DUKE UNIVERSITY LIBRARIES

BIENNIAL STUDENT SURVEY DASHBOARD

USABILITY STUDY

ANJALI YV

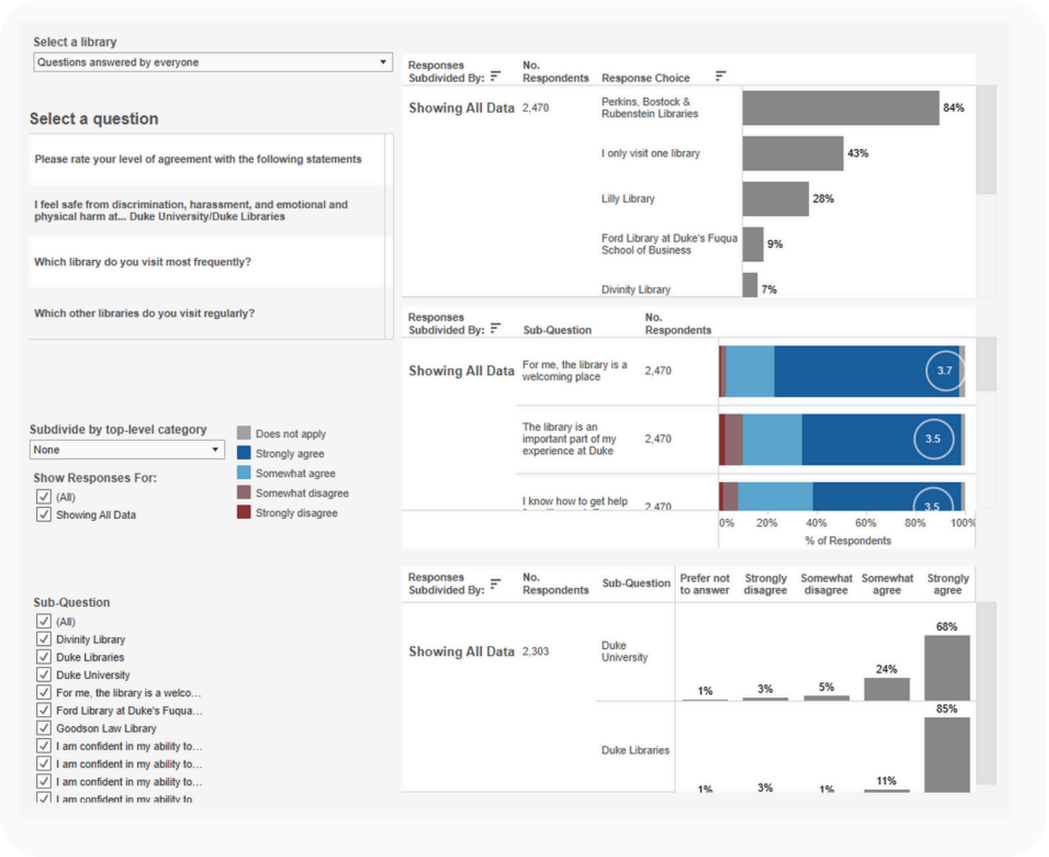
INLS 795 - Field Experience Program

AUXS Department, Duke University Libraries

BACKGROUND

The Biennial Student Survey, conducted by Duke University Libraries, is a key instrument for understanding student satisfaction and identifying areas for improvement in library services. Administered every two years, the survey gathers detailed feedback on students' experiences, covering aspects like resource accessibility, service quality, and overall satisfaction. These results are essential for guiding strategic decisions and enhancing the library's offerings to better serve the Duke community.

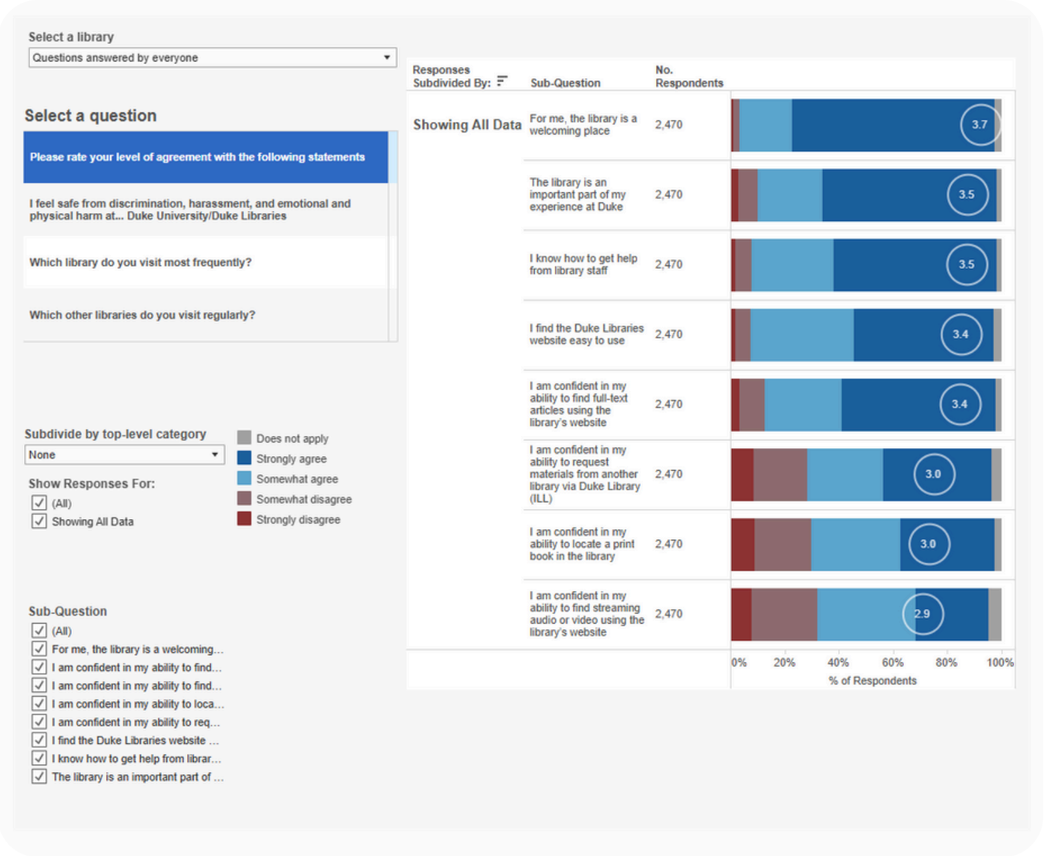
To facilitate access to the survey results, the data is presented through an interactive dashboard built in Tableau. This dashboard enables stakeholders—including library staff and administrators—to explore trends and satisfaction levels with a high degree of flexibility. Users can filter, compare, and analyze data dynamically, empowering evidence-based decision-making.



