

Executive Summary

The CDM kiosks were developed to serve as an interactive information center for DePaul CDM and to showcase the quality of work produced within the school. Using a touch screen interface students and visitors can view upcoming CDM events, current CDM news, current faculty and staff, maps of the CDM building, a gallery of selected student work and play short games while they wait for the elevators.

This informal usability study was conducted to evaluate the effectiveness of the CDM kiosk as an information hub and showcase of DePaul CDM work as well as to establish suggestions for the next iteration of the kiosk. The test sessions took place between September and October, 2009. Four DePaul students were randomly selected while they were entering and exiting the CDM building. Two were volunteers from an HCI course. They were tested on the kiosks in the semi-public CDM lobby using task-based scenarios and a short questionnaire. The task-based scenarios addressed six areas of the Kiosk: People, News, Games, Events, Gallery and Maps. These tasks were created with the following research questions in mind:

[Q1] Can a user navigate the interface quickly with no errors?	[Q4] Does the interface respond within a satisfactory amount of time?
[Q2] Is the navigation scheme familiar to users?	[Q5] Does the user find the information helpful?
[Q3] What are the perceived difficulties of the interface?	[Q6] What are the most common paths and categories used while navigating the interface?

Qualitative data about navigation and satisfaction was gathered through observation and a post test questionnaire. Quantitative data was also gathered through observation and participant comments. The results of this study show that for the most part, the kiosk meets the current expectations of the user and is a good source of information and entertainment. Improvements are suggested, including a clarification of navigation and content, particularly on the Events, Maps and Gallery panels. Detailed information about the methodology and data collected during testing are found in the following sections.

Methodology and Participants

The test participants included six students from DePaul University. Four students were randomly picked from the CDM lobby while on their way to and from class. Two students were volunteers from an undergraduate HCI class. The 3 male and 3 female students were of varying standings in the University but not all had majors in the College of CDM. A within-subjects design used the same task list for each participant. Qualitative performance data was collected through a series of tasks of six tasks while quantitative satisfaction and usability data was assessed with observations and a short questionnaire. These test sessions were conducted informally in the semi-public CDM lobby and followed a script to ensure each participant was tested in the same way. The tests were conducted on touch screen displays equipped with stereo speakers. Test sessions were carried out as follows:

1. Introduction and greeting

Each participant was greeted by the test monitor and given a consent form for our records (see appendix). This consent form included a brief overview of the test.

2. Orientation

After the participant had agreed and signed the consent form they were given a brief verbal overview of the kiosk application (see appendix). A script was used to reassure participants that the test focused solely on the performance of the kiosk and, while the test was conducted in a semi-public place, the participants' responses test observations would be kept confidential.

3. Performance test

The tests were conducted in the semi-public lobby of the DePaul CDM building. A script was used to guide the participant through each of the six tasks. Each task represented a short but typical use case that reflected each section of the kiosk application. Participants were instructed to verbally tell the monitor when each task was complete. If the participant could not complete the task the test monitor skipped the task and moved on to the next one. The completion criterion for each task was a 'par' of five touches, meaning that each task could be completed by at most, five touches. During the test sessions, observations and data were gathered on log sheets.

4. Debriefing

After the test, the participant was debriefed by the test monitor and a post-test questionnaire was given to the participant. The questionnaire attempted to determine the participant's familiarity with touch screen devices and also provided a chance for the participant to leave comments about satisfaction and performance. The test monitor also had the opportunity to ask follow-up questions if any observations during the test warranted clarification. The test participant was free to ask any questions during this time.

Task List

The tasks for these test sessions are summarized below. Detailed task instructions can be found in the appendix. The tasks represented typical use cases for current and potential DePaul CDM students. Each task had a par completion criterion of 5 touches.

1. Locate a classroom using a given a room number (e.g. CDM 220).
2. Locate a computer lab.
3. Find current activities happening at CDM.
4. Identify recent happenings at CDM.
5. View some details about a CDM staff member (e.g. Craig Miller).
6. Explore some student work.

