Atkins’ Kiosk Usability Report
Compiled By: Rachael Winterling, Usability Coordinator

In the spring of 2016, the J. Murrey Atkins Library’s Usability Lab conducted a study of the newly developed kiosk. The kiosk will replace the information desk that was at the library’s north entrance and will provide users information at quick reference. The kiosk will be implemented prior to summer session one. This study was conducted before implementation to highlight usability issues that should be addressed before the hard launch. The Usability Coordinator collaborated with members of the Technology and Digital Strategies department to complete the study.

Tasks-based usability analysis was the methodology used in this study. This methodology is a reliable way of gauging usability at any stage of development. The majority of the participants completed the tasks with little difficulty. This is particularly noteworthy considering that none of the participants had any exposure to the kiosk interface prior to testing. This report contains a list of recommendations to address these issues.

Data was collected via task-based testing. The objectives of the usability study are as follows:

- Identify the effectiveness of the kiosk, is the interface useful to users and help them achieve their goals accurately.
- Identify the efficiency of the kiosk, can users complete a task quickly and accurately.
- Identify how engaging the kiosk is to users, is the kiosk pleasant and satisfying to use.
- Identify how error tolerant the kiosk is, does the kiosk prevent errors, or help a user recover from errors that occur.
- Identify the kiosk’s ease of learning, does the kiosk support the ease of completing a task through initial orientation and continued learning.

Study Design

The tasks-based analysis helps researchers uncover usability issues as users interact with an interface via predefined tasks. Participants in this study attempted seven predefined tasks on the kiosk interface (Shown Below). The Usability Coordinator collaborated with members of the Technology & Digital Strategies department to develop a set of functions to be tested. The Usability Coordinator developed and finalized the study’s task list. The final task list highlights typical activities performed by users.

The tasks included:

1. What hours is J. Murrey Atkins Library open today?
2. How many desktop computers are available on the second floor?
3. How would you view available iMacs DESKTOPs on the second floor?
4. You have a question about your research paper, how would you communicate with a library employee.

5. Use the kiosk to locate Robert Fox’s book, Library User Experience for a class project.

6. You have reserved study room 109 and do not know where it is located, locate the room using a map.

7. What is happening in the library on May 11.

8. Where would you find information about checking out a laptop?

Participants’ performances as they attempt to complete the tasks expose usability issues and inform recommendations. During the test session, participants were encouraged to articulate their thoughts and actions aloud as they worked through the tasks. The think aloud protocol allows researchers to understand the context for user actions and decisions while completing a specific task; making it easier for the researchers to determine the underlying causes of usability issues.

In addition to the task list, participants completed a pre-test survey (See Appendix). The pre-test survey captured demographic information, including year in school, major/field of study, frequency of catalog use, and an explanation of use. The post-test survey (See Appendix) captured participants’ thoughts about the kiosk.

The test sessions were conducted on a Dell desktop computer running Morae Recorder. Morae Recorder captures the desktop activities and the participants’ facial expressions via a web camera. The kiosk’s interface was tested in Google Chrome. The test sessions ranged from 8-15 minutes and involved the test facilitator and the participant. The Usability Coordinator acted as the facilitator. The facilitator greeted participants upon arrival, guided participants through the informed consent, presented the participants with the tasks, answered participants’ questions, and prompted the participants for responses. In addition, the Usability Coordinator took notes during the sessions and analyzed the data produced.

**Recruitment**

Student participants were recruited through email. The emails included the purpose of the testing, the testing timeframe, the participation incentives, and contact information. Eight participants took part in the study. The eight participants read and signed an informed consent form to participate in the test session. The consent form is approved by the university’s Institutional Review Board. Participants were incentivized with a $5 Starbucks gift card for his/her participation. Participants received the incentive regardless of whether they completed the focus group.
Participant Demographics

The participants consisted of eight undergraduate students. The undergraduate students represented seven different areas of study (Figure 1.1). None of the participants had prior knowledge of the service before their participation in the focus groups.

