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Improving Library Instruction Through Experiential Learning and Experience Design

Matt Armstrong
matt_armstrong@byu.edu

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Matt Armstrong

Design & Development Project Report
Instructional Psychology & Technology, Brigham Young University

Table of Contents

Table of Contents 2

Purpose 6

Product Description 6

Course Outline 6

Design Frameworks 9

Front-End Analysis 11

The Students 11

Needs Analysis 12

Production Team and Constraints 13

Design Process and Evolution 14

Overview 14

Phase 1: Initial Concept and Experience Maps 14

Phase 2: Draft One Testing 19

Phase 3: Draft Two Testing 21

Phase 4: Final Product 24

Product Implementation 25

TA Guide 25

Google Slides Presentation 26

Assessment and Evaluation 27

Criteria 27

Procedures 27

Limitations 28

Evidence 28

Outcomes and Implications 33

Design Reflection 33

Appendix A. Actual Product 35

Appendix B. Product Walkthrough 40

Appendix C. Learner Analysis 41

Appendix D. Wayfinding Experience 43

Appendix E. Environmental Analysis 47

Stakeholders **47**
Constraints **47**

Appendix F. Consulting Products/Precedent **50**
Current Library Tour **50**
Library Orientations **51**

Appendix G. Book-Finding Analysis **53**
Design Implications **55**

Appendix H. Design Specifications **56**
Product Walkthrough 56

Appendix I. Design Representations/Prototypes **57**

Appendix J. Assessment Reports and Instruments **65**

Appendix K. Implementation Instruments **71**

Appendix M. Budget and Timeline **73**

Appendix N. Annotated Bibliography **75**
Domain Knowledge: Library Usage and Perceptions 75
Learning Theory and Strategy 77
Design Approaches 79

Purpose

The Harold B. Lee Library has been a long-standing partner with the Writing 150 GE program. Every semester the library provides three days of instruction, when the students learn about library resources and how to conduct research. The first of the three days takes place early in the semester, when students come into the library to learn about the physical layout and resources. During this first day, students are taught about the library structure and website and then participate in a 20-minute activity in groups of three to five students, which invites them to find a specific book, talk to a help-desk attendant, and explore one area of library resources (see Appendix A for the full description of the current structure). However, past experiences have shown that some students still struggle to know how to navigate the library or are still unsure about what resources are available. This project focused on redesigning the initial library experience to better address cognitive and experience-based outcomes for Writing 150 students.

Working with library stakeholders, we identified the following objectives for the project:

Learning Objectives

1. Feel comfortable navigating the library.
    a. Be able to find a book using the call number system.
    b. Know where to ask for help when needed.
2. Students will know what resources are available.
3. Students will see how books and resources can benefit their schoolwork.

Experience Outcomes

1. Participate in an experience that is memorable, engaging, and encourages social interaction.

Product Description

This section describes the four major sections of the class as well as the theoretical framework that guided our decisions throughout the process.

Course Outline

The design of the class consists of four major sections: (1) introduction to the library, (2) the group activity, (3) final presentations and (4) a reflection discussion.

Introduction to the Library

The class begins with a discussion that helps students understand the goals of the class, the benefits of using the library, and how to utilize the library in different ways. The discussion addresses library anxiety, navigating the building structure, and the variety of library user personas (see Figure 1). This discussion lasts about 10 minutes.

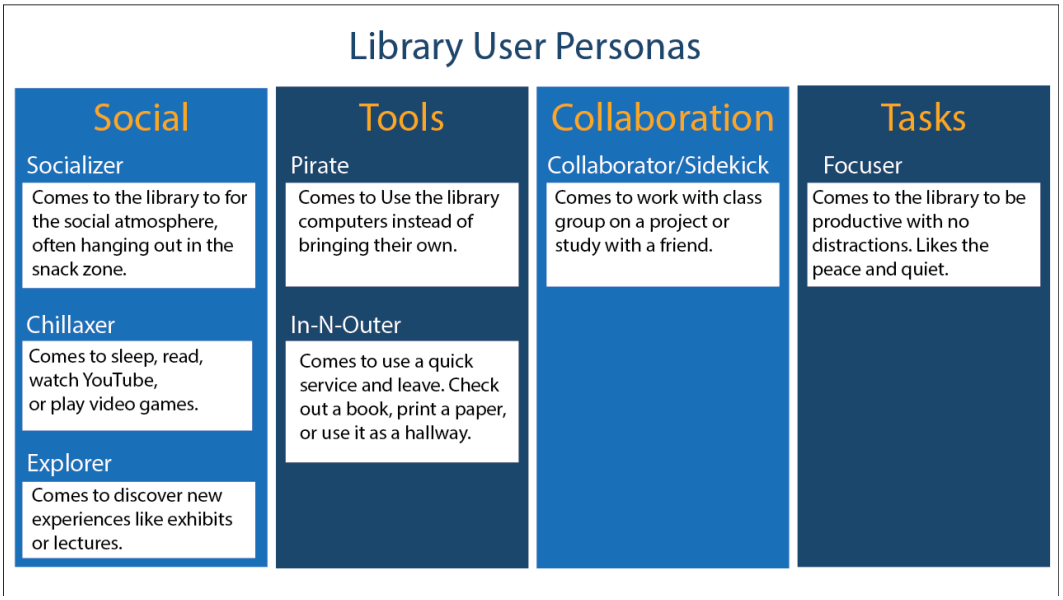


Figure 1. Library user personas.

Group Activity

Students split into groups, with each group receiving a handout to guide them to find a book as well as specific library resources, such as support staff or the media center (see Figure 2). They are tasked to go into the library to find their books and resources and take pictures or video of where they are. This activity should take roughly 15 minutes.

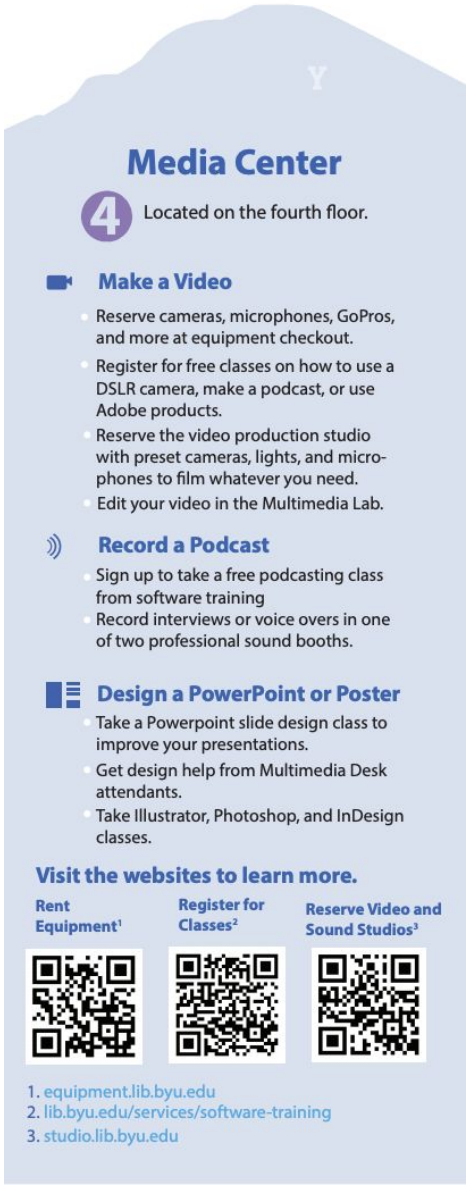


Figure 2. Media center handout.

Final Presentations

Upon completing the group activity, students return ready to give a pitch to their fellow classmates about why their resources will be most useful to use that semester. We added elements of competition for their presentations to increase the engagement. Students are required to present their pitches in the style of *Shark Tank,* a TV series where entrepreneurs can pitch their business ideas to potential investors. This series is a show that most students are familiar with, and the competition provides an opportunity for students to be more invested and engaged with the activity. Students must make their pitch in two minutes and have each person in their group contribute.

Reflection

The final discussion centers around helping students reflect on what they learned, what resources they are interested in using, and how they might avoid library anxiety in the future. At the end of the class, students are given a handout that combines the four different resource areas and provides links so that they can follow up on opportunities for further exploration that they may have seen an opportunity for during the activity.

Design Frameworks

To address both the learning and experience goals, I focused on two theories to guide the design—experiential learning and experience design.

Experiential Learning

There are various definitions of experiential learning. At Brigham Young University there has been a recent push to incorporate experiential learning into the curriculum (Worthen, 2016). Using the definition of BYU's Office of Experiential Learning (Waddell, 2019), the process is defined as three recursive activities (see Figure 3):

- Intention: Emphasizes the importance of students helping frame the experience and making sure the processes followed lead to the specific desired outcomes.
- Integration: Students must be given the opportunity to apply the knowledge in an authentic context.
- Reflection: Students take the time to reflect on their experience and identify what they have learned.

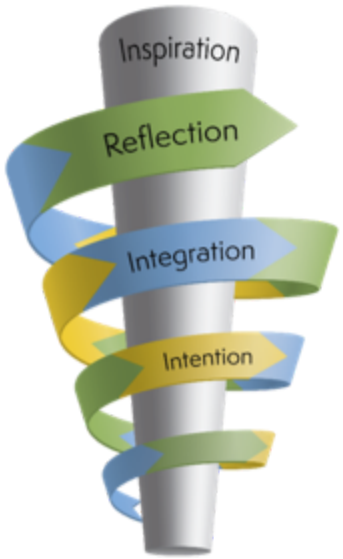


Figure 3. Experiential learning model.

The emphasis on student engagement and authenticity matched well with the goals of the stakeholders, who wanted students to see the direct connection of how the library resources could be used throughout their school experience. While applying these principles provided a good framework to improve the experience, the limitation with the library activity is that there is only one opportunity to go through the three steps, rather than multiple iterations as usually portrayed in visual models (Kolb, 2015; Waddell, 2019; Wurdinger, 2005). Further research and

experimentation could be done on how to utilize the process consecutively throughout the semester.

Experience Design

While experiential learning focused more on the cognitive outcomes of the course, experience design provided a framework to improve the affective objectives for the class. The main source of guidance I utilized was work from Robert Rossman and Mat Duerden (2019), who have both compiled literature from leisure services, marketing, psychology, and many other fields to describe which factors in an experience make that experience more meaningful, memorable, and engaging. They categorize the different kinds of experiences possible and what elements make up the different types (see Figure 4). For example, factors that promote a memorable experience include elements of emotion and an increased amount of required energy.

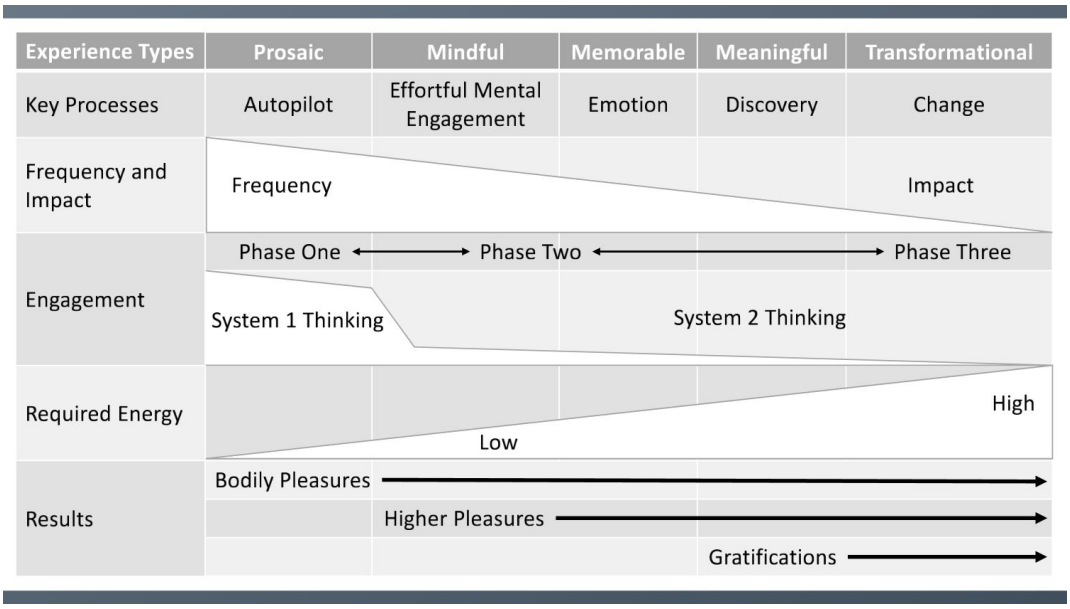


Figure 4. Experience categories.

Overlap

These two theories work particularly well together. While they use different terms, they overlap significantly in what makes an effective experience. Both emphasize the autonomy, or co-creation, of the experience to allow the user to be directly involved; the importance of intentionality in designing the experience; and the importance of reflection in the process, which from an experiential learning perspective helps to solidify the concepts learned and from an experience design perspective helps to solidify the meaning and memory of what was experienced. They are also complementary in that one emphasizes cognitive outcomes while the other provides guidance for affective outcomes. See Table 1 for how the two approaches are alike.

Table 1. Principles of Experiential Learning and Experience Design

Experiential Learning Principles	Experience Design Principles
Intention: Student involvement in the design of the experience, purpose and forethought in the design to reach outcomes.	Customizing: Allowing for individual experiences and interpretations. Experience deepening: Intentionally designing all phases of an experience to reach a specific outcome.
Integration: Apply knowledge to experience.	Participation: The audience participates in the designed interactions. Co-creation: Providing touchpoints that promote the audience to influence the experience.
Reflection: Articulation of the experience and what is learned.	Memorializing: Creating touchpoints that allow for significant memories through objects, photos, or specific experiences. Reflection: Thinking through the experience to define/redefine how it will be remembered.

Front-End Analysis

To conduct the analysis, I reviewed research articles and internal studies from our own library that had looked at how students navigate the library and experience on the tour as well as how students navigate through the library. Additionally, I analyzed the literature on library use in higher education and identified specific improvements that could be applied to the experience. The following section summarizes the key findings from this front-end analysis.

The Students

Since the course is a required course for almost all students, the audience is considerably wide spread. The majority however are freshman in their first or second semester of college. The student's age ranges from 17-21, as well as a small fraction of upperclassman who are older. As Brigham Young University is a competitive academic institution, most students performed well in high school.

Writing 150 Course

Each fall semester, the library hosts 120 sections of about 20 students, and in winter, about 95 sections, with an average of 18 students per section. Spring and summer terms have about eight to ten sections.

Library Experience

There is a wide variety of experience with the library among the students. Many students have had some library experience through the freshman orientation program, though this tour occurs in conjunction with multiple days of orientation around campus, so it's easy for students to forget the information. Additionally, many students do not attend this orientation, so they have limited experience, having used the library for study space. Research indicates that previous experience can be one of the most beneficial tools for students finding their way (Zaugg et al., 2016). Providing students with an opportunity to navigate through the library with a specific goal will be an important contribution to their understanding.

Library Anxiety

Scholarly research indicates that many students have "library anxiety," or apprehension toward using library resources as well as a lack of confidence in asking for help (Mellon, 2015). Scholars have presented multiple frameworks to measure this anxiety, but most describe the anxiety in terms of students' comfort, knowledge, and willingness to ask for help. Internal research at the HBLL indicates that this has been an issue for students. In 2017, a librarian asked students to draw their relationship with the library in three empty squares. While some had positive feelings toward the library, many expressed feelings of apprehension, feeling overwhelmed, or, as one student put it, "death, pain, [and] anxiety" (Merril, 2017). See Appendix D for examples of these responses.

Needs Analysis

The initial needs analysis was conducted through multiple meetings with stakeholders as well as analyzing multiple evaluation and assessment reports that have been conducted by the instruction department and library assessment. Several opportunities for improvement emerged from the process.

Improving Wayfinding Strategies

One of the main goals of the experience is to help students feel more comfortable finding their way around the library and using the resources offered. The research on improvements varies significantly, since each library has a different structure and different student body. For different approaches from other libraries and lessons learned from these examples, see Appendix F.

At the Harold B. Lee Library, though students generally feel more comfortable navigating the library after completing the current tour (Allen, 2018), feedback suggested that just an assignment to visit a location didn't necessarily help their overall navigation skills. One student noted: "I did not find the book finding activity helpful, because it was just following a map, which is nothing new. The availability of maps was new information." Accordingly, the re-designed activity addresses multiple ways of navigating and understanding the library building structure.

Improved Experience Outcomes

Library stakeholders are constantly looking for ways to improve instruction and wanted to improve the affective perception of the class and the library in addition to improving the students' knowledge and abilities. Past interviews with the Writing 150 students identified that overall the students' experience could have been more helpful to them in their current assignments, more engaging in the activity, and more expansive in showing the resources the library has to offer (Allen, 2018). Each of these elements contributed to the overall perception of the class.

Expanding Knowledge of Library Resources

One student stated, "I honestly feel a little overwhelmed by how many resources there are and would love to be able to know more about each one" (Allen, 2018). Many students do not have a clear understanding of what the library offers, and the Writing 150 class is an excellent opportunity to provide them with some of that information. Because the resources are expansive, this information has been difficult to include in the short 50-75 minute time frame of the class. With this limitation, our team designed a handout that listed a majority of the resources that students find useful so they could have a tool to guide them for when they needed to return to the library on their own.

Activity Context

When the current structure of the class was designed a few years ago, students came into the library three consecutive days in a row in the middle of the semester, about the time they were starting their research project. When TAs taught about using books for research, there was a clear context and actionable opportunity to apply the information. However, now that students have the first class early in the semester, students have lost sight of some of the context and immediate applicability of the information. With specific assignment contexts to the activities, students can get additional insight into how the library resources might benefit them.

Production Team and Constraints

Production Team

The team I worked with on this project was the Online Learning Team from the library, which includes three students:

- Inha Kim: graphic designer/animator
- Sam Furner: learning-experience designer
- Matthew Phillips: web developer (left in July)
- Jefferson Ostler: web developer (began late August)

Each of these students is quite talented in his or her role and provided helpful feedback and helped design most of the graphic elements for the class. The shift in web development students

was difficult, as Matthew Phillips had begun a number of pieces to the activity and our hiring process took longer than expected, which also slowed things down.

Technological Evolution

The impetus for beginning this project was our team testing capabilities of augmented reality (AR) technology. Feedback for the prospectus recommended putting off the idea of AR and first exploring solutions that would focus on helping students be more knowledgeable about and comfortable with using library resources. It took some time for me and my team to get on board with the idea, as we had already invested in the process and thought about specific AR solutions. But as we began to let go of the technology and focus more on the best solution for students, it was clear that it was the most effective approach.

Time

While I planned to finish the project by the end of July or beginning of August, our team received a request for a redesign of library videos and tutorials that stakeholders wanted to be implemented by fall semester. This redesign required a significant amount of work, which slowed down the Writing 150 experience redesign process (see Appendix M for a full breakdown of the budget and schedule).

Design Process and Evolution

Overview

Design and development followed four major phases:

1. Initial concept and experience maps
2. Draft one testing
3. Draft two testing
4. Final product

Within each phase, I conducted evaluations through feedback from stakeholders, student surveys, and observations. To complete the project, I worked with students from the Online Learning Team, and together we did some initial analysis and brainstorming. As we moved through the project, the students also helped design multiple graphics for the prototypes. In the following section, I describe each of these phases in greater detail.

Phase 1: Initial Concept and Experience Maps

Following the approved prospectus in June, I engaged in three phases: (a) brainstorming approaches, (b) experience map 1, and (c) experience map 2.

Brainstorming Approaches

Overview

We wanted to create an engaging experience and thus decided to hold a few brainstorming sessions. Additional help presented itself early on in the process. A library supervisor wanted her 20 student employees to better understand what goes on in the Creativity, Innovation, and

Design Studio, which I help supervise. Our team conducted a workshop to guide the group through the process of brainstorming and using constraints to come up with ideas, asking them to develop ideas for structures or games that could be used for the Writing 150 activity (see Figure 5). To help the students see different approaches to brainstorming, we began with a task to individually write down as many possible structures for the activity they could. They shared their ideas within groups and combined similar ideas. To further expand on their ideas, we asked the students to identify a class they had recently, the last book they read, and the last movie/tv show they watched. We then explained the concept of constraints and asked them to come up with new ideas with constraints from one of the three items they identified.

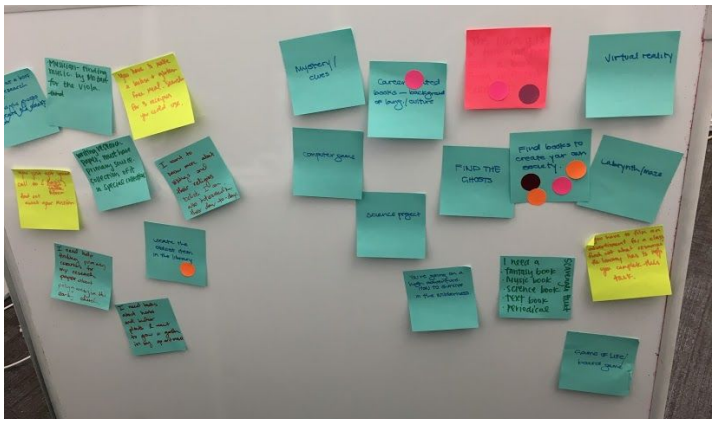


Figure 5. Library student brainstorm session.

In a different brainstorming session, our team used those ideas and generated more to explore the elements to use for the activity (see Figure 6). Strategies for the brainstorm included general ideas, listing different kinds of games, and adding constraints to expand our results. We then grouped the options into similar themes and tried to identify what kinds of experiences we could create.

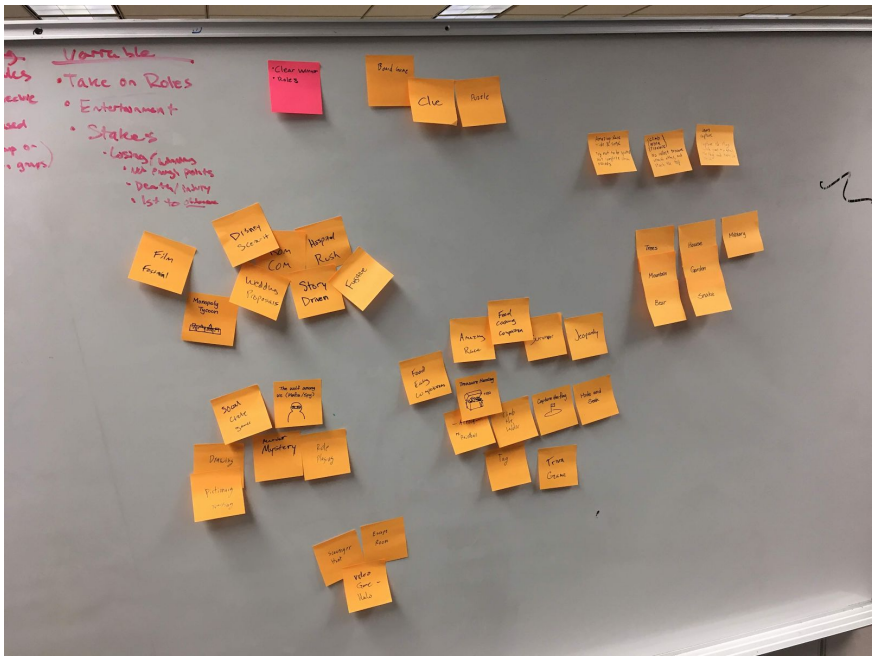


Figure 6. Image of brainstorming approaches.

