit developer at the National Museum of Natural History, and Elizabeth Musteen, The Sant Ocean Hall project manager, who coordinated the sound improvements and other changes to the kiosk.

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Background

1. *Ocean Today* Kiosk

The *Ocean Today* kiosk is part of a permanent exhibition located in the National Museum of Natural History's *Sant Ocean Hall*. The kiosk, comprised of four screens, is located at the entrance of the Ocean Hall coming out from the Rotunda. The two 32-inch plasma touch-screens allow the visitors to choose videos from a selection of 32 videos, which are divided equally into four categories: *Discoveries*, *News*, *Animals*, and *Science*. Mounted on the walls above the screens are two 42-inch monitors that display the videos playing on the screens. These are intended to serve groups standing at a distance. Along the top of the kiosk is a running news feed of recent ocean-related events, chosen by the Smithsonian Institution and the National Oceanic and Atmospheric Administration.

2. Previous Studies

Since the fall of 2009, a team from the Office of Policy and Analysis (OP&A) has been conducting studies on the *Ocean Today* kiosk in order to propose and test ways of increasing the percentage of passing visitors who stop at the kiosk and the satisfaction of those who access the videos. These studies include baseline observation studies of attraction and decision times, a baseline satisfaction survey, and analyses of videos chosen by visitors. Through testing of alternatives it was found that adding a sign reading "Ocean Stories" between the upper and lower monitors increased the percentage of visitors who stopped at the kiosk. A study of visitor responses to the videos identified the images and words that were effective in catching the interest of visitors. A new central banner with these words and images will soon be tested to see if it also serves to increase the number of people who stop at the kiosk.

An initial satisfaction survey established a baseline rating for the kiosk and suggested some of the main reasons for dissatisfaction. The rating was very close to the average rating that visitors give Smithsonian museums overall, but lower than the average rating that visitors give the National Museum of Natural History (See Figure 3). The main problem identified in the study was that the sound was too weak and the audio could not be heard. Visitors could only understand what was happening in the videos by reading the captions.

3. Need for 2010 Study

This study was conducted after the sound level had been raised. Prior to the study, the sound level was too low for most kiosk visitors to hear easily. Even visitors standing directly beneath the speakers were unable to hear when the museum was busy. Additionally, the original study observed that many video viewers left shortly after choosing a video. The new study's primary aim was to determine whether or not the increased sound volume improved the overall rating of the kiosk. The aim of the study was expanded to gain deeper insights into content or technology flaws which might be responsible for leading some users to leave early.

Observations

1. Methodology

In this portion of the study we recorded the actions of 80 visitors, selecting for observation the individuals who operated the screen. All ages and genders were represented in the study. Both screens were observed simultaneously by one or both team members, who could see what was happening by watching the overhead monitors positioned on either side of the kiosk. The aims of the study were to identify visitor preferences regarding video usage and to gain a better understanding of the defining characteristics of the *Ocean Today* kiosk's audience.

2. Visitor Description

Age and Gender. The minimum age of a visitor who watched the videos was 3 years. The maximum was 65 and the mean was 15.[1] About half of the visitors (49%) were male, and the rest were female (51%).

Group. Most visitors were in groups. Forty nine (61%) were initially accompanied by family. Fourteen (18%) were accompanied by friends. Eleven (14%) were initially alone, but five were later joined by friends or family. An overwhelming majority of the group (64 or 80%) were children. Of those, fourteen (22%) lacked supervision.

