

Usability Test Report



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EXECUTIVE SUMMARY

We conducted a usability test on the University of Washington's library website. The website allows visitors to browse and request books, find study spaces, ask for help with homework and research, and get teaching support. It also provides information about the working hours of the building as well as operation updates (e.g., COVID restrictions and information).

Participants and Method

The usability test was conducted with students at the University of Washington, Seattle to test the flow of reserving a study room using the UW library website. We did one pilot study to vet our process. Based on the feedback we received, we revised our script and scenarios and discarded a few tasks that made the runtime of the test too long. We then tested with five participants. The tests were conducted virtually, using the meeting platform Zoom. We asked participants to share their screens during our sessions, and the facilitator recorded each meeting.

After completing the main tasks, we administered post-task surveys and a post-study questionnaire. We were able to gather quantitative data that allowed us to rate the system's usability. Further, we conducted short semi-structured interviews before the beginning of the study, after each task, and at the end of the session. The short semi-structured interviews complemented our quantitative analysis findings, allowing us to understand the specific pain points of participants and dig deeper into what participants thought about the system.

What Worked and Opportunities for Improvement

We found that the participants really liked the informational cards on the library homepage and found them particularly useful. Additionally, when asked to cancel their room reservation, most said that they would expect to get a confirmation email from the website after reserving, which will also contain a cancellation link. That is indeed the case, which means that in this regard the website is meeting the users' expectations.

In terms of areas of improvement, we found that the main concern is the overall flow of the website. Many participants described it as too roundabout, overly complicated, and not direct enough. To address this issue, we recommend restructuring the informational architecture of the website and thinking about ways of decreasing the number of steps required to complete basic tasks.

Further, participants experienced difficulties finding the room policies and available resources for each available study room. As most people we tested with used the pictures to discern what is in the room, we recommend that we look into how to take advantage of visuals to better convey resources available.

We also discovered that finding room reservation policies, as well as canceling reservations directly from the website poses a challenge. We recommend that those actions are expressed more clearly and made more visible.

STUDY OBJECTIVE

The goal of this study was to better understand whether there are any obstacles to completing some of the main tasks associated with the UW Library website (e.g., finding information about all the UW libraries and scheduling & canceling study spaces). While we focused primarily on the overall flow of reserving a study room and tasks associated with achieving this goal, we wanted to understand some of the more general pain points of users.

Research Questions

1. How well are participants able to go through the flow and successfully complete the tasks on the UW Library website? Can they go through some of the main flows of the system and achieve their goals?
2. What components of the flow are working? What is intuitive and aligns with the users' expectations?
3. What are some places where participants struggle? In other words, what needs improvement?

METHOD

We conducted a usability study incorporating the following additional research methods:

Think Aloud Protocol (TAP): we asked participants to talk us through what they are doing and their thought-process while completing the tasks. This approach allowed us to understand the immediate thoughts and impressions of the participants and get an idea of how they perceive the website.

Semi-structured interview: we conducted short semi-structured interviews in the beginning of the study, after the completion of each task, and at the end of the study. This method allowed us to ask clarifying questions about why participants rated tasks in a certain way and dig deeper into what they had to say about the website. This qualitative research method allowed us to better understand why participants are having problems, as well as their pain points, and what their expectations of the system are.

Post-Task Survey: we administered one-question surveys at the end of each task in which we asked the participants to rate the task they just completed. This method gave us some quantitative data that allowed us to better understand the level of difficulty of each task and helped us ask additional questions to probe deeper into what issues participants were experiencing.

The System Usability Scale (SUS): the SUS is used to measure perceived usability, so we decided to administer it as our post-study questionnaire to get a better idea of what participants thought of the overall experience interacting with the system. This method gave us some measurable quantitative results to supplement our qualitative analysis and allowed us to compare the usability of the library website to other systems.

Observation: we conducted our usability studies with two people from our team in attendance – one facilitator/interviewer and one observer. The observer was on the Zoom call for the entire session and took notes on body language, facial expressions, participant comments, and overall demeanor.

PARTICIPANTS

All participants were graduate students at the University of Washington, Seattle that had no prior experience booking a study room. Of our five participants, three were male and two were female, with their age ranging from 21 to 40. All five participants reported high confidence in their technological abilities. None of our participants reported having any disabilities. Four of our tests were conducted on Feb 21-22th, 2022. The last one was done later that week on Feb 26th, 2022.

Graduate Student	No experience booking a study room	Native to technology	Have used the library website in the past year	Report having a disability
5	5	5	3	0

Table 1: Summary of our participant group

FINDINGS & RECOMMENDATIONS

What Worked Well

Our study focused on a particular flow of the library page - reserving a study room. We also briefly explored other features of the website such as library hours and room policies. There were a few aspects of the system that participants liked and said worked well.