<table>
<thead>
<tr>
<th>Year</th>
<th>Field Of Study</th>
</tr>
</thead>
</table>
| Freshman (1) | ● Computer Science  
                      ● Biology (2)  
                      ● Political Science  
                      ● Communication Studies  
                      ● Nursing  
                      ● Electrical Engineering  
                      ● Political Science |
| Senior (7)  | ● Computer Science  
                      ● Biology (2)  
                      ● Political Science  
                      ● Communication Studies  
                      ● Nursing  
                      ● Electrical Engineering  
                      ● Political Science |

Figure 1.1

Findings

Findings are broken into three major sections to represent the pre-test survey responses, the individual task, and the post-test survey responses. The tasks’ findings are grouped by the individual task along with a description of the success rate, ease of completion, errors, and participants’ comments. The participants consisted of eight undergraduate students. Please note that none of the participants had used the kiosk prior to testing.

Pre-Test Survey

The eight participants all provided responses for the pre-test survey. The questions gathered demographic data as well as their usage of the library’s services (digital/physical). The pre-test survey responses are organized by question (Figure 1.2).

<table>
<thead>
<tr>
<th>Year</th>
<th>Field Of Study</th>
</tr>
</thead>
</table>
| Freshman   | ● Computer Science  
                      ● Biology (2)  
                      ● Political Science  
                      ● Communication Studies  
                      ● Nursing  
                      ● Electrical Engineering  
                      ● Political Science |
| Senior (7)  | ● Computer Science  
                      ● Biology (2)  
                      ● Political Science  
                      ● Communication Studies  
                      ● Nursing  
                      ● Electrical Engineering  
                      ● Political Science |

<table>
<thead>
<tr>
<th>Usage</th>
<th>Frequency of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Laptop Checkout</td>
<td>● A few times a week (5)</td>
</tr>
<tr>
<td>● Printing</td>
<td>● A few times a semester</td>
</tr>
<tr>
<td>● Space</td>
<td>● A few times a month</td>
</tr>
<tr>
<td>● Study Rooms</td>
<td>● Daily</td>
</tr>
<tr>
<td>● Online Catalog</td>
<td></td>
</tr>
<tr>
<td>● Desktop Computers</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1.2
Tasks

Findings are grouped by the individual task along with a description of the success rate, ease of completion, errors, and participants’ comments.

Task One: What hours is J. Murrey Atkins Library open today?

The task was designed to determine if participants could locate J. Murrey Atkins hours of operation for the day participants participated in the test session. The eight participants completed the task with ease. Six of the eight participants located the hours immediately on the interface (Figure 1.3). One participant questioned how they would know that the listed hours represent J. Murrey Atkins Library. The participant recommended that “Today’s Hours” be relabeled to “J. Murrey Atkins: Today’s Hours” to reduce confusion. Two of the eight participants clicked “Library FAQ” (Figure 1.4) to begin their search technique and did not find any relevant information; the facilitator disabled the full screen to get the participants back to the kiosk interface. The two participants then located the hours on the interface. One of the two participants suggested that the hours be moved to the top above the FAQs, floor maps, and campus maps to be consistent with the hours on the website that are located in the top right.

![Figure 1.3](image-url)
Task Two: How many desktop computers are available on the second floor?

- How would you view available iMacs/desktops on the second floor?

The task was designed to determine if participants could locate the number of available desktops on a specific floor. After locating the specific floor’s desktop availability, participants were asked to use the interface to view available iMacs and desktops on the specific floor. To complete the task, participants must demonstrate a successful search technique that results in locating the numeric availability and the desktop availability map. This task requires the participants to complete multiple steps, first locating the numeric availability, then locating the desktop availability map and differentiate between PCs and iMacs.

The eight participants completed the task successfully. The participants immediately located the numeric for the second floor desktop availability in the “Library PC Availability” section of the interface (Figure 1.5).