BACKGROUND

However, the usability of such dashboards plays a critical role in their effectiveness. Users must be able to easily navigate the interface, interpret data visualizations, and interact with the platform without confusion or unnecessary effort. Recognizing the importance of user experience, Duke University Libraries conducted a usability evaluation of the dashboard to assess how well it supports user needs.

This evaluation focused on identifying challenges with key features such as dropdowns, filters, and visualizations, as well as understanding user preferences for layout and functionality. By engaging participants with diverse backgrounds and levels of familiarity with dashboards, the study aimed to gather actionable insights to refine the platform's design. The findings will help ensure that the dashboard remains intuitive, accessible, and effective in enabling data-driven insights.



EVALUATION GOALS

Evaluate Ease of Use

Examine how intuitive and user-friendly the survey dashboards are for individuals with varying levels of expertise and familiarity with data dashboards.

Identify Strengths and areas for improvement

Pinpoint features that enhance the user experience while uncovering elements that hinder navigation, interpretation, or overall usability.

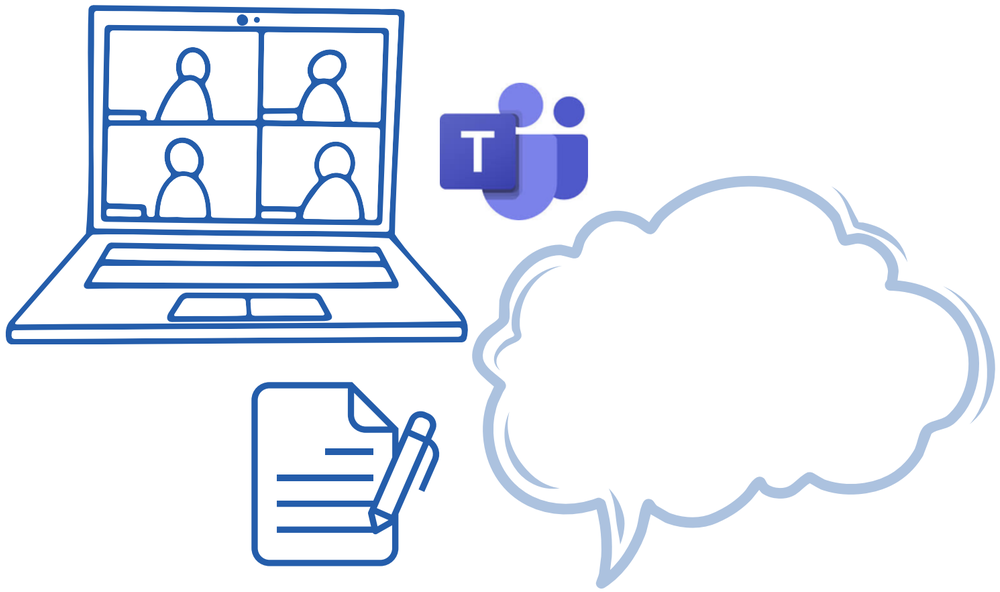
Gather Targeted Feedback on Functionality

Gather detailed insights into users' experiences with core dashboard components, including layout design, navigation paths, dropdown menus, filtering options, and data visualization.

METHODOLOGY

The usability study was conducted **remotely** and involved **five participants** with diverse library roles and varying levels of experience using data dashboards. Each session (30 minutes) was held via video conferencing on Microsoft Teams, allowing screen sharing for real-time observation.

A **think-aloud protocol** was employed to capture participants' real-time thoughts, observations, and reactions as they navigated the dashboard. A moderator provided scripted instructions for consistency, with minimal intervention to allow independent navigation. Follow-up questions after each task captured insights on ease of use and satisfaction, enhancing the qualitative data from post-test ratings.