Those are as follows:

1. Menu Cards: Well-positioned and Informative

The menu cards on the library’s homepage showcase some of the main features of the website and includes an informative icon and a short description (Fig. 1). 4 out of 5 participants found these “informational cards” helpful.

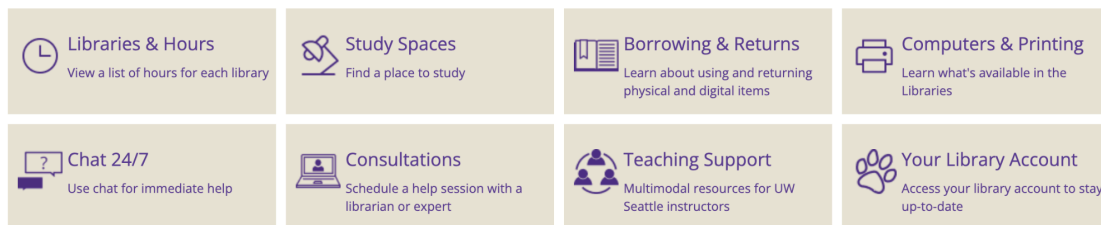


Fig 1.: Most participants said they find the informational cards on the library homepage useful.

2. Room Reservation Confirmation Meets Participants' Expectations

When we asked participants to cancel the room reservation they made, most said that they would usually go to their mailbox to check for a confirmation email. The UW library does send such an email that includes a cancellation link. Hence, this feature meets the expectations of participants.

3. All Participants Succeeded in Reserving a Study Room

5 out of 5 participants succeed in reserving a study room using the library website. This finding is good news, as this is the main flow we tested.

Opportunities for Improvement

Severity Ratings Scale

To rate the priority of each area of improvement, we decided to divide the overall rating into two parts: a severity rating and a frequency rating. For the prior we took into consideration whether the user is able to complete the task (i.e., if they can eventually overcome the issue) and how difficult it is to achieve this. For the latter, we based our rating on how many of our participants experienced a particular issue (see Fig. 2 for more details). The overall rating scale is 1 to 3, with 3 being a high priority and crucial to fix right away and 1 being a more “cosmetic” problem.

Rating Scale

Severity Rating:

High: would significantly disrupt the user's ability to navigate the system and successfully complete a task; difficult to overcome and occurs repeatedly

Medium: would somewhat make it more difficult for the user to navigate the system and successfully complete a task; could be overcome once user is more knowledgeable of the system.

Low: doesn't necessarily disrupt user's ability to complete a task, but would make general experience more pleasant

Frequency Rating:

High: 4-5

Medium: 3

Low: 1-2

Overall Rating:

3: High Priority - High frequency and High severity, which prevents the user from completing the task. It's crucial to fix right away.

2: Medium Priority - Medium to high frequency or medium to high severity rating. Some tasks has a workaround that participants used.

1: Low Priority - Minor issues that only affect a few users or are purely 'cosmetic'. Not crucial to address right away

Fig. 2: A detailed description of the rating scale used and each level of severity

Flow is Not Direct: “Feels blocky”

Medium frequency and **medium to high** severity

Overall Rating: 3

Description: The overall flow of the website is unnecessarily confusing and roundabout. Many participants found the flow too cumbersome and overly complicated. Some regarded the website as simply not enjoyable to use. They also noted that there is a lack of consistency in the design of the pages that the user needs to visit to complete certain tasks.

3/5 participants found the flow not direct enough

3/5 participants agree or strongly agree that the website was unnecessarily complex

3/5 participants agree or strongly agree that there was too much inconsistency in this system

2/5 participants felt like the website was generally not enjoyable to use

“ *I would love for the flow to be more direct. Like when I click on ‘Library Hours’, it takes me to library hours, instead of having to go through seven different pathways for every single one - P1*

“ *Make it flow a little bit better. Right now it looks kinda blocky. - P5*

Recommendations: How can we make flow more intuitive and direct? More specifically, how can we *decrease the number of steps the user needs to take to complete an action*? How might we make the path to a particular goal more clear? How might we design the various pages in a way that makes this a consistent experience?

Canceling a Study Room Reservation

High frequency and **medium** severity

Overall Rating: 2

Description: There is no information anywhere on the UW website that points to how to cancel a booking. The way that one can accomplish this by using the website only is by going through the flow of booking another study room and then see the cancel reservation button. Most of the participants stumbled upon the cancellation link by going back to retrace their steps. While the library does send a confirmation email that contains the cancellation link, this action should be easy to find on the website itself as well.