The participants then clicked the “Desktops on Second Floor” and were directed to the “Available Computers” iFrame overlay (Figure 1.6). Five of the eight participants commented that they assumed red identified unavailable desktops and green identified available desktops. Three of the eight participants differentiated the PC desktops and the iMac desktops, they commented that the apple image is too small and the round shape of the identifiers made it hard to differentiate between PC and iMac. Six of the eight participants recommended that a map legend be included to differentiate availability and type of desktop. When two of the eight participants attempted to complete the task, they expressed confusion if they were viewing the correct floor; the two participants clicked “Second Floor” on the “Available Computers” iFrame overlay to ensure they were viewing the second floor. The two participants recommended that the selected floor should be highlighted (Figure 1.7) to reduce confusion.
Figure 1.5

Figure 1.6
Task Three: You have a question about your research paper, how would you communicate with a library employee?

The task was designed to determine what feature participants would utilize to communicate with a library employee. The eight participants completed the task with ease. The eight participants immediately clicked within the “Chat With an Atkins Employee” widget (Figure 1.8) to complete the task. One participant commented, “This is super easy.” One participant questioned how quickly employees would respond and put emphasis this is a kiosk and students will expect quick replies.
Task Four: Use the kiosk to locate Robert Fox’s book, *Library User Experience* for a class project.

The task was designed to determine if participants could utilize the kiosk interface to locate a specific book when provided the author and title. To complete the task, participants must demonstrate a successful search technique that results in the specific item.

The eight participants completed the task successfully. The participants immediately located the “Catalog Quick Search” section of the interface (*Figure 1.9*). Six of the eight participants searched “Library User Experience” and clicked the magnify glass widget to begin the search. The six participants were directed to the WorldCat Local iFrame overlay (*Figure 2.1*) and located the item as the first result. One of six participants clicked the “View Now” widget to open the eBook, this is noteworthy because the participant could not return to the kiosk or search in the full screen mode. The remaining two participants searched “Robert Fox Library User Experience” and clicked the magnify glass widget to begin the search. The two participants were directed to the WorldCat Local iFrame overlay and located the item as the first result.

*Figure 1.9*
Task Five: You have reserved study room 109 and do not know where it is located, locate the room using a map.

The task was designed to determine if participants could locate a specific study room utilizing the kiosk interface’s floor maps. To complete the task, participants must demonstrate a successful search technique that results in locating the specific room on the floor maps. This task requires the participants to complete multiple steps, first locating the floor maps, then locating the specific study room.

The eight participants completed the task successfully. The participants immediately clicked the “Library Floor Maps” (Figure 2.2) and then the “Library Kiosk: Library Floor Maps” iFrame overlay appears (Figure 2.3). The eight participants then clicked the “Main Floor” image to view the floor map (Figure 2.4). Six of the eight participants commented on the default view of the floor map. The comments included:

- “Woah, this is huge”
- “It’s a little big, can I zoom out? No, there should be a zoom option”
- “I should be able to see the whole floor”
- “It would be nice if I could use the “Ctrl +F” shortcut to search by room number”

Four of the eight participants made the recommendation to have zoom functionality for the floor maps. It is noted that in Firefox, the default of a specific floor map shows the entire floor (Figure 2.5). Additionally, the floor maps in Firefox have a zoom capability. To complete the task, the
eight participants used the vertical and horizontal scroll bars to locate room 109. One participant commented that they “love the map feature” because they have had difficulty locating study rooms.

Figure 2.2

Figure 2.3
Task Six: What is happening in the library on May 11?

The task was designed to determine if participants could locate an event by date utilizing the kiosk interface’s calendar. To complete the task, participants must demonstrate a successful search technique that results in identifying an event on a specific date. This task requires the participants to complete multiple steps, first locating the calendar, then locating the specific event occurring on May 11.

The eight participants completed the task with ease and began the task by locating the calendar on the kiosk interface (Figure 2.6). Six of the eight participants clicked the “Next” widget located within the calendar (Figure 2.7) to view the month of May. The remaining two participants’ test sessions occurred in May, thus they did not have to utilize the “Next” widget. To complete the task, the eight participants read the May 11 event (Figure 2.8).

