2024

TRU RESEARCH HUB KIOSK APP

EVALUATION

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VERSION 1.0 | COMP 3451 | December 08, 2024

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1. Usability and UX Goals

The Research Hub Kiosk Application aims to streamline the visitor sign-in and sign-out process by providing an intuitive, accessible, and engaging interface. This usability testing report evaluates the prototype against the usability and user experience (UX) goals, providing insights to guide further development. The testing process assessed ease of use, efficiency, accessibility, and the overall user experience to ensure the system meets the needs of both first-time and repeat users.

Usability Goals

The usability goals for the Research Hub Kiosk application focus on ensuring the system is intuitive, efficient, and accessible. Specifically:

1. The interface must be intuitive, requiring minimal steps to complete the sign-in/sign-out process effectively.
2. The system should support a seamless learning curve for first-time users while offering efficiency for repeat users.
3. Tasks such as signing in or out should take no longer than 30 seconds to complete.
4. The system must comply with accessibility standards, including features like screen readers and high-contrast modes.

User Experience (UX) Goals

The UX goals aim to provide a stress-free and pleasant user experience by reducing cognitive load and creating a visually engaging interface that fosters confidence in users.

1. The design should be engaging, interactive, and user-friendly, encouraging visitors to complete tasks without hesitation.
2. Clear and helpful feedback should be provided for every interaction (e.g., confirmation messages after signing in or signing out), ensuring users understand the outcomes of their actions.

2. Usability Test Procedure

Usability Test Goals

The usability test will be conducted with specific goals in mind to assess the app's effectiveness. The primary goals of this usability test were:

1. To evaluate how effectively first-time and repeat users can navigate the interface and complete the sign-in/sign-out process.
2. To measure whether users can complete the sign-in process within 30 seconds.
3. To assess the effectiveness and clarity of application's on-screen instructions and feedback messages in assisting users.

Tasks for Usability Testing

Participants will be asked to perform the following three tasks, chosen to encompass core functionalities of the application:

1. **Task 1: Record Sign In**– Participants will be asked to follow the on-screen instructions to sign in, including entering their name, selecting a reason for their visit, and providing optional comments. This task tested the intuitiveness and ease of use for users.

2. **Task 2: Record Sign out**– Participants will simulate the sign-out process using previously stored data from their sign in entry.

3. **Task 3: Respond to an error** – Participants will encounter a simulated error, in this case incomplete form submission, and interact with the system to solve the issue or seek help.

Data Collected

To measure the usability and user experience effectively, the following data will be gathered:

1. **Task Completion Time**: The time required for first-time participants to complete each task. This data is critical for evaluating whether the 30-second benchmark was met.

2. **Task Completion Time after 3-day break**: The time required for returning participants to complete each task users after a 3-day break. This helps to gauge the memorability of the system which is one of the usability goals.

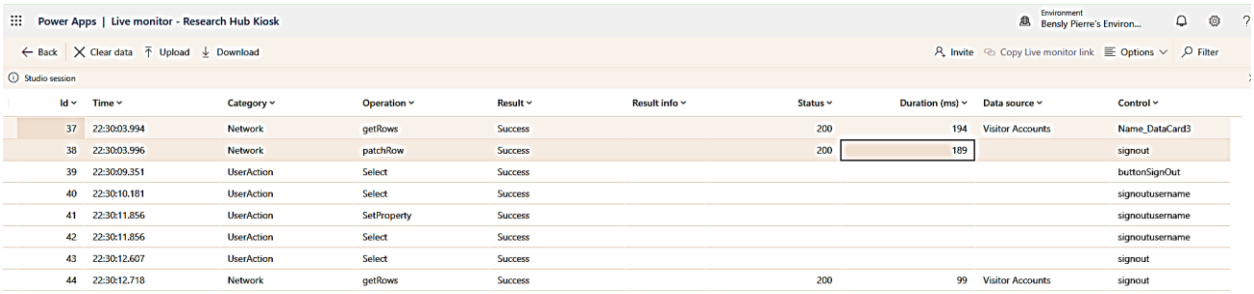
3. **Help Usage**: Frequency of accessing additional help or instructions in addition to the feedback provided in app. This will help to determine the clarity of the instructions.

4. **Completion Rates**: Percentage of users successfully completing each task. This will give us an idea of effectiveness and usability of the system and identify barriers.