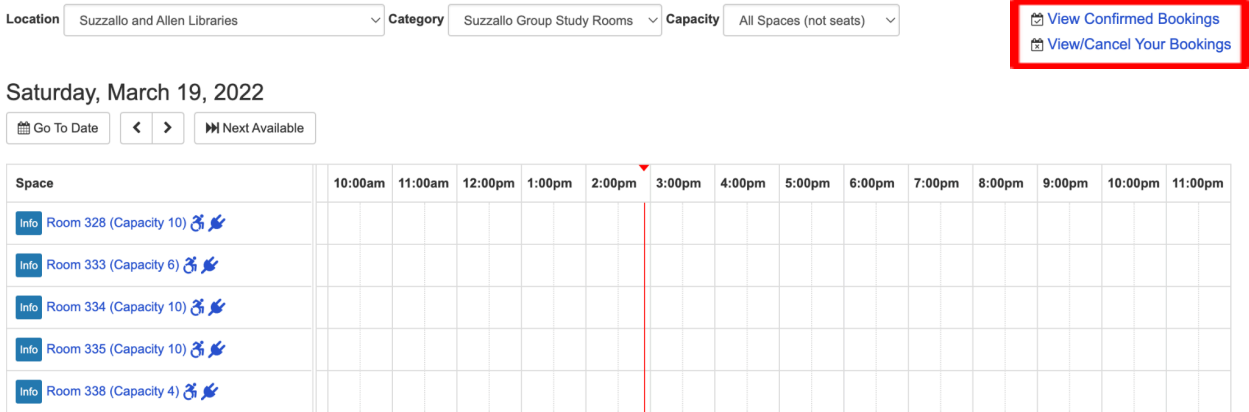


Fig. 3: The View/Cancel Booking button is only available on the room booking page

4/5 participants were unsure about where to look for the option to cancel the study room booking on the website

4/5 participants would check their email to cancel their study room reservation

3/5 participants went back to the homepage to figure out how to cancel the booking

“ That may be a little difficult because there’s no such thing as cancellation here. - P2

“ I would change “Reserve Space” to “Reserve or Cancel Study Space”. - P1

Recommendations: How might we make the reservation cancellation process more visible inside the UW Library Website? How might we create a cancellation system that is more intuitive for students when they need to make changes to their reservations?

Room Resources and Filter are Difficult to Find

Medium frequency and medium severity

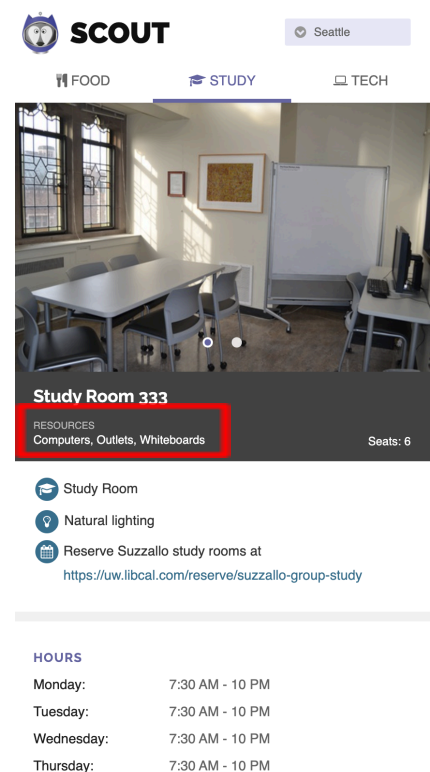
Overall Rating: 2

Description: Room resources are not clearly identified; Scout filter is difficult to find

Most of the participants did not use the filter option to look for rooms with whiteboards. Many didn’t notice the “Resources” section (see image on the right) and found creative ways to figure out what kind of resources were available for each room.

3/5 of our participants looked at the image to see if there’s a whiteboard in the room

3/5 of our participants found the resources information difficult to find



1/5 participants used the filter to find rooms with a whiteboard

“ nowhere on the website does it say that the rooms have whiteboards - P5

Recommendations: How might we make the filter option more prominent and the “resources” section more noticeable? How might we use visuals better to convey the available resources? How might we use the available space to position this information in a way that makes it more visible?

Finding the Study Room Policies

High frequency and **medium to low** severity

Overall Rating: 2

Description: The study room policies are available when making a reservation, but it's challenging to find them before booking a room. The study room policies are also in multiple places, making it difficult to know if the user is reading the correct page, and it takes too many page clicks on the website to get to the study room policies. Even when the participants were on the right page, they couldn't seem to find the study room policies. We gave this task an overall rating of a medium-high rating because even when most of the participants were on the correct page they were having a hard time finding the rules.

4/5 participants had medium-high difficulty finding the study room policies section on the website.