Test Environment

The kiosks are located in the semi-public first floor lobby of DePaul CDM where foot traffic from current and potential students and faculty is fairly high. Therefore, tasks were kept short to reflect their intended real world use. The equipment used was a 47" NEC Plasma display equipped with a touch sensitive panel.

The display included stereo speakers mounted on each side for audio playback. The participant stood in front of the display at a distance they felt comfortable.

Test Monitor Role

The test monitor stood behind and to the side of the participant during the test. A script was used by the test monitor to guide the session. Very little assistance was given to the participant by the test monitor. The test monitor also kept track of how many touches each task needed for completion.

Evaluation Measures

Qualitative and quantitative data was collected. The data collected was summarized from observation and notes. The test monitor noted any participant difficulties, unusual behaviors, or when an obvious mistake occurred. Errors were classified as:

- 1.) Noncritical errors – A participant makes a mistake but is able to recover and complete the current task.
- 2.) Critical errors – A participant makes a mistake and is unable to recover and complete the current task within the allotted time limit. The participant may be unaware a mistake was made.

Any task that took more touches than the par completion criterion was considered a failed task. A session was considered successful if 6 out of 7 tasks were completed successfully. Any test session with less than 6 tasks completed was marked as unsuccessful. Participants also had the opportunity to share comments and feedback through a brief questionnaire given at the end of the test session. This questionnaire included Likert scale preferences, multiple choice questions and short answer prompts.

Results

Using the research questions as a guide, the results of this usability test highlighted areas of concern by combining user comments and external observation data. The results showed the tasks that kiosk users spent the most time with and the average amount of touches needed per task. There were no critical errors that stopped a user from completing a task or the test session. User comments helped isolate specific aspects of the interface that may need to be refined. Apart from one user, each task was completed within 5 touches. Using the observed data it was determined that Task 5, locating a person, needed the most touches while Task 6, locating entertainment, needed the fewest.

Observations

Touches	User 1	User 2	User 3	User 4	User 5	User 6	Average
Task 1	3	2	2	4	2	2	2.50
Task 2	4	3	3	7	4	3	4
Task 3	1	1	1	6	1	1	1.80
Task 4	3	2	4	6	4	2	3.50

Task 5	4	5	5	4	4	4	4.33
Task 6	1	1	1	2	2	3	1.67
Overall Sat.	6	6	6	6	6	7	6.17

Figure 1: Number and average amount of touches needed per task & user satisfaction

Questionnaire Results

Question	User 1	User 2	User 3	User 4	User 5	User 6
How often do you use a touch screen device?	Multiple times a day	Once a day	Once a week	Multiple times a day	A few times a week	Multiple times a day
How often are you in the CDM building?	Once in a while	Only when I have classes	Every day	Only when I have classes	Once in a while	Once in a while
The kiosk interface was easy to navigate.	Strongly Agree	Strongly Agree	Strongly Agree	Somewhat Agree	Somewhat Agree	Strongly Agree
It was easy to find relevant information about CDM on the kiosk.	Somewhat Agree	Strongly Agree	Somewhat Agree	Somewhat Agree	Somewhat Agree	Strongly Agree
How helpful is the information found within the CDM kiosks?	Very helpful	Very helpful	Somewhat helpful	Very helpful	Somewhat helpful	Very helpful
Rate your comfort level with touch screen devices. (7 = most comfortable)	7	4	6	7	6	7
Please rate your overall experience with the CDM kiosk. (7 = best experience)	6	6	6	6	6	7

[Q1] Can a user navigate the interface quickly with no errors?

R1.1 All sessions were completed successfully by all 6 users, although one user did go over par for a task but they were able to recover and complete the task.

R1.2 4/6 users strongly agreed that the interface was easy to navigate. 2/6 somewhat agreed.

[Q2] Is the navigation scheme familiar to users?