Performance Recording Method

For this usability test, a combination of manual observation and Power Apps Live Monitor will be used to document participant interactions and assess their performance while completing typical tasks within the Research Hub Kiosk Application.

Manual observation allowed us to capture critical behavioral cues, such as moments of hesitation, visible frustration, or nonverbal responses that may indicate confusion or satisfaction. These observations provided qualitative insights into the overall user experience, particularly focusing on how users engaged with the interface and navigated through the system. This will help to determine the ease of use, identify users needing additional assistance and capture unexpected errors.



Id	Time	Category	Operation	Result	Result info	Status	Duration (ms)	Data source	Control
37	22:30:03.994	Network	getRows	Success		200	194	Visitor Accounts	Name_DataCard3
38	22:30:03.996	Network	patchRow	Success		200	189		signout
39	22:30:09.351	UserAction	Select	Success					buttonSignOut
40	22:30:10.181	UserAction	Select	Success					signoutusername
41	22:30:11.856	UserAction	SetProperty	Success					signoutusername
42	22:30:11.856	UserAction	Select	Success					signoutusername
43	22:30:12.607	UserAction	Select	Success					signout
44	22:30:12.718	Network	getRows	Success		200	99	Visitor Accounts	signout

In addition to manual observation, Power Apps Live Monitor (displayed above) will be utilized to record precise task workflows and performance metrics in real-time. This tool enables us to track and analyze specific interactions, including errors, navigation patterns, and time taken to complete each task. By recording detailed data directly from the application, the use of Live Monitor ensured a high degree of accuracy, particularly in measuring quantitative performance indicators such as time-to-task completion and error frequency. It can also help to explain errors encountered in manual observation.

Together, these methods ensured a holistic understanding of user interactions, allowing us to identify strengths and weaknesses in the prototype and make informed decisions for its improvement. This dual approach was chosen to balance quantitative rigor with qualitative insights, ultimately enhancing the depth and reliability of our analysis.

Informed Consent

Before participating in the usability test, all participants will be required to review and sign an informed consent form. The form outlines the purpose of the study, the types of data to be collected, and assurances that all personal data would be kept confidential. Participants will also be informed of their right to withdraw from the study at any time without consequence. This step ensures ethical compliance and participant comfort throughout the testing process. A sample consent form is attached below:

Usability Testing of the Research Hub Kiosk Application

You are invited to participate in a usability study conducted by the researchers listed below. The purpose of this study is to assess the usability and user experience of the Research Hub Kiosk Application by observing how users interact with it. The insights gained from this study will be used to refine and enhance the application for broader public use.

Your Participation

Your participation is entirely voluntary, and you may choose to stop at any time without any penalty. Data collected will remain confidential and used solely for research purposes. If you decide to participate, you will be asked to:

• Interact with the kiosk prototype to complete tasks such as signing in and signing out.
• Provide feedback on your experience by answering a satisfaction questionnaire.
• Allow us to observe and record your interactions (e.g., via software recordings or notes).

Consent Options

Please indicate your preferences by checking the boxes below:

___ I agree to participate in this usability study.

___ I agree to be videotaped/audiotaped and/or have my interactions recorded during the study.

___ I agree to provide demographic data (e.g., age, familiarity with technology) for analysis.

___ I understand that I can withdraw from the study at any time without penalty.

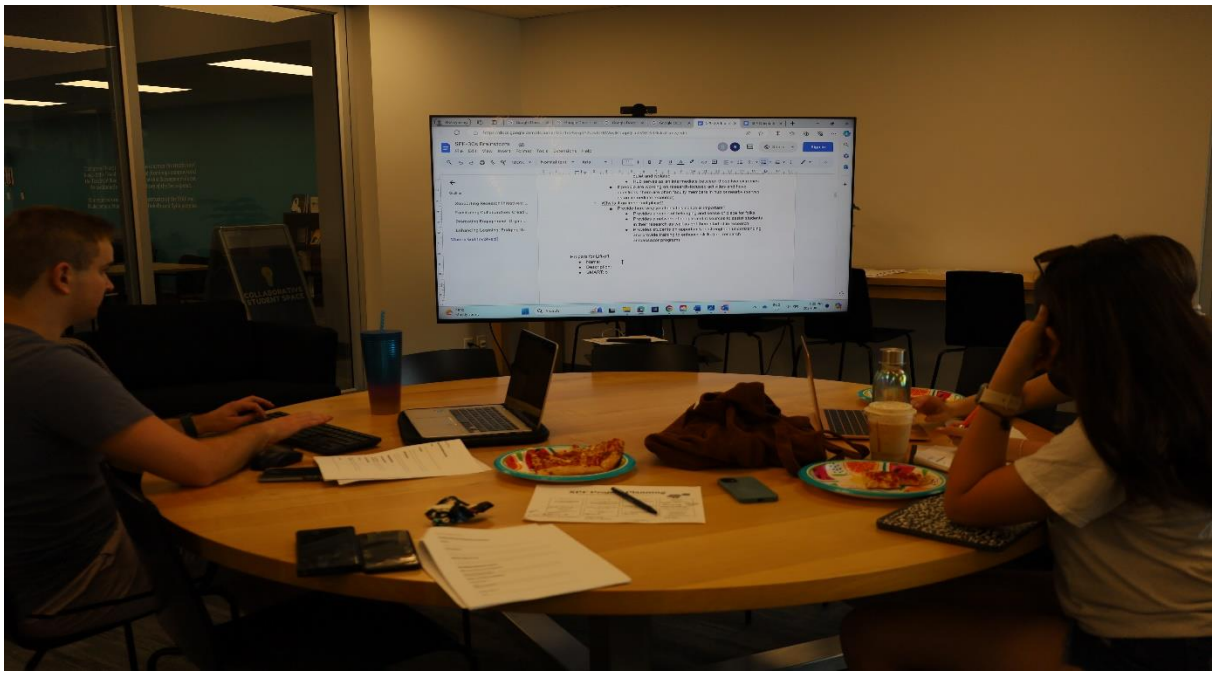
By signing below, you indicate your understanding of the above and consent to participate in this study.

Name: _____
Signature: _____
Date: _____

For any questions or concerns about this study, please contact:
Roods Pierre - pierrer191@mytru.ca

Thank you for your participation! Your input is invaluable in helping us improve the Research Hub Kiosk Application.

Pilot Study



A pilot study was conducted with three participants, consisting of a student, visitor and staff at the TRU Research Hub to refine to validate the usability testing procedure and identify any flaws in the methodology. The aim of the pilot was to ensure clarity of consent form, task instructions, and ensuring all performance recording tools were functioning correctly. Participants were provided with detailed information about the study and were presented with the consent form. The tasks were then outlined, and participants were monitored using both performance recording methods with the aim of identifying flaws.

During the pilot, it was discovered that the instructions for Task 3 (Respond to an error) were too vague, leading to participant confusion. This issue was addressed by providing clearer instructions in the final usability test, ensuring that users will be aware of which specific error to be addressed. Additionally, the pilot confirmed that the recording tools were functioning correctly and that the tasks were appropriately timed. The feedback from this phase ensured that the actual usability test ran smoothly and produced reliable data.

Satisfaction Questions

These questions were designed to gauge participants' perceptions of the application's usability, clarity, and overall effectiveness. To evaluate the user experience, participants will answer these questions on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree):

1. Was the application intuitive and easy to navigate?
2. Were the instructions and prompts on the interface clear and helpful?
3. How satisfied were you with the speed of the sign-in/sign-out process?
4. Did the system provide clear feedback for your actions?
5. Overall, how satisfied were you with your experience using the kiosk?

3. Data Analysis & Implications

The usability test for the Research Hub Kiosk Application involved 10 participants who represented a diverse demographic of users. Participants were observed completing key tasks, including signing in, signing out, and responding to errors, both during their first interaction and after a three-day break.

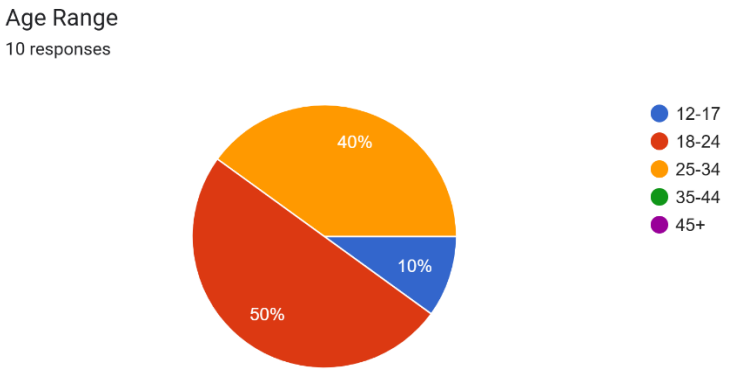
Data collected included task completion times, help usage frequency, task success rates, and satisfaction scores. The data was collected through the finalized questionnaires via Google Forms , manual observations and software recording tools as described in the performance recording method section.