3/5 participants didn't know where to go on the website to find the study room policies

“ Oh, wow this is hard! - P1

“ I would have ended up asking the librarian for help. - P4

Recommendations: How might we organize the policies on the website to help users find the information more efficiently? How might we redesign the study room page to make the policies more prominent and easy to identify?

Too Many Steps to Find Individual Library Hours

High frequency and **low** severity

Overall Rating: 1

Description: There are too many steps required to get to the page that provides information about the hours of operation. Furthermore, the layout of building hours is based on individual weeks, making it laborious to find exact dates in the future.

All participants found the library hours easily and right away. The library hours page can be

found easily from the homepage, but according to most participants, there are too many pages to click through to get to the individual library hours. It is also tedious to look for specific dates, as the user would need to click “Next” multiple times to arrive at their desired date. Some participants voiced that they would instead prefer a full monthly calendar. We gave this task an overall rating of 2 because it was more of an annoyance for participants and not something that stopped them from finding the library hours.

Suzzallo and Allen Libraries

BUILDING HOURS

	Mar 13 Sunday	Mar 14 Monday	Mar 15 Tuesday	Mar 16 Wednesday	Mar 17 Thursday	Mar 18 Friday	Mar 19 Saturday
« Previous							Next »
Suzzallo and Allen Libraries	1:00pm – 8:00pm	9:00am – 8:00pm	9:00am – 8:00pm	9:00am – 8:00pm	9:00am – 8:00pm	9:00am – 5:00pm	Closed

Fig. 4: The hours of operation for each library are displayed for individual weeks. To see the hours of operation for future weeks, the user needs to click on the “Next” button.

4/5 participants thought there were too many pages to click through to get to the library hours.

2/5 participants didn’t like that they had to click next to see later dates and library hours

2/5 participants wanted a monthly calendar to check library hours

“ Going to separate pages for each library is a little annoying. - P1

Recommendations: How might we reduce the number of clicks to find the library hours? How might we help users quickly and easily find a more detailed view of individual library hours?

NEXT STEPS

The perceived usability score of the UW Library website was 54.5. For context, the average SUS score is 68, which puts the UW Library webpage in the 20th percentile (Fig. 3). Another way to interpret this score is that it gets a grade of “D” and is just over what would be considered “not acceptable.”

Perceived usability of the UW Library page

UW Library SUS score: 54.5

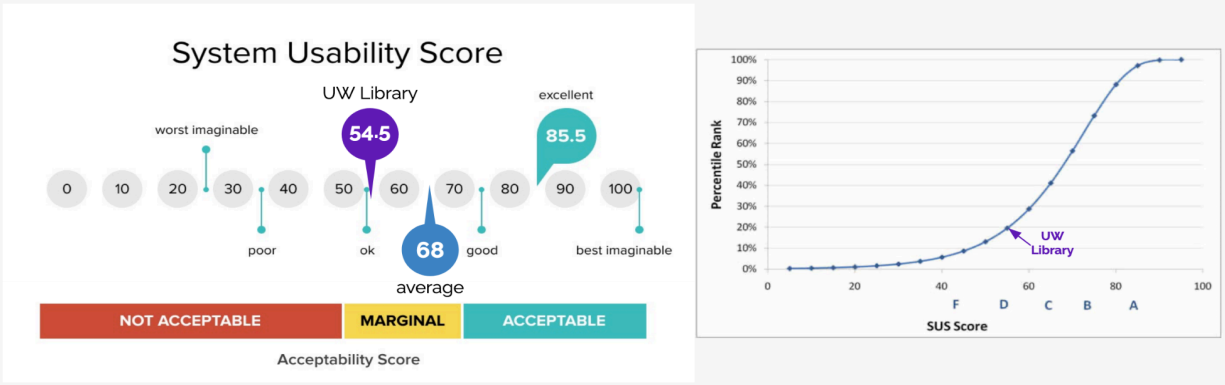


Fig. 5: UW Library System Usability Score and how it compares to other systems

Here we present a list of areas of improvement according to our study findings. They are ordered by severity and priority, with 1 being the top priority and 5 being the lowest priority. We have also included a color-coded severity rating based on the scale we introduced earlier in the report (**High Priority**, **Medium Priority**, & **Low Priority**).

- 1. Flow is not direct: “Feels blocky”**
Medium frequency and medium to high severity
Overall Rating: 3
- 2. Canceling a Study Room Reservation**
Medium frequency and medium severity
Overall Rating: 2
- 3. Room Resources and Filter are Difficult to Find**
High frequency and medium severity
Overall Rating: 2
- 4. Finding the Study Room Policies**
High frequency and medium severity
Overall Rating: 2
- 5. Too many clicks to find the Individual Library Hours**
High frequency and low severity
Overall Rating: 1

Given these findings, it is paramount to redesign the overall flow of the website and make it simpler. We also recommend that changes be made to how and where the room policy

information is displayed. This recommendation is also applicable to the option of canceling a room using the library website. Finally, it is necessary to also address how we might convey information about room resources more clearly. We believe that the use of visuals (e.g., appropriate icons) and repositioning this information to make it more visible will resolve this challenge.