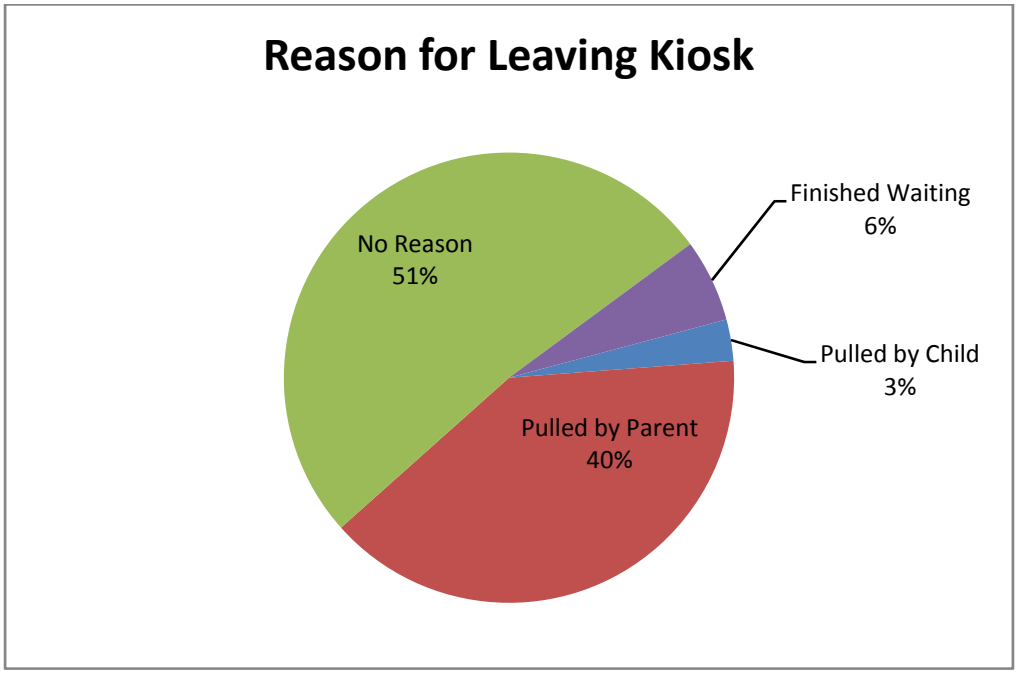
(Figure 1)

[1] The ages are estimates based on observation.

3. Visitor Activity

Where do they go? The majority of visitors, (54 or 68%) walked away in the direction of the rotunda after leaving the *Ocean Today* kiosk. Eight visitors (10%) headed towards the restrooms. Two visitors (3%) moved towards the telephones. Finally, 2 visitors (4%) walked towards a bench and one visitor (1%) headed towards the exit. (Figure 1)

Why do they walk away?[2] The data on departures were gathered by group rather than by individual visitor. Based on our observations, 15 groups (51%) left for no reason. One (3%) departed after having been pulled away by a child. Two (6%) left after waiting, and twelve (40%) left after being pulled away by a parent. (Figure 2)



(Figure 2)

Time Spent.[2] The average time people watched the videos at the kiosk, excluding the 33-minute outlier, was 2.4 minutes.

Videos Cut Short and Frequency. No single video was the clear choice for visitors to cut. Out of the 114 videos selected, the viewers cut short 73 (64%) videos. Out of the 114 videos selected, 41 (36%) were played all the way through.

[2] The 'Why walk away?' is based on a sub-sample of the last 30 groups observed.

Visitor Satisfaction Survey

1. Methodology

In the *Ocean Today* kiosk visitor satisfaction survey study, 76 kiosk users were asked to rate their overall experience at the kiosk on a scale of *poor, fair, good, excellent* and *superior,* or on a parallel scale of smiley faces for younger users. After giving a rating, respondents were asked *What changes could be made to improve your experience at the ocean kiosk?* All individuals who interacted with the kiosk were approached to be surveyed. For each surveying session, one surveyor observed the visitors and approached users of one kiosk. The aims of the study were to gain an understanding of how users rated their experiences with the kiosk, now that the sound level had been raised, as well as to collect users' comments and suggestions. This survey had a 97% response rate (2 rejections).

2. Visitor Description

Age. The minimum age[3] of visitors who watched the videos was 3 years. The maximum was 60 and the mean was 17. A majority of the surveyed visitors (54 out of 76 or 71%) were children.

Gender. Of the 74 surveyed visitors, 44 were male (58%), and thirty were female (42%).

Group. Most visitors who stopped at the kiosk were in groups. Of the 76 visitors who were surveyed, eighteen (64%) were initially accompanied by family; seven (19%) were accompanied by friends; 16 (21%) were initially alone. Of those who were initially alone, three (4%) were later joined by a companion. Of the 54 children surveyed, seven (12%) were completely alone, and 47 (87%) lacked adult supervision.