R2.1 All users recognized the “X” close button on the panel. Arrow, buttons and icons did not contribute to any visible user error.

[Q3] What are the perceived difficulties of the interface?

R3.1 3 users had difficulty locating an Event on a specific day. (non critical)

R3.2 4 users expected the Map legend to be interactive, especially when searching for labs. (non critical)

R3.3 2 users initially expected the staff and faculty lists to be sorted alphabetically by first name. (non critical)

R3.4 3 users had difficulty navigating the Gallery. (non critical)

R3.5 3 users had difficulty distinguishing between Events and News content (non critical)

[Q4] Does the interface respond within a satisfactory amount of time?

R4.1 Using a Likert scale, users rated their overall satisfaction with the kiosk 6.17 / 7, which indicates that response time did not negatively affect the user experience.

[Q5] Does the user find the information helpful?

R5.1 4/6 users strongly agreed that the information was helpful. 2/6 somewhat agreed.

[Q6] What are the most common paths and categories used while navigating the interface?

R6.1 News and Gallery were two quickly discovered areas.

R6.2 4/6 users strongly agreed that the interface was easy to navigate. 2/6 somewhat agreed.

Findings and Recommendations

The findings of this study indicate that the kiosk experience is generally positive with the majority of non critical errors involving clarification of navigation and content, particularly on the Events and Maps panels. These panels, along with the Gallery could benefit from a slight

redesign to address the issues described in the following section. The findings listed below are ordered by severity and recommendations for each finding are included. Some findings may have more than one recommendation. These findings and recommendations were guided by the initial research questions, which are referenced by number. (R#. #)

Finding 1: Users have difficulty locating specific events and often resort to trial and error while they search through the Event calendar. Users also have trouble distinguishing the differences between the content of News and Events. (R3.1, R3.5)

Recommendation: (1) Add text or icons to calendar days to show that a calendar day contains events. (2) Merge Events and News panels, or have unique content for each panel.

Finding 2: Users expect the Maps to be interactive, especially the legend and classrooms. (R3.2)

Recommendation: (1) Make the legend interactive, i.e. make the Labs icon highlight computer labs on a selected floor. A user suggested making Lab Availability a feature, as well.

Finding 3: Some users had trouble navigating the Gallery and viewing a video. (R3.4)

Recommendation: (1) Increase the hit area of the video thumbnails and play buttons. (2) Make the zoom controls more salient, either by color or a combination of size and location.

Finding 4: Some users expected the alphabetical list for staff and faculty to be sorted by first name. (R3.3)

Recommendation: (1) Make the last names for the People icons more salient or (2) display names as Last, First.

Appendix

Informal Script

participant stands in front of kiosk

Hello, my name is Justin Hernandez and I will be the test monitor and note taker during this session. I want to start off by saying that I'm reading from this script to make sure that everyone

gets the same information during the test. Although we are doing this test in a semi-public area, your responses and personal information will remain confidential and will only be used as data to help improve these kiosks. For formality, I need you to read and sign this consent form.

give participant a consent form

If participant does not agree: "Thank you for your time today."

If participant agrees: "Thank you for agreeing to participate in this study."

To begin I want to give you a bit of information on this session. The CDM kiosks are an information center where you can find information about DePaul CDM and its work. I am testing to determine how effective these kiosks are at relaying this information. Your participation will help determine how the kiosks can be improved in the future. Do you have any questions before we begin the test?

Answer any questions

Now we're ready to begin. Please remember that if you want to leave this test you are free to do so at any time. During the test I may ask you some questions while you work to help me know what you're thinking. Please also feel free to comment as you work your way through these tasks.

Alright, this is the kiosk home screen. All of the areas of the kiosk can be accessed from here. This is where we will start the test. As you work through these tasks please be aware that I will be able to offer you limited help in order to ensure accurate results. As you complete the tasks please tell me when you have finished or, if you're unable to complete the task, just say so and we can move on. When you think you have the found information needed to complete the task, say out loud that you are finished.