Limitations and Additional Areas to Explore:

- **Recruit a larger, more diverse group of participants:** While we tried to recruit a diverse group of participants, we can still do better. For example, everyone we tested with was a graduate student and expressed high confidence in their technological abilities. Additionally, we did not have any individuals that identified as disabled. Hence, in future work it is important to understand the needs of these users and learn more about how accessible the UW Library is.
- **Studying other main flows of the website:** One of our participants commented how difficult the checkout and return process is for physical books. It would be beneficial to explore how that task can be accomplished using the website, as well as to look at other main features of the system and see how they align with user needs and expectations.

APPENDIX

Scenarios & Tasks Script

Task 1: Ask participants about UW Library's homepage.

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: *This quarter you will be working on a project with a few of your classmates. You want to use the UW library spaces on the Seattle campus to hold in-person group meetings to work on it together. You go to the library webpage to explore the resources available to you.*

What do you think about the layout of the content on the homepage? What do you think you can do on this webpage?

—

After participant completes post-task questionnaire question, ask:

Post-task questionnaire:

- Do you find it easy to understand and navigate?
 - If it's easy to navigate, why? What makes it easy to navigate?

- If it is difficult to navigate, why is it hard to navigate the homepage? How can it be improved?
- Is there anything that's unclear or ambiguous?
- What do you think about this design?
- What features do you find most valuable and why?
- What do you think about how information and features are laid out?

Task 2: Find when the library is open

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: *You want to see when the library is open, so you can plan when to meet with your group members.*

Show me where you would go to see when the Suzzallo and Allen libraries are open.

—

After participant completes post-task questionnaire question, ask:

Post task questionnaire:

- Tell me what you think about the page with the library's operation hours.
- Are you able to tell me what time the library is open on Friday?
- Can you tell me a little more about why you found this task [very easy-very difficult depending on the questionnaire answer]?
- If [difficult to very difficult], what would've made completing this task easier?

Task 3: Find the policy for the meeting room reservations

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: *You want to make sure you know what the rules are when using rooms at the library before you schedule any meetings with your group.*

Show me where the rules for the meeting room reservations are.

—

After participant completes post-task questionnaire question, ask:

Post task questionnaire:

- Are the rules clear and informative?
- What do you think about the language used for the policies?
- Can you tell me a little more about why you found this task [very easy-very difficult depending on the questionnaire answer]?
- If [difficult to very difficult]: what would've made completing this task easier?

Task 4: Schedule a room at the Suzzallo Library for a group of 4 people in a place where you and your group will be able to work for 2 hours this week

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: You have 2 hours this week where all four of your group members are free to meet, so you're finally ready to schedule a meeting to work on your project.

Show me how you would schedule a room for a group of 4 people for 2 hours at Suzzallo Library for this Thursday. As you go through the pages, explain your thought process.

—

After participant completes post-task questionnaire question, ask:

Post task questionnaire:

- What do you think about the process of scheduling a room?
- Was there anything confusing about the flow/process?
- What were your expectations going into the scheduling process?
- Can you tell me a little more about why you found this task [very easy-very difficult depending on the questionnaire answer]?
- If [difficult to very difficult], what would've made completing this task easier?

Task 5: Using the website, cancel the study room booking and confirm that it has been canceled.

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: After planning a meeting for weeks, it turns out that some of your classmates can't make it... bummer, but you need to work on this project together, so you decide to postpone the meeting until everyone's available.

Using the website, show me how you would delete the group room booking you just made.

—

After participant completes post-task questionnaire question, ask:

Post task questionnaire:

- What did you think about the process of canceling the group study room?
- How did the process align with what you imagined it would look like?
- Can you tell me a little more about why you found this task [very easy-very difficult depending on the questionnaire answer]?
- If [difficult to very difficult], what would've made completing this task easier?

Task 6: Finding a room with a whiteboard for the group.

**Remind the participants to think out loud during the task.*

SEND TO PARTICIPANT:

Context: *Your group wants to have a meeting in a room with a whiteboard in order to brainstorm ideas.*

Show me where you would go to look for a group room with a whiteboard in the Suzzallo and Allen Libraries that is available this Thursday.

