DS 200

DH Hill Library

A Usability Test by Ian Price

Introduction

In Fall 2018, 35,479 students were enrolled at NC State University (*NC State Total Enrollment Report - Fall 2018)*. These students rely on the NC State Library system for their education and research. However, NC State uses the Library of Congress Classification (LCC) system, which is foreign to many students.

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Background

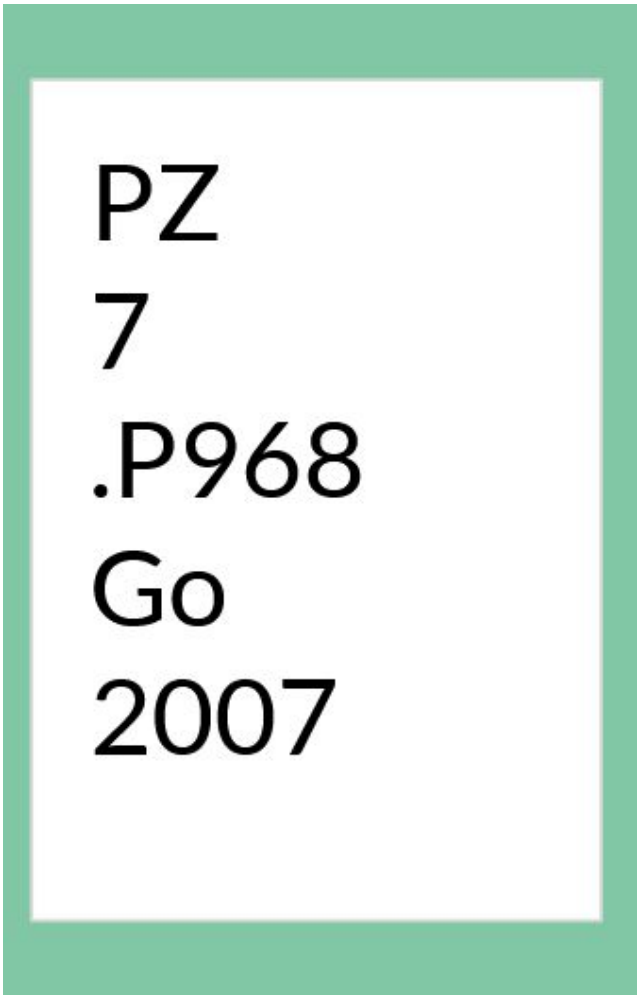
As mentioned previously, the NC State Library system uses the Library of Congress Classification system (LCC). Because of this, it is important to understand the basic premise and structure of the LCC.

Due to the nature of the test, it is also important to understand Don Norman's concept of 'head knowledge' and 'world knowledge' (Norman,76).

Library of Congress Classification System

The LCC system is a classification system that has 21classes and many more subclasses, which is more than the more widely available Dewey Decimal Classification system (*Comparing LC and Dewey*). On top of its immense range of subclasses, the LCC also has thousands of category numbers that further specialize each entry (*Comparing LC and Dewey*).

Due to its immense size and scope, it is difficult to learn each class, subclass, and category well enough to be able to find a book with just the book's name and its author. Because of this, the LCC relies heavily on catalogs and call numbers like the one seen here for Philip Pullman's *The Golden Compass*.



Head Knowledge and World Knowledge

Don Norman, in his book *The Design of Everyday Things,* coined the terms 'head knowledge' and 'world knowledge' (Norman, 76). According to Norman, "The world has many natural, physical constraints that restrict the possible behavior: such things as the order in which parts can

go together and the ways by which an object can be moved, picked up, or otherwise manipulated. This is knowledge in the world" (Norman, 76) and "Cultural constraints and conventions are learned artificial restrictions on behavior that reduce the set of likely actions, in many cases leaving only one or two possibilities. This is knowledge in the head" (Norman, 76). These two ideas are critical to identifying the pain points in the D.H. Hill system and addressing them.

Justification for Testing

The D.H. Hill Library is a key part of the NCSU Library System and serves as one of the two largest libraries for student and faculty research. It is pivotal to NC State functioning as a research university and its ease of access is of extreme importance to the university's future.

I chose Hill instead of the James B. Hunt library because its physical location, the heart of North Campus, makes it more useful to a larger amount of State's student body than Hunt, which is located in the heart of Centennial Campus and serves mainly engineering students. Hill, unlike Hunt, also uses the LCC in conjunction with having eight stories of bookstacks. Thus, Hill's importance to the University and its wider use and accessibility as well as its increased difficulty of use makes it a perfect subject of a usability test.