![Figure 2.6](image1)

![Figure 2.7](image2)
Task Seven: Where would you find information about checking out a laptop?

The task was designed to determine if participants could locate information about checking out a laptop. To complete the task, participants must demonstrate a successful search technique that results in locating the information within the Kiosk’s FAQ. This task requires the participants to complete multiple steps, first locating the FAQ, and then locating the relevant question’s answer.

Three different search techniques were used to complete the task. Six of the eight participants clicked “Library FAQ” to begin the task (Figure 2.9). The six participants were redirected to the library’s FAQ page (Figure 3.1). Four of the six participants clicked “How do I checkout a laptop from the library?” in the “Frequently Asked Questions” section (Figure 3.2) and were directed to the question’s page to complete the task (Figure 3.3). Two of the six participants utilized the “Search for a solution” search box and searched “laptops” (Figure 3.4). The two participants clicked the first result, “How do I check out a laptop from the library?” (Figure 3.5) and were directed to the question’s page to complete the task.

The remaining two participants clicked “PC Laptops (Approximate)” to begin the task (Figure 3.6) and were redirected to a “Page not found” iFrame overlay (Figure 3.7). Next, the two participants clicked the “Mac Laptops (Approximate)” and got the same result. The participants then state they would utilize “Chat With an Atkins Employee” (Figure 3.8) and ask about checking out a laptop.
Figure 2.9

Figure 3.1
Figure 3.5

Figure 3.6
Figure 3.7

Figure 3.8
Post-Test Survey

The eight participants all provided responses for the six post-test survey questions. The questions gathered qualitative data from the participants. The post-test survey responses are organized by question.

1. **Would you use the kiosk service?**
   Seven of the eight participants responded that they would use the kiosk service. Comments included:
   - “Yes, I want access to this service at home”
   - “Yes, I would use the desktop computer availability”
   - “This is very useful and I wouldn’t have to go to the first floor to ask questions”
   - “This a simple but useful design”
   One of the eight participants responded that they would not use the kiosk service, but think other students will find it beneficial. The participant stated they rarely are in the library and use the library’s website to access their needs.

2. **Which feature do you find the most useful?**
   The eight participants supplied more than one feature to question two. Two of the eight participants responded that all of the features are equally useful.

3. **Are there any features that are difficult to navigate or find?**
   Five of the eight participants provided feedback to question three:
   - Two of the five participants commented that iFrame overlays should include an “X Close” option in one of the upper corners, both participants had difficulty returning to the kiosk from the iFrame overlay on their first attempt.
- Two of the five participants discussed the difficulty to navigate specific floor maps because of the default zoom.
- The remaining participant commented that they had difficulty locating the iMacs on the desktop available computer maps.

4. **Are there any features missing from the kiosk?**
Three of the eight participants suggested that reserving a study room should be included in the kiosk and the current available study rooms.

5. **What time limit would you recommend before the kiosk refreshes from inactive use?**
Five of the eight participants suggested two minutes and the remaining three participants suggested three minutes. Five of the eight participants expressed concern about the interface refresh. Two of the five participants were concerned about the timeliness of the chat response and if a response would be sent before the refresh. Three of the five participants suggested a pop-up window to appear before the refresh asking users if they are still using the kiosk.

6. **Would you use campus maps on the library kiosk?**
Six of the eight participants responded that campus maps should be included because it will be beneficial to new students or students leaving the library to go to another building. The two participants that responded no provided the following reasoning, there is a physical map outside the north entrance where the kiosk will be located, and they would rather use their phone as they attempted to locate a building.

![Figure 4.1](image-url)
Recommendations

The following recommendations were developed based on analysis of the qualitative data gathered from eight testing sessions. The study revealed several modifications that should be addressed to enhance the engagement, effectiveness, efficiency, error tolerance, and ease to learn before the kiosk’s hard launch.