These data points were analyzed using statistical techniques, while qualitative insights were derived from observation and participant feedback. This data provided valuable insights into task efficiency, system memorability, and overall usability.

Demographic Data

The participants included:

- **Age Range**: 5 participants (50%) were in the 18-24 age group, 4 participants (40%) aged 25-34, and 1 participant (10%) aged 12-17.
- **Gender**: 4 male (40%) and 6 female (60%) participants
- **Role**: 7 were students, 2 were staff and 1 was a visitor.



Analyzing the demographic data revealed that female participants comprised 60% of the group, while males made up 40%. The usability outcomes were consistent across both gender and age, indicating no significant difference in performance or satisfaction based on gender or age. However, a lone participant in the 12-17 age group required more time and sought additional help indicating a need to optimize the language used in the interface for younger users or those less familiar with technology.

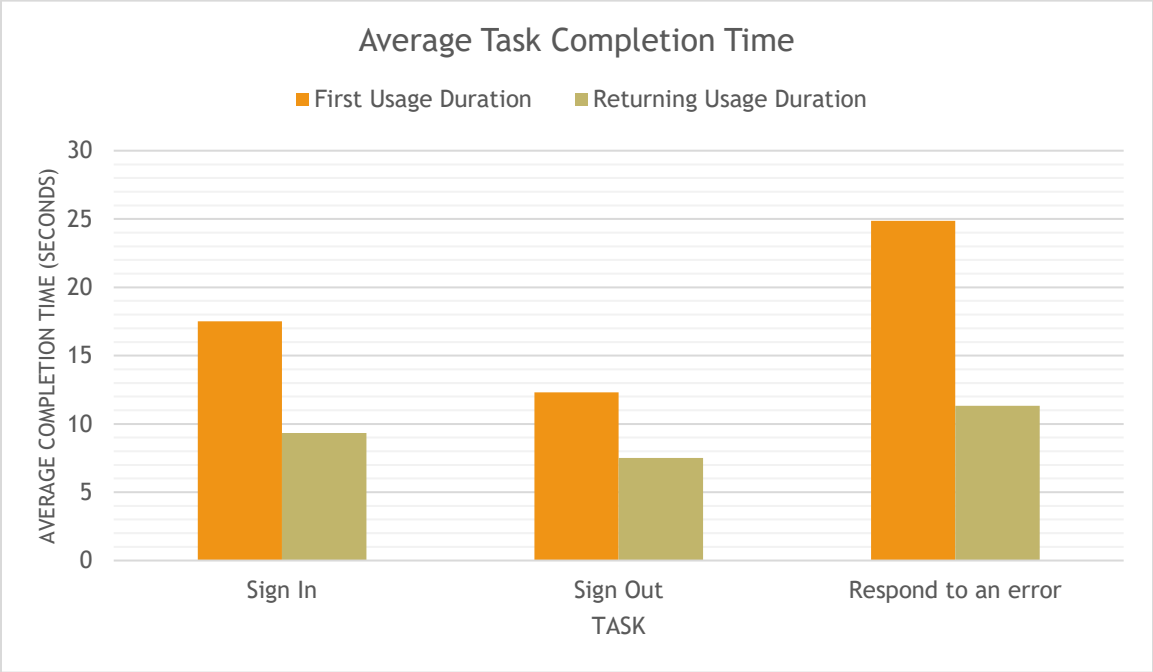
Most participants (70%) were students, with 20% being staff members and 10% classified as visitors. Although there was not a significant difference (few milliseconds), students, as the primary users, demonstrated higher familiarity and comfort with the system, while staff and visitors exhibited slightly slower task completion times.