The Test

The basic idea of this test is to test D.H. Hill's system. To do this, three participants of varying experience levels will be recorded as the look for *The Golden Compass* by Philip Pullman. The call number for the book they are looking for is **PZ7 .P968 Go 2007**.

The hypothesis of this test is that those who are more experienced in using the system will perform significantly better than participants who have very little experience. This hypothesis is based off of the absence of world knowledge within the library.

Test Steps

1. Interview participants
2. Test participants one at a time based off of their experience level.
3. Record them as they:
    a. Find the catalog
    b. Find the call number
    c. Find the elevator
    d. Arrive at the correct floor
    e. Find the book

During the test, we were looking at mistakes, time taken, and participant stress levels.

Participants

All participants wished to remain anonymous. Because of their wish, they shall be named Participants One, Two, and Three throughout this report and will be visualized with colored avatars.

Participant One is a twenty year old student. This is their third year at State and they are majoring in Psychology. They have never used the D. H. Hill Library or even heard of the LCC system.

Participant Two is a twenty-one year old Animal Science senior. They have used D.H. Hill once in their four years at State, but have used other library systems that utilized the DDC system before.

Participant Three is a twenty year old junior who is in Biochemistry. They have used the D.H. Hill Library extensively. They are also experienced with other libraries that used the DDC system.

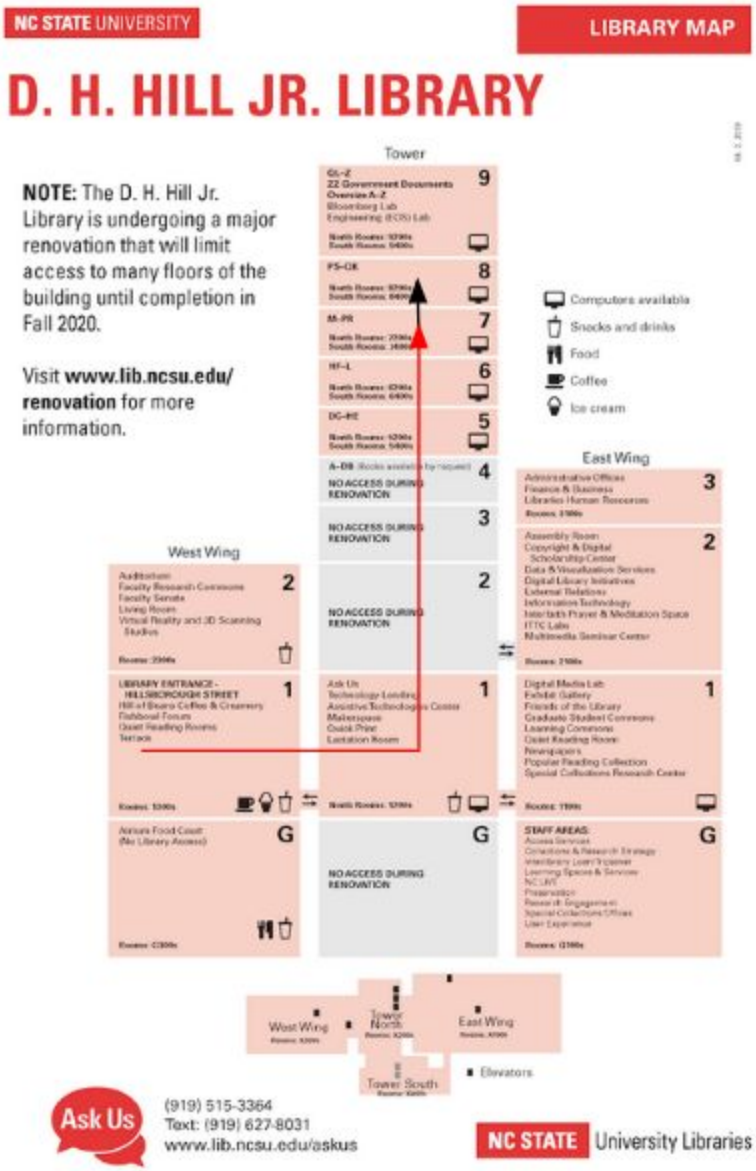
Results

The results for the test are posted below. They include charts as well as a short summary of the events that occurred during the test. They do not contain conclusions as that will be covered in the next section.