- **Use Firefox as the default Kiosk Web Browser**
  To ensure the efficiency, effectiveness, and engagement of the interface, the kiosk should be displayed in the Firefox web browser on the iMac. The eight usability test sessions used Google Chrome as the web browser and found that some features were altered or hindered. For example, the default view of a specific floor map was zoomed in (Figure 4.2) and there was no zoom capability. Four of the eight participants made the recommendation to have a zoom functionality for the floor maps. In Firefox, the default of a specific floor map shows the entire floor (Figure 4.3). Additionally, the floor maps in Firefox have a zoom capability.

![Figure 4.2](image-url)
Add a Feedback Button
A feedback button should be added to the kiosk as an additional way to gather user feedback after the hard launch. The feedback button will allow Atkins to gather qualitative data from users. It is recommended that the feedback button be available throughout the fall 2016 semester and after any major changes have been implemented.

Implement iFrame Overlays to the Calendar and FAQs
The interface currently utilizes iFrame overlays for the library floor maps, catalog quick search, campus maps, hours, and PC availability. To stay consistent, iFrame overlays should be implemented for the calendar and Library FAQs. Additionally, the iFrame overlays remove the need for the browser’s address bar and tool bar, this crucial to the kiosk because it will control users’ internet access.

Apply an “X Close” button to all of the Kiosk’s iFrame Overlays
In post-test survey question three, are there any features that are difficult to navigate or find? Two of the five participants commented that iFrame overlays should include an “X Close” option in one of the upper corners. Both participants had difficulty returning to the kiosk from the iFrame overlay on their first attempt. Adding a close button will increase the efficiency, effectiveness, engagement, and ease to learn of the kiosk interface.
Add a Floor Indicator and a Legend to the Computer Availability Maps

Adding a legend and a floor indicator to the computer availability maps will improve the effectiveness, efficiency, ease to learn, and engagement of the feature and of the kiosk. Task two asked participants how many desktop computers are available on the second floor and how would you view available iMacs/desktops on the second floor? The participants clicked the “Desktops on Second Floor” and were directed to “Available Computers” iFrame overlay. Five of the eight participants commented that they assumed red identified unavailable desktops and green identified available desktops. Three of the eight participants differentiated the PC desktops and the iMac desktops, they commented that the apple image is too small and the round shape of the identifiers made it hard to differentiate between PC and iMac. Six of the eight participants recommended that a map legend be included to differentiate availability and type of desktop. Incorporating a legend (Figure 4.4) to differentiate between the type of desktop and desktop availability will improve the efficiency and effectiveness of the maps.

![Available Computers](image)

Figure 4.4

Adding a floor indicator to the maps will improve the effectiveness, efficiency, ease to learn, and engagement of the feature and of the kiosk. The floor indicator could be displayed as a title above the availability map or highlight the selected choice (Figure
4.5). When two of the eight participants attempted to complete the task, they expressed confusion if they were viewing the correct floor; the two participants clicked “Second Floor” on the “Available Computers” iFrame overlay to ensure they were viewing the second floor. The two participants recommended that the selected floor should be highlighted to reduce confusion.

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**Available Computers**

![Available Computers](image)

**Figure 4.5**

- **Add a Back Button, and a Search Feature to the Library Floor Maps**
  Adding a back button and a search feature to the library floor maps will improve the effectiveness, efficiency, ease to learn, and engagement of the feature and of the kiosk. Currently when a user clicks to view a specific floor map, (Figure 4.6) there is no way to return to the floor map overview screen (Figure 4.7) from the overlay. A user must click outside of the overlay to return to the interface and then re-click “Library Floor Maps.” Adding a back button will reduce user clicks resulting in improved effectiveness and efficiency of the feature.

Task Five asked participants to locate study room 109 using a map. One participant commented, “It would be nice if I could use the “Ctrl +F” shortcut to search by room number.” Adding a search or filter option to the current 2D maps and future 3D maps will improve the effectiveness, efficiency, ease to learn, and engagement of the floor maps and of the kiosk.
Add Available Group Study Rooms to the Kiosk

In the post-test survey question four, *are there any features missing from the kiosk?* Three of the eight participants suggested that the reserving a study room functionality be included in the kiosk. If the reserve a study room functionality is added it should be consistent with the “Library PC Availability,” it could be labeled “Study Room Availability” and show the total number of available rooms or rooms per floor. When the floor availability is clicked, it can direct users to the secondary page used on the library’s website to show the current available rooms.