Task 1 - You've just started the quarter and are signed up to take HCI 210. Your syllabus says the class meets in room 220 but you don't know where that is. How would you find your classroom?

Task 2 - *You've heard that there is a film festival coming to DePaul this quarter and you are interested in getting tickets. How would you find more information about this upcoming festival?*

OR

You've heard about a Graduate Student Information session focusing on cinema and graphics and you want to attend. How would you find more information on this session?

Task 3 - You are interested in learning more about recent happenings at DePaul CDM. Where would you find this information?

Task 4 - This week, your HCI 210 class requires you to complete some work in a computer lab, but the first floor lab is full. You remember that there are more labs somewhere in the building. How would you find them?

Task 5 - You're interested in taking a class this winter with Craig Miller but you would like to read up on his background before you sign up. Where would you find this information? **OR**

You're interested in applying to Graduate school and have set up a meeting with Liz Freidman to discuss some options. You've forgot her office number – how could you find it?

Task 6 - A friend of yours told you that one of his school projects was on display on one of the CDM kiosks. How could you find his project? **OR**

You're waiting for some friends to meet you in the CDM lobby after class. You've got about 10 minutes until they arrive. How would you pass some time with the kiosk while you wait?

Okay, that was the last task. Before we finish I would like you to fill out this short questionnaire about your experience. *give participant the questionnaire*

*after questionnaire is completed *

Do you have any questions about your experience today?

answer any questions

Debriefing

Thank you for your help today.

Questionnaire

- 1) How often do you find yourself using a touch screen device? (cell phone, iPod Touch, etc.)
 - a. Multiple times a day
 - b. Once a day
 - c. Once a week
 - d. A few times a week

- 2) What touch screen device do you use most often?

- 3) Rate your comfort level with touch screen devices (circle one)

Uncomfortable 1 2 3 4 5 6 7 **Comfortable**

Justin Hernandez
CDM Kiosk Initial Usability Test Report

- 4) How often do you find yourself in the CDM building?
 - a. Every Day
 - b. Once A Week
 - c. Once In A While
 - d. Only When I Have Classes Within The Building.

- 5) The kiosk interface was easy to navigate.
 - a. Strongly Agree
 - b. Somewhat Agree
 - c. Neutral
 - d. Strongly Disagree
 - e. Somewhat Disagree

- 6) It was easy to find relevant information about CDM on the kiosk.
 - a. Strongly Agree
 - b. Somewhat Agree
 - c. Neutral
 - d. Strongly Disagree
 - e. Somewhat Disagree

- 7) How helpful is the information found within the CDM Kiosk(s)?
 - a. Very Helpful
 - b. Somewhat Helpful
 - c. Neutral
 - d. Not at All Helpful
 - e. Slightly Helpful

8) What was the most interesting part of the kiosk?

9) What do you like most about the kiosk?

10) Please rate your overall experience with the CDM kiosk:

Very frustrating 1 2 3 4 5 6 7 **Very pleasant**

11) Please share any additional comments you have about the CDM kiosk experience:

- 12) What is your current standing at DePaul?
- a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Graduate Student / Adult Student

- 13) What is your gender?
-

Consent Form

DePaul University College of Computing and Digital Media Kiosk Usability Test Consent Form

In this usability test:

- You will be asked to perform certain tasks on a touch screen kiosk.
- You will be asked to fill out a questionnaire.
- Your answers and usage will be collected & studied.
- A short interview will be conducted with you

Participation in this test is completely voluntary. All information will remain strictly confidential. However, descriptions and findings will be studied and used to help improve the kiosk(s). At no time will personal information be used for the test. You may withdraw your consent and stop at anytime during your participation of this session.

Please verbally notify the test monitor that you have read and understood the information on this form and feel free to ask any questions before you give your consent. Then, please sign your name below.

With your consent, the test monitor will begin the test.

Justin Hernandez
CDM Kiosk Initial Usability Test Report