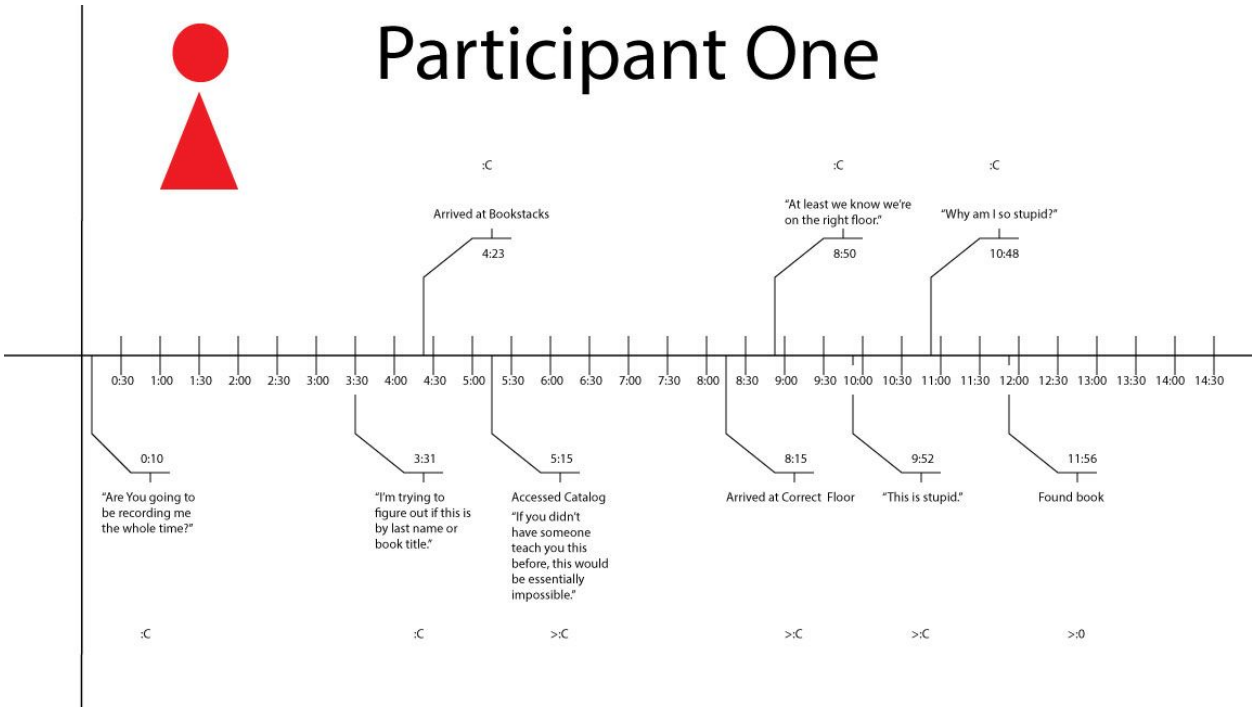
Participant One

- Participant One walked past the catalog and went straight to the bookstacks.
    - This mistake was due to instructor error rather than participant error. The instructions given to all participants stated that no cell phones were allowed, including using them to access the catalog. They were, however, allowed to access the catalog through any means that the library provided. This was misinterpreted by Participant One as them not being allowed to access the catalog at all.
- Participant One went to the seventh floor, marked M-PR.
    - Participant One believed that the system was ordered alphabetically and picked the seventh floor based off of P for Pullman.
- On the seventh floor, Participant One gave up on finding the book alphabetically and accessed the catalog anyway using a Mac supplied by the library.
- They found the call number for the book and used their phone to take a picture of it after receiving permission.
- Participant One went to the eighth floor, all the while becoming increasingly hopeless and stressed.
- After searching for a while, Participant One found the book.
- Participant One had an overall negative experience with the system and proposed a system that organized books by the author's last name.