DATA COLLECTION

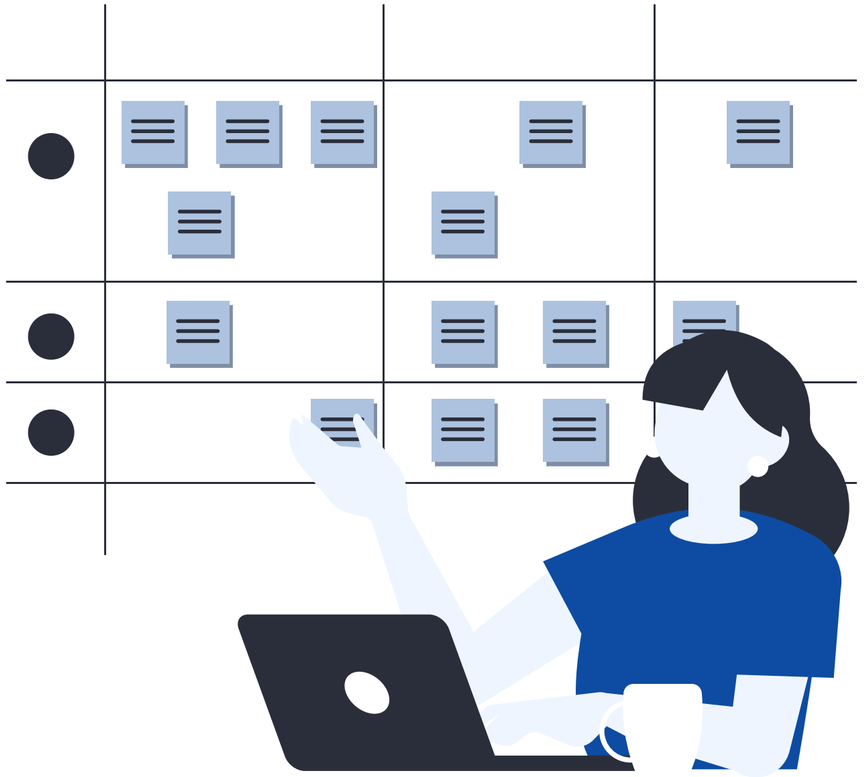
Observations, task completion feedback, and post-test questionnaire responses were gathered to assess usability, document challenges, and pinpoint areas for improvement.

This multi-faceted approach provided a detailed analysis of user interactions and responses to various dashboard features.