However, after converging on our ideas, I realized that going too far in the direction of a theme or game at that time might distract from the experiential learning process. One of the core tenets of experiential learning is the authenticity of the situation in which students are participating and learning from (NSEE, 1998). Thus, I opted to forgo adding themes and games until I knew we had a strong structure in place.

Observations

During this phase, I also sat in on multiple class sessions to observe the students and their current experience. The key takeaways from these observations were as follows (for more of the results, see Appendix J).

- The way different TAs introduce the class varies widely, each according to their own personality. Originally, I thought I would strictly guide the class introduction, but it seemed it would be more valuable to provide flexible options with a specific time limit.
- Students are very timid to separate into different groups. For the sake of time, they should be assigned to specific groups.
- For the final part of the activity, students are told to go somewhere interesting with their remaining minutes. The reflection on this experience, though, was generally limited. While there were some groups excited about their experience, most of the time one group member would give a single comment about what the group visited.
- TAs went into significant detail on how a book is really useful for research. These concepts are important for the students to learn, but with students still having weeks before their research paper assignments begin, emphasizing books on the second and third library days may work better.

Experience Map 1

To build the outline of the class, I utilized the concept of experience mapping through touchpoints, which comes from the experience design literature. Rossman and Duerden (2019) describe touchpoints as "a specific time and place during an experience in which a participant interacts with design experience elements." The first experience map I built (see Figure 7) was very similar to the previous class model. At this point, I was still focused on just the 20 minutes of students going through the library but hoped to improve the class by adding touchpoints, such as the travel time and group interaction. After establishing the touchpoints, our team went through each one individually to establish the ideal reactions students would have at each moment.

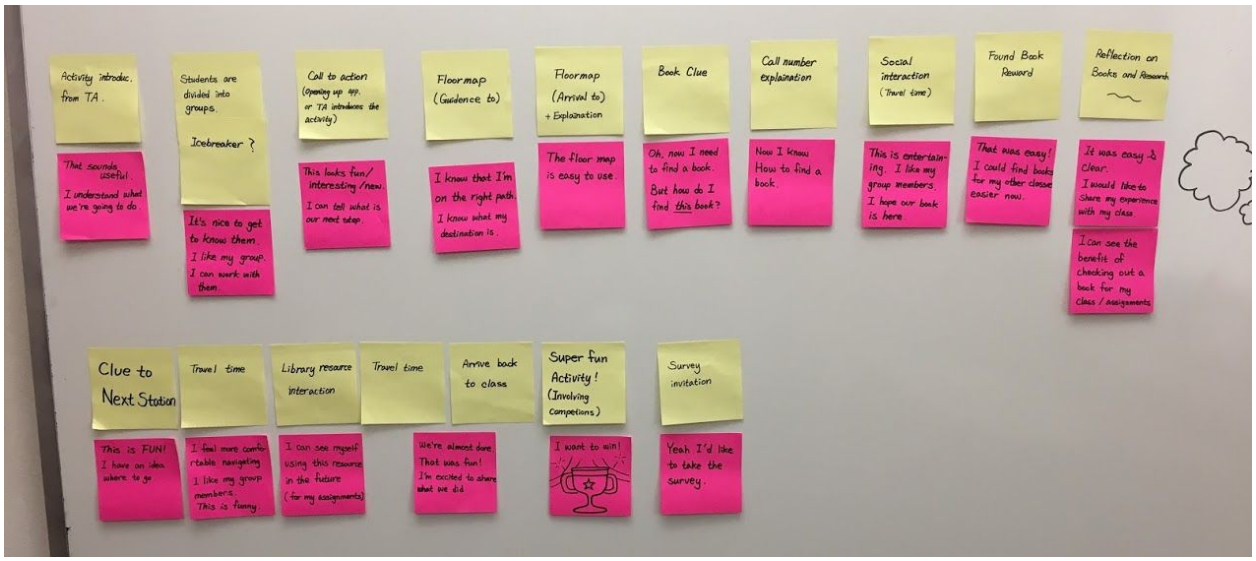


Figure 7. First experience map.

Experience Map 2

As I reflected on our outcomes, initial goals, and asked for feedback from stakeholders on this model, I explored different ways of structuring the class and expanded beyond the 20-minute activity. Focusing again on the experiential learning model and the applicability of the experience, I wanted to adjust several aspects of the classes:

- Allow students more time to explore resources:
  - Students originally had so little time after finding a book to look at resources that many of them missed the opportunity.
  - Additionally, since the task to find a library resource was open to the whole library, the students' experiences lacked depth. I decided to find ways to expand the time as well as divide out the assignments so students could go more in-depth with the resources.
- Help students better understand the structure of the library:
  - To address this need, I decided to provide a small portion of instruction for explaining navigation and library structure.
  - This instruction included showing key signs and floor maps to look for as well as a 3D rendering of how the library is structured.
- Make an explicit connection to how the library resources can benefit students in their assignments:

    - To accomplish this goal, I had each group's resource assignment lead to specific assignments that students had that semester: the research paper and the multimodal assignment.
    - Instead of trying to explain to them that they will need the resources in the future, I thought it important to help them see the immediate utility.
- Provide more time for reflection at the end of class: With the reflection phase being critical, I found that we could save time at the end of class for students to present and reflect by moving the video tour to a pre-class assignment.

All of these changes led to the second experience map (see Figures 8 and 9), where our team went through the full experience map design process of identifying touchpoints, desired reactions, and frontstage and backstage contributors. We designed a map for the overall experience as well as one for each separate resource group. These additional elements help guide efforts for making the design as effective as possible and make it clear where to put the effort. For the full digital copy of the experience map, see Appendix I.

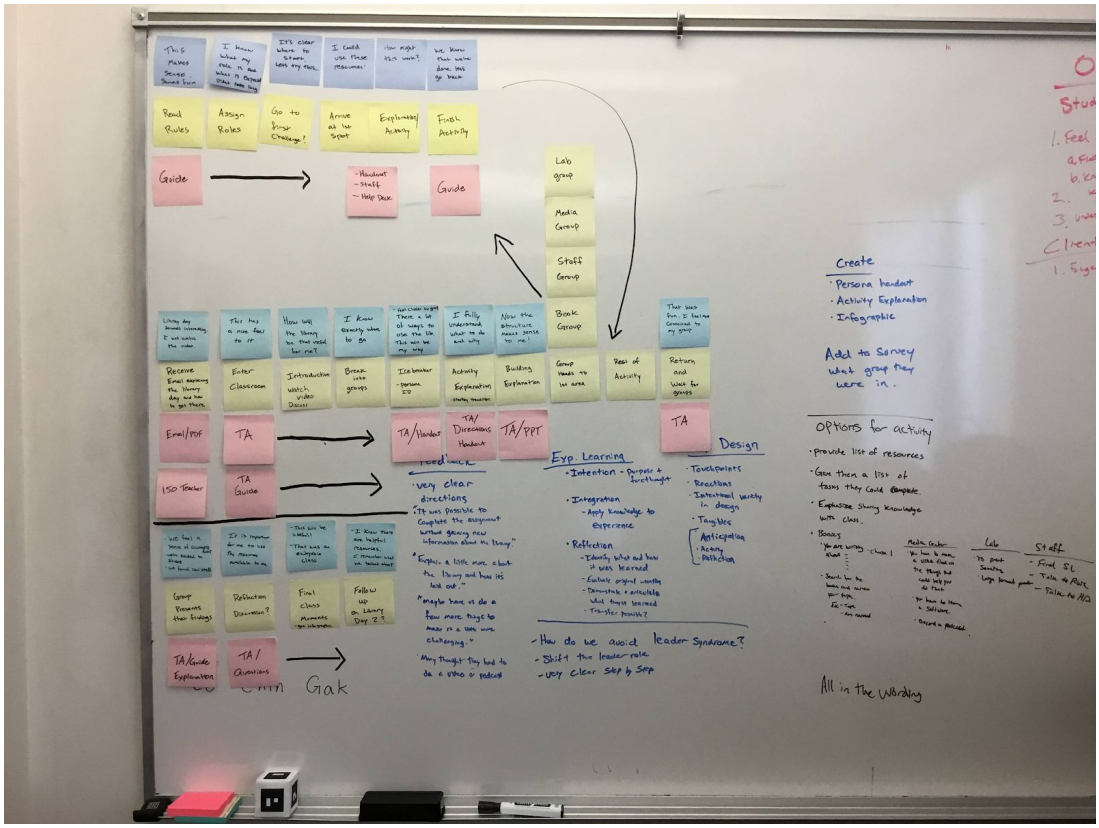


Figure 8. Draft Experience Map.

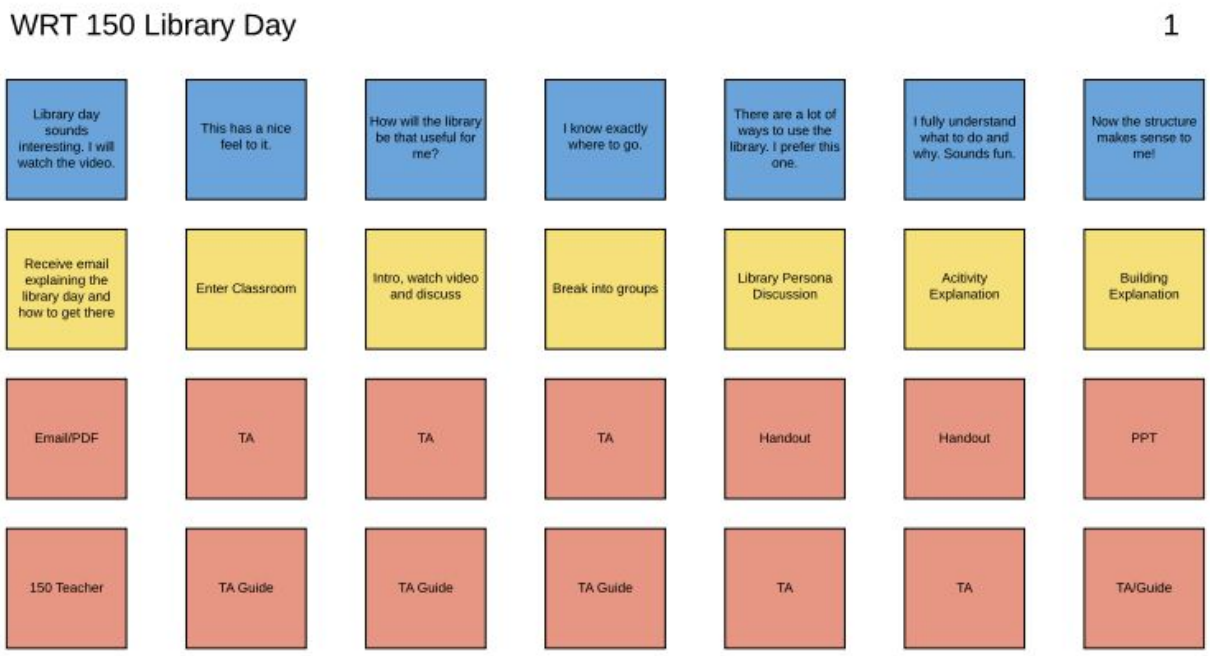


Figure 9. Finalized copy of experience map.

Phase 2: Draft One Testing

I teach three Writing 150 library sessions a semester and as such had an excellent opportunity to test our design. My first sessions were two back-to-back sessions, which were each 50 minutes. As a prototype, I avoided designing fully fleshed-out graphics and assignments so that I could implement changes more easily in the future.

Design and Implementation

For the two classes, I began with a discussion on the goals of the library instruction day and showed a short video that emphasizes the difference the library can make in students' schooling. We then talked about the structure of the library and the different user personas of how people use the library.

Activity

For the activity, I created a two-sided page for each of the four groups with one side describing the activity and the other providing a description of the resources to focus on (see Appendix I for these resources). The class was separated into four groups, each with a specific resource to explore: books, staff, multimedia lab, and experiential lab. Each group had to designate a photographer to document what they found and were given 20 minutes to complete the activity.

Presentations

Upon returning, the students presented the pictures of finding their resources (see Figure 10) to their class. Each group was given four minutes to present and had the requirement that each student talk during the presentation.

Figure 10. Student presentation picture.

Evaluation

I used two main approaches to evaluate the success of the classes. Throughout each class, I was able to have a student employee observe the structure of the class and follow one of the groups as they went into the library. I also conducted pre- and post-surveys for each of the classes to assess their baseline comfort and knowledge of using the library and then analyze the change after the class ended.

Observations

To record the observations and get as much of a comprehensive view as possible, I utilized an empathy map, which is an effective observation approach from the field of user experience design as it analyzes what students hear, think, feel, say, do, and see (see Figure 11).

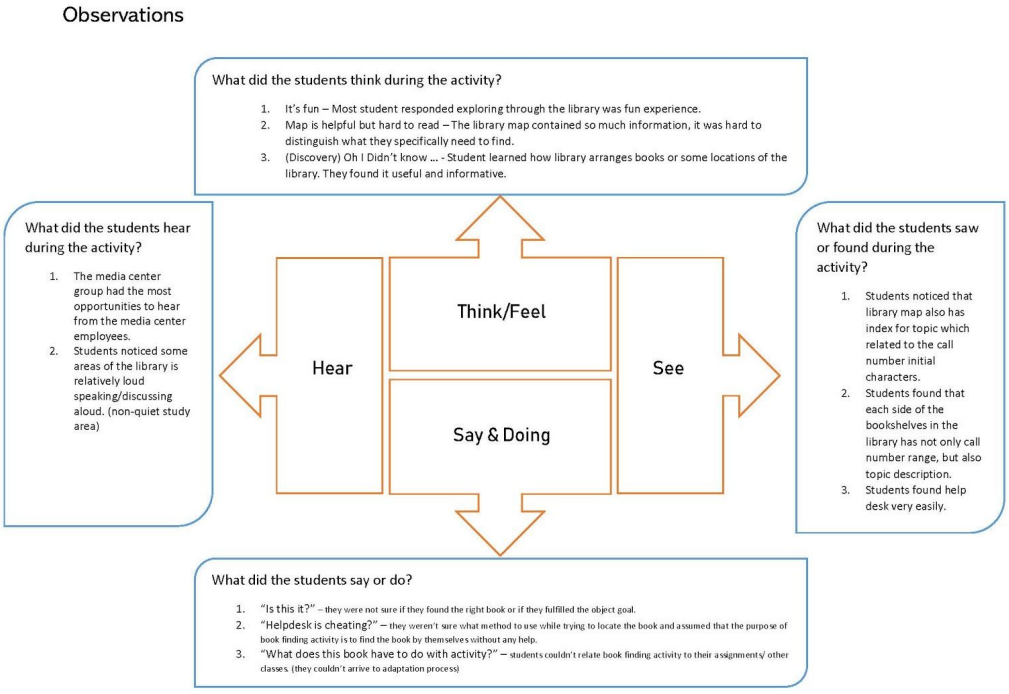


Figure 11. Empathy Map.

Areas for Improvement

The main findings of how the experience could be improved from the observations were similar to the results from the surveys—mainly that students had a difficult time understanding the directions that were given. This confusion led to students delaying leaving the classroom and finding their resources and struggling to know what exactly what was expected. Another noted improvement opportunity occurred when the students had to ask the help desk attendant: they played "nose goes," a game where the last person to touch his or her nose is designated to do the task. This prompted us to add a role in further editions of the designated communicator.

Positive Outcomes

Even though the directions were confusing at first, as students finished the activity and did presentations, there were some positive observations. During the search for a book, one student said, "I might make video games my research," as another responded, "You already have resources." It was clear the student had made a connection between the sources, assignments, and benefit of books and library resources. Additionally, as students returned to class and presented what they found, there were a number of comments and questions about specific resources and how to find books.

Surveys

The surveys I provided asked students a variety of questions from the library anxiety test, as well as additional experience-based questions. There were a few consistent themes in the free response. See Appendix J for full responses. The negative feedback was almost entirely about the directions of the activity. Despite the fault in the directions, there was positive feedback from students as well, identifying improved resource and library awareness as well as a positive experience.

Confusing Directions

> *"It was confusing. I didn't understand what we were supposed to do with the topic in terms of the resources that we were also supposed to find."*
>
> *"It was simple but the directions were very confusing. Initially we thought that we actually had to [make] an edited video in fifteen minutes. We figured it out though."*

Resource/Library Awareness

> *"Finding our way around the library uncovered even more potential resources, and made me feel more comfortable with getting around."*
>
> *"I loved it. It took me to a floor that I had never been on before. Really appreciated going around and being able to see the different resources."*
>
> *"Going through the library was fun and it allowed me to get a better idea of the resources available."*

Positive Experience

> *"It was an enjoyable experience. I learn better by doing than by listening to someone talk to me about it."*
>
> *"I felt that it was a great experience and an effective way to explore the library and see what it has to offer students for their projects and schooling."*

Phase 3: Draft Two Testing

We had two weeks following the first class iteration to make adjustments for the second round of testing. According to the feedback from the first round, I made a number of adjustments to the process:

- *Simplified directions*: Instead of having different activity directions for each group, I tried to design one solution that would work for everyone. I decided to remove the tasks relating to developing a topic and simply invite them to go explore the resources they had been given and make their presentation.
- *Experience improvements*:
    - Considering the class from an experience design perspective, I felt that there was still potential to make improvements. In order to make the experience more memorable, I looked to add a sense of emotional

involvement. The added element would also support students having a more positive experience overall.
    - I discussed this goal with Dr. Mat Duerden and we identified the one touchpoint that had the greatest potential for emotion: the final presentation by the groups as they were presenting in front of their peers.
    - As I discussed different options with our team, we decided to frame the presentation as a pitch from the TV series *Shark Tank,* where entrepreneurs try to pitch business opportunities to investors. We would invite students to pitch their resources as the most valuable to their classmates. This framing of the activity added elements of competition and increased the level of involvement that would be required, thus resulting in a more engaging experience.

Evaluation

Observations

Two library employees were able to observe during the session and each followed a different group. Using the empathy maps, they identified different aspects of the experience. The most prominent themes were as follows (see Appendix L for full empathy maps).

- Opportunities for improvement:
    - “Once they got to the help desk, they weren’t sure what to do.”
    - “Unsure how much info was needed.”
    - “Easily thwarted by people being busy—they gave up or went elsewhere multiple times if there was anyone in line.”
- Positive outcomes:
    - “They saw the purpose, wanted to make a good argument.”
    - “Did a good job following directions and asking questions.”
- Student engagement:
    - Compared with the first draft, there was an increase of student engagement as we incorporated the *Shark Tank* structure. One group designed a logo for their team, and another group created a video to show their sources with text and music (see Figure 12). This kind of engagement was meaningful to the stakeholders, and they are very interested in continuing to use the idea of creating pictures or videos.

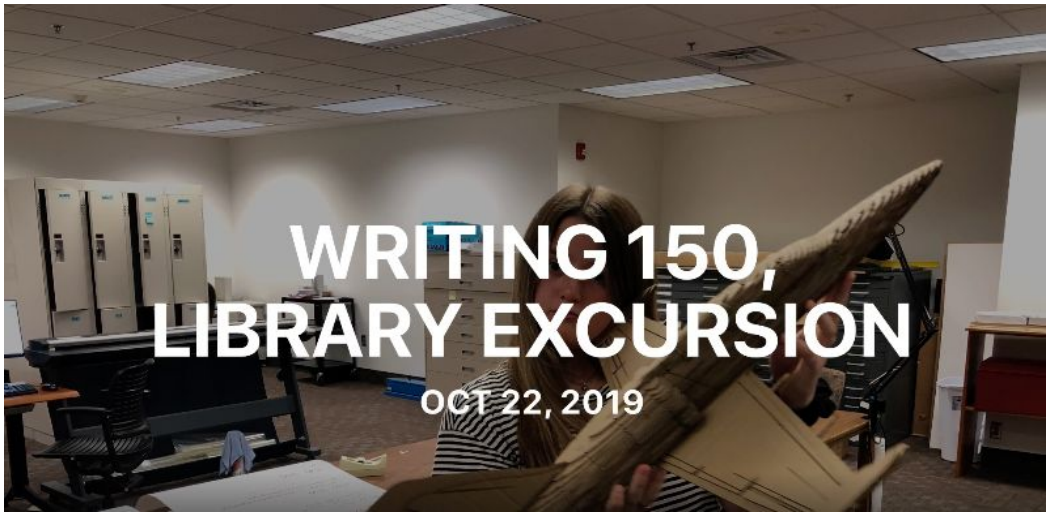


Figure 12. Video screenshot of student presentation.

Survey Results

This second test had a similar pattern as the first round. There were still comments from certain groups about confusing directions, though fewer than the first round, as well as positive feedback about the experience in regards to resource awareness (for full results, see Appendix J).

Opportunities for Improvement

> *"It was interesting, but I was a little unsure about what we were supposed to cover as a group. We had the library resources assignment and I wasn't sure exactly what information to talk about during the presentation."*

> *"In the end, listening to other groups and troubleshooting our own group's navigation through our assignment helped overall. It was still a little confusing on what exactly we were supposed to do in the beginning though."*

> *"Perhaps provide an example presentation so we know what [ours] should look like when we present."*

Positive Outcomes

> *"I liked the activity a lot. It taught me a lot about the multi-media lab which I don't think I would have ever used if I hadn't known everything that is available on the 4th floor."*

> *"I liked this activity because it gave me a better idea of what is here in the library. I had only been to the writing lab before so getting to walk around and see what they had to offer was really helpful to me."*

> *"I thought it was super helpful and a quick and easy way to inform everyone about what things are in the library and how to go about getting things done."*

Stakeholder Feedback

A discussion with the project's main stakeholder, Jessica Green, who observed the final iteration, gave valuable feedback for what she would want as they run more pilot versions of the course next semester. Her main concern was the time constraint and the ability of new TAs to successfully run the course. At times, some Writing 150 teachers will take the first 10 or 15 minutes of class, making it very difficult to cover all of the content. She wanted a simple outline that could easily be completed in 40 to 45 minutes as well as more emphasis on books and the library website. Additionally, she gave positive feedback about the presentation structure, thinking it would be an engaging experience for both the TAs and the students.

Phase 4: Final Product

Principles to Implement

As I designed the final product, reviewing the feedback from the various evaluations and discussions, there were four main principles that I wanted to implement:

- Improve instructions for all groups: while groups with the more technical resources seemed to have an easier time understanding directions, the books and staff groups needed more guidance about what to do once they find their resources.
- Stakeholders would still like to see all students find a book: this goal, however, will be evaluated in the coming semester with all library instruction stakeholders.
- Provide an example of what a presentation would look like.
- Provide more deliberate reflection questions: I had thought that the reflection as the groups presented would be enough but realized it would be better to address the reflection questions after the presentations so students have a more holistic view of all the resources that were covered.

Adjustments Made

We addressed these concepts through a variety of adjustments in each of the sections of the activity.

Introduction

- *Library Instruction Room Map*: Many students have a difficult time finding the instruction rooms in the library. This delays the start of class, causes students to miss out on valuable information, and can have a negative effect on the full experience. To avoid these results, a member of the Online Learning team helped design an infographic (see Figure ___) that teachers can give to students to improve the beginning of the experience.
- *Updated discussion points*: In order to improve the focus of the class overall, I added in discussion points to discuss library anxiety and help students understand what it means for them.
- *Library Building Structure*: Inha Kim, an animation student on the Online Learning team finalized a video that breaks down the different floors of the library to help students better grasp the overall layout.

Group Activity

- *Book focus*: Library stakeholders wanted to bring the book activity for each group so that everyone can get a better understanding. Each group then must find a book before

exploring their assigned resources. In order to save time for the groups, I provided options for specific topics of books to choose from. These options were chosen by their proximity to the resources they needed to explore.
- *Moved website discussion*: Where originally a discussion on using the library website was at the beginning of class, I moved it to after the activity is introduced so that students have a better context for using the information.
- *Simplified Instructions* The instructions were simplified further to try and avoid any confusion. I sought feedback from students to ensure that it was clear what each group needed to do.

Presentations
- Stakeholder feedback indicated it would be beneficial to limit students' presentation in both time and structure. I lowered the presentation time from four minutes to two minutes, and limited students to three pictures or videos that they can show.

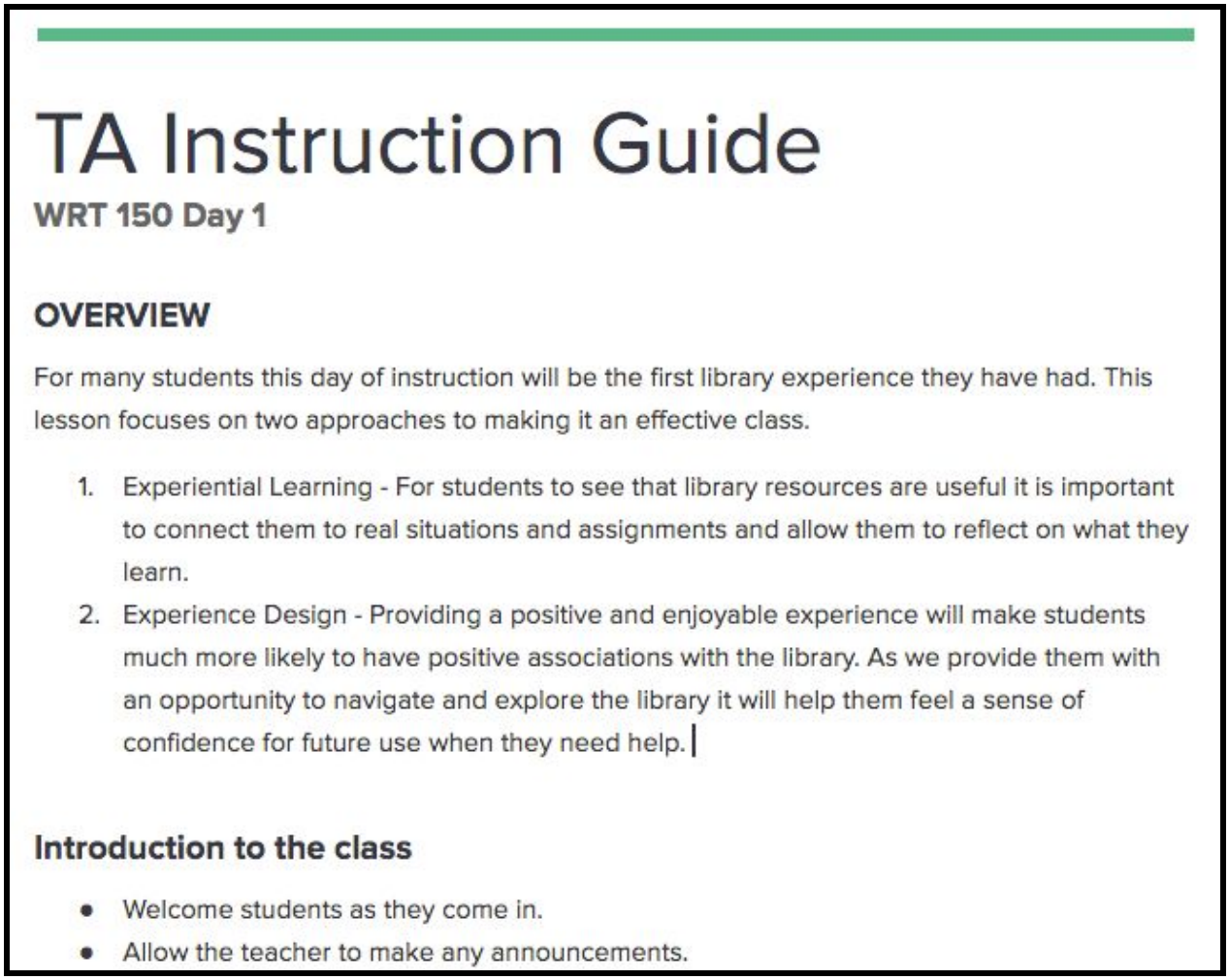
Reflections
- The main adjustment to this section was adding specific questions *after* students presented. These questions allow a better integration of experiential learning as it follows up on the discussion at the beginning and allows them to think of insights and applications for what was learned.
    - What were specific things you learned today that will help you in the future?
        - That you want to go see?
    - Was it difficult to find books or resources?
    - Did the experience help or hinder any library anxiety you might have had?
    - From what you learned today, are there any strategies for success that you would give to your future selves regarding the library?

Product Implementation

In the winter semester of 2020, the library will pilot the class with a larger number of classes as they continue to refine the activities and goals before it is ready for full implementation. Each of the classes will be taught by one of the TAs. To enable them to successfully teach the class, I created two main resources to help them through the process: (1) a guide that introduces them to the framework behind the experience and outlines the course structure and (2) a Google Slides presentation that they can use to facilitate the class (see Appendix A for resources).

TA Guide

This guide (see Figure 13) outlines the structure to follow for the class as well as how to use the document camera to show student pictures and videos (see Appendix A). My goals for this guide were to give a sense of the purpose of the experience, provide loose enough guidelines that the TAs still feel some autonomy, and instruct them on the necessary tech skills.



TA Instruction Guide

WRT 150 Day 1

OVERVIEW

For many students this day of instruction will be the first library experience they have had. This lesson focuses on two approaches to making it an effective class.

1. Experiential Learning - For students to see that library resources are useful it is important to connect them to real situations and assignments and allow them to reflect on what they learn.
2. Experience Design - Providing a positive and enjoyable experience will make students much more likely to have positive associations with the library. As we provide them with an opportunity to navigate and explore the library it will help them feel a sense of confidence for future use when they need help.

Introduction to the class

- Welcome students as they come in.
- Allow the teacher to make any announcements.

Figure 13, TA Instruction Guide.

Google Slides Presentation

There were similar goals with the presentation as with the TA guide. Keeping slide content to a minimum provides each TA with flexibility in the way they want to approach the content. Thus, most slides were limited to titles (see Figure 14) with additional guidance provided in the notes. Further research and adjustment is recommended to understand how the TAs use the guides and slides.

Figure 14. Example slide for wayfinding instruction.

Assessment and Evaluation

Criteria

The main stakeholders I communicated with throughout the project were Elise Silva, the writing programs librarian, and Jessica Green, who took over during the summer as Elise started a PhD program in a different state. Leanna Balci was another main stakeholder, as she serves as both my supervisor and the instructional design librarian.

The stakeholders overall were interested in the students' ability to be aware of and take comfort in using the library and its resources. Additionally, they also identified experience outcomes that would help make the class more engaging and memorable for students.

To reach the stakeholder's goals, these were the main questions we focused on answering:

1. Did the student's improve from before the class to after?
    a. Specifically in terms of their comfort of the library and knowledge of available resources.
2. Did they remember when they returned a few weeks later?
    a. Was one version more effective than the other in the retention of the information?
3. Was the new structure more effective than the previous structure?
    a. Relating to the student's improvement of knowledge and comfort.
4. Did the new structure improve the engagement and affective perception of the class?

Procedures

The vast majority of evaluation conducted for improving the project was formative between iterations. I relied on student and stakeholder feedback each iteration for the main source of adjustments. To evaluate the overall success of the class, I utilized a pre- and post-test with each class, as well as classes that used the previous structure as a control group. This test asked

questions based from the library anxiety scale (Onwuegbuzie, 2004) that has students self-report their comfort and knowledge levels on a Likert scale (see Appendix J for full assessment).

To understand the retention of the information I followed up with direct assessments as classes came in for the second library day a few weeks following their first. These questions tested their knowledge of library resource locations and features as well as the meaning of call numbers.

To analyze the data from a quantitative perspective, I converted the Likert scale into numerical data (1-5), as is traditionally done for the library anxiety scale. I attempted to analyze the data using an ANOVA, however the assumptions could not be met, such as an equal sample size and a sufficient response distribution.

To analyze how the students felt about the experience overall, I utilized qualitative survey questions, observations from stakeholders, and the Net Promoter Score (NPS), a common measurement in the experience and retail industry to measure the degree of customer loyalty to a brand or product (Medallia, 2019). The question asks “On a scale of 1 to 10, how likely are you to refer this product [class] to a friend?” Those who submit a score for 1 to 6 are considered “detractors,” those who submit 7 and 8 are “passives,” and those who submit 9 and 10 responses are “promoters.”

Limitations

Unfortunately, as I analyzed the data with the help from Dr. Ross Larsen, we found that due to the small sample sizes of the groups and the low variability in the kinds of responses for the post-test, there was limited opportunity for statistical analysis. For example, most of the questions had a narrow distribution of responses, such as question four (see Figure 15). Additionally, the second prototype only occured with 19 students, while the control groups had 65. Even in each of those groups, there were some students who did not take the post-test or who didn’t answer all of the questions. Therefore, I am reporting on descriptive statistics rather than inferential.

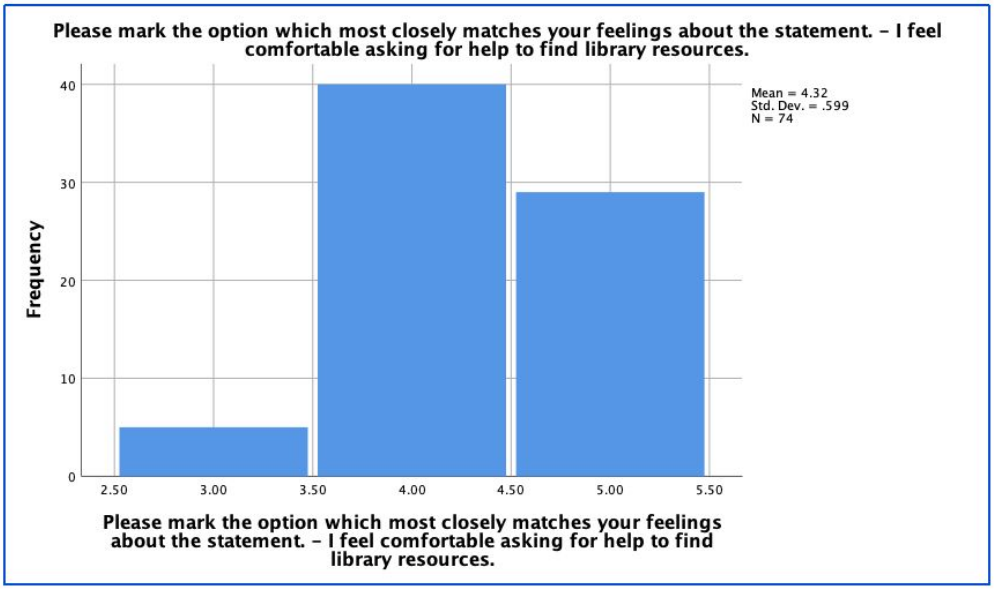


Figure 15. Question response histogram.

Evidence

Did the student's improve from before the class to after?

Combining the student's responses to questions about comfort and knowledge of the library I created a composite score and looked at the mean for each group (see Figure 16). It does appear that with little variation, students are more comfortable and less anxious after they have completed any one of the versions of the course.

Pre-Class Average	Post-Class Average
Control	
36.36	42.24
Prototype 1	
36.89	41.79
Prototype 2	
37.75	42.81

Figure 16. Mean scores for library anxiety questions.

Did they remember when they returned a few weeks later?

As I compared the data from the follow-up survey for each group, there were similar limitations in the information. Most scores did not differ significantly between the control group and prototype group such as question five (see Figure 17). The scores that did differ, such as question six (see Figure 18), were difficult to extrapolate meaning from with the smaller sample size.
Another fault in seeking to answer this question was that I did not assess student's previous knowledge of the questions to be able to test whether the intervention caused the change or if that class happened to already have the knowledge. This question will need to be re-addressed in the upcoming pilot semester to more fully understand the answer.

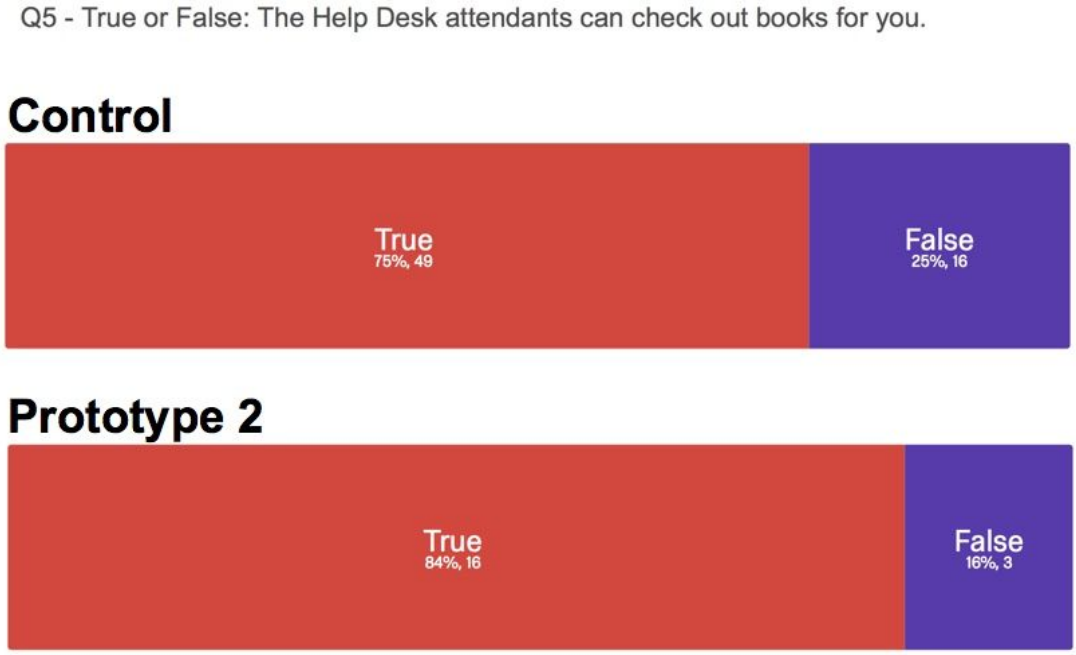


Figure 17. Question five results.

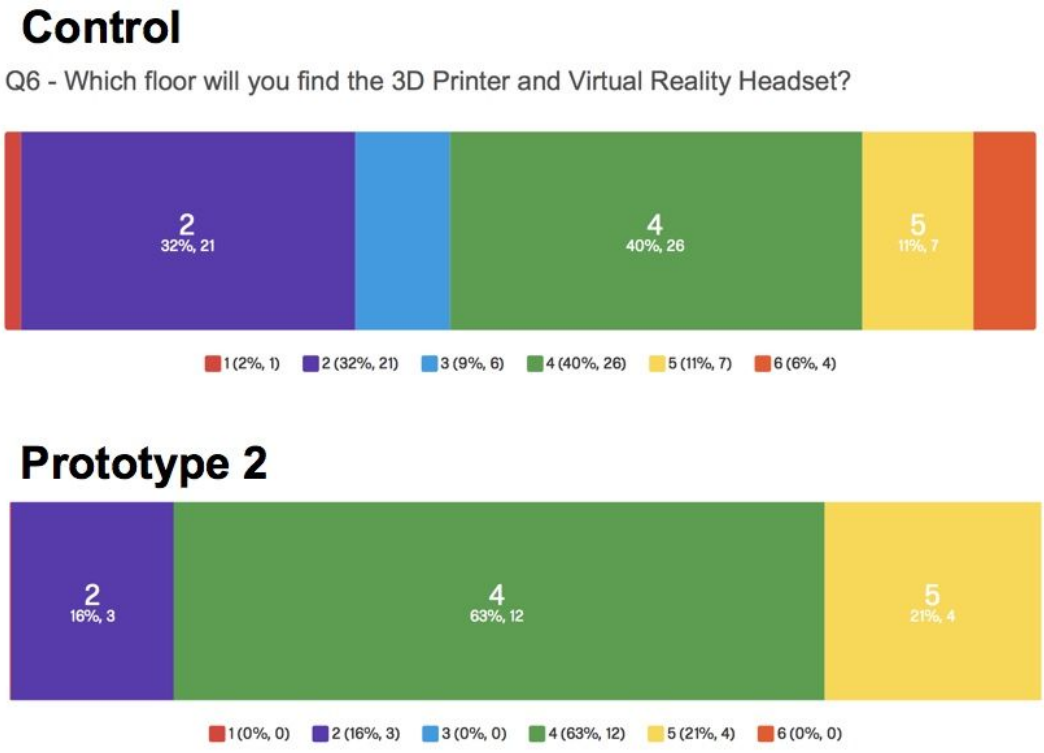


Figure 18. Question six results.

Was the new structure more effective than the previous structure?

Findings in the results found little difference between the student responses to the library anxiety questions. As seen in figure 19, some questions were nearly identical. Thus, I cannot say for certain that the new structure helped decrease the library anxiety of students. Additional work is needed to test with a reliable sample size.

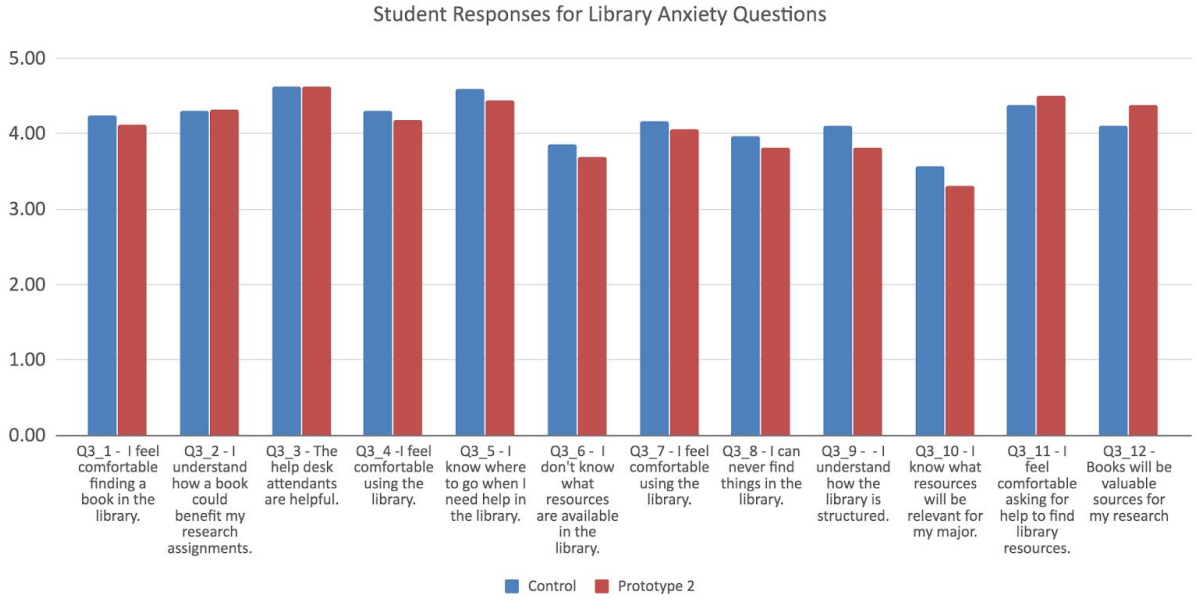


Figure 19. Control and prototype results.

Did the new structure improve the engagement and affective perception of the class?
According to the NPS score, the results showed that the second prototype was 15 points ahead of the control group (see Figure 20). Additionally, stakeholders in the observations of the prototype agreed that the students in the final presentations were much more engaged than in the previous structure. Further research is required to solidify these findings, but they were promising nonetheless.

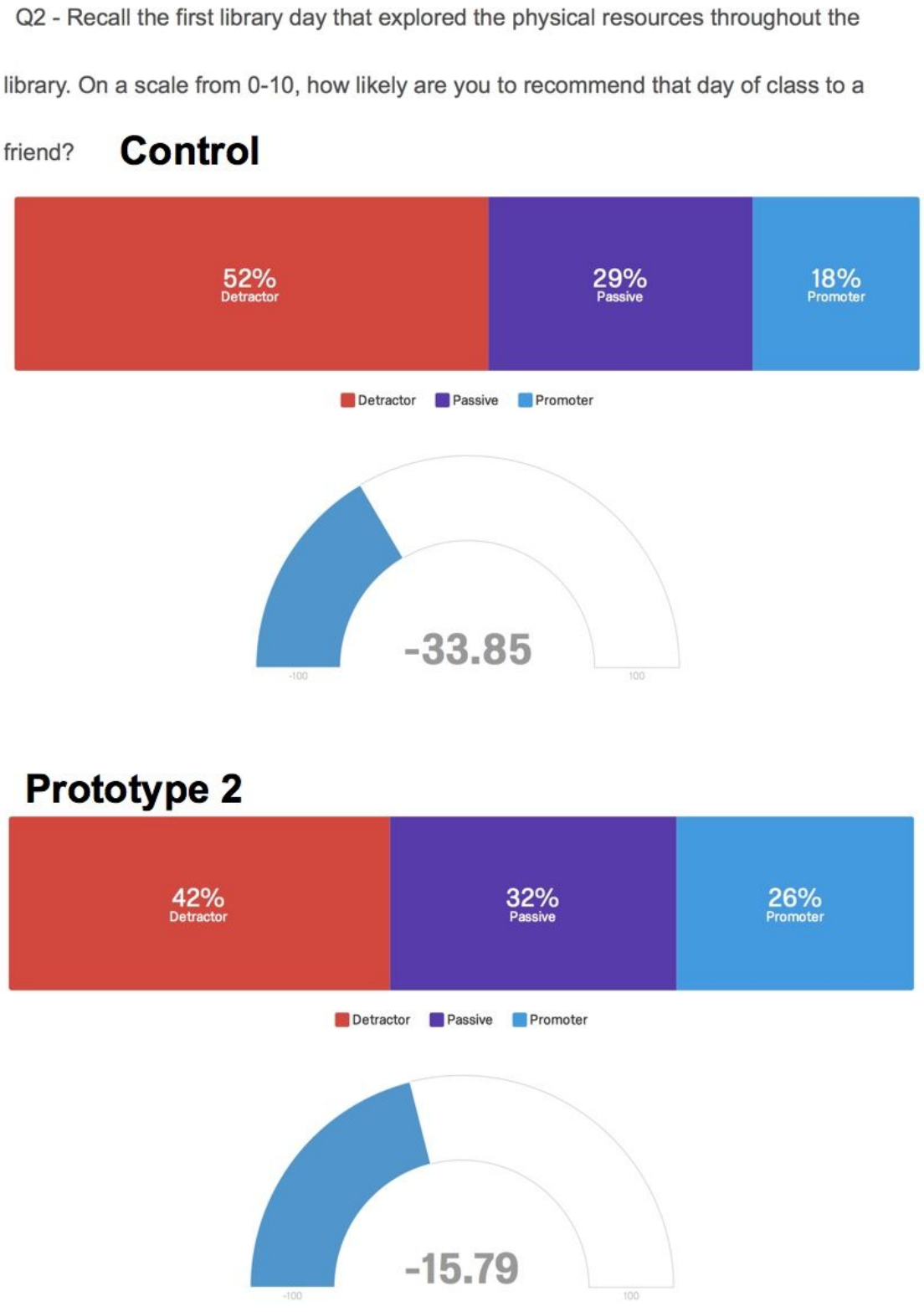


Figure 20. NPS score comparison.

Conclusion and Future Work

Reviewing the results of the evaluations and assessments, it is difficult to certainly say that students learned more about the books and resources than they might have before. However, observing the *engagement* of students in the class as well as the qualitative feedback, it does seem that the overall *experience* has improved for students.

The implications of these results suggest that more testing is required so that a reliable sample size of students can be analyzed. Additionally, it is important to the process that library stakeholders identify what the core takeaways are for the students in the class. As discussions around adjusting learning outcomes continue to happen, more specific questions can be utilized to measure the exact desired outcomes.

Continued work needs to be done in identifying the most effective ways to assess the experience. By identifying the main goals of the course and the best way to assess it will be much easier to understand what the most effective interventions are. Additionally, the activity should be seen in the broader context of the first semester experience in order to understand what changes should be made.

I plan to present this information to several library stakeholders in the instruction department before the year is over so that plans may be made for the coming pilot semester in regards to how many classes they would like to test and what adjustments should be made to the assessment instruments.

Design Reflection

Throughout this process, I have gained valuable experience, information, and insights that will guide me in future design projects.

Dealing with Constraints

There were two major constraints that provided valuable takeaways. The first constraint was the idea of augmented reality. The impetus for creating the project was applying augmented reality; for much of the time that was a major constraint whose significance I didn't realize. In defending my proposal for the project and for some time after, it was clear to me that we would use and apply the technology. While I know that there are good opportunities to apply augmented reality in the future, if I would have moved forward using augmented reality, it likely would have been under the same design constraints as the original Writing 150 experience and we would have missed out on opportunities to think of the experience in different ways. Thus, one important design takeaway is to focus on the core experience and outcomes rather than a specific solution. Once we recognized this need, we were free to explore a variety of solutions that were engaging, efficient, and effective.

The second major constraint that was instructive was the structure of the class. Our original focus on just the 20 minutes came out of a thought that the library was set with the current structure. The most significant moments of progress in the design, however, occurred when I realized we could not only adjust the rest of the time in class, but that it was crucial to adjust that time.

My advice for other designers is to consider the constraints of a project before going too far: both the constraints you feel have been given to you and the constraints that have been self-imposed. Then, throw out those that are not actually constraints.

Design is Data

As I have participated in projects in the past, my passion for the creative design aspects have been where I feel most comfortable. The result of this is that I overlook aspects of data, such as how you will really know the goals have been achieved and how they are measured. Partly due to this tendency and combined with a short time frame, I did not put as much emphasis on the data aspects as I should have. This was only clear after I finished the projects and had collected all of the data. Even if the outcomes are difficult to measure, it makes it all the more important to consider at the outset what will be measured, how will it be assessed, and if we will have enough information to fully answer the question of success. As mentioned, some questions we were not able to answer due to an insufficient amount of responses. I was also surprised when reviewing all of the similar results between the classes because our qualitative data was generally positive. Had I spent more time on the holistic evaluation and assessment process at the beginning I could have gained much more valuable information.

Don’t Rely Too Much on Others’ Data

Related to the previous lesson, this was another difficult lesson to learn later in the design process. This project was benefited by a significant amount of research conducted with our specific learning audience. Research done on library navigation, user personas, and the previous activity were invaluable throughout the process. However, all of that research was done in a different context with different goals. Because of that, there were numerous questions that came up late in development, when I lacked the time and resources to set up our own interviews and research protocols. I definitely would have done much more of my own interviewing if I could go back and do it again. Gathering deeper information would have allowed us to match our activity closer to the goals of the students.

Constant Refocusing

Constant refocusing stuck out as a major theme because many of our breakthroughs in design came about as I refocused on the theories I was relying on. I have a tendency to look past the original analysis and foundation of theory as I move into the design phase, but it seems critical to view the theories and goals more as guideposts that lead us forward instead of milestones I have passed.

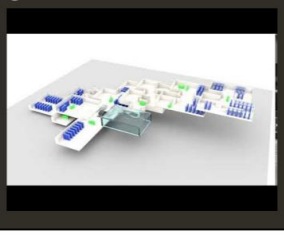
Appendix A. Actual Product

This section contains all of the teaching resources provided as well as links to the videos that were created.

Teaching Resources

Google Slides Presentation

Navigation - Floor Structure



Library Persona Group Discussion

- Look over the different ways of using the library.
- While it will often vary, identify what you think will be the persona that identifies you the most throughout your college career.
- Share with your group.

Library User Personas

Social	Tools	Collaboration	Tasks
Socializer Comes to the library to for the social atmosphere, often hanging out in the snack zone.	**Pirate** Comes to Use the library computers instead of bringing their own.	**Collaborator/Side-kick** Comes to work with class group on a project or study with a friend.	**Focuser** Comes to the library to be productive with no distractions. Likes the peace and quiet.
Chillaxer Comes to sleep, read, watch youtube, or play video games.	**In-N-Outer** Comes to use a quick service and leave. Check out a book, print a paper, or use it as a hallway.		
Explorer Comes to discover new experiences like exhibits or lectures.			

Library Shark Tank

Goal: Pitch to your class the library's most useful resources.

1 Preparation

- Review handout
- Choose a team name
- Assign roles:
- Photographer - Takes the pictures/videos.
- Communicator - The one to talk to students or staff.
- Scribe - Prepare notes for the presentation.

30 Seconds

2 Exploration

- Find a book from the provided topic options.
- Document how you found it and how it could be used for a research paper.
- Explore your assigned resource. Document what is available and what resources you found that could help your classmates.

15 Minutes

3 Presentation

- 2 minutes - All members of group must participate. 3 images or videos.
- Opening Arguments - Present the facts. Where and what you found.
- Present Evidence - Make your argument. What value do your resources provide?
  - Consider what resonates with your audience. Saving time? Good grades? Date ideas?
- Closing Arguments - Present final argument. Convince us! Move us!

2 Minutes

Books to Find for Each Group

Media Center

- Music Collection
  - Music History
  - Music Appreciation
  - Music Therapy
- Country Dancing
- Choreography

Library Guidance Group

- Nutrition
- Astronomy
- Nursing
- Computer Graphics

Experiential Lab

- Poetry
- Shakespeare
- Cinema
- Spanish Literature
- French Literature

Special Collections

- Business
- Child Development
- Education
- International Relations
- Psychology
- Political Science

lib.byu.edu

Group 1

Group 2

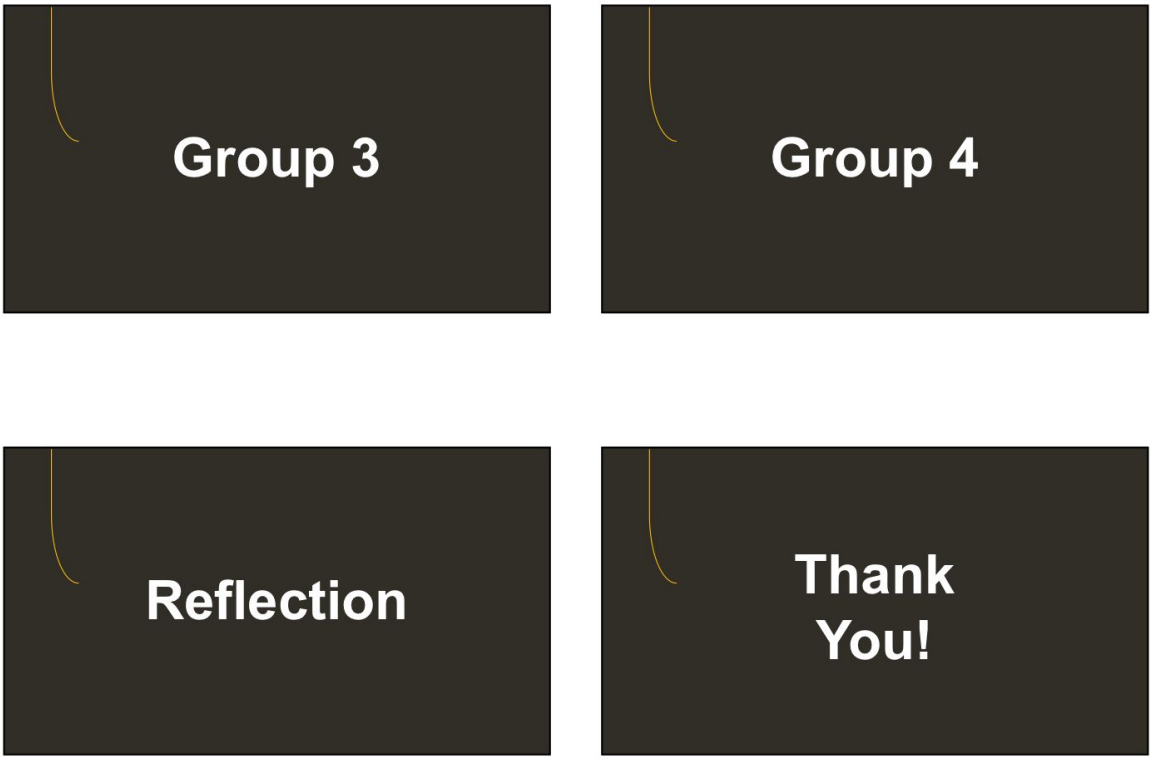


Figure 21. Google slide presentation.

TA Instruction Guide

WRT 150 Day 1

Overview

For many students, this day of instruction will be either the first or the longest library experience they have had. This lesson focuses on two approaches to making the class engaging and helpful.

1. Experiential learning: For students to see that library resources are useful, it is important to connect those resources to real situations or assignments they encounter and allow them to reflect on what they learn.
2. Experience design: Providing a positive and enjoyable experience for students will help them to have positive associations with the library. As we provide them with an opportunity to navigate and explore the library, they will feel a sense of confidence in the library when they need help.

Introduction to the Class

- Welcome students as they come in.
- Allow the teacher to make any announcements.
- Begin with "Formula 1" video, describing the difference between using the library and not.
- Connect the video with goals of the library session that day: helping students become more comfortable and knowledgeable about what the library has to offer them.

Discussion

Library Anxiety

There is a lot of research on library anxiety: how comfortable students are knowing their way around, knowing what's available, and asking for help.

    - Does anyone identify with those feelings?
    - Talk about your growth of comfort in using the library.
    - We'll talk today about ways to help.

Finding Your Way through the Library

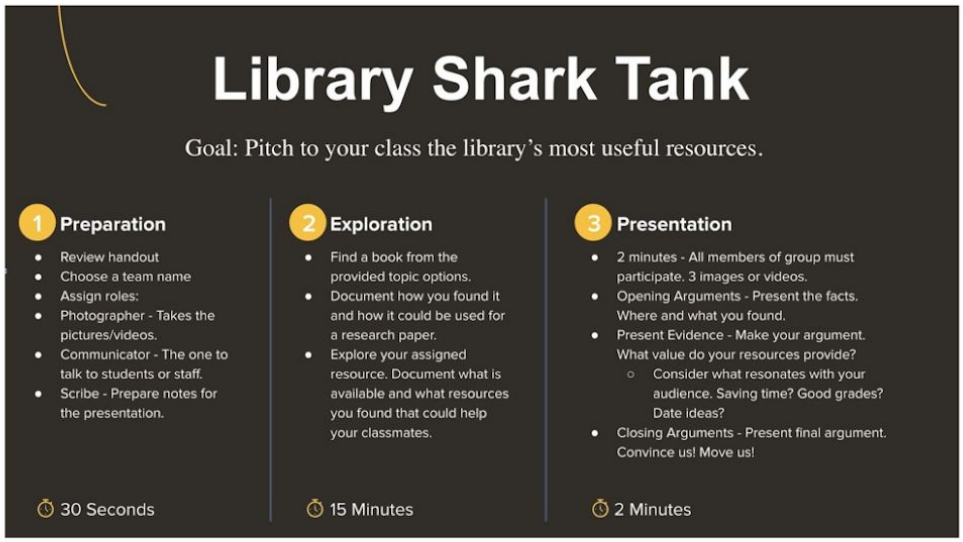
- Explain that in order to start we will discuss the library structure.
- Show the video/slide about the library structure. Talk about the difference in length and shape of the first, third, fourth, fifth floors (Capital I shape) and the second floor (much longer).

Library Persona Group Discussion

1. Divide students into four groups. It is best to assign the students yourself to save time.
2. Ask them to identify what they think will be their main user persona and share it with their group. Remind them that it will often vary but have them identify their primary persona.
3. Ask students to share. To encourage participation, you can invite students to volunteer their peer's explanations.

Group Activity

For the activity section, use the slide from the Google Slides presentation to explain the activity.



After explaining the activity, provide the students an overview of how to find a book, as well as other useful navigation tips like the FAQ and Services pages.

Provide a brief example of what a presentation will look like, using the next slide.

Let the groups know they have 15 minutes to return, and then send them out.

Presentations

Presentations are 2 minutes each.

As each group comes to the front of the room, open the next slide; the theme song from *Shark Tank* will play. This element is not crucial but can add to the experience. After the song plays, switch the input back to the document camera or HDMI cord so the students can show pictures or videos from their phones.

Additional experience elements that are not crucial but can add to the experience are announcing the team name as they approach and, if time allows, having the class vote on the winner.

Reflection Discussion

This is an important step of the process for students to solidify the things they have learned and reflect on how the library can support them in their schooling. With the remaining time you have with the class, have a discussion with questions like these:

- What were specific things you learned today that will help you in the future? That you want to go see?
- Was it difficult to find books or resources?
- Did the experience help alleviate or add to any library anxiety you might have had?
- From what we learned today, are there any strategies for success that you would give to your future selves regarding the use of the library?

Figure 22. TA instruction guide.

Videos

Library Introduction Video
Library Structure Animation Video

Appendix B. Product Walkthrough

A short video explaining the experience can be seen here.

Appendix C. Learner Analysis

Demographics

Writing 150 hosts 120 sections of about 20 students in the fall and, in winter, about 95 sections, with an average of 18 students per section. Because the course counts toward general education credit, students have a variety of majors and situations. This constraint makes the design a bit more difficult as there are a wide variety of learners with different needs and skill sets.

It is recommended that students take this course early in their study. Roughly 90 percent of students are first-year students or transfer students, and the rest are upperclassmen.

College students, in general, have significant demands on their time, so many students do not use library resources even if they would save them time and improve their homework. For example, when I teach Writing 150 sessions, generally the most exciting part for students is learning how to use RefWorks to automatically create a bibliography. The oohs and ahs at this moment reflect how much students value saving time on their coursework. Considering this, I tried to emphasize in the instruction how using the library can make their work easier.

Most first-year students have some amount of experience with the library during the new student orientation. However, this experience is short, is not attended by all students, and there is a lot of information that is delivered in conjunction with learning everything else about campus, so by the time students have come into their writing classes, they do not remember where most things in the library are. However, there is a small amount of previous experience to draw upon, such as general locations of the media center or study spaces on the third floor.

Older students who have been at the university for some time will likely have had at least some experience with the library. Some will have checked out books or media equipment, and many will have used the library for group study rooms, the multimedia lab, or a study space like the third floor.

Library User Personas

In 2016, the library assessment unit conducted research (Zaugg, 2018) to identify the variety of user personas within the library. They identified 10 major personas divided into four different groups as shown in figure 21. These personas were particularly useful in the way that we designed the handouts of the resources. Recognizing that some students may not need or want information about specific resources, in the handout we provided a large number of resources were displayed with links so that students could identify their specific needs. Additionally, we made the personas part of the class discussion to show that even if students don’t feel like they are academically orintedated that there are still resources for them.

Name	Description
Task	
Focuser	Motivated by achievement (straight A students), he/she is a personal studier who equate the library with no distractions and productivity
Islander	Motivated by having a personal, quiet space to enjoy the peace and quiet of the library, he/she may be found at any time of the day reading personal books, writing, drawing, thinking, or even working on homework
Outsider	He/She interacts with the library's services through its website or databases and is unfamiliar with the library and/or finds it intimidating. This persona changes into other personas as the patron becomes more familiar with the library
Collaboration	
Collaborator	Motivated by getting good grades, he/she comes to collaborate with others for a specific class project or study opportunity. Contains 2 subgroups: Voluntarily forms a group to study Involuntarily put in a group to complete a class project
Side-Kicks	Motivated by studying with a friend but not collaborating. He/She will sit with a friend but study separate things
Social	
Socializer	Motivated by the library's socialization opportunities rather than its study opportunities, he/she doesn't go to the library to study but to socialize and meet people. He/She likes the No-Shhh and Snack Zones
Chillaxer	Motivated by enjoying the atmosphere of the library and by what they are doing, he/she will break from studying to sleep, read a recreational book, watch YouTube, play video games, etc.
Explorer	Motivated to come to the library to explore or discover, he/she uses its resources for things above and beyond school requirements
Tool	
In-N-Outer	Motivated to quickly use a library service and then leave, he/she checks out a book, prints a paper, or uses the atrium as a hallway between destinations
Pirate	Motivated to use library computers for homework and social activities out of convenience, they do not own or do not want to bring their own computer

Figure 23. Library user personas.

Appendix D. Wayfinding Experience

Wayfinding is a term used for how people are able to navigate the physical and conceptual layout of a space. This familiarity is a major goal for the librarians, as it makes an impact on how comfortable students feel. If they can feel more comfortable navigating the library, they are much more likely to access resources when they need them. I have summarized information from the literature on this topic as well as research done specifically in our library. This information has helped provide insights into how to design an experience that improves students' capabilities.

Literature

The literature on wayfinding in libraries covers a variety of topics, and the study that was done by the HBLL assessment team following this section proved to be most useful. The biggest takeaways from the literature around student wayfinding were:

- Where to start: Students commonly don't know where to start, whether they are doing research or looking for a call number. It is important to help students develop mindsets for where to go, or considering the time constraint, have different entry points on a handout.
- Signs and maps: these are continually mentioned to be the most critical for effective wayfinding among students (Bailin, Jahre, & Morris, 2018).

HBLL Wayfinding

In 2015, library assessment conducted a study analyzing how students find their way around the library (Zaug et al., 2016). The study gave a series of tasks to both first-year students and upperclassmen, such as finding books, services, and locations. The results indicated that students use five different tools when finding their way around the library:

1. Signs: This was the primary method that students used to navigate through the library. However, there were a number of signs that students missed either because of low contrast or the signs being out of the line of sight. The library has over 10,000 different signs, so using them can be somewhat overwhelming. The main takeaway is that students should get help identifying the few types of signs that are important for navigation, such as floor level, elevator, and large ceiling signs.
2. Maps: Maps were the second-most-used tool by patrons, particularly the large slanted maps on each floor. Students had difficulty reading the maps, but this problem should be less of an issue now, as the library has redesigned the maps within the past year to be easier to read. There is an interactive map on the third floor, but most students in the study did not realize the map was interactive. I have included the use of these maps in the activity.
3. Service desks: Students used three different types of service points: security, circulation, and help desks. Students would often ask at a desk in one location and then head in the general direction of where they wanted to go before they

asked a second person for help. One important note was that students received different types of service at each of the desks.

4. Computers and smartphones: Computers are found on each floor, and some computers are located near the collections and do not require a student to sign in. Seniors in the study used computers and smartphones more often than first-year students did to look up items like books. First-year students said they did not use computers because it took too long to sign on. Slow internet connection in certain areas discouraged the use of mobile phones, but these areas have since received updates.
5. Previous experience: Previous experience "proved to be one of the most used methods to find a person, product, or service." Students who had been in a location before for a class or lecture were able to find many services quickly. This experience was naturally more common with seniors than it was with first-year students. However, even within the study, some younger participants knew of a location because they had passed it during another part of the study.

Other relevant themes and design implications:

1. First-year students and seniors are equal: There seemed to be no significant difference between the time it took for first-year students to find locations as it did the seniors. This discovery perhaps indicates that even though roughly 10 percent of the Writing 150 classes are made up of upperclassmen, we can view most Writing 150 students as having equal abilities.
2. The benefit of experience: providing students with the experience of finding specific locations is a valuable part of the activity.
3. Call number difficulty: One of the more difficult parts of the activity for both first-year students and seniors was being able to navigate the call number system in order to find a book. Resolving this issue is one of the main goals of library stakeholders, so it was important to not just have students find a book but also try to understand the general structure of how the call numbers are used. This was a similar finding to the 2018 study of first-year students who, despite going through the activity, still felt confused about the process (Allen, 2018).
4. Use what the students use: The study's ranking of what was used most by students to navigate is a helpful framework for setting up the activity. It has been important to utilize existing practices of how students navigate so that the experience feels natural and is easier to learn.
5. Help desk facilitation: Students experienced a variety of approaches from different help desk attendants at different desks. Stakeholders have been concerned by how some help desk attendants are quite brief in their answers and thus do not provide a lot of help.

Enabling students to interact with the help desk attendants is a major goal of the experience, so I tried to facilitate the interaction in a way that was easy for all help desk attendants to contribute meaningfully to the experience.

Resource Awareness

Students at the Harold B. Lee Library are often unaware of what resources are available. In teaching the writing classes, I find that a significant portion of students are unaware of resources like the 3D printer, VR headset, equipment checkout, and production studios.

The study from 2018 (Allen) surveyed Writing 150 students and found that students have an interest in learning more about the resources and want more time to do so. The current tour provides some information but is limited in what the students get out of it, so I tried to improve that section. After completing the original experience, one student mentioned, “I’m still unsure what the areas I visited really do.” This experience may have been because of a lack of time or the dynamics of this student’s group, so that is another area where more specific facilitation has been useful.

Another student expressed, “I honestly feel a little overwhelmed by how many resources there are and would love to be able to know more about each one.” Students want more time to learn about resources, but the constraints of the classroom do not permit expanding the activity, so I have provided students with a handout that summarizes the available resources and what they can be used for.

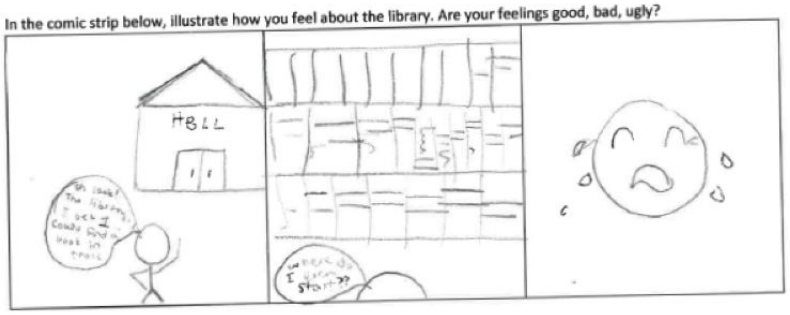
Feelings About the Library

There is a specific body of literature on the idea of library anxiety. Originating in the 1980s, library literature has long tried to understand what leads to students’ anxiety about the library. The literature has identified the anxiety as a situational anxiety, where students feel inadequate to research or ask for information. They want to hide this fact from others, and they are afraid their inadequacy will be revealed by asking questions (Mellon, 2015). Contributing concepts to the existence of this anxiety has to do with the size of academic libraries, a lack of knowledge about resources, and the many places to start with research assignments. Scholars have connected this concept with literature on shame and note that it is important to help students realize they are not alone in feeling inadequate (McAfee, 2018).

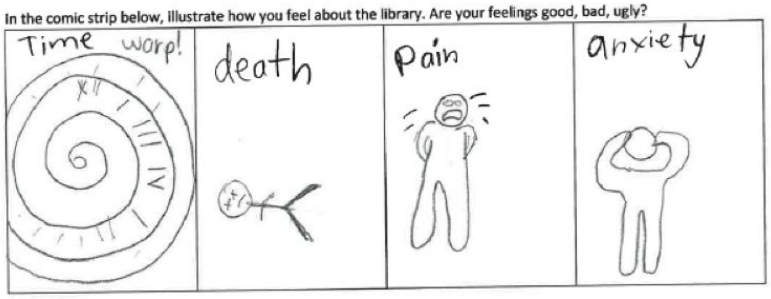
Within the HBLL

This concept of library anxiety seems to be true for students at BYU. In 2016, an instructor conducted an informal study to have students explain how they feel about the library (Merrill). Students were given blank comic strips to depict their feelings. The instructor found a few themes that ran across the responses:

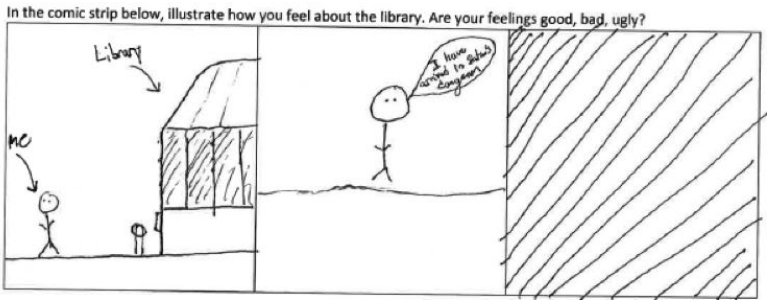
- Positive associations
- Library avoidance
- Confusing/getting lost
- Quiet
- Anxiety/despair



“Oh look! The library! I bet I could find a book in there...Where do I start? :’(“



“Time warp! Death. Pain. Anxiety.”



“I have arrived in Satan’s dungeon.”
Figure 24. Student comic responses.

Design Implications
Considering library anxiety and the specific feelings of confusion, the project has a unique opportunity to help students with those fears. While the outcomes of wayfinding and resource awareness are more cognitively focused, the more affective outcome of library perception has been addressed by providing a positive, enjoyable experience based on the principles of experience design.

Appendix E. Environmental Analysis

The following environmental analysis describes the project stakeholders and their roles and the project constraints. The two biggest constraints our team dealt with were the class structure that is currently in place and the restricted timeline in which we had to develop the product.

Stakeholders

Project Stakeholders

- Elise Silva: Writing programs librarian. Unfortunately, Elise left the library at the end of the summer. Elise is the main stakeholder over the Writing 150 program in the library.
- Leanna Balci: Media and instructional design librarian. Leanna is the immediate supervisor for me and my team.
- Jessica Green: First-year experience and Research and Writing Center specialist. Jessica oversees the teaching assistants who teach the first class where the tour will be administered. She also assumed the role of Elise as the main stakeholder for the project.
- Suzanne Julian: Patron services department chair and library instruction coordinator. Suzanne is over our department and has to approve the initiatives before passing them on to library leadership.

Other Stakeholders

- Mike Hunter: Associate university librarian for public services. Mike gets approval requests from Suzanne and represents library leadership.
- Roger Layton: Communications/PR manager. He oversees any promotions that happen in the library as well as any posters that would be put on walls.
- Jon Ostensen: Freshman writing coordinator. He oversees the writing program and was interested to see the new structure we presented.

Constraints

The main constraints this project faced were in regards to the class structure that already exists. Librarians have done a significant amount of work to adjust the class structure to where it is currently and were not very interested in adjusting it further. Other significant constraints were the technology we were working with, the library building, our team, and the timeline. I briefly describe each of these in the following sections.

Class Structure

Within the first few weeks of the semester or term, each writing class spends the first of three days in the library. The other two days are usually three-fourths into the semester, when they begin their research assignment. While they have assigned material to review for the research days, nothing is currently assigned for the first day, so I took the opportunity to have students watch the library tour video before class to gain extra time for the activity.

Each class is either a 50-minute period or a 75-minute period, depending on the section (MWF are 50 minutes, TTH are 75 minutes). The class is almost always taught by a TA who works in the Research and Writing Center. It is important to note that often three or four classes can be taught at the same time (60 to 80 students), so there had to be accommodations in the experience that ensured multiple groups could participate at the same time.

The current learning outcomes for the course are the following:

1. Students will feel comfortable finding their way around the library.
2. Students will understand where to go for help in the library.
3. Students will know how to use the scholar search bar on the library website to perform a simple search and narrow results to desired source type.
4. Students will understand how to use books as a source type in their research processes.

The current course structure is fairly regimented, as noted below:

1. Introduction: Five to seven minutes.
    a. TA introduction
    b. Learning outcomes
    c. Watch the five-minute tour video
2. Guided Learning: Five to seven minutes. Demonstrate how to find a book with Scholar Search and how to narrow results. Provide a research example students can identify with.
3. Activity: 20 minutes. Explain each part of the activity, tell students where to go if they get lost.
4. Follow-Up: Five minutes. Ask where students went and what they learned. If groups are staggered, teachers can play a library promo video or research game.
5. Reflection: Five to ten minutes.
    a. Reflect on how to use print materials for research. Discuss with students how books are useful research tools.
    b. Reflect on what students thought was the most important piece of information they learned that day.
6. End: One to two minutes. Remind students that they can come to the library for help and that they will return later in the semester for research instruction.
7. Extra time. If extra time exists for a 75-minute class, teachers can talk about the research starter guide.

Initial Technology

Our unit has been experimenting with augmented reality (AR), and the library was interested in seeing it as part of the tour experience. AR can be accessed through students' phones and paired with a web interface that guides the students. The hope was to avoid focusing on the AR feature too much so that instruction and experience design could be the driving force behind the tour. While I did not implement this technology in the current project, I recommend exploring it in the future, as it can provide numerous benefits:

- Physical mobility: Because the library building is constantly changing, keeping tours up-to-date can be difficult. Empty iPad stands still exist in areas of the library from previous tours that went out of date. The markers can be small pictures and would not need any physical installation.

- Digital mobility: A web-based experience provides a lot of flexibility in both designing the interaction and updating the interaction. The current tour utilizes fake books throughout the library, which must be restocked regularly with bookmarks and worksheets.
- Scalability and access: the main benefit of web-based AR is that we can provide a digital experience without students having to download an app on their own devices, which facilitates scalability, as we are not restricted by physical resources for each student.

Library Building

The HBLL is constantly undergoing renovations and construction projects. This renovation has been difficult for the team working on the library video tour, for example, because they have to regularly refilm areas that change. While work can be redone as the building changes in the future, the ideal scenario is that any changes to the building structure would require minimal or no adaptation.

Design Team

I initially had two student employees who helped to create the project. Both did animation, but one student did more web development and the other did more graphic design. Another student was hired in the summer after one of my previously mentioned employees left. While most weeks the students can work up to 40 hours, classes and vacations at different times in the process will need to be adjusted for.

When I began the project I had only two students, but as the fall semester began our team had four students. This became extremely helpful in having students help design handouts and other aspects of the tour. It was, however, difficult to coordinate between their varying schedules.

Project Timeline

The project time was limited in the sense that I planned to finish the project by the end of the summer so that the course will be ready for the influx of new students in the fall. Due to circumstances of a heavy workload in my library responsibilities and struggles with illness, our team made little progress during the summer and had to extend the completion to the end of the fall semester. See section on budget and timeline for full description.

Appendix F. Consulting Products/Precedent

This section explains what the library is currently doing for the tour activity (precedent). I also explore other examples of library orientations in the literature (consulting product).

Current Library Tour

In the current library tour, students are split into four different groups, each receiving the following handout:

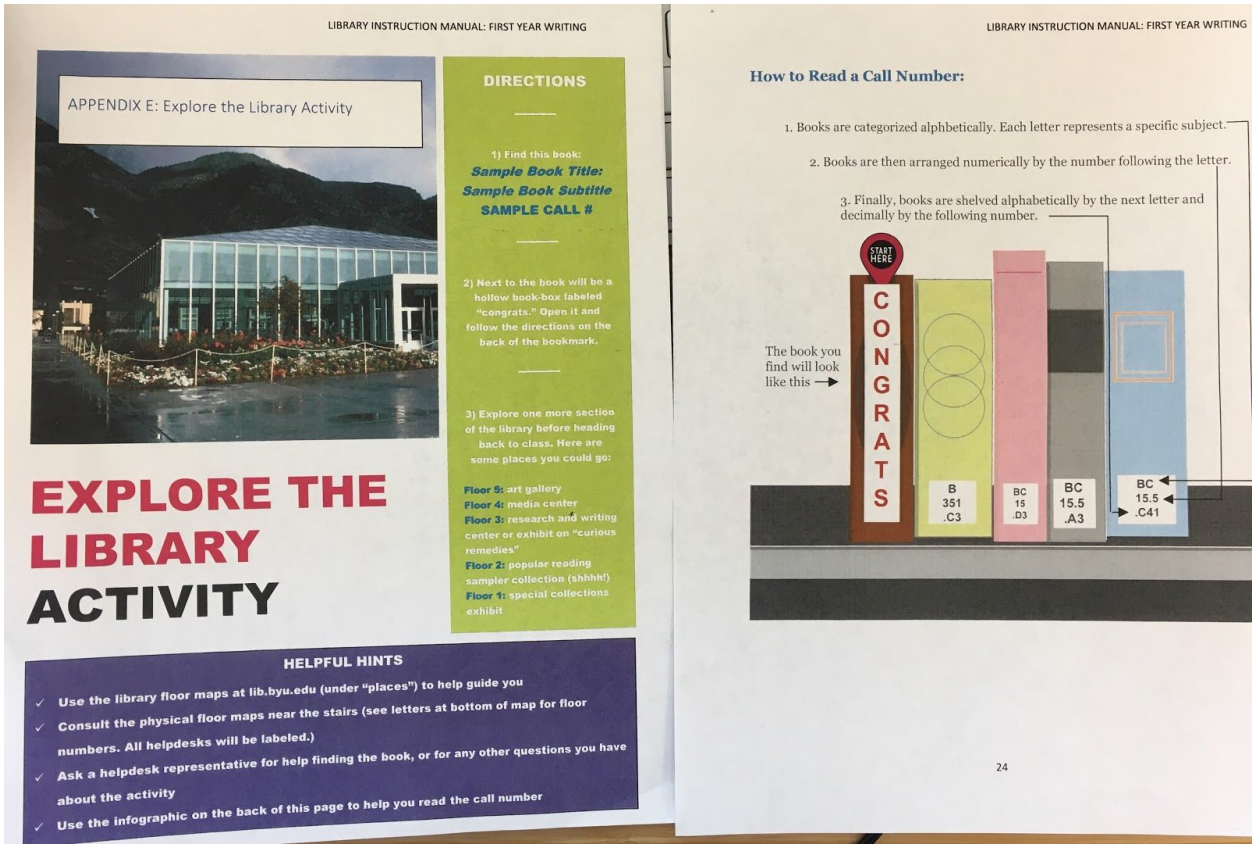


Figure 25. The handout students receive for the current activity.

Following the instructions, students must navigate to the assigned book in groups of four or five. The book is a fake book that contains bookmarks for the students and a quick activity about keywords that students must fill out, identifying some of the subject areas around their book.

Following the book activity, students must navigate to a help desk and talk to the attendant. With the remaining time, students must navigate to a nearby library resource such as the 3D printer, special collections, or the media center to better understand what they offer.

Library Orientations

I researched library databases for specific examples of orientation tours, in hopes of understanding similar projects and varied solutions. One resource that was particularly helpful was the book *Planning Academic Library Orientations,* which provided 34 chapters emphasizing one of six different categories: (1) games, (2) marketing and promotion, (3) partnerships, (4) targeting specific audiences, (5) technology, and (6) tours. Because we don't market for our experience and because our partnerships and audiences are already established, I focused my studies on games, technology, and tours.

Games
There were seven chapters for games, all with a different style of game. There was some overlap in terms of gamification versus game-based learning, but gamification was more common.

Technology
This section had four examples, but the authors of the book equated technology with being at a distance and included picture tutorials, video tutorials, e-learning modules, and 360-video tours. Our experience will be specific to in-person tours, so I did not investigate these articles.

Tours
In-person tours cover a wide spectrum of approaches. Some libraries focus on a once-a-year event as part of a first-year student orientation experience, while others hold their tours through the semester. Utah Valley University, for example, has an adventure booklet in a comic-book style to complete (optional for faculty to implement). Some library tours involve experiences such as escape rooms or other themed events to further entice student participation and enjoyment.

Table 2. Examples of games, technology, and tours

Games	Technology	Tours
Mini golf	Video-based tour for distance learners	Utilizing ADDIE in design
Board game theme	Video-based tour for on-campus students	In-class photo submission
Escape room	Live video conferencing across campus	Casual walking tours, mobile-based treasure hunt
Escape room computer game		*Hunger Games* theme
Themed scavenger hunt		200 students in 20 minutes
Video game approach		Passport scavenger hunt
Scavenger hunt, activities		Library boot camp
		Pecha Kucha: Six-minute presentation

Main Themes

From the analysis of existing products, I found two significant themes that would be applicable to this library project: gamification and balancing work. I describe each below.

Gamification

The concept of gamifying the orientation so that students are more engaged was a very common principle. Chapman and Rich (2017) define educational gamification as "the use of student-centered game elements in non-game educational systems to improve student experience; drive engagement with content and learning activities; model and teach effective learner skills, and enhance student attitude and identity as a learner." Often manifested in the form of a scavenger hunt, students usually had a certain number of activities to check off before receiving some sort of prize at the end of the experience. Librarians report an increase in engagement and retention when implementing these strategies.

Balancing Work

Another consistent theme across the literature was trying to find ways to manage the workload of these events. One project at Lafayette College, in particular, provides a good example of how to consider how effort in creating an orientation relates to the overall learning outcomes. The library committed to a lot of work to create a *Hunger Games*–themed event called "The Research Games." Students were divided into teams and given a list of tasks to complete. In a survey, librarians asked if a library tour from a librarian would have been as useful as the event, and 71 percent of respondents said yes. The next year, the college adapted the experience from one large event to many tours throughout the semester. A simple tour was provided, with simple interactive games at the end of the experience. The librarians felt the redesigned tour functioned better for both students and staff. While student engagement and learning are our top priorities, we had to constantly monitor the potential drain on library resources and staff.

Appendix G. Book-Finding Analysis

In order to understand the expert performance model of finding a book in the library, I observed three different library employees and two students who work at the Research and Writing Center. For each observation, I asked them to perform a think-aloud, having them articulate their thoughts as they went through the experience. After providing a book title, I would observe their search on the library website and then follow them through the stacks to the book. After compiling the results of the observations, I have constructed the expert performance model, showing step-by-step as well as the rules or understanding related to those actions.

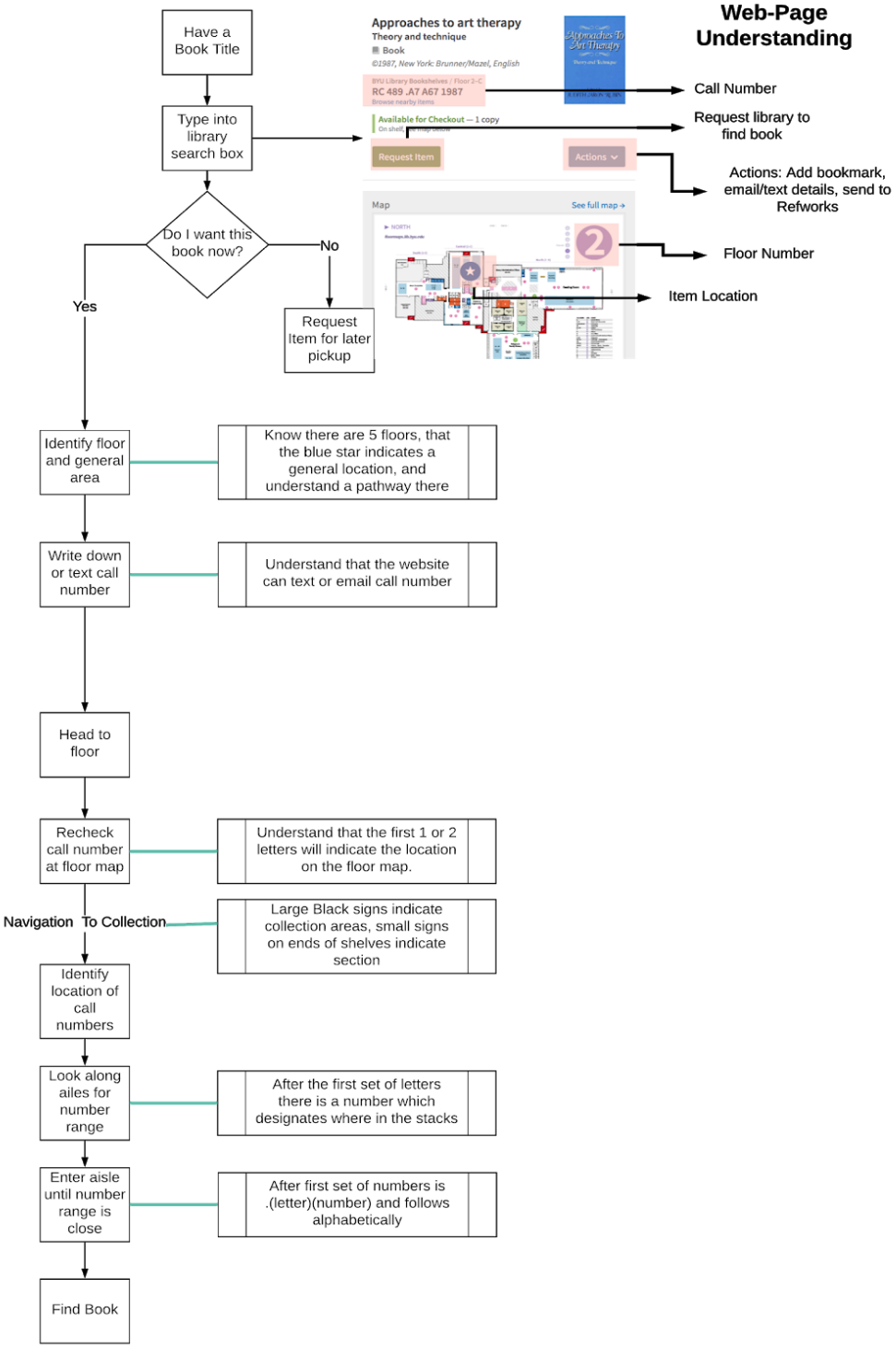


Figure 26. Analysis of finding a book in the library. Prerequisite knowledge: research topic, find title of interest.

Design Implications

Because this process requires a number of new concepts for students, before giving guidance I tried to implement elements of pretraining by introducing small explanations before the students began moving through the library, which allowed the students to grasp the concepts easier when explained.

Resource Breakdown

The library supports a wide variety of needs.

1. Find a study space:
    a. Quiet study area
    b. Social study area
    c. Group study rooms
2. Assignment support: research and writing
    a. Subject librarians
    b. Research and Writing Center
    c. Book, music, and media collections
    d. Special Collections
3. Technology needs
    a. 3D technology
        i. VR headset
        ii. 3D scanning
        iii. 3D printing
    b. Video production
        i. Video production studio
        ii. Two sound booths
        iii. Editing computers
        iv. Software training classes
        v. Equipment checkout
    c. Design
        i. Software training classes
        ii. Design software
    d. Other
        i. Ipads
        ii. Headphones
        iii. Chargers
        iv. Projector
        v. Viewing stations

Because there are a considerable amount of resources and it would be impossible for students to explore every resource during this short training, I provided the information on a handout so that students could look up what is most relevant to their specific research project both during and after the experience.

Appendix H. Design Specifications

Product Walkthrough

The product I designed was a series of discussions and activities to help students better understand the library and what is available to them. This experience is manifested through a variety of forms, including video, presentations, handouts, and infographics.