Participant One's path through D.H. Hill



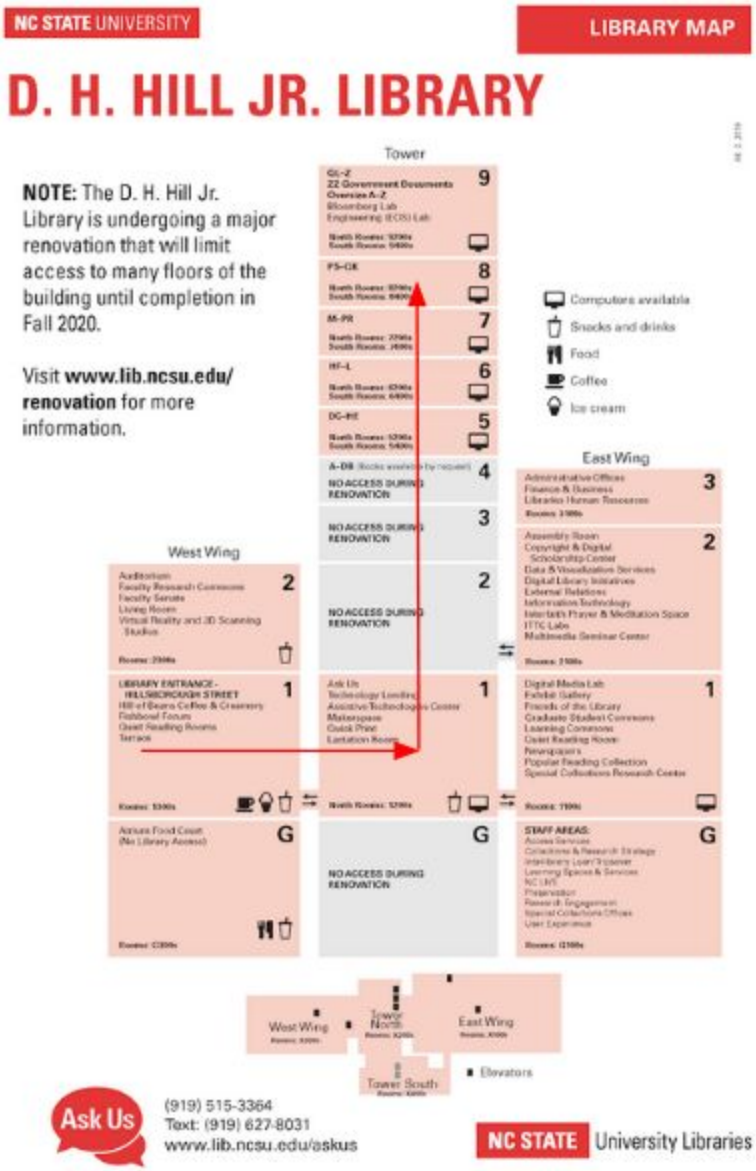
Timeline of Participant One



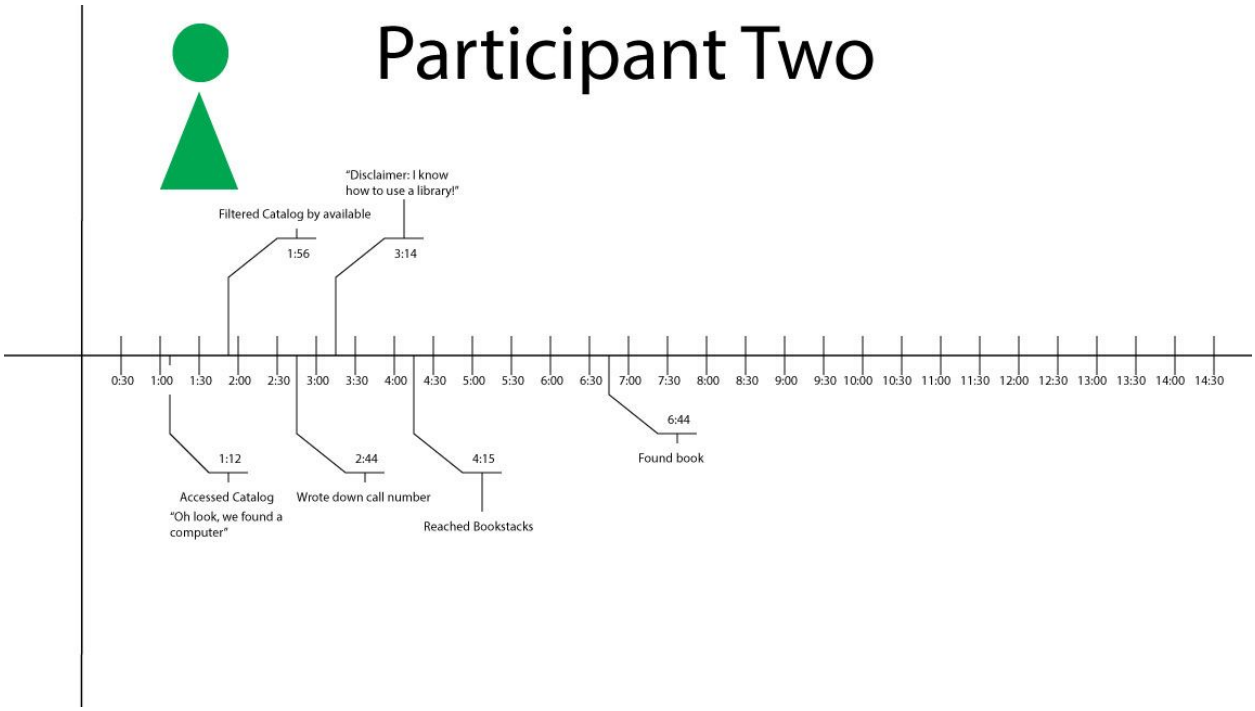
Participant Two

- Participant Two walked to the catalog and acquired the call number.
    - They were extremely confident and flippant.
- Participant Two went to the eighth floor.
- They found the book and wondered why people struggle with the system.
    - Participant Two didn't struggle to find the book.
    - They also do not think that any changes should be made to the system.
    - They used their previous DDC system knowledge to synthesize new knowledge.