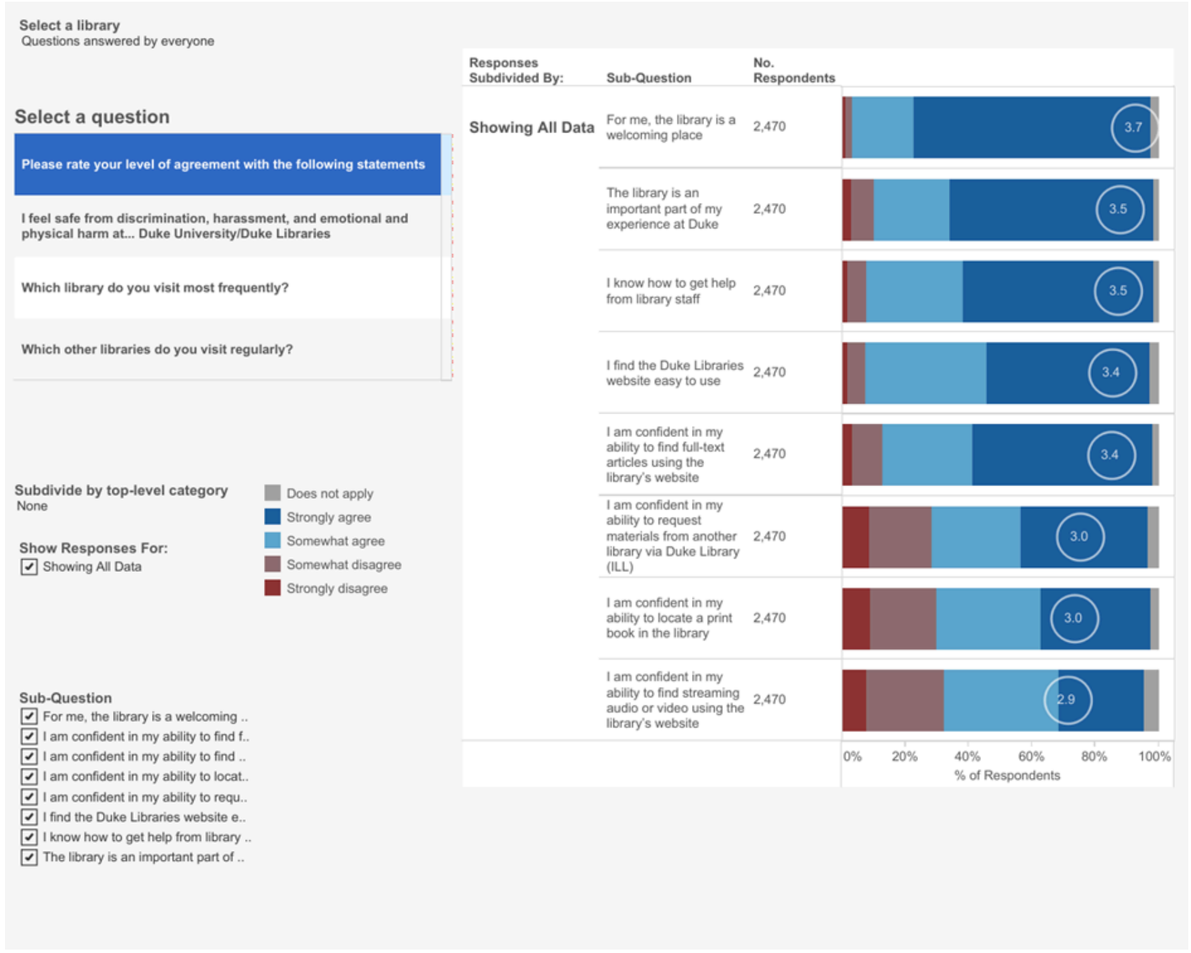
PARTICIPANT PROFILES

Participant	Role	Experience Level (Usage Frequency)	Key Needs	Interactivity Preference
Participant 1	SOUTH & SOUTHEAST ASIAN STUDIES LIBRARIAN	Moderate (about once a month for qualitative research)	South Asia material requests & ILL stats	Visual clarity, minimal clutter
Participant 2	COLLECTIONS ANALYSIS LIBRARIAN	Extensive (weekly; proficient in Tableau, Excel, R and Python)	Access to detailed data on collections	High interactivity, customizable filters
Participant 3	CONSERVATION STAFF (SPECIAL COLLECTIONS)	Limited (once a month)	Clear labelling, simple data parsing for specific questions	Some interactivity, prefers scalable data
Participant 4	TECHNICAL SERVICES ARCHIVIST	Limited & Dated (hasn't used dashboards in years)	Clear, narrative-based data presentations for easy interpretation	Low interactivity, prefers static reports
Participant 5	SCIENCE LIBRARIAN (MARINE SCIENCES)	Moderate (monthly; with data interpretation experience)	Clear presentation with controls for adjusting parameters	High interactivity, parameter controls for data trend exploration

TASK ANALYSIS & RESULTS



TASK A: First Impressions of the Dashboard



OBSERVATIONS

Most participants noted that the dashboard initially appeared visually "busy" and somewhat overwhelming, with small text and numerous colored bars. Some struggled to find a clear focal point on the main screen and took time to understand the layout.