Students begin the experience as the TA introduces them to the library and explains the goals for the day. Depending on the TA, students will either watch a video or have a discussion about how useful the library can be for them in their coursework. The TA then provides instruction on how to avoid library anxiety, the structure of the library, and how to use the website. This short but important discussion helps students know what to expect for the class and have a better idea of how the library is structured. Additionally, research indicates that addressing library anxiety directly and helping students feel they are not alone in feeling inadequate can be a useful way to reduce anxiety (McAfee, 2018).

Students are then split into groups and asked to identify what their main library persona might be during their schooling. There are various approaches to using the library. Students then share with their group and with the class. According to stakeholders, some students feel that since they don't feel like the academic type the library isn't for them. This discussion helps students see the different kinds of ways to use the library. Additionally, it allows the students to have a more meaningful group experience as they get to share personal attributes.

Students then stay in their group for an activity that takes them through the library. Each group is given a specific sheet listing certain resources. They are challenged to find these locations, take pictures or videos, and return to present to their class in a *Shark Tank*–style pitch to their classmates that their resources will be the most useful. Theme music is played from the show *Shark Tank* as each group approaches the front. This activity combines a number of theories within experiential learning and experience design.

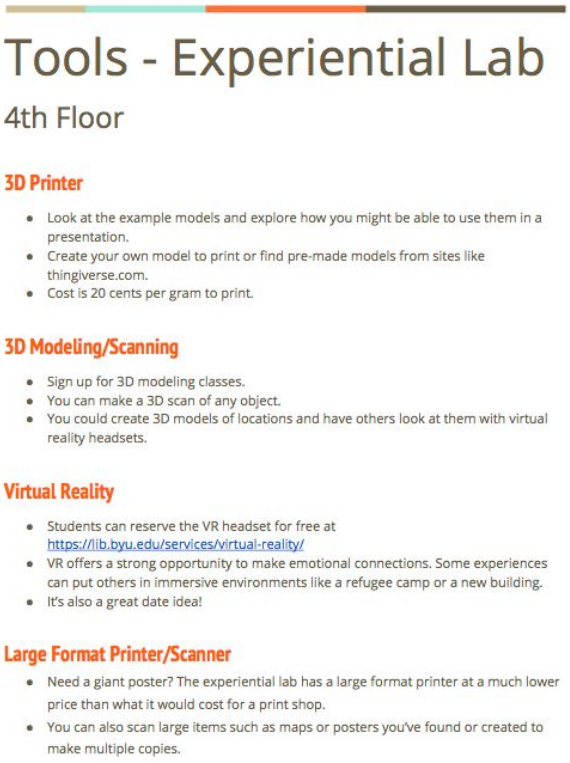
This structure is based on the experiential learning model as students are introduced to the context of what they are learning and can see it applied in a variety of ways. The authenticity of the experience is driven from the students as they identify how these resources can apply to their current classes and assignments. From an experience design perspective, the presentations and preparation ideally become a peak moment as students have to present in front of their peers with a slight element of competition. Additional social elements are elevated as students have to decide on a team name and assign particular roles for each other.

After students present, the TA finishes the instruction with some reflective questions to help review and internalize the content. The students then leave with a printed infographic that describes all four resources with links to different library services. This last portion similarly integrates principles from both experiential learning and experience design. Within both disciplines, reflection is critical to a successful outcome. The additional handout at the end provides a tangible item that helps to extend the experience, as well as increasing the opportunity for students to find what they are most interested in.

Appendix I. Design Representations/Prototypes

Library Resource Infographics

As we began the first test I created these handouts in a Word document. It was important not to spend a significant amount of time on the design of these elements so that we could refine the content over time.



Tools - Experiential Lab

4th Floor

3D Printer

- Look at the example models and explore how you might be able to use them in a presentation.
- Create your own model to print or find pre-made models from sites like thingiverse.com.
- Cost is 20 cents per gram to print.

3D Modeling/Scanning

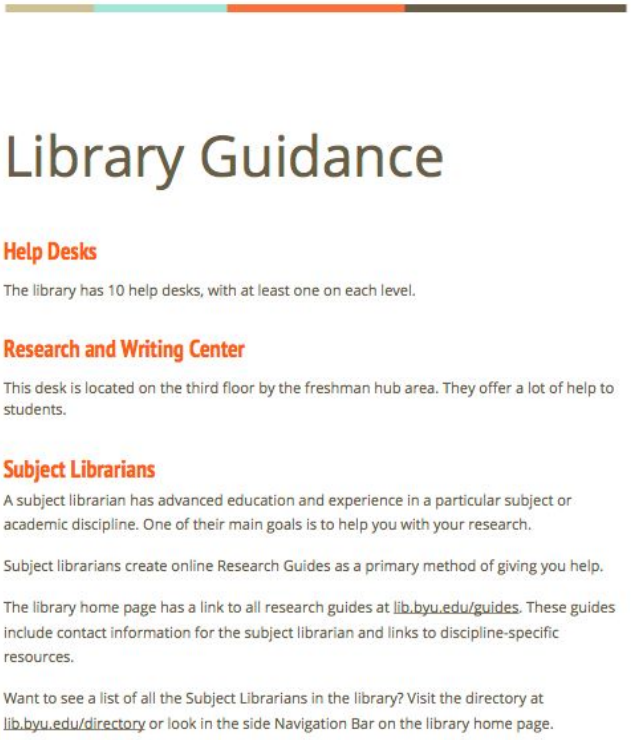
- Sign up for 3D modeling classes.
- You can make a 3D scan of any object.
- You could create 3D models of locations and have others look at them with virtual reality headsets.

Virtual Reality

- Students can reserve the VR headset for free at https://lib.byu.edu/services/virtual-reality/
- VR offers a strong opportunity to make emotional connections. Some experiences can put others in immersive environments like a refugee camp or a new building.
- It's also a great date idea!

Large Format Printer/Scanner

- Need a giant poster? The experiential lab has a large format printer at a much lower price than what it would cost for a print shop.
- You can also scan large items such as maps or posters you've found or created to make multiple copies.



Library Guidance

Help Desks

The library has 10 help desks, with at least one on each level.

Research and Writing Center

This desk is located on the third floor by the freshman hub area. They offer a lot of help to students.

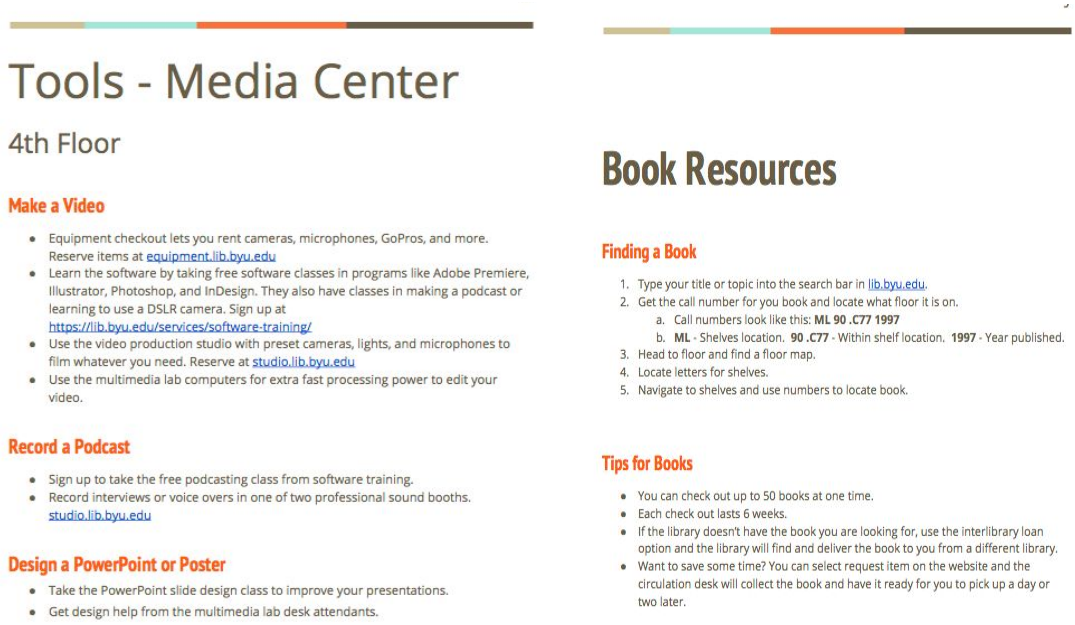
Subject Librarians

A subject librarian has advanced education and experience in a particular subject or academic discipline. One of their main goals is to help you with your research.

Subject librarians create online Research Guides as a primary method of giving you help.

The library home page has a link to all research guides at lib.byu.edu/guides. These guides include contact information for the subject librarian and links to discipline-specific resources.

Want to see a list of all the Subject Librarians in the library? Visit the directory at lib.byu.edu/directory or look in the side Navigation Bar on the library home page.



Tools - Media Center

4th Floor

Make a Video

- Equipment checkout lets you rent cameras, microphones, GoPros, and more. Reserve items at equipment.lib.byu.edu
- Learn the software by taking free software classes in programs like Adobe Premiere, Illustrator, Photoshop, and InDesign. They also have classes in making a podcast or learning to use a DSLR camera. Sign up at https://lib.byu.edu/services/software-training/
- Use the video production studio with preset cameras, lights, and microphones to film whatever you need. Reserve at studio.lib.byu.edu
- Use the multimedia lab computers for extra fast processing power to edit your video.

Record a Podcast

- Sign up to take the free podcasting class from software training.
- Record interviews or voice overs in one of two professional sound booths. studio.lib.byu.edu

Design a PowerPoint or Poster

- Take the PowerPoint slide design class to improve your presentations.
- Get design help from the multimedia lab desk attendants.

Book Resources

Finding a Book

1. Type your title or topic into the search bar in lib.byu.edu.
2. Get the call number for you book and locate what floor it is on.
    a. Call numbers look like this: **ML 90 .C77 1997**
    b. **ML** - Shelves location. **90 .C77** - Within shelf location. **1997** - Year published.
3. Head to floor and find a floor map.
4. Locate letters for shelves.
5. Navigate to shelves and use numbers to locate book.

Tips for Books

- You can check out up to 50 books at one time.
- Each check out lasts 6 weeks.
- If the library doesn't have the book you are looking for, use the interlibrary loan option and the library will find and deliver the book to you from a different library.
- Want to save some time? You can select request item on the website and the circulation desk will collect the book and have it ready for you to pick up a day or two later.

Figure 27. Draft resource handout.

As we continued we wanted to make the handouts more visually appealing for the students. Additionally, to simplify the printing process we decided to make them four half pages so that all sections could be combined into one handout. Sam Furner, the team's learning experience designer took on this project and created the following sketches.

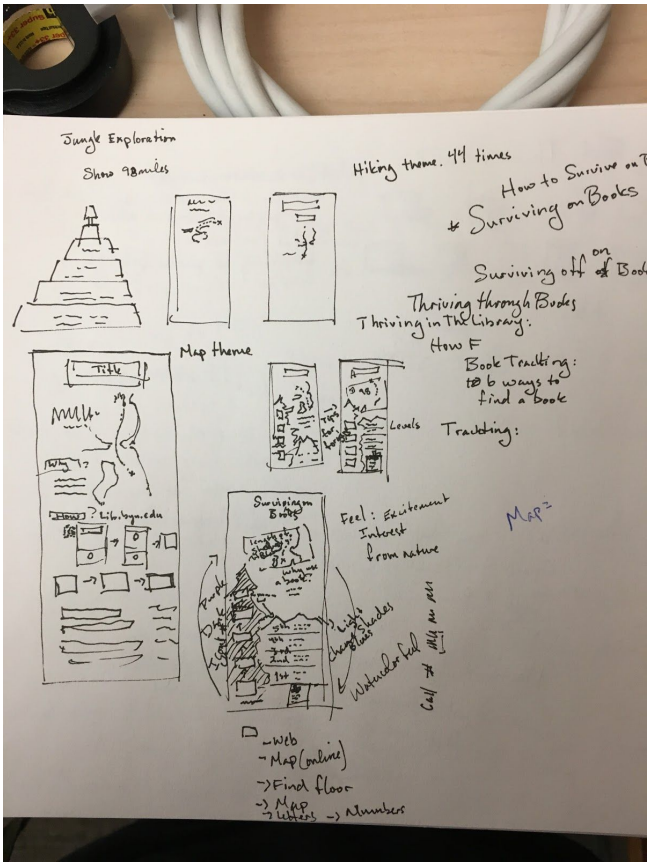


Figure 28. Infographic concept sketches.

For the final version we wanted to make it as useful to students as possible, so we added QR codes to specific resources to improve the student's ability and willingness to access the resources.


Book Resources
Pro Tips:
- Books are excellent ways to develop your research topic. Use the table of contents to find new directions to research.
- Save time by requesting on the website and circulation will email you in a day or two to pick it up at the front desk.
- You can borrow up to 50 books, each for 6 weeks at a time.
- If the library doesn't own a book, order through Interlibrary loan and pick it up at the circulation desk.
So how do I find a book?
https://lib.byu.edu/
Enter the Website
Type in the search bar.
Title/Topic
Narrow to Books.
Resource Type
Get the call number, find the floor...
Available for Checkout
ML 90 .C77 1997
1 book — Music & Dance — Bookshelves (Floor 4–N)
Head to the floor and find a map...
Follow the call number:
ML
90
.C77
1997
section
shelf location
year
Library Guidance
Where do I go?
A Help Desk
5 Humanities
4 Music & Dance
Media Center
Multimedia Lab
3 Circulation
2 Periodicals
Religion & Family History
Science & Engineering
1 Social Sciences
Special Collections
RWC The Research and Writing Center
https://rwc.byu.edu/
Located on the third floor by the freshman hub.
A Subject Librarian
https://lib.byu.edu/guides/
Contact throught Research Guides or at lib.byu.edu/directory.
What do I ask?
"Do you know how/where to find..."
RWC
a book?
a charger?
a research topic?
course reserve?
specific research help?
writing help?
an article?
a study space?

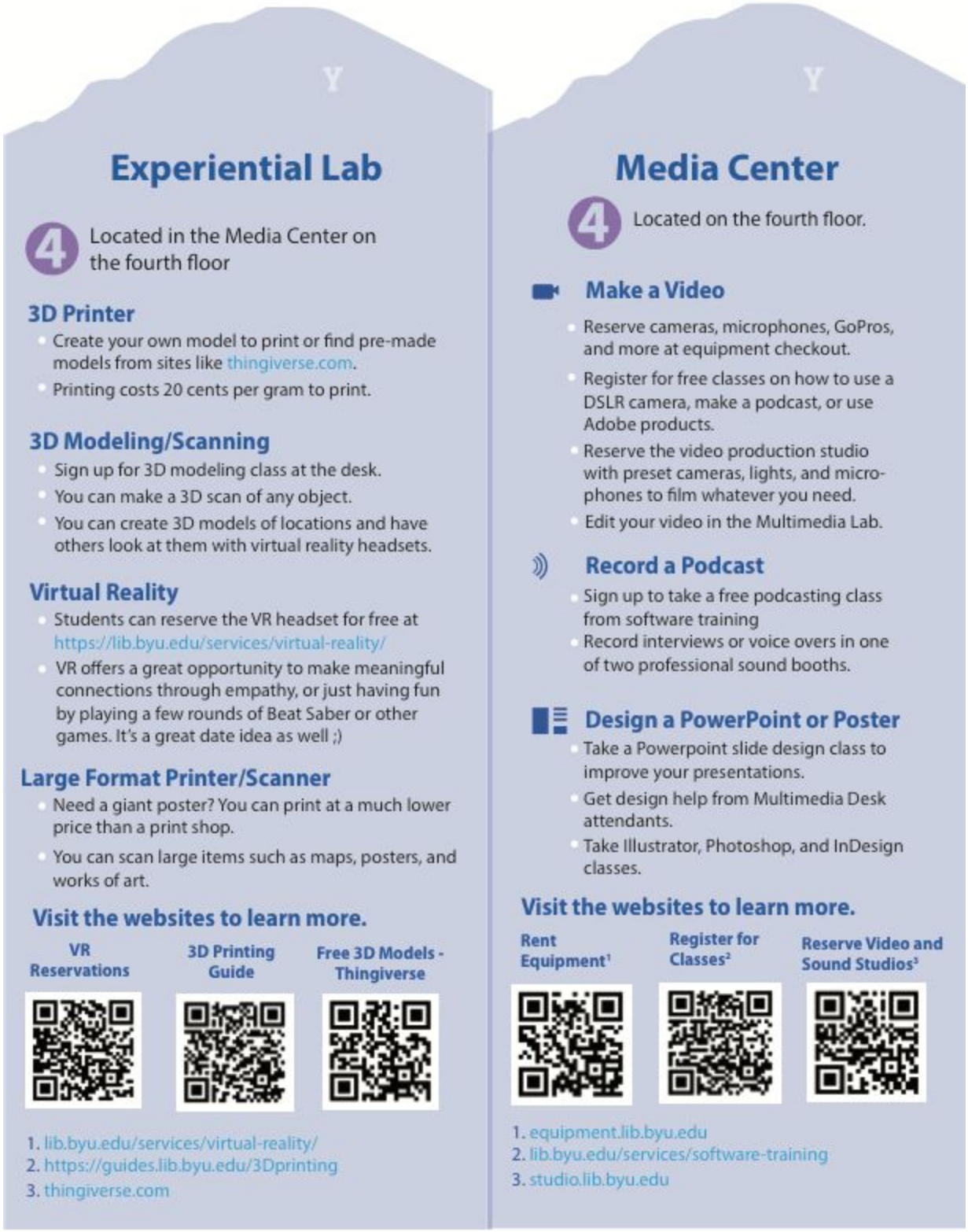


Figure 29. Final infographic.

3D Library Structure Layout

We went through many iterations of how to help students understand the layout of the library. Originally, when testing with augmented reality we wanted to be able to show the students the library and allow them to choose between different floors. We first did a conceptual trial to see what the 3D capabilities of the technology were possible. We refined the process multiple times and were able to produce an image from a target (see Figure 30).

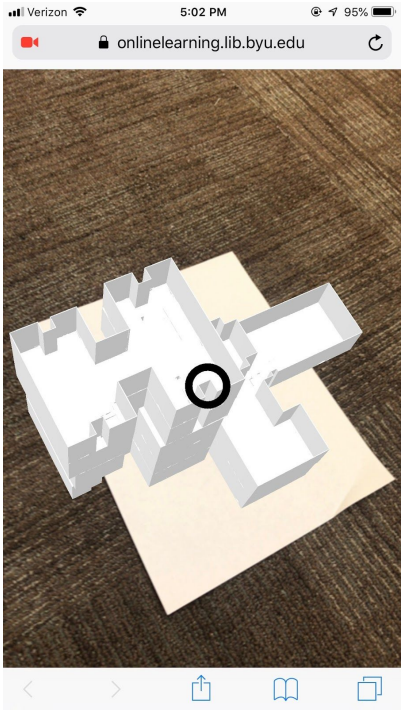


Figure 30. AR map.

Following this proof of concept, we then explored layouts for students to navigate through the structure (see figure 31). We gained feedback from students about what their preferences were for different navigational styles and also tried to get a sense of whether or not this feature would be useful for them.

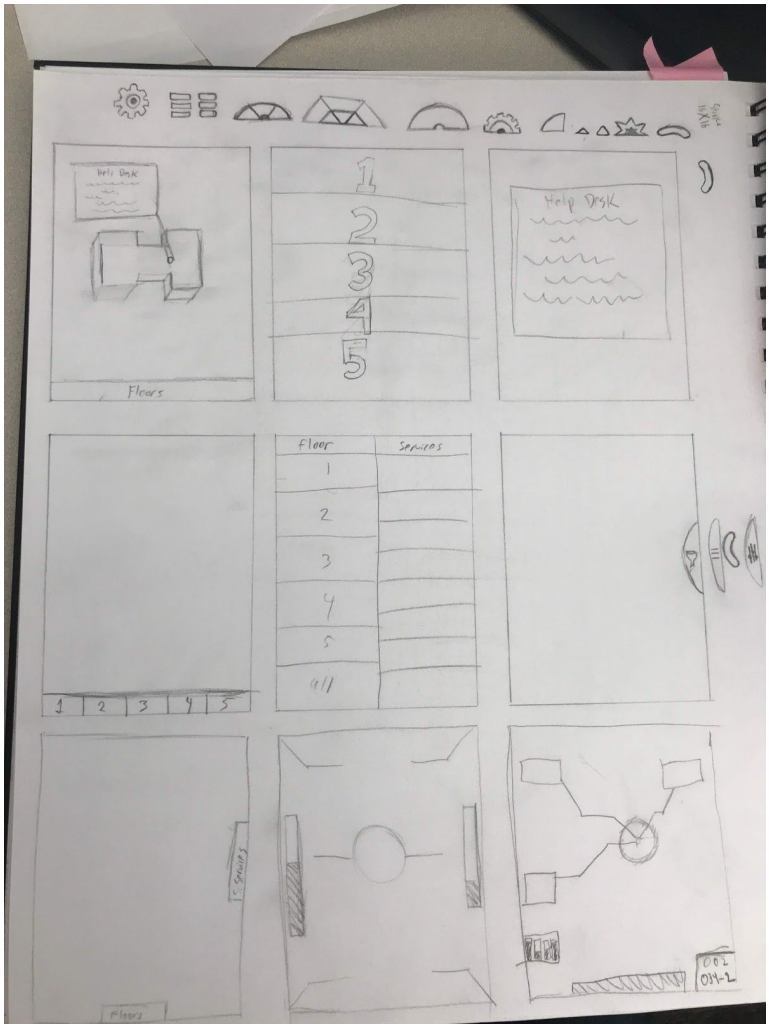


Figure 31. Map interface sketches.

Multiple factors led to us going a different direction, including the time it would take to develop the web application as well as the student who was programming the app leaving for different employment. We then focused on just creating a model to show students what the structure of the library was like. We began with a rough outline as seen in Figure 32, and then a student who focuses on animation took the model, refined it, and created a video to show the layout as seen in figure 33.