3. Satisfaction Report

Surveyed kiosk users rated their experiences with the *Ocean Today* kiosk on a scale of *poor, fair, good, excellent* and *superior.* Previous rating surveys at Smithsonian museums have shown that visitors who are satisfied tend to rate their experiences *excellent*. Those who are especially pleased give the rating of *superior,* and those who have some level of dissatisfaction give ratings of *poor, fair,* or *good*, depending on the level of their displeasure.

[3] The ages are estimates based on observation.

In this survey no respondents indicated a *poor* experience (0%) with *Ocean Today* kiosk, and very few respondents indicated *fair* experiences (3%). About one out of five respondents (22%) indicated *good* experiences; a little under two out of five respondents (36%) indicated *excellent* experiences, and a little under two out of five respondents (37%) indicated *superior* experiences. These ratings are well above both the Smithsonian average and the overall rating that visitors give the National Museum of Natural History. (See Figure 3.)

(Figure 3)

4. Suggested Improvements

After rating the *Ocean Today* kiosk, survey respondents were asked *What changes could be made to improve your experience at the Ocean Today kiosk?* Many respondents had suggestions or complaints about the functionality of the *Ocean Today* space. Others mentioned improvements that could be made for navigating the touch screen. A few respondents had suggestions for different or more up-to-date video topics.

Seating. Two respondents suggested "stools for younger children who have trouble reaching the lower screens." Another suggestion was for "chairs and benches closer to the space."

Monitor position. One visitor who stood to watch the video mentioned, “place the upper television screens lower down so visitors standing below don’t have to strain their necks.”

More interactivity. Several visitors asked that the kiosk be more interactive—one of those respondents said, “What is the purpose of the globe? I would make it interactive, for example show (on the map) where the dolphins live while watching a video about dolphins.”

More visible news feed. One visitor who observed the kiosk extensively made the suggestion to “enlarge the flying red text on the wrap-around banner and bring it across the archway leading to the restrooms so as to draw in more individuals heading to this area.”

More defined space. A visitor felt that it would be helpful to “recess the kiosk further and place a physical barrier, such as part of a wall, in the surrounding area to create the sense of a separate space,” or to “place a life-sized buoy in the center of the room with buttons for kids to press that will not interrupt the videos. The buoy will also help with the flow of the room, pulling people around to see all the room offers.”

Touch screens. There were several comments in agreement that “the touch screen is good.” However, one parent complained that there should be a way to “stay on the program initially touched for children [who are tempted to push buttons and flip from screen to screen without watching a full video.]”

Longer videos. One visitor asked for “more video footage, more audio commentary. Small amounts of information are not enough.”

Other topics. Two visitors asked for an up-to-date video about the current oil spill. Others asked for “more information about the ocean itself,” “more about air pollution and land temperature [in the climate change section],” and “video to go with the *sounds from the sea*” selection.

Visitor Interviews

1. Methodology

After reviewing the qualitative data from the 'Observations' and 'Visitor Satisfaction Survey' portions of the study, the team concluded that there were three areas of common concern that we needed to address more fully. These concerns fell in the categories of information, display, and technology. We formulated three open-ended survey questions aimed at gathering constructive criticisms from the viewers. We approached all viewers over the age of twelve and received fifteen completed interview responses. We spoke with children under the age of eleven only after receiving parental consent.

We administered the survey in five, hour-long increments that were spread over the span of the week (one increment per day Monday through Friday). We intercepted eighteen visitors in order to get our fifteen completions—yielding a response rate of 83%. Furthermore, we varied the time periods in which we conducted the survey, to avoid differences relating to time of day. We stationed one team member at each working screen and requested that all eligible participants answer these three survey questions:

First Question: "How did you feel about the **information** covered in the video(s) you watched?"

Second Question: "What is your impression of the *Ocean Today* kiosk **display** and what suggestions do you have to improve it?"

Third Question: "Did you encounter any problems or confusion with the **technology** and if so, what?"

2. Findings

Information

Most visitors who answered the first question ("How did you feel about the information covered in the video(s) you watched?") had very positive responses. The visitors felt that the information was useful and the presentation was stellar. In the words of one woman, "It was all important to know. We just came here to find out about this topic." Another enthusiast and mother stated, "The video setup is good for the kids because it's interactive. They (the kids) feel a part of it."

There were several comments relating to changing the information on the Titanic Wreck Site video. One visitor thought that the video should have explored life on the ship more than focusing on the rusticles; another wished that "they [i.e.,the video producers] had gone deeper into how the machinery of the Titanic was used and developed."

A woman with two children, wished there had been an exhibit or display about trash in the ocean, which would have raised awareness of how ocean litter impacts wildlife. She suggested a map that would show the accumulation of trash in the ocean.

Finally, an eight-year-old girl who viewed the 'Life of a Sea Otter' video with her family wished there had been more images of real wildlife rather than pure animation.

Display

The responses to the second question ("What is your impression of the *Ocean Tod*ay kiosk display and what suggestions do you have to improve it?") were as positive as those to the first question. Some of the praises the kiosk received included:

- **Location.** "It is in a good location coming out of the Ocean Hall."
- **Positioning.** "I like how there is a screen low down for kids. We were coming out of the restrooms but if we were coming from the direction of the rest of the museum it would have been a relaxing end to the visit."
- **Sound.** "Good that it's kid friendly…I can hear it well, but the volume is not overwhelming if you step back."
- **Design.** "I like how the area is nice and wide."

There were a good number of suggestions as well, including:

- **Images.** "[Add] more images and perhaps a buoy in the center of the area."
- **Topics.** "I would add information on tracing ocean fossils. We're from South Carolina and there are boxes of fossils there, but we don't know where they're from."
- **Interactivity.** "I am a bit concerned that the kids pushing all the buttons which constantly interrupt the videos…"; "My kids love the videos; however, video games would be more instructional and fun...something that is more interactive and would involve the whole body interaction."

Technology

The final question was, "Did you encounter any problems or confusion with the technology and if so, what?" The team found that the overall technology-satisfaction level was very high. More specifically, the instructions were clear, the operations simple,

and the volume audible. A woman remarked that she encountered no trouble because "touch screen is fairly common [these days]." One recommendation was that we make the 'back' and 'forward' function more like it is on an Internet browser. Another recommendation was to increase the sensitivity of the right touch screen, as they had had to press areas of the screen multiple times before it responded.

Discussion

Based on the results of the three-part study, a list of considerations for NOAA and the Smithsonian follows. Suggestions are in bold:

1. The increased sound volume at the Ocean Today kiosk had a dramatic effect on the overall rating by visitors. The baseline rating, done with relatively low sound volume, was at the average level for a Smithsonian museum, but was below the rating of the National Museum of Natural History. After the sound level was raised, however, the rating of the kiosk rose to surpass that of the museum as a whole.

2. Oftentimes, visitors approached the kiosk monitor while it was still on one of the four category menus (*News*, *Discovery*, *Science*, *Animals*). They selected a video from that category without realizing there was a main menu. When one video ended they remained in the same category and continued to select videos from that single category.

    a. **One way to solve this problem would be to include a 'menu' button in addition to the 'back' button.** The option to go back to a category menu or directly to the main menu would make users aware of all of their options.

    b. **Another solution to this problem would be to have the screens return to the main menu instead of the category menus after each video ends-- either immediately or after a built-in delay.**

3. Several surveyed users mentioned that the world maps located between the upper screens and lower monitors were not functional. In an earlier study of the kiosk it was demonstrated that replacing these maps with signs that read "Ocean Stories" increased the percentage of passersby who stopped at the kiosk. **One visitor suggested making the maps interactive by having them light up in areas relevant to the chosen video.** (Figure 4)

(Figure 4)

4. A most obvious difference between the kiosk and other, high-volume parts of the floor was the low number of activities to keep visitors occupied. It is possible that a primary reason why family and friends pull viewers away from the kiosk so often is because of the limited number of activities. **Some visitors suggested having a giant, interactive buoy in the center of the space, which might attract more visitors to the area and encourage interested viewers to stay longer.**

5. Because there were clear winners for video popularity, popular videos should be expanded by adding chapters. Multiple visitors sought more information with regards to the categories of *Titanic Wrecksite* and *Oil in the Ocean*. In the case of the *Titanic Wrecksite*, it would be useful **to provide chapters on topics such as ship construction, life on the boat, and icebergs**; these topics were suggested during the surveys.

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