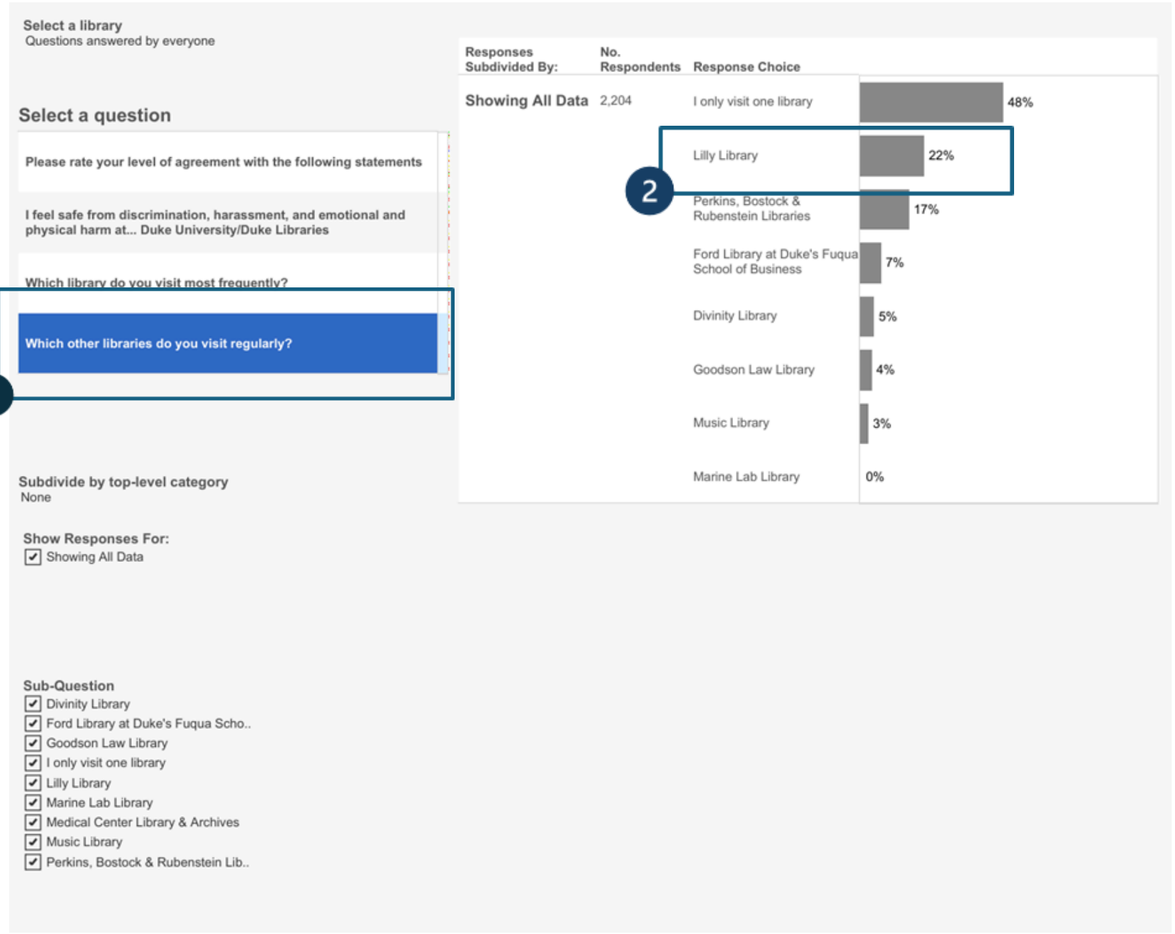
STRENGTHS

Participants appreciated the distinction between questions (left) and data visualizations (right).

CHALLENGES

The dense layout and limited text readability initially created confusion about where to start.

TASK B: Identifying the most popular secondary library



OBSERVATIONS

All participants successfully completed this task by identifying Lilly Library as the most popular secondary library. However, some participants expressed uncertainty around using the “Select a Library” dropdown, particularly with the terminology used in certain questions.

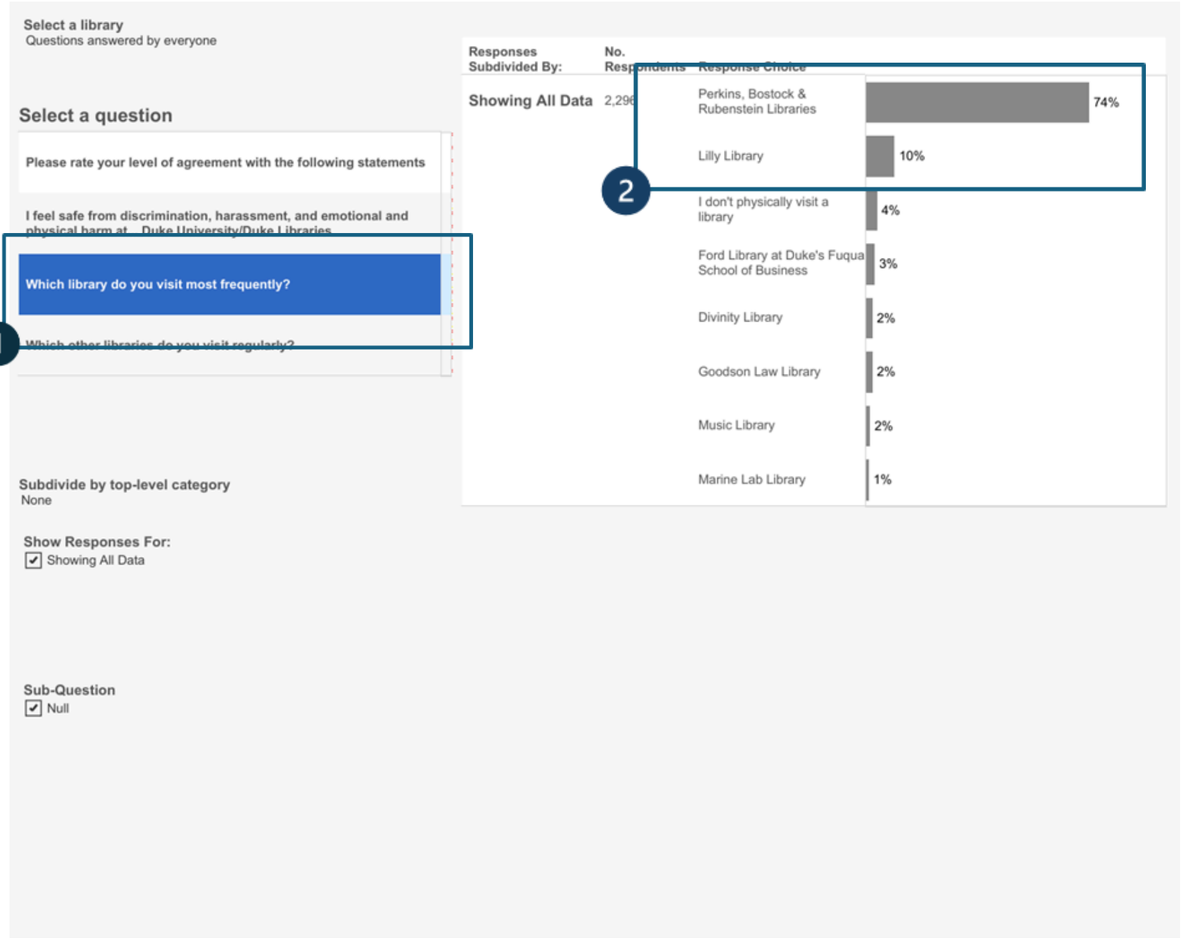
STRENGTHS

Participants found this task straightforward once they understood the use of the dropdown menu.

CHALLENGES

Participants noted that the dropdown was not prominent enough and that some question text was too long for easy scanning.

TASK C: Comparing Library Visit Percentages



OBSERVATIONS

Participants found this task intuitive and easy, quickly identifying that 74% of students visit PBR libraries most frequently, while 10% visit Lilly Library most frequently.

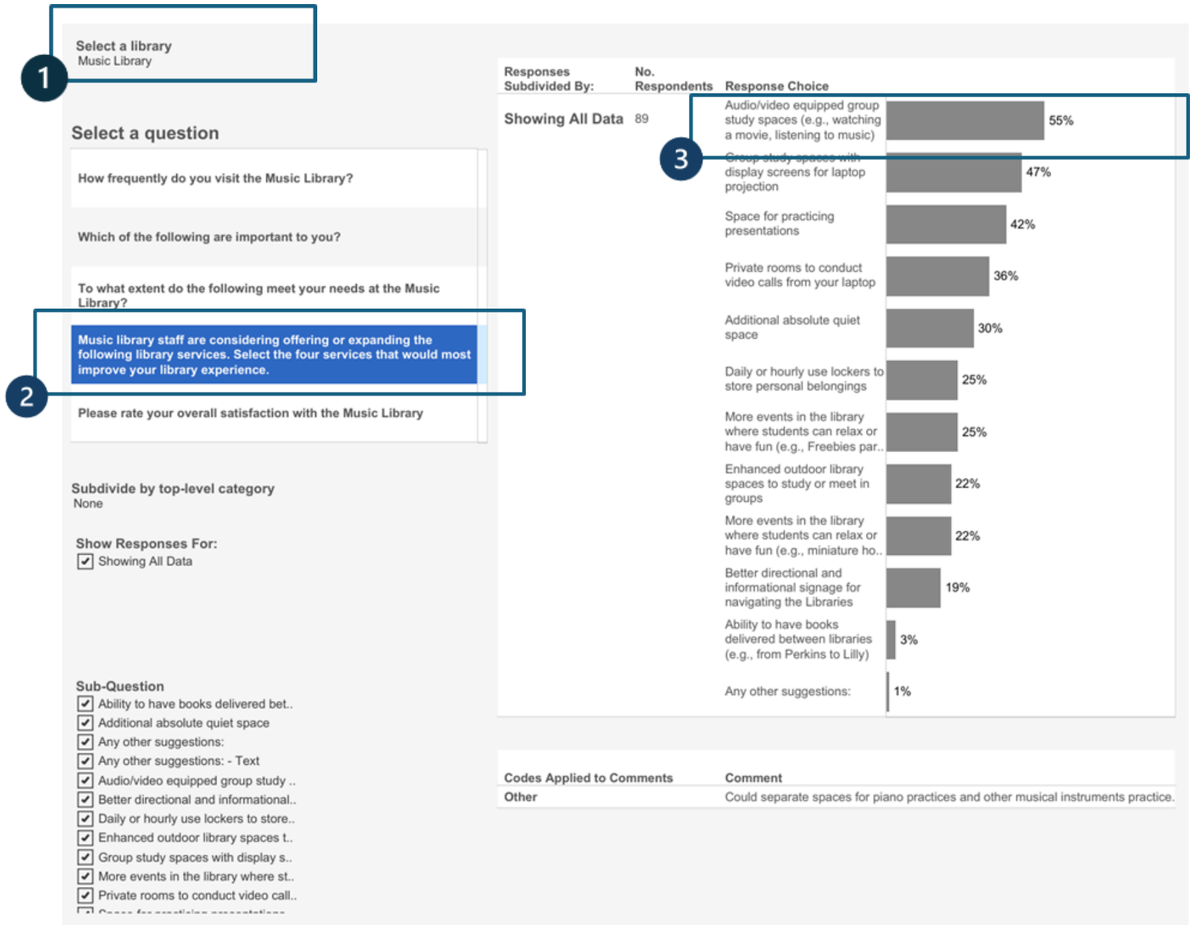
STRENGTHS

The visual layout effectively supported data comparison, making it simple for participants to interpret and contrast data points.

CHALLENGES

None reported; this task was consistently completed without issues.

TASK D: Identifying the most helpful expanded service for the music library



OBSERVATIONS

This task was completed without major difficulty, though some participants took time to locate the “Select a Library” dropdown. Participant feedback suggested that the dropdown needed to be more visually prominent.