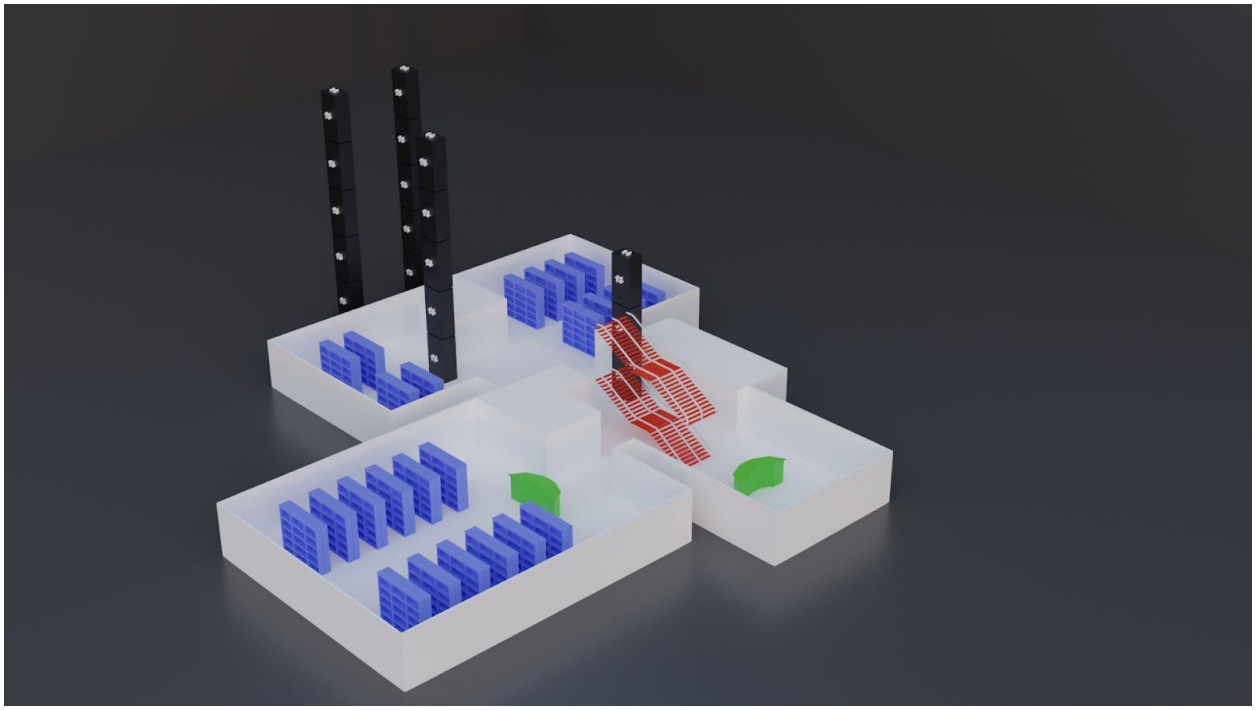


Figure 32. Rough 3D model.

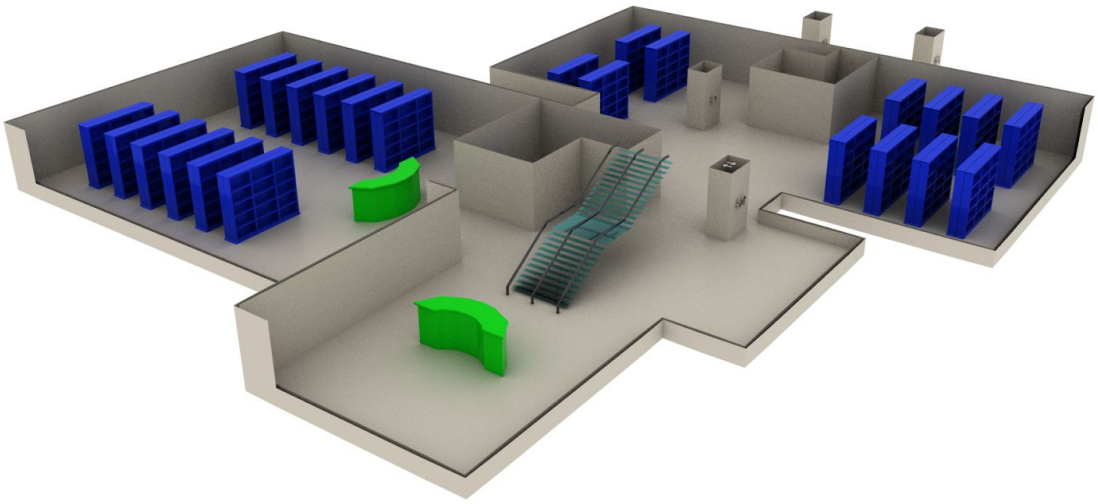


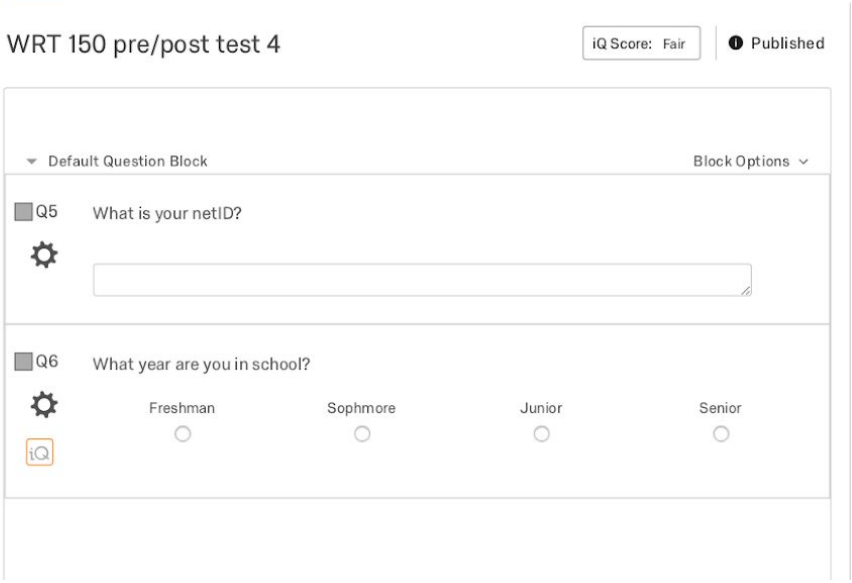
Figure 33. Refined 3D model.

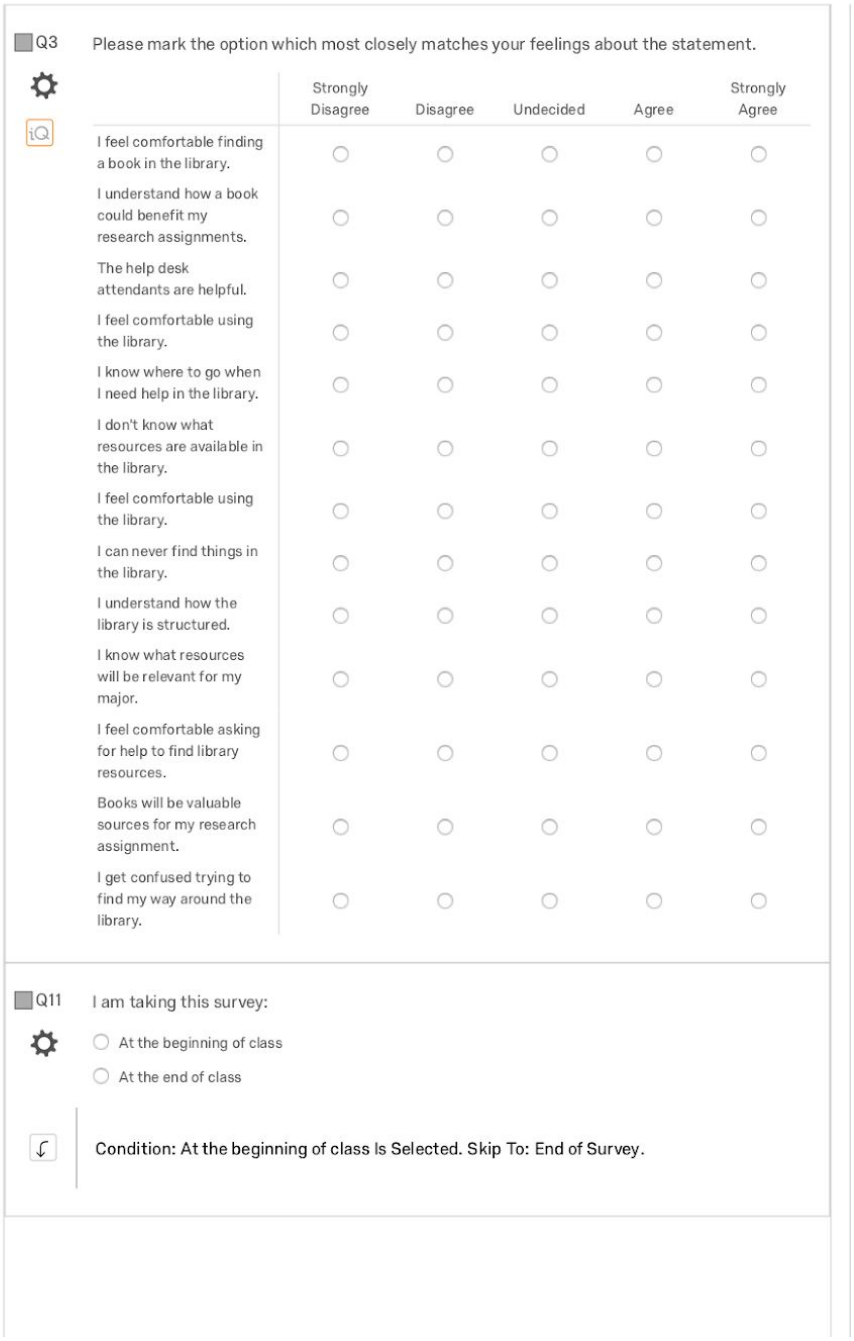
Appendix J. Assessment Reports and Instruments

To assess student learning, I utilized two surveys, a pre- and post-test on the day they engaged in the activity followed by a short survey they received the second library instruction day a few weeks later. Each survey was additionally given to students in the standard curriculum as a control group.

Pre- and Post-Test

The pre- and post-test focused on questions from the library anxiety scale as well as additional follow-up questions on whether or not the experience was helpful to them.





Q3 Please mark the option which most closely matches your feelings about the statement.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I feel comfortable finding a book in the library.	○	○	○	○	○
I understand how a book could benefit my research assignments.	○	○	○	○	○
The help desk attendants are helpful.	○	○	○	○	○
I feel comfortable using the library.	○	○	○	○	○
I know where to go when I need help in the library.	○	○	○	○	○
I don't know what resources are available in the library.	○	○	○	○	○
I feel comfortable using the library.	○	○	○	○	○
I can never find things in the library.	○	○	○	○	○
I understand how the library is structured.	○	○	○	○	○
I know what resources will be relevant for my major.	○	○	○	○	○
I feel comfortable asking for help to find library resources.	○	○	○	○	○
Books will be valuable sources for my research assignment.	○	○	○	○	○
I get confused trying to find my way around the library.	○	○	○	○	○

Q11 I am taking this survey:

- ○ At the beginning of class
- ○ At the end of class

Condition: At the beginning of class Is Selected. Skip To: End of Survey.

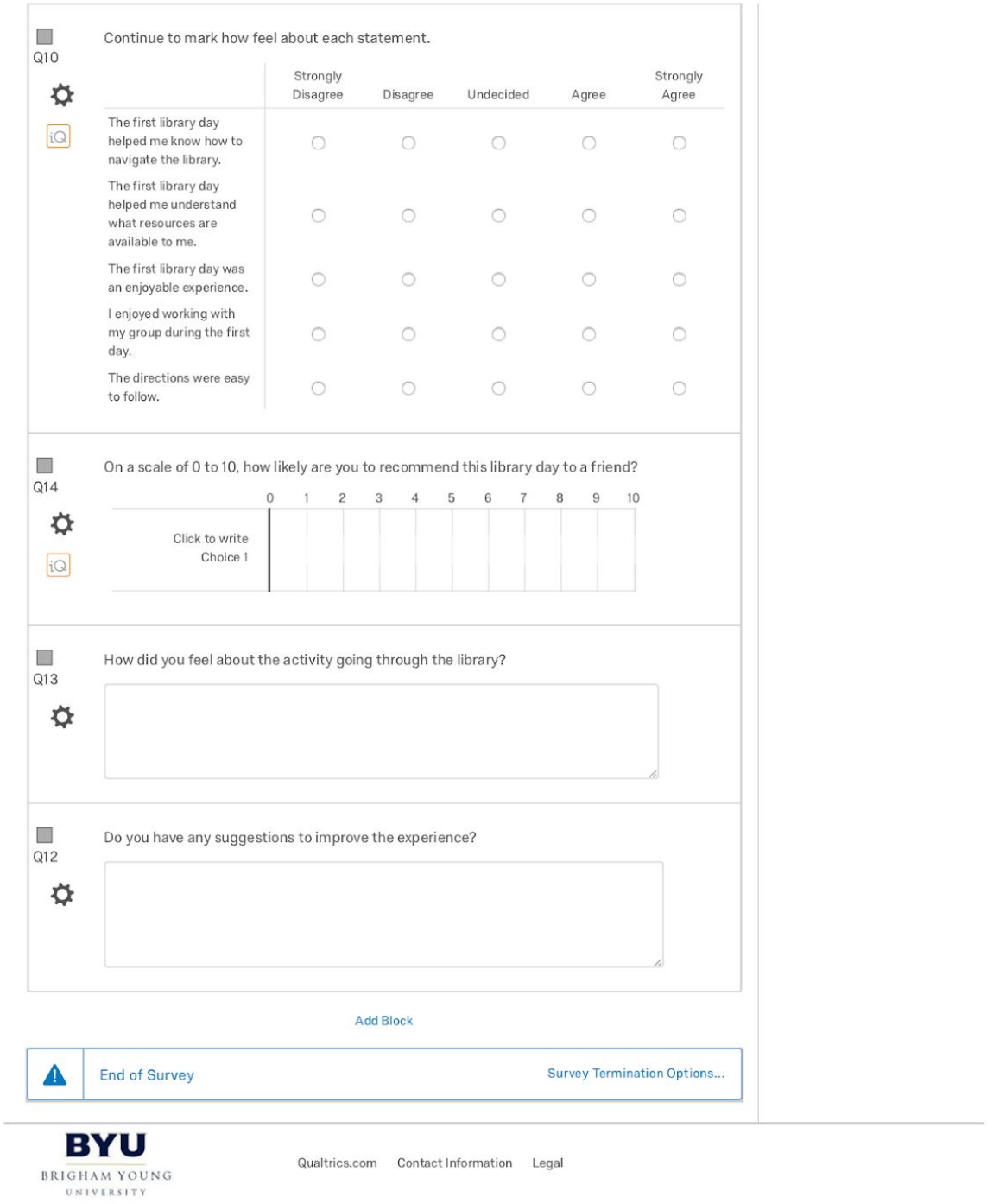
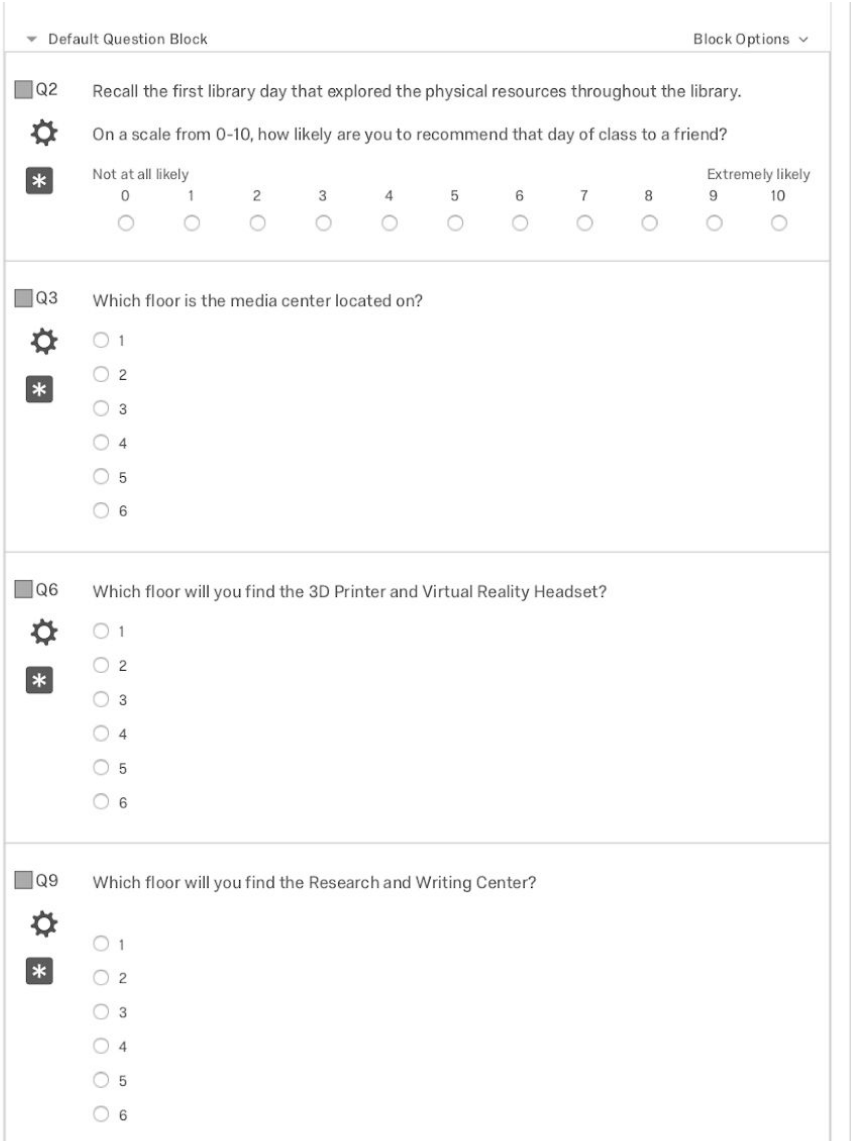


Figure 34. Pre/post survey.

Survey Results
Prototype 1 Class
Prototype 2 Class
Control Class

Second Day Follow-Up

When the classes returned for their second day in the library a few weeks after, we used a survey to directly assess their knowledge of where resources were located to see if there was more of a lasting effect in the new version versus the old version.



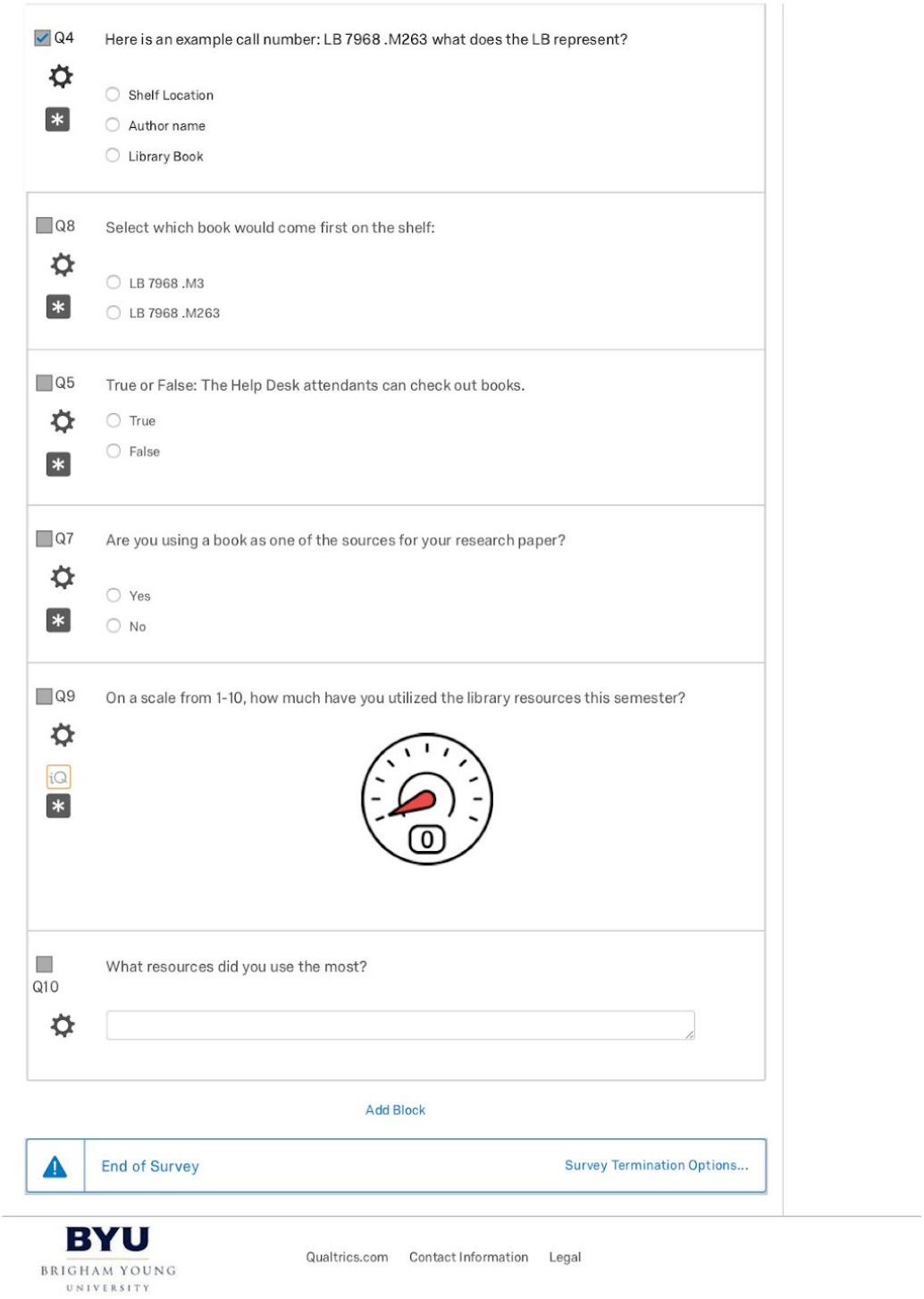


Figure 35. Follow up survey.