Task Completion Times

Task	First Usage Duration (AVG)	Returning Usage Duration (AVG)
Sign In	17.52 seconds	9.33 seconds
Sign Out	12.30 seconds	7.50 seconds
Respond to an error	24.86 seconds	11.32 seconds
Combined Average	**18.23 seconds**	**9.38 seconds**

Table 1. Showing Average Task Completion Time

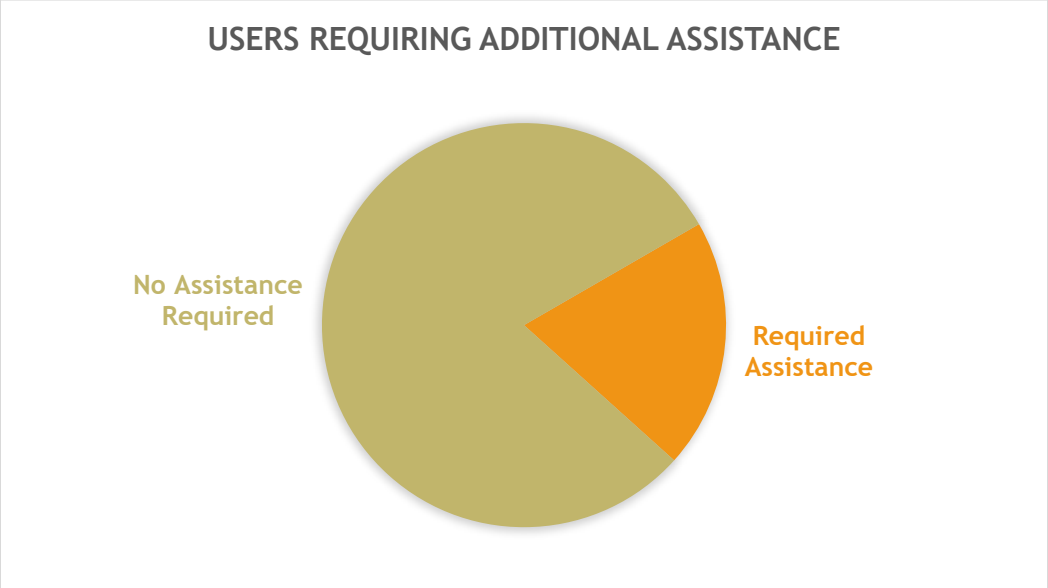
The primary usability goal of completing tasks within 30 seconds was consistently met during the testing phase. On average, it takes about 18.23 seconds to complete any arbitrary task during first use. This amount dramatically decreases by nearly 50% to 9.38 seconds for returning users, demonstrating both the efficiency of the system and its user-friendliness for repeat users.



On average, participants completed the Sign-In task in 17.52 seconds on their first attempt, well below the target threshold. For returning participants after a three-day break, the task completion time improved significantly, averaging just 9.33 seconds, reflecting that the system is easy to learn and use after an initial interaction, aligning well with our usability goal of creating a memorable and user-friendly interface for repeat users. Similarly, participants completed the Sign-Out task in 12.30 seconds during their first usage and improved to 7.50 seconds as returning users.

The most time-consuming task, Responding to Errors, took an average of 24.86 seconds for first-time participants, largely due to the unfamiliarity with error messages and resolution pathways. However, this time dropped to 11.32 seconds for returning participants, indicating that users quickly learned how to handle errors after initial exposure.

Help Usage



The frequency of help usage was also analyzed to evaluate the clarity of instructions and feedback provided by the system. Out of 10 participants, only 2 accessed additional help, indicating that most users found the interface and on-screen prompts sufficient to complete tasks without assistance. Both users were first timers who sought clarification on a specific form field. This low help usage aligns with the application's goal of minimizing reliance on external instructions, suggesting that the design effectively supports intuitive interactions.

Completion Rates

Task completion rates were another critical measure of usability. Of the 10 participants, 9 successfully completed all tasks without errors, resulting in a 90% success rate. This high completion rate reflects the overall reliability and user-friendliness of the kiosk system. One participant, aged 12-17, faced challenges completing the sign-in process for the first time due to misinterpretation of the "Comments" form field. This highlights the need for less ambiguous instructions in critical stages of the user journey.

Satisfaction Scores

Satisfaction data was collected through a structured questionnaire, where participants rated key aspects of their experience on a 5-point scale. The results were as follows:

Category	Average Score
Ease of Navigation (Q1)	4.4
Clarity of Instructions (Q2)	4.1
Speed of Process (Q3)	4.9
Feedback Clarity (Q4)	3.8
Overall Satisfaction (Q5)	4.8

Table 2. Showing Average User Satisfaction Scores

The user satisfaction results highlight the system's overall effectiveness in delivering a positive user experience, as evidenced by consistently high ratings in nearly all categories. Participants gave the Ease of Navigation an average score of 4.4, indicating that the majority found the interface intuitive and easy to use. Notably, the system excelled in terms of Speed of Process, receiving the highest average score of 4.9, which aligns with the participants' appreciation for the swift and seamless sign-in/sign-out process.

The Clarity of Instructions was rated slightly lower, at 4.1, and the Feedback Clarity category even lower with an average score of 3.8, signifying that although the application effectively communicated outcomes and guided users through tasks, there is some room for refinement to enhance the feedback provided to users.

Lastly, the Overall Satisfaction rating of 4.8 underscores the participants' strong approval of the system’s design and functionality. These results collectively reflect a well-designed application that effectively meets the needs of its users while leaving opportunities for minor improvements in instructional clarity.

Manual Observation

The manual observation provided key insights into user interactions with the system beyond quantitative metrics. One prominent observation was the confusion among users during moments when the system was processing their input, such as during sign-in or error resolution. This lack of clarity led to hesitation and uncertainty, with some participants attempting to repeat their actions, potentially causing errors. This highlights the need for a progress indicator, such as a progress bar or spinning wheel, to reassure users that the system is functioning correctly.

Additionally, while most participants completed tasks efficiently, minor delays were observed when users encountered less intuitive aspects of the interface, such as ambiguous form fields such as the Sign in “Comments” field or instructions that required rereading. For example, the error response process sometimes required additional user effort due to unclear feedback messages. These behavioral cues suggest a need for improved instructional design and interface enhancements that provide more explicit and descriptive feedback during every stage of the interaction.

Further observations revealed that users seldom accessed the help feature, even when they appeared confused, indicating that clearer guidance should be embedded directly within the interface. For instance, tooltips or inline guidance could reduce the need for external help and improve user flow. These findings reinforce the importance of designing a system that supports intuitive use while also providing transparent feedback during all processes.

Key Findings

1. The average task completion time well exceeded the usability goal of 30 seconds, even during first use. Returning participants demonstrated a significant reduction in time, highlighting the system's memorability and familiarity.
2. The minimal use of help resources underscores the system's intuitive design and clear instructions, which align with the UX goal of promoting ease of navigation.
3. A 90% success completion rate indicates that the system is accessible and functional for a diverse range of users. The single instance of task failure suggests minor refinements are needed in error handling to achieve near-perfect completion rates.
4. Across nearly all categories, satisfaction scores exceeded 4 out of 5 except for feedback clarity, confirming that users found the system engaging, efficient, and reliable. The highest ratings were attributed to the speed of the process, validating one of the system's core strengths.

Recommendations for Future Development

Based on the findings from usability testing and observations, the following actionable features are recommended for implementation in the final version of the system:

1. **Progress Indicators** - Incorporate a progress bar or loading spinner to visually indicate when the system is processing user inputs. This feature will reduce user uncertainty during moments of system activity.
2. **Descriptive Feedback and Instructions** - Enhance feedback clarity by using detailed, context-specific messages. For instance, replace vague instructions like "Please correct the error" with explicit guidance, such as "Please fill in the name field to continue"
3. **Simplify Form Fields** - Modify ambiguous form fields to make them more intuitive. For example, the comment field can display more descriptive text hint on what is expected, minimizing confusion and errors during data entry.
4. **Accessibility Enhancements** - Ensure the progress bar and all other interface elements comply with accessibility standards, such as screen-reader compatibility and sufficient color contrast, to accommodate all users.
5. **Zoom-In Capability** - Implement a zoom-in feature that allows users to enlarge text or interface elements for better visibility. This will enhance accessibility for users with visual impairments and make the system more adaptable to varying user needs.

This usability test provided valuable insights into the strengths and areas for improvement of the Research Hub Kiosk application. By addressing the identified issues and incorporating user feedback, the application can be optimized to deliver a seamless and accessible experience for all users. Future iterations will focus on implementing these changes and conducting further testing to ensure continued improvement.