Add a Kiosk Reset Warning Indicator Widget

Post-test question five asked, *what time limit would you recommend before the kiosk refreshes from inactive use?* In answering the question, five of the eight participants expressed concern about the interface refresh. Two of the five participants were concerned about the timeliness of the chat response and if a response would be sent before the refresh. Three of the five participants suggested a pop-up window to appear before the refresh asking users if they are still using the kiosk. Adding a refresh warning box will improve the effectiveness and efficiency of the kiosk.

Discuss the Redirected WMS “View Now” Items

In task four, *use the kiosk to locate Robert Fox’s book, Library User Experience for a class project*, one participant clicked the “View Now” widget to open the eBook from the “Catalog Quick Search” iFrame overlay that redirected the participant away from the kiosk interface. This instance is noteworthy because the participant could not return to the kiosk or search in the full screen mode. Currently if a user clicks “View now” in WMS, the item will open in a new tab, thus directing the user away from the kiosk. Possible alternatives include:

- Running the kiosk in disabled web security mode in the Google Chrome browser.
- Changing the interface refresh process to kill the browser after a determined time limit and then reopen the interface.
- Disabling full screen mode and blocking access to popular sites such as Google, Facebook, Twitter, and Instagram.

The pros and cons of each alternative should be discussed before implementation as well as any other alternatives.

Direct Laptop Availability to the Laptop Policy

If a participant clicks on either type of laptop availability (*Figure 4.8*), the user is directed to a “Page not found” (*Figure 4.9*). The page should direct users to the library’s current laptop policy, [https://library.uncc.edu/ic/computingprinting/laptop](https://library.uncc.edu/ic/computingprinting/laptop) to reduce user confusion.
Conclusion

The Atkins’ Kiosk usability study focused on the effectiveness, efficiency, error tolerance, engagement, and ease of use of the interface through the analysis of anticipated common tasks. The study revealed opportunities for the interface to improve users’ experience with the kiosk. In addition, the study identifies opportunities for further studies after the kiosk’s hard launch.

The following recommendations should be addressed to enhance the interface’s effectiveness, efficiency, error tolerance, engagement, and ease to learn.

- Use Firefox as the default Kiosk Web Browser
- Add a Feedback Button
- Implement iFrame Overlays to the Calendar and FAQs
- Apply an “X Close” button to all of the Kiosk’s iFrame Overlays
- Add a Floor Indicator and a Legend to the Computer Availability Maps
- Add a Back Button, and a Search Feature to the Library Floor Maps
- Add Available Group Study Rooms to the Kiosk
- Add a Kiosk Reset Warning Indicator Widget
- Discuss the Redirected WMS “View Now” Items
- Direct Laptop Availability to the Laptop Policy
The newly developed kiosk will replace the information desk that was at the library’s north entrance and will provide users information at quick reference. To ensure the success of the kiosk, further assessment methodologies and usability studies should be conducted as the service matures to ensure continued functionality, efficiency, and desirability.
Appendix

Pre-Test Survey
1) What year are you in school? (Circle answer)
2) What is your field of study?
3) How often do you use the library?
   a. Never
   b. A few times a semester (2 or more)
   c. A few times a month (2 or more)
   d. A few times a week (2 or more)
   e. Daily
4) What library services do you use?

Post-Test Survey
1) Would you use the kiosk service? Why?
2) Which feature do you find the most useful? Why?
3) Are there any features that are difficult to navigate or find?
4) Are there any features missing from the kiosk?
5) What time limit would you recommend before the kiosk refreshes from inactive use?
   a. One minute
   b. Two minutes
   c. Three minutes
   d. Other
6) Would you use campus maps on the library kiosk? Why or why not?