Survey Results
Prototype 1
Prototype 2
Control

Observations

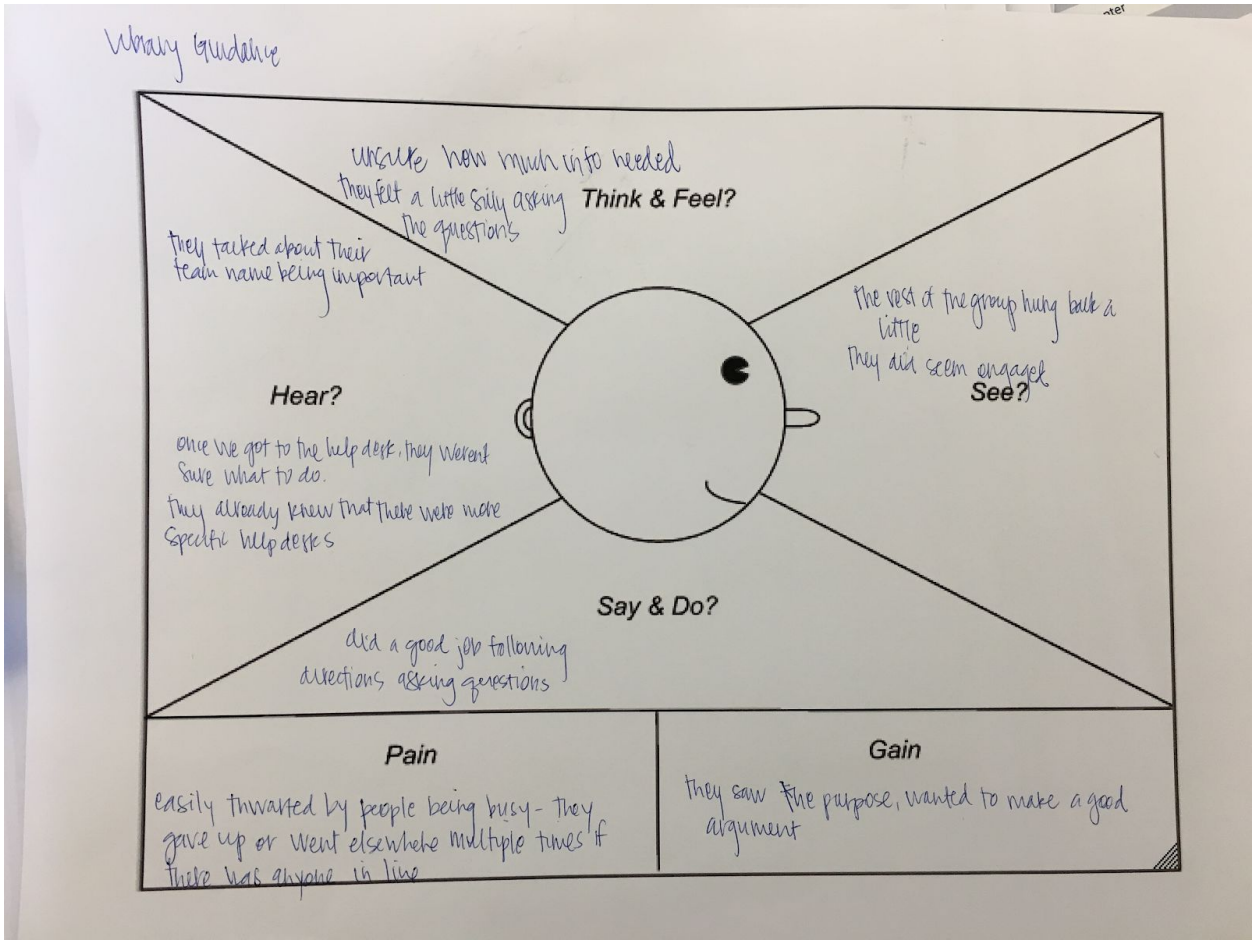


Figure 36. Stakeholder empathy map.

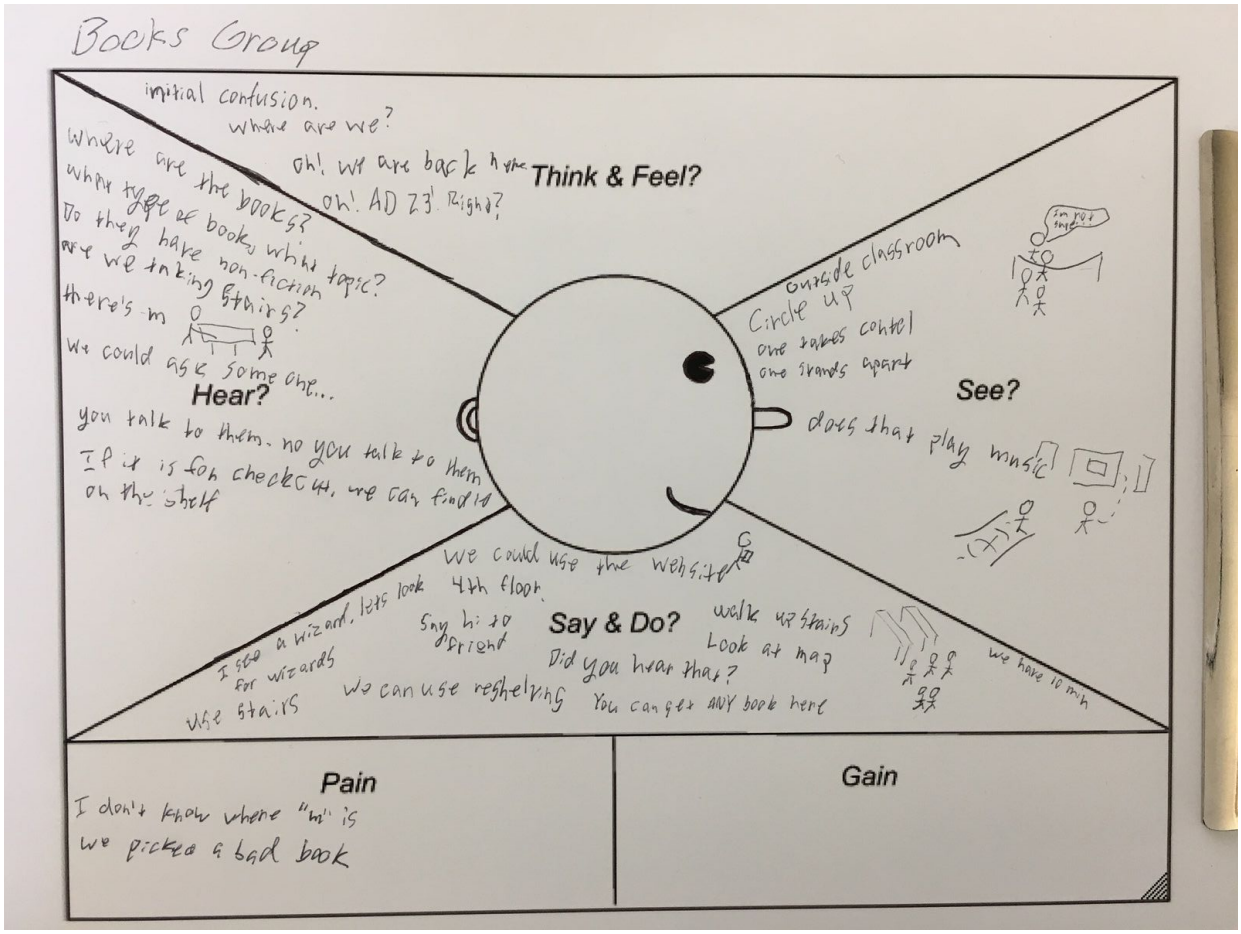


Figure 37. Library employee observation map.

Appendix K. Implementation Instruments

Setting up the Classroom

The main resources needed for this product reside in each library instruction room on the second floor. TAs must log into the computer and open the Google Slides that have the presentation. As students leave for their activity in the middle of class, TAs must set up and focus the document camera so that it is ready for students to share images from their phones. Steps to set up the camera are included in the instruction guide.

TA Instruction Guide

As seen in Appendix A, this guide accompanies the PowerPoint that TAs will use in the class and provides them with an outline of how to facilitate the class. The goal of the product is to both guide and enable the TAs to teach in a way that is meaningful and genuine to their teaching style. Thus, in some sections, multiple ways of conducting activities were provided.

Google Slides Presentation

As seen in Appendix A, this presentation was also provided for TAs to help facilitate the class. Due to a large number of TAs and any potential changes that might occur in the future, Google Slides seemed the best medium to share this information. Each page has a limited amount of text that allows for flexibility in teaching, as previously mentioned.

Map Guide to Instruction Rooms

Both from my personal experience and feedback from other teachers, students regularly have a difficult time finding the instruction rooms, especially classes that are located through different hallways of the second floor. To help students know how to get there, one of my employees created an infographic that clearly illustrates how to get to their assigned rooms. This image will be provided to Writing 150 instructors.

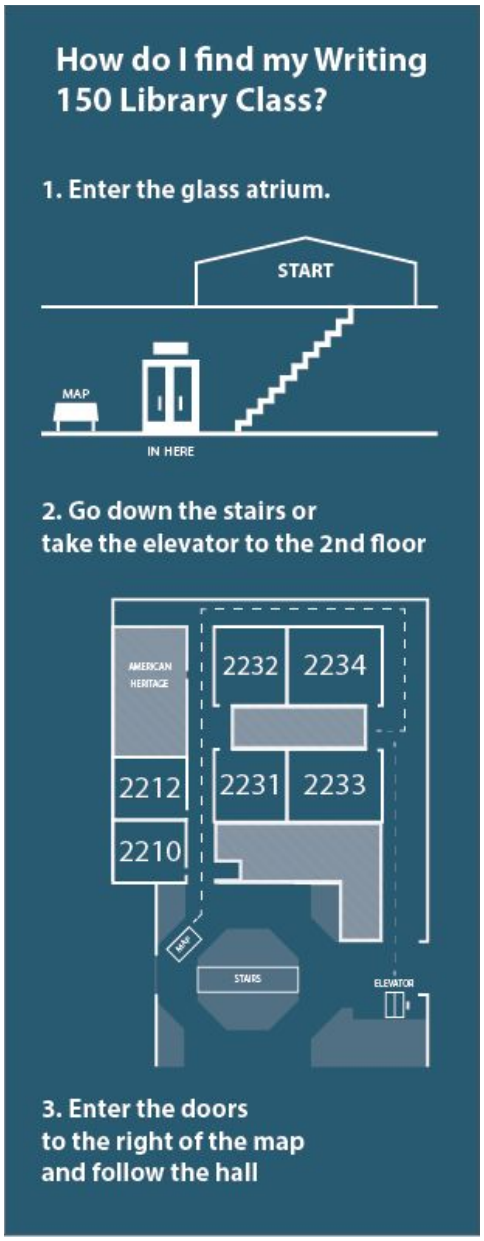


Figure 38. Instruction room map.

Appendix M. Budget and Timeline

There was a variety of differences in the timeline and budget from the beginning of the project by the time the final product was finished. Some of the major factors that led to the discrepancies in time were the projects our team had to finish by the fall semester. Tutorials and videos had to be redesigned which took the bulk of the students' work during the summer and early fall. We also

had to finish a Nursing 320 tutorial by the time the semester began, which was an additional strain on resources.

A similar constraint was the hiring of student employees. Since our team was shifting to different job descriptions, the process of bringing new students took much more time than it normally would have as we coordinated with HR about job descriptions and pay.

Differences in budget can be accounted for by considering that much of the summer work was on other projects and that we ended up not doing any web development which is what originally anticipated. Thus the total cost for work hours was not as drastic as it might have been.

Table 3. Original cost and timeline estimation

Phase	**Dates**	**Activities**	**My Hours Working**	**Hour Cost**	**Student Employee Hours**	**Hour Cost**
Phase 1: Initial design with paper prototypes	June 24–July 5	Brainstorming, identify experience mapping, student feedback	15 hours a week, out of town 8 days over the three weeks.	$658	20 hours a week from 2 students	$960
	July 8–12	Test and iterate the design				
Phase 2: Development	July 15–19	Finalize all graphic and tech elements	15 hours a week	$1,035	40 hours a week from web developer, 30 hours a week from animator	$2520
	July 22–August 2	Develop graphic and tech elements				
Phase 3: Final testing and evaluation	Aug 5–14	Run two tests and fix bugs	18 hours a week	$828	30–40 hours a week from both students	$2520
	Aug 15–21	Run final test and evaluation				
Total:				$2521		$6000
Combined Total Cost:						$8521

Table 4. Actual cost and timeline

Phase	Dates	Activities	My Hours Working	Hour Cost	Student Employee Hours	Hour Cost
Phase 1: Initial design with paper prototypes	June 24–July 5	Brainstorming, identify experience mapping, student feedback	15 hours a week, out of town 8 days over the three weeks.	$658	20 hours a week from 2 students	$960
Phase 2: Prototype 1	Sep. 11 - Oct. 8	Design Prototype 1	20 hours a week	$1470	15 hours a week from animator. 15 hours a week from LXD. 2 weeks each	$795
	Oct. 9	Test Prototype 1				
Phase 3: Prototype 2	Oct. 9-Oct. 21	Make adjustments for Prototype 2	20 hours a week	$980	15 hours a week from both animator and LXD.	$795
	Oct. 22	Run final test and evaluation				
Final Product	Oct. 22-Nov. 20	Make adjustments for final product	20 hours a week	$1960	15 hours a week from both animator and LXD.	$1590
Total:				$5,068		$4140
Combined Total Cost:						$9208

Appendix N. Annotated Bibliography

Domain Knowledge: Library Usage and Perceptions

Student orientation is a significant goal for academic libraries. If students are not aware of resources or unsure of how to navigate the library, they will be much less likely to utilize library resources (McAfee, 2018). There is a significant body of literature that discusses library anxiety, or

the apprehension of using resources or even asking for help to use those resources. Much of the motivation for librarians, then, is to find a way to get students to either try out resources or at least be aware of what resources are available.

There are many different approaches to these orientations, but one of the biggest themes is applying gamification or game-based learning in order to increase enjoyment and motivation. For the HBLL, internal studies reveal that many students do feel anxiety or apprehension toward the library. While the current tour helps in some ways, there is room for improvement in not just providing the experience of finding resources but also providing wayfinding strategies. Previous experience in the library is cited as being one of the most useful tools for wayfinding. Thus, our approach attempts to provide a strong baseline experience for the students' future use.

Allen, S. (2018). *First-Year Writing Book-Finding Activity: An Analysis of Student Perception and Activity Alternatives.* Internal HBLL report: unpublished.

This internal study analyzing the current library Writing 150 tour was extremely useful in understanding student perceptions about the experience. The author conducted two surveys and had one focus group to better understand how the activity is functioning and how it might be improved. Students reported feeling more comfortable in the library but expressed desires for a more engaging activity with varying aspects of research.

Bailin, K., Jahre, B., & Morris, S. (2018). *Planning Academic Library Orientations: Case Studies from Around the World*. Cambridge, MA: Elsevier-Chandos.

This book was helpful in providing a broad spectrum of how universities across the world have designed and developed library orientations. The variety of examples shows how wide the literature is on this subject. While in one way this is helpful, it also makes it difficult to understand what factors best lead to effective implementation. Each example had such different goals, stakeholders, and student backgrounds that drawing out crosscutting principles was difficult.

McAfee, E. L. (2018). "Shame: The Emotional Basis of Library Anxiety." *College & Research Libraries, 79*(2), 237–256. doi:10.5860/crl.79.2.237

McAfee combined the research on library anxiety with research on shame, claiming that shame is the main contributor to library anxiety. She suggested a few approaches to helping with library anxiety, including attunement of understanding of the student experience without judgment, addressing anxiety and shame directly in instruction, and helping to increase empathy for both library staff and students. This article, in particular, offers good suggestions for how we might facilitate conversations with library staff to focus on decreasing students' library anxiety.

Mellon, C. A. (2015). "Library Anxiety: A Grounded Theory and Its Development." *College & Research Libraries, 76*(3), 276–282. doi:10.5860/crl.76.3.276

Mellon was one of the original authors who coined the term "library anxiety," and this paper offered insights into its origins. Mellon drew on interviews with students having varying types of library anxiety and drew conclusions from those interviews. While the paper is helpful in terms of understanding the groundwork of library anxiety, it does not have as many practical applications for improving students' experience.

Merrill, E. (2017). *Freshman Writing Comic-Strip Evaluation.* Internal HBLL report: unpublished.

This internal evaluation was conducted by a library instructor as she surveyed multiple sections of students, asking them to describe their relationship with the library by drawing comic strips. The results were revealing, showing that there are many students who feel a strong sense of apprehension and anxiety toward using the library. These perspectives matched with other literature on library anxiety of why students do not use resources.

Onwuegbuzie, A. J. (2004). *Library Anxiety.* Scarecrow Press, Lanham, Md.

This book was extremely useful to better understand the origins and methods regarding library anxiety. The authors provide guidelines on measuring and scoring the library anxiety scale as well as the process that the scale went through to ensure valid responses.

Zaugg, H., Child, C., Bennett, D., Brown, J., Alcaraz, M., Allred, A., et al. (2016). “Comparing Library Wayfinding among Novices and Experts.” *Performance Measurement & Metrics*, *17*(1), 70–82. https://doi.org/10.1108/PMM-12-2015-0041

This study observed a variety of students as they participated in different wayfinding activities. The authors highlighted the most-used techniques in order of frequency: signs, maps, service desks, computers and smartphones, and previous experience. The authors made recommendations for improving students’ ability to navigate the library. These findings helped to structure what elements of wayfinding to point out as we provided guidance to students.

Zaugg, H., & Ziegenfuss, D. H. (2018). “Comparison of personas between two academic libraries.” *Performance Measurement and Metrics, 19(3)*, 142-152.

This study described in great detail the user personas that were identified at the Harold B. Lee Library, along with a comparison of how those personas matched with another similar institution. This information was particularly valuable as it provided a groundwork for understanding the audience and how some of them view the library. I was able to combine and adjust some of the personas in order to have fewer options for the students and speed up the discussion.

Learning Theory and Strategy

The experiential learning model was a helpful framework for helping students develop improved abilities and cognitive perceptions about the library. While our strategy can seem like adding too many concepts, there is significant overlap between the concepts of experience design, narrative, and gamification elements. In particular, the importance of reflecting on experiences as a means of improvement is addressed in each of these topics but in slightly different ways. Analyzing these experiences from each perspective allows a deeper understanding of the concepts and a much stronger ability to conceptualize applications of these theories.

Duerden, M. D., Lundberg, N. R., Ward, P., Taniguchi, S. T., Hill, B., Widmer, M. A., & Zabriskie, R. (2018). “From Ordinary to Extraordinary: A Framework of Experience Types.” *Journal of Leisure Research*, *49*(3–5), 196–216.

This article presented a framework of designed experiences and articulated which elements contribute to each type of experience. The authors first distinguished between ordinary and extraordinary experiences, which are distinguished more by frequency than importance. Subtypes of extraordinary experiences are memorable, meaningful, and transformational. Memorable experiences have elements of emotional involvement; meaningful experiences involve strong emotions, reflections, and discovery; and transformational experiences add personal changes in values, beliefs, intentions, or self-perceptions.

Kolb, D. A. (2015). *Experiential learning* (Second ed.). Upper Saddle River, NJL Pearson Education.

Kolb extensively covered experiential learning and the different models that theorists have used to describe learning through experience. Kolb effectively described the individual elements that are part of experiential learning and addressed many of the criticisms that have come out against the theory.

Gibbons, A. S. (2014). *An architectural approach to instructional design.* NY, NY: Routledge.

The chapter on the strategy layer was a particularly helpful resource, as it provided a series of questions that need to be asked in the design phase. Questions regarding strategies for technology implementation and instructional strategy were helpful as we designed the experience.

National Society for Experiential Education (NSEE). (1998). “Eight Principles of Good Practice for All Experiential Learning Activities.” nsee.org/8-principles.

This explanation of core principles was a useful guideline for how to continue to make the experience more aligned with experiential learning. Particularly considering how the structure of the class is somewhat different to how others usually apply experiential learning it was helpful to see the core principles and adapt them accordingly.

Waddell, D. (2019). *Guiding Principles of Experiential Learning at BYU.* Internal BYU document: unpublished.

This brief explanation was created by the Office of Experiential Learning at BYU. The document was valuable as a concise definition of what experiential learning means, but most especially how it aligns with the interpretation from BYU. Additionally, it specifies a simplified process and includes the idea of inspiration which is a core value at BYU.

Worthen, K. J. (2016, August 22). *Inspiring learning.* Retrieved from https://speeches.byu.edu/talks/kevin-j-worthen/inspiring-learning/

Wurdinger, S. D. (2005). *Using Experiential Learning in the Classroom.* Lanham, MD: Scarecrow Education.

Wurdinger analyzed the basics of experiential learning as defined by Dewey and a few other scholars. The book emphasized major tenants of experiential learning that were helpful to understand, including the importance of a fail-safe environment, allowing for mistakes, relevant

problems for students to solve, and facilitating effective reflection. Wurdinger also addressed different approaches for how to assess experiential learning.

Design Approaches

For learning experiences, narrative and gamification are two strategies that can be implemented to improve motivation. Relying on how important stories can be to learners, scholars in both education and experience design recommend framing an experience with a strong narrative. Gamification also relies on theories that support motivation. Social determination theory states that the more autonomy, competence, and relatedness that are involved in an experience, the more a learner will be engaged in that experience.

Not only should an experience be engaging while it is happening but it should also create positive associations with the memory of that experience. The literature from experience design describes the difference between an ordinary experience and an extraordinary experience. The more emotion, reflection, and transformation that happens with the audience, the more extraordinary the experience will be.

Adams, D. M., Mayer, R. E., MacNamara, A., Koenig, A., & Wainess, R. (2012). "Narrative Games for Learning: Testing the Discovery and Narrative Hypotheses." *Journal of Educational Psychology, 104*(1), 235–249. doi:10.1037/a0025595

This article was in some ways written as a rebuttal to articles like Dickey's 2006 article, which argue for the use of narrative in learning experiences. While the article makes strong claims against adding narrative to learning games, I find the limitations of the study critical to understanding in what kind of scope their claims can be applied. It was beneficial to understand some ways that narrative can detract from the learning experience, but the lack of exploration of different narrative approaches limited the usefulness of the findings.

Chapman, J., & Rich, P. (2017, January). "Identifying Motivational Styles in Educational Gamification." In *Proceedings of the 50th Hawaii International Conference on System Sciences*.

This article provided a strong foundational look at what theories and elements of gamification play into improving motivation for students. Cognitive evaluation theory, organismic integration theory, and motivational affordances theory all contribute elements of how to design an experience that enhances motivation. Particularly focusing on autonomy, competence, and relatedness, the authors explained that there are a wide variety of factors that can help encourage motivation.

Dickey, M. D. (2006). "Game Design Narrative for Learning: Appropriating Adventure Game Design Narrative Devices and Techniques for the Design of Interactive Learning Environments." *Educational Technology Research and Development,* 54(3), 245–263.

Dickey examined the narrative structures of computer games and analyzed which elements could be integrated into instructional designs. He identified a number of useful tools that are implemented in these games. Techniques such as plot hooks and emotional proximity to playable characters can help increase motivation. He also analyzed the elements of the hero's journey and

roles within that journey, describing how instructional design might use those elements in a problem-based activity or learning environment.

Heath, C. (2017). In Heath D. (Ed.), *The Power of Moments* (First Simon & Schuster hardcover ed.) NY, NY: Simon & Schuster.

While not a scholarly source, *The Power of Moments* discusses the principles behind designing an experience that people will remember and enjoy. The author emphasizes the peak-end principle, which states that we disproportionately remember moments of high peaks or lows and the ending over other parts of an experience. According to the author, four elements can increase the likelihood of creating impactful moments: elevation, insight, pride, and connection.

Medallia (2019). “Net Promoter Score”. Retrieved from https://www.medallia.com/net-promoter-score

This article provided a solid baseline to understand the Net Promoter Score (NPS) and what its limitations and opportunities are for evaluation an experience. It made it clear that one sole NPS score is not a good measure for understanding an audience. It is important to have something to compare it with.

Rossman, J. R., Duerden, M. D. (2019). *Designing Experiences.* New York, NY: Columbia University Press.

Chapters from this book were helpful in combining different approaches to experience design. The authors provided a clear set of steps and strategies that guide not just the process but also the theory of designing experiences. We utilized parts of the design process from the book as well as the templates that it provided.