—

After participant completes post-task questionnaire question, ask:

Post task questionnaire:

- If they can't find Scout: Do you see more than one option to make a group room reservation?
- After finding a room w/ a whiteboard:
 - How was the experience of scheduling a room with a whiteboard?
 - Did you find the process intuitive? Why or why not?
 - What are your thoughts on the language used?
 - Was there anything that surprised you in this process?
- Can you tell me a little more about why you found this task [very easy-very difficult depending on the questionnaire answer]?
- If [difficult to very difficult], what would've made completing this task easier?

Post-study Questions

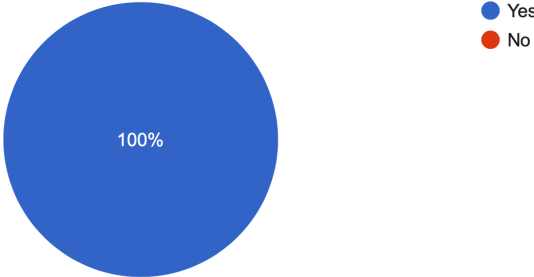
Some questions we could ask:

- Overall, what's your experience been with the website?
- If you could change one thing about the website, what would it be? Why?
- What, if anything, surprised you about the experience?
- What, if anything, caused you frustration?
- Why will you continue to use this website? What will prevent you from using this website in the future?
- What features would make you more likely to use this website more?
- Do you see yourself using this website for booking a room again?

Screener Responses

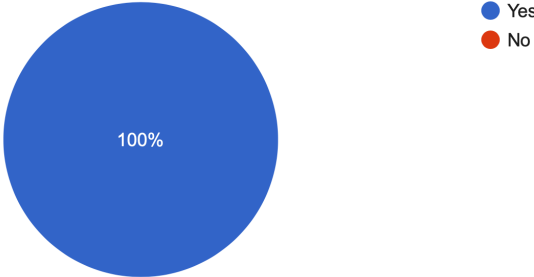
Are you a current student at the University of Washington, Seattle?

5 responses



Do you use a desktop and/or laptop computer?

5 responses



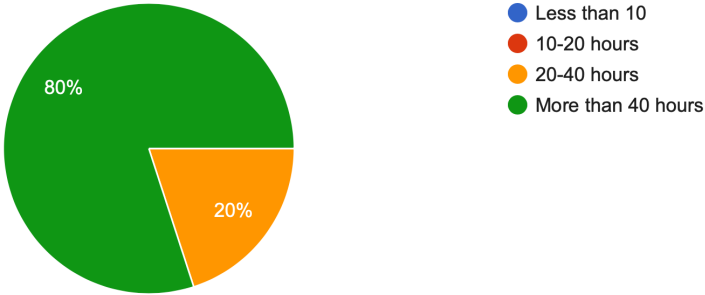
Which of the following statements best describes your experience and comfort with technology?

5 responses



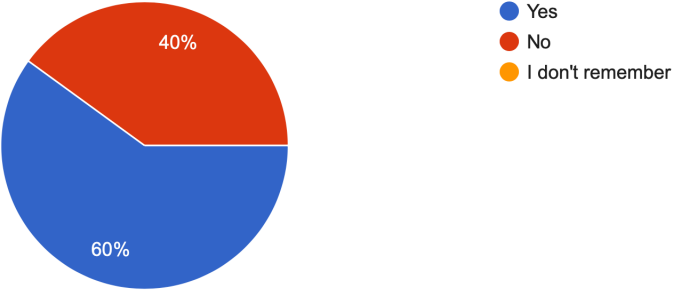
Thinking about your typical week, how many hours do you spend on your computer?

5 responses



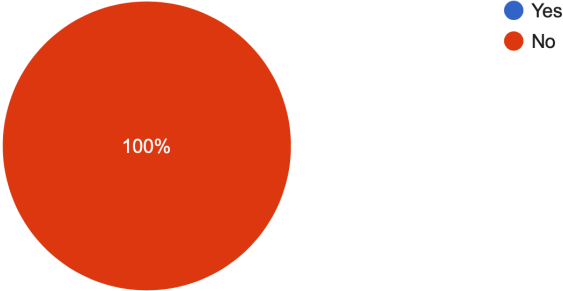
Have you used the library website in the last year?

5 responses



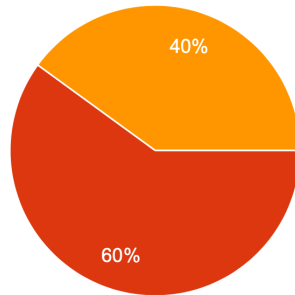
Have you ever used the library website to book a study room?

5 responses



What is your age?

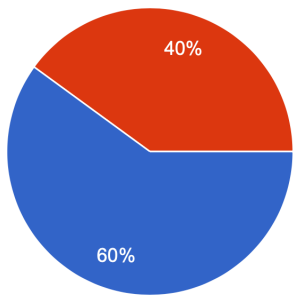
5 responses



- Under 21
- 21-30
- 31 - 40
- 41 or more

What is your gender?

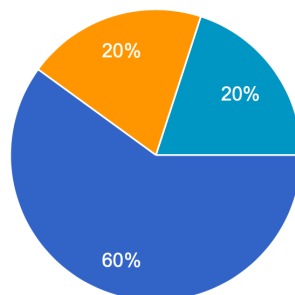
5 responses



- Male
- Female
- Non-binary
- Transgender
- Intersex
- I do not wish to share

Which of these best represents your ethnicity?

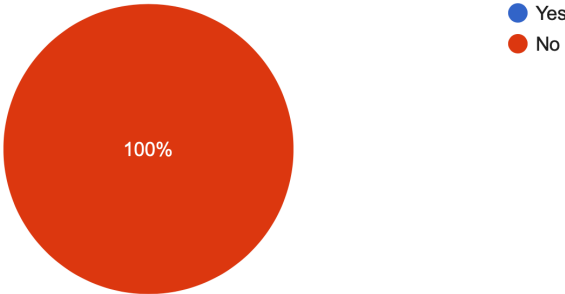
5 responses



- Asian/Pacific Islander
- African American
- Caucasian
- Hispanic/Latino
- I do not wish to share
- South Asian

Do you have any disabilities such as a physical, visual, or hearing impairment or a motion disability that will require special assistance?

5 responses



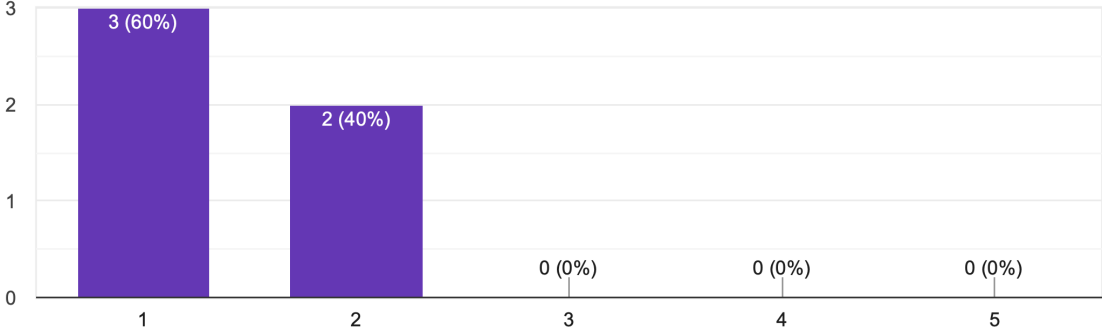
Post-task Survey Results

Post-task survey: <https://forms.gle/UAPEBSEbnoiXBnVR6>

1 - Very Easy
5 - Very Difficult

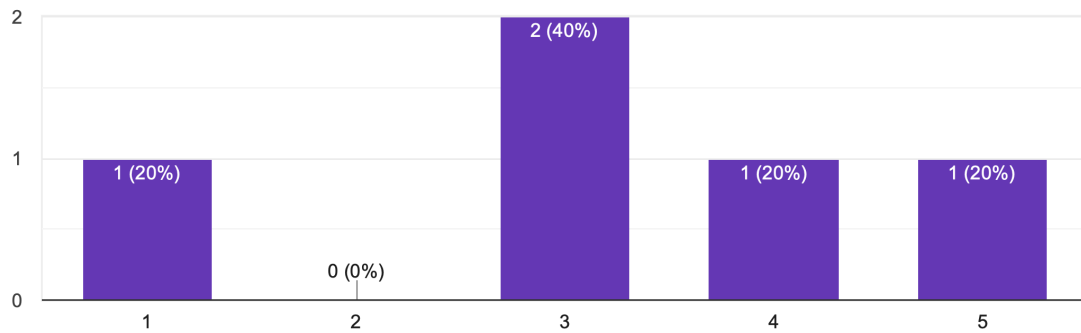
Rate the task of finding the library's hours of operation.

5 responses



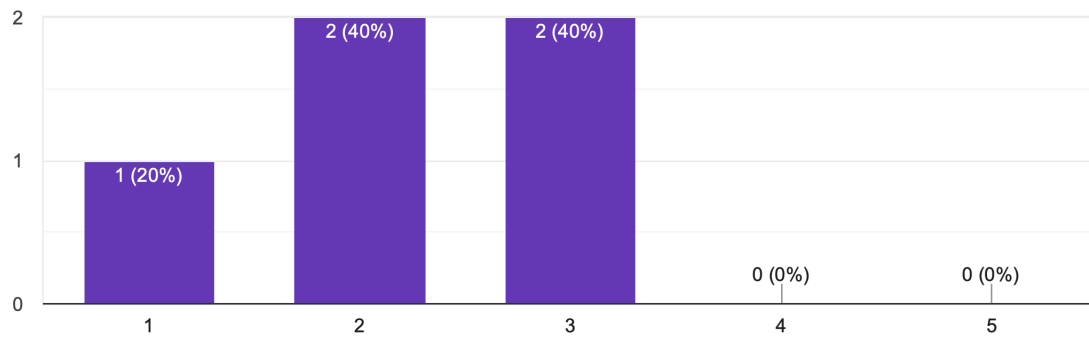
Rate the task of finding the library's study room policies.