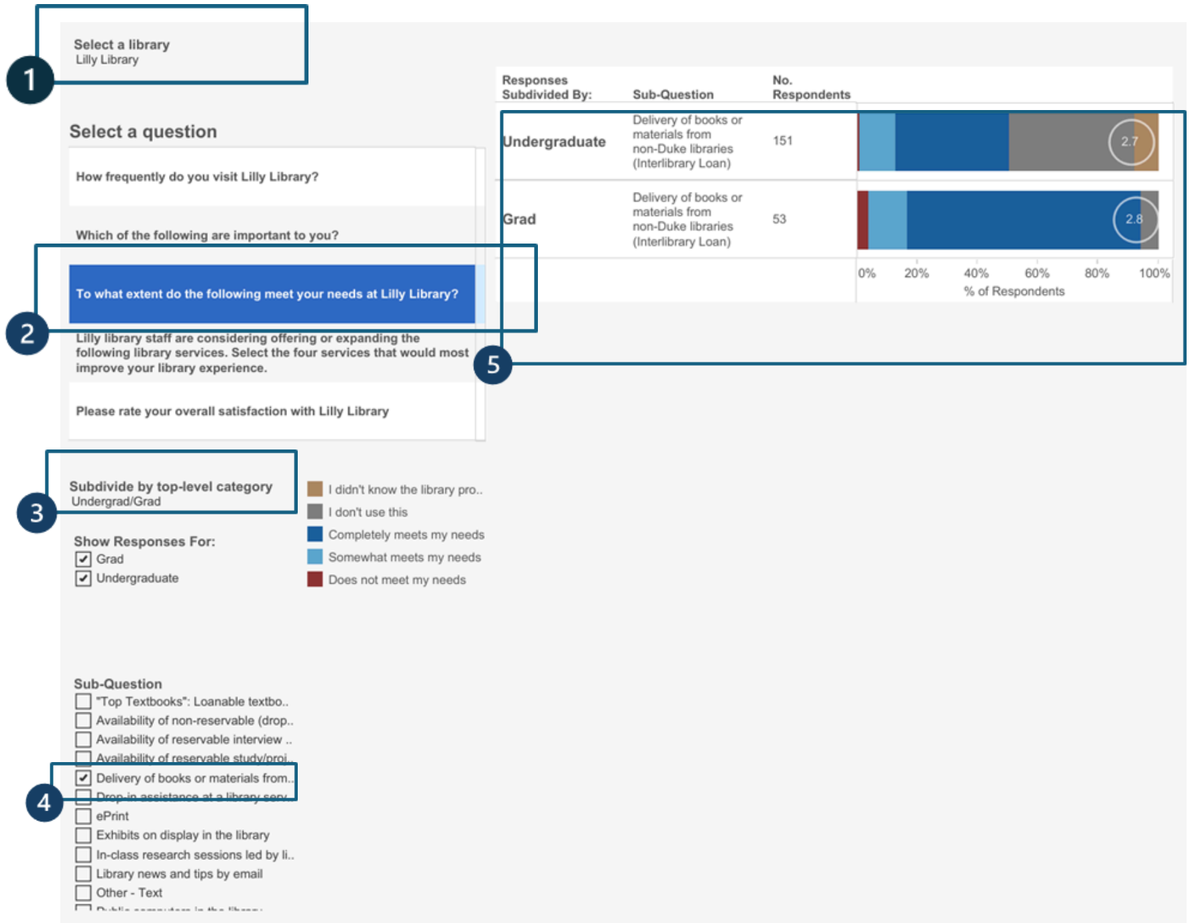
STRENGTHS

Once oriented, participants found the task intuitive, with most correctly identifying audio/video-equipped study spaces as the most helpful expanded service.

CHALLENGES

Participants’ attention was initially drawn to colored graphs and other bold elements, delaying their focus on the dropdown.

TASK E: Evaluating ILL services for Graduate vs. Undergraduate students



OBSERVATIONS

This task posed the greatest challenge for participants across all sessions. Filtering options and the reordering of response options when switching groups created confusion. Participants suggested that a better understanding of the filtering process and subdivisions would help ease navigation.

STRENGTHS

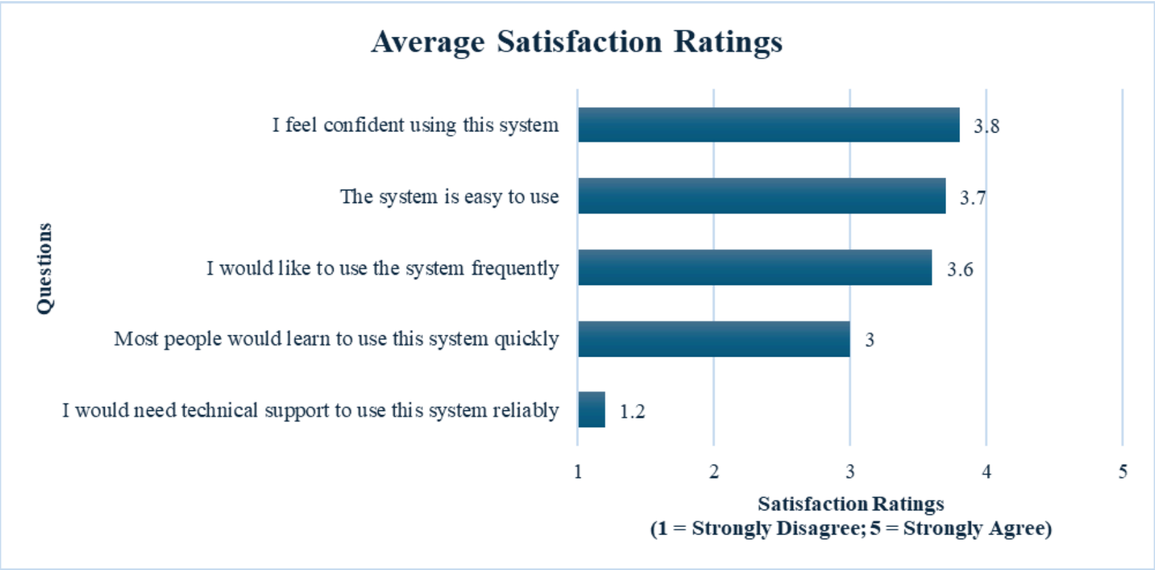
Participants with higher dashboard experience, were eventually able to locate the data points needed, indicating that the system can support complex queries.