Participant Two's path through D.H. Hill



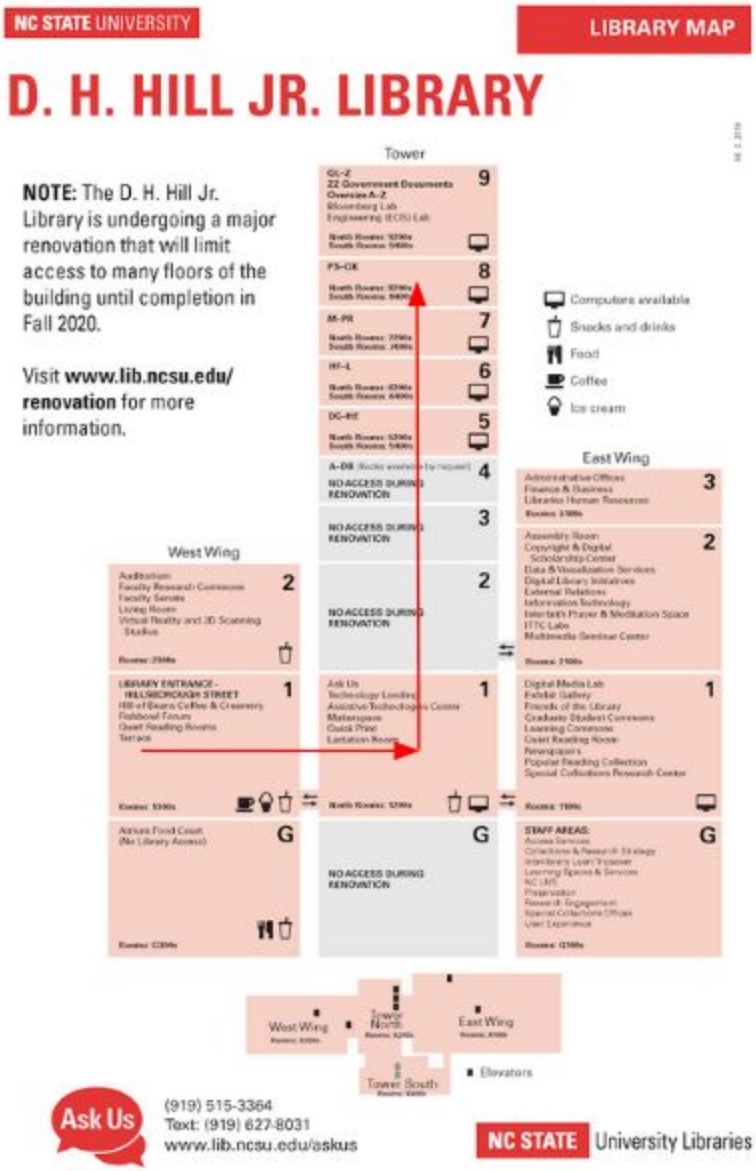
Timeline of Participant Two



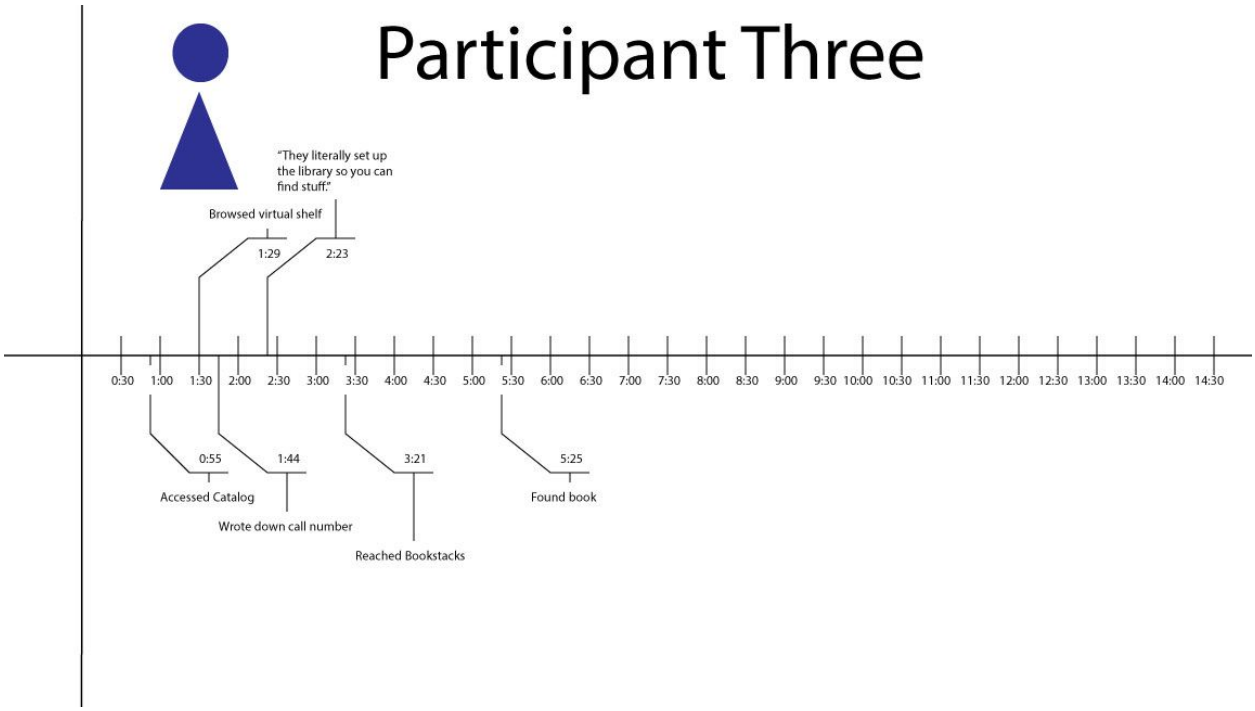
Participant Three

- Participant Three walked to the catalog and acquired the call number.
    - They were extremely calm and self-assured.
- Participant Three went to the eighth floor.
- They found the book and wondered why people struggle with the system.
    - Participant Three was excited to have finished very quickly.
    - They they think that the LCC is a perfect system.
    - They used their previous DDC and LCC system knowledge to navigate the system.

Participant Three's path through D.H. Hill



Timeline of Participant Three



Analysis

After reviewing the tests, it became clear that in order to use the D.H. Library system, it was expected that the user have an adequate amount of head knowledge. While the library does supply world knowledge in the form of the Ask Us Desk or the catalog, if a user lacks the head knowledge required to use these resources, they will never be able to find the book they are looking for.

Conclusion

In the end, it seems that the LCC is preferred by two-thirds of participants. However, those who enjoyed the system are also the ones with the most head knowledge regarding it.

Since the system is so reliant on head knowledge, it could potentially remedy this by adding more signs around the entrance and lobby so that students who have not had the privilege of having easy access to a library previously can succeed.

The university could also help introduce students to the system and make it less intimidating by having a class period in all first year college courses devoted to finding a book at the library and walking freshman through the process. This would help everyone have the base level of head knowledge that is required by the system.

Reflection

In the future, I need to screen participants better. I only asked them if they had ever used Hill before, not if they have ever used a library before. I also need to remember to come to the test prepared with handouts and written instructions so that participants will have a clearer understanding of what they are being asked to do.

In the end, I learned how to conduct a usability test, the importance of written instructions, and the distinction between head knowledge and world knowledge and how it should be factored into my designs.

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