5 responses



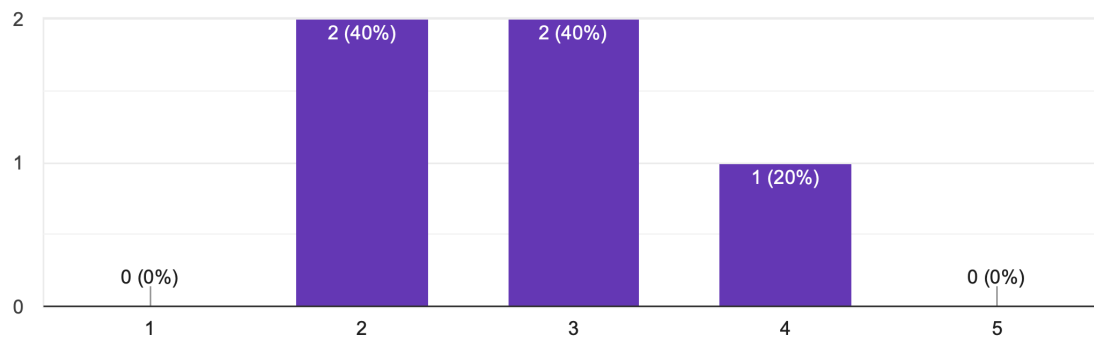
Rate the task of reserving a study room for four people using the UW library's website.

5 responses



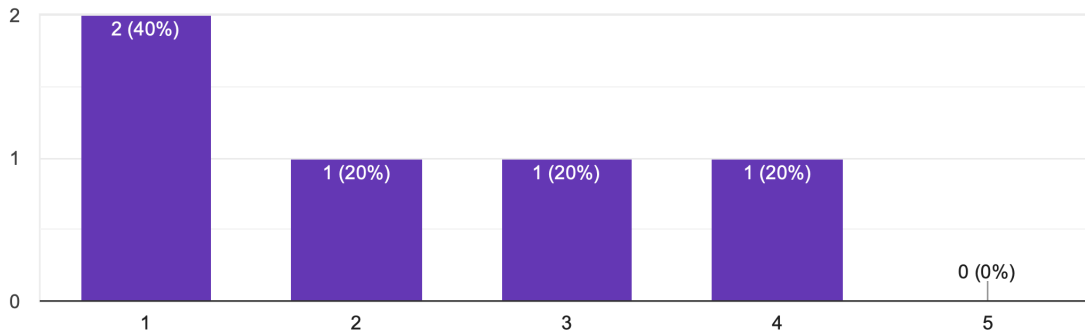
Rate the task of canceling a study room reservation using the UW library's website.

5 responses



Rate the task of finding a study room with a whiteboard using the UW library's website.

5 responses



Post-study Questionnaire (SUS) Results

Post-study questionnaire: <https://forms.gle/jtKWK9MULCZ8cXyT7>

Link to responses table:

<https://docs.google.com/spreadsheets/d/14SvGhSTgLnUz4W777yb9M5ywE9rf5qgpl3SIFRPCG/Wo/edit?usp=sharing>

Timestamp	I think that I would like to use this system frequently.	I found the system unnecessarily complex.	I thought the system was easy to use.	I think that I would need the support of a technical person to be able to use this system.	I found the various functions in this system were well integrated.	I thought there was too much inconsistency in this system.	I would imagine that most people would learn to use this system very quickly.	I found the system very cumbersome to use.	I felt very confident using the system.	I needed to learn a lot of things before I could get going with this system.	
2/21/2022 9:48:05	1	5	3	1	1	5	1	5	4	1	32.5
2/21/2022 17:10:15	3	4	3	1	3	3	2	2	4	2	57.5
2/21/2022 20:52:55	3	2	3	1	2	4	3	4	4	1	57.5
2/22/2022 10:03:51	4	5	2	2	3	4	3	3	3	4	42.5
2/27/2022 13:51:57	5	2	4	1	3	1	3	1	4	1	82.5
											54.5
											GRADE: D Poor

Other Materials

- [Consent Form](#)
- [Study Script](#)
- [Post-task questionnaire responses table](#)