CHALLENGES

Response reordering, filter complexity, and lack of expandability for the prompts in Sub-Question checkboxes contributed to user frustration

SATISFACTION RATINGS

Following task completion, participants rated statements about their experience with the dashboard on a 1 to 5 scale (1 = Strongly Disagree, 5 = Strongly Agree). These responses provide key insights into usability, satisfaction, and user confidence.



Desire to use this system frequently: Most participants rated this question highly (4–5), citing the dashboard's interactivity and potential for regular use. Users with more experience felt it was a valuable tool, while less experienced participants hesitated slightly, noting the need for familiarization before frequent use.

Ease of Use: Ease of use received consistent scores (4–5), with users praising the clean layout and intuitive design. Experienced users navigated the system effortlessly, while those less familiar with dashboards initially struggled with dropdowns and filters but adapted quickly.

Need for Technical Support: All participants rated this a 1, agreeing that the system is self-explanatory. Clear organization and intuitive features enabled independent use, even for those with limited prior dashboard experience.

USER STORIES

Based on the task analysis and observed user challenges, four user stories and acceptance criteria were crafted to highlight areas of potential improvement. While not direct recommendations, these serve as guiding principles for refining the dashboard’s usability and functionality.

USER STORY

“As a dashboard user, I want **dropdowns and filters** to be intuitive, prominently displayed, and easy to understand so that I can efficiently navigate the dashboard and access relevant data without confusion or extra effort.”

ACCEPTANCE CRITERIA

- The "Select a Library" dropdown must be clearly identifiable as the primary starting point, using distinct visual styling to differentiate it from other dropdowns.
- Headings for filters, such as "Subdivide by top-level category" and "Sub Questions," must use clear and descriptive language to ensure users immediately understand their function.
- Filter options, such as those under "Sub-Question," must be fully visible without truncation by either expanding the list or reformatting the layout.

USER STORY

"As a dashboard user, I want the **visualizations** to be displayed in a clear, organized layout so that I can easily interpret the data, compare patterns, and understand relationships without feeling overwhelmed."

ACCEPTANCE CRITERIA

- On selecting a library from the dropdown, the dashboard must automatically adjust to display all visualizations side by side in a layout that ensures each visualization is fully visible and not truncated.
- Visualizations must be evenly spaced and scaled appropriately to fit within the available screen space, ensuring users are not overwhelmed by an excessive number of visualizations in a compact area.
- The dashboard must maintain a clean and organized structure, dynamically adjusting the number of visualizations per row based on available screen space to maximize usability and readability.
- For visualizations using stacked bar graphs with multiple colors, legends must be clearly positioned adjacent to the graph, providing immediate context for interpreting the color scheme

USER STORY

"As a dashboard user, I want the ability to **hide less important sections**, such as 'Codes Applied to Comments,' so that I can reduce clutter and focus on the most relevant data for my analysis."

ACCEPTANCE CRITERIA

- Users must be able to toggle the visibility of less important sections (e.g., "Codes Applied to Comments") using a clear and accessible show/hide button.
- The dashboard must remember the user’s preference to hide or show sections across interactions until the user changes it.
- When a section is hidden, the remaining visible sections must adjust dynamically to optimize the use of screen space and maintain a clean layout.

USER STORY

"As a dashboard user, I want the interface to be **optimized for larger desktop and laptop screens** so that I can comfortably view and interact with text, dropdowns, and visualizations without straining my eyes or struggling with readability."

ACCEPTANCE CRITERIA

- Text across the dashboard must have a minimum font size of 14px for body text and proportionally larger sizes for headings to ensure readability on larger screen.
- All dashboard elements, including charts, dropdowns, and filters, must scale proportionally to fill available screen space on common desktop resolutions
- The layout must prevent excessive white space and avoid elements being overly condensed, ensuring a balanced and visually pleasing interface on larger screens.
- The dashboard must fit horizontally within the screen width of standard desktop and laptop resolutions, eliminating the need for horizontal scrolling.

CONCLUSION

One of the most significant findings was the difficulty participants experienced with the **"Select a Library" dropdown and filtering options**. These elements were often not prominent enough or visually intuitive, causing delays in navigation. Clearer labeling, improved dropdown visibility, and fully expanded filter options would address these issues and streamline the user experience.

Similarly, **dense layouts and small text sizes** overwhelmed some participants during initial interactions with the dashboard. Adjusting font sizes, simplifying the layout, and organizing visualizations into a cleaner structure would make the interface more approachable, particularly for novice users.

Clutter reduction was another priority, as participants felt that **less critical sections, such as "Codes Applied to Comments,"** detracted from their focus on primary tasks. Implementing a toggle feature to hide or show such sections dynamically would enhance usability and allow users to concentrate on the most relevant data.

Additionally, optimizing the dashboard for larger screens was highlighted as a need, with participants noting issues like e**xcessive white space and text that felt too small**. Designing a responsive layout that scales proportionally and eliminates unnecessary scrolling would improve readability and overall usability.

By addressing these challenges, Duke University Libraries can ensure the dashboard is intuitive, accessible, and effective for the library staff across varying levels of expertise.