

# **Visual Design Sprint Course for Missouri Online: Usability Study Report**

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IS\_LT 9480: Internship in Information Science and Learning Technologies

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## **1. About Missouri Online**

Missouri Online is an online system that administers various online courses and programs to the four universities within the UM System. The services provided by Missouri Online allow for educational access to many students in Missouri and across the country. Missouri Online offers various services, including quality course reviews, training and certification, and design reviews. Among these services offered are various micro-courses that are known as Course Sprints. One type of Course Sprint is a Design Sprint. These Design Sprints introduce elements of visual design and online course building to faculty of any background, so long as they are in the UM system.

## **2. Executive Summary**

The usability study conducted for this paper aimed to assess the usability of the Visual Design Sprint for Missouri Online. The outcome goals for the Visual Design Sprint were to improve faculty understanding of visual design principles and to enhance the quality of online courses. This study was conducted as part of an internship course: IS\_LT 9480. Before beginning the modules, participants completed a quiz of their knowledge of design elements and concepts that would be covered in the course. Next, the users went through and completed a series of modules about various visual design principles. The time commitment to complete these modules was around 1 hour.

After completing the modules, the participant met with Brad Mitchell, the instructional designer for the project, who provided feedback and answered questions in a 30 minute meeting. During this meeting, the user went through a retrospective think-aloud of their experience. This

meeting was recorded to collect data. Data was collected on user performance and attitudes regarding the usability of the course. Following the meeting, the participant created a redesign of a sample page. This redesign utilized principles learned in the course sprint modules. The participant submitted a screenshot of their redesigned page. At the conclusion of the study, users completed a paragraph about what they had learned and completed a questionnaire with likert scale questions. The usability elements focused on in this study included the user's learnability, the efficiency of the course sprint, errors and user satisfaction. This project did not require Institutional Review Board (IRB) approval, as it was deemed a quality improvement project by the IRB.

## **2.1 Results**

Overall, the course sprint received highly positive feedback from users for its usability. The users reported no errors with learnability and memorability of the site and were highly satisfied with the design and format of the course. Some feedback that was constructive included adding fewer menu options to make the course easier to navigate overall and providing examples for each section of the course, in order to improve learnability for users. Feedback on accessibility was positive from all three users. One user was chosen, among other reasons, for the fact that they are colorblind. They reported that they could easily see, and therefore navigate the course without any issues. Learnability on the course modules and, therefore the page redesign, was high. Users could easily apply what they had learned, navigate the Canvas page, and apply those techniques.

## 2.2 Design Recommendations

- Require users to complete the self-assessment quiz before beginning the course (force response) before advancing in the course. Some users missed this element of the course because they did not realize that it was required.
- One user became confused while in the module because they did not know where they were in the course overall. One option to help mitigate this confusion is to create a button that is added to each page which could lead back to the beginning of the module, or to a menu of links listing various pages which users can jump to. Adding a progress bar at the bottom of the course could also help let users know where they are in the course, which could help to reduce confusion and frustration.
- Focus on inclusion of additional real world examples throughout the course, and in the additional resource section of the visual design sprint. This could improve overall user satisfaction of the course.

## 3. Course Description, Goals and Questions

### 3.1 What is a Course Sprint through Missouri Online

**Course Sprints** are micro-courses that are offered through Missouri Online. One type of course is a Design Sprint. These Design Sprints introduce elements of visual design and online course building to faculty of any background, so long as they are in the UM system.

### 3.2 Goals of Usability Study

The goals of the Visual Design Sprint is to improve faculty understanding of visual design principles and enhance the quality of online courses. The usability research goals include improving usability and accessibility issues for users.

### 3.3 Evaluation Questions

**The questions that guided this usability study are as follows:**

- *Is there anything within the course that felt like it was missing (things that the user would've liked more of to improve the user experience and usability of the course)?*
- *What are things that the user liked about the course, or thought were helpful in their learning?*
- *What elements of the course seemed to be unhelpful or were confusing to the user?*

## 4. Method

Users were recruited and completed a series of tasks as part of the usability study. These tasks included a pre-module self assessment, completion of reading a series of pages in the Visual Design Sprint course, meeting with the instructional designer to provide a walk through testing session, and completion of a page redesign and reflection paragraph. These are the steps that all users will follow in the future once the course is live.

## **4.1 Participant Recruitment**

Three participants were recruited based on their career background or current career, knowledge level of the course topic (basic to moderate), and technological and design skill set (basic to advanced). Various career fields were selected, which included an instructional designer who had made basic courses before, a medical residency coordinator who had some familiarity with design theory, and a construction manager who could use the modules to develop training for their team. These participants were recruited as different users from various fields will be utilizing the Visual Design Sprint course once it is live. User 1's meeting was 35 minutes in length. User 2's meeting session was 14:23 minutes in length. Users 3's meeting session was 7:19 minutes in length. User 1 and 2 were sent follow up questions in emails, and user 3 was spoken to over Facetime for an additional 15 minutes to collect follow up usability specific data.

## 4.2 Participants

<b>Participant Total</b>	<b>3</b>
<b>Age Range</b>	<b>50 (female); 57 (Male); 26 (Female)</b>
<b>Location</b>	<b>Colorado (1); Missouri (2)</b>
<b>Gender</b>	<b>Female (2); Male (1)</b>
<b>Education Level</b>	<b>Bachelor's (1); Master's (2)</b>
<b>Profession</b>	<b>Instructional Designer (1), Medical Residency Coordinator (1), Construction Management (1)</b>
<b>Technology (Computer and Web Browser)</b>	User 1: Dell and Google Chrome User 2: MacBook Air and Google Chrome User 3: Dell and Google Chrome; quiz taken on Iphone and Safari
<b>c</b>	
<b>10/18/2024</b>	<b>1 (User 1)</b>



<b>11/19/2024</b>	<b>1 (User 2)</b>
<b>12/3/2024</b>	<b>1 (User 3)</b>

## 4.3 Data Collection and Results

### 4.3.1 Pre–Course Knowledge Self-Assessment

Prior to beginning the modules, users completed a knowledge self-assessment quiz. The self assessment consisted of an eight question quiz that allowed users to establish their knowledge base of information that would be taught in the course sprint. See appendix Figure 1 for screenshots of the complete quiz.

User 1: Did not complete. The user did not realize that it was a required element of the course.

User 2: 8/8 questions answered correctly

User 3: 8/8 questions answered correctly

### **4.3.2 Think-Aloud Session**

Following the completion of the course sprint learning modules, users met with the instructional designer, Brad Mitchell, to conduct a think-aloud session - this was the “connect” portion of the course. During this session, users provided feedback on their experience using the course. As mentioned above, user 1’s meeting was 35 minutes in length. User 2’s meeting session was 14:23 minutes in length. Users 3’s meeting session was 7:19 minutes in length. User 1 and 2 were sent follow up questions in emails, and user 3 was spoken to over Facetime for an additional 15 minutes to collect follow up usability specific data. Overall the feedback was highly positive.

Users only reported a few errors: user 2 reported one navigation error, (described in further detail in the design recommendations listed above) and user 3 said that they did not realize that there was a 2nd course for the “page redesign” that they needed access to and therefore was confused on how to proceed in the course. If they had known this, they would have requested access sooner. Once the course is published and live, this issue of the page redesign course access will be mitigated. Users will submit a screenshot to a redesign of a page that they have already built in an existing online course. Otherwise, User 3 reported no other errors and User 1 reported no errors.

### **4.3.3 Create Assignment and Reflection**

At the conclusion of the Visual Design Sprint module, users completed two assignments: a page redesign employing the design theories and techniques taught in the course and a reflection on their experience in the course. For the Sprint, a page from an architecture class at the University of Missouri was utilized for the study. Once the course is live, users will

redesign their own Canvas course page. When the page redesign was completed, users submitted a screenshot of their page redesign (See Figure 2 in Appendix). Once the page design and all other elements of the course were completed, users submitted reflections about their experience using the course.

#### **4.3.4 User Reflections**

##### **User 1:**

Some aspects of design I learned were the use and attention to white space, or negative space. I never really thought about using white space as part of a course design to help learners engage with the material. Another aspect I found important was visual hierarchy to support intuitive navigation throughout the course. A final characteristic of the course design I implemented was the use of alert and information icons to draw attention to pertinent information. The goal was to also change out the colors to calmer colors, however, I had difficulty with the coding and felt I needed more time for that level of designing. I decided to keep with Missouri Online color branding provided by the UMSYS Lite Guides. Also, the layout was supposed to be interactive Accordion for the purpose of engaging learners with the content in some way. However, the code didn't yield any drop down accordion effect when I transferred it to HTML Canvas Editor space.

##### **User 2:**

The content of the sprint reinforced lessons learned over years of designing various marketing materials, including websites, for small nonprofit

schools, as well as my prior experience as a classroom teacher and freelance writer/editor. I appreciated such nuances as the psychology of different print colors and the insight that good design can both guide a reader's attention and engage their interest. Regarding the process, the limitations of the visual editor were a mixed blessing, as I couldn't play with things like columns and images, yet was spared from sinking too much time into being perfectionistic. Future students might benefit from an ongoing sense of how far along in the sprint they are (e.g., with a "page X of Y" or a percent-progress indicator), and some support in navigating the copious Canvas menus might streamline students' path through this project (e.g., some sort of site map, either in a sidebar or in an overview page linked from each individual page).

**User 3:**

There were many points brought up about the visual design course that I had neglected to think of prior. I didn't think of the color palette having such an impact on space as a whole. I liked how the "Tennessee Homemade Wines," used their dark background in contrast to their light text. Their background helped emphasize their product photo in a way that I don't think a white or lighter color background could have achieved. For my design I utilized a lot of negative space to create a crisp clean look to ensure you were not distracted from the titles or listed resources making for ease of use. My whole course is set with the same color and size headers and formats for key points to allow cohesive flow and ease of website use. Accessibility is near and dear to my heart as I am colorblind. I

didn't realize how much everyone else thought about this. I learned about how much spacing played a role in the assistance to improve the overall experience.

#### 4.3.5 Post-Module Questionnaire and Results

At the completion of the course and usability study elements, users completed a final questionnaire that utilized a likert scale. Overall, the users gave incredibly high ratings - mostly "strongly agree"- to all questions. These questions were intended to ascertain further information on user feelings and attitudes about their experience testing the course. The questionnaire consisted of the following questions:

Questions:	Results:
Question 1: I understand how to apply the basic design principles taught in this course sprint to my own courses.	Agree (1), Strongly Agree (2)
Question 2: I found the additional resources (on the additional resources page) helpful to the understanding the content	Neither agree nor disagree (1), Strongly Agree (2)
Question 3: Meeting with the ID during the connect session helped to clarify any questions I had (if you did not meet with the ID, please select NA)	Strongly Agree (3)

Question 4: I found the page recreation activity to be beneficial to my learning.	Agree (1), Strongly Agree (2)
Question 5: I found the Visual Design Sprint course easy to navigate (i.e. few page navigation errors, flow of course was easy to understand, etc).	Agree (1), Strongly Agree (2)

## 5. Results, Findings on User Performance, and User Attitudes

Qualitative data on user attitudes was collected via the think-aloud connect session with the instructional designer, the follow up questions, and the self reflection at the end of the course. Overall, users reported being satisfied with the course and felt that the course was user friendly to navigate - i.e. the flow of the information was presented in a manner that was easy to understand and follow for users, the information presented was not overwhelming to users, pages loaded quickly, etc. In the meeting with the instructional designer, users reported no errors, with the exception of some minor confusion for user 2 when navigating the course (see the design recommendations section).

Users reported that they felt that they benefited from learning the materials in the course and would be able to use the information in future courses they could create. For user 3, who is colorblind, the course was accessible - they were able to see all colors presented in the course, as no colors outside of their visual field were used. This was positively noted by the user. Users mentioned that they liked how the course was structured into the various sections (spacing, size and scale, and color and contrast), and that the course was consistent in content and quality.

## **6. Conclusion**

Through conducting this usability study, it was determined that while this Visual Design Sprint has a high level of usability overall for users, there are some elements that could be added or changed to improve the overall usability for all users. This includes creating a forced response on the initial self-assessment quiz to ensure users are completing all elements of the Sprint. A progress bar during the course and a menu button or back button to take the user back to the course menu could also be added to help orient the user within the course. Users reported high rates of satisfaction and reported that the course was easy to navigate (with the exception mentioned above), and the content was overall easy for users to learn and apply to the page redesign.

## Appendix

### Figure 1 - Self-Assessment Questions

#### Self-Assessment

ⓘ This is a preview of the published version of the quiz

Started: Nov 7 at 10:47am

#### Quiz Instructions

Please complete the self-assessment quiz below before starting this spring or reading any of its content. We will use this information during Lauryn's UX testing to create a baseline for study participants, which will help us better understand what you've learned at the conclusion of the sprint.

	Question 1	1 pts
<input type="checkbox"/>	<p>1. <b>True or False:</b> Spacing in online course design is focused on the deliberate and thoughtful arrangement of space between various elements within a layout.</p> <p><input type="radio"/> True</p> <p><input type="radio"/> False</p>	
<input type="checkbox"/>	<p><b>Question 2</b></p> <p>What does adequate spacing in an online course significantly contribute to?</p> <p><input type="radio"/> The loading speed of the course content</p> <p><input type="radio"/> The number of images used in the course</p> <p><input type="radio"/> The cohesiveness of the course materials and the overall experience of the learners</p> <p><input type="radio"/> The style and voice of the course</p>	1 pts
<input type="checkbox"/>	<p><b>Question 3</b></p> <p>Which of the following is crucial in establishing a visual hierarchy on a course web page?</p> <p><input type="radio"/> Adding more images to the page</p> <p><input type="radio"/> Including large blocks of text</p> <p><input type="radio"/> Using bright and contrasting colors</p> <p><input type="radio"/> Strategically incorporating white space</p>	1 pts
<input type="checkbox"/>	<p><b>Question 4</b></p> <p>Which of the following best describes the concept of size in online course design?</p> <p><input type="radio"/> The physical dimensions of an element in a design, such as its height, width, length, diameter, or area</p> <p><input type="radio"/> The duration of the course</p> <p><input type="radio"/> The number of students enrolled in the course</p> <p><input type="radio"/> The amount of content included in the course</p>	1 pts



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□	Question 5	1 pts
<p>Which of the following best describes the concept of scale in online course design?</p>		
<p><input type="radio"/> The difficulty level of the course material</p> <p><input type="radio"/> The relative size of one element compared to another in the design</p> <p><input type="radio"/> The level of interaction between students and instructors</p> <p><input type="radio"/> The number of modules in the course</p>		

  

□	Question 6	1 pts
<p>How does proper spacing enhance the accessibility of online course designs?</p>		
<p><input type="radio"/> It makes the content more difficult to comprehend for all users</p> <p><input type="radio"/> It only benefits users without disabilities</p> <p><input type="radio"/> It makes the content more legible and easier to comprehend for all users, particularly those with disabilities</p> <p><input type="radio"/> It has no impact on the accessibility of the course</p>		

  

□	Question 7	1 pts
<p>How can the proper use of color enhance the functionality of course materials?</p>		
<p><input type="radio"/> By employing color to highlight important elements and create visual interest</p> <p><input type="radio"/> By using a single color throughout the entire course for consistency</p> <p><input type="radio"/> By using a variety of colors to create a unique course design</p> <p><input type="radio"/> By avoiding the use of color altogether to maintain a minimalist design</p>		

  

□	Question 8	1 pts
<p>How does proper contrast contribute to the accessibility of online course design?</p>		
<p><input type="radio"/> It doesn't have any impact on accessibility</p> <p><input type="radio"/> It only benefits users with specific visual impairments</p> <p><input type="radio"/> ) It can make the content more legible and easier to comprehend for all users</p> <p><input type="radio"/> It can make the content more challenging to read for all users</p>		

## Figure 2 - Page Redesign

### Figure 2.1

#### Original Page Design

This module includes content for the first lesson of the course.

##### Introduction:

Readings from the text by Tyler, Ligibel, and Tyler (TLT) *Historic Preservation: An Introduction to Its History, Principles, and Practice* opens the door to what we call "historic preservation"--players, philosophies, activities, and the movement.

Readings from the Pile and Gura (P) *A History of Interior Design* provides necessary design background to grasp the rich background of architectural and interior design history since this course is structured to guide design with historic preservation.

Readings from the U.S. Dept of the Interior (USDI) *The Preservation of Historic Architecture* gives technical information in rehabbing.

The *Stromberg Glossary* (S) by Stromberg Architectural Products called *Glossary of Architectural Terms* will be useful throughout the course.

Video lectures are in each Canvas lesson pulling in the important role of art in the historical context. The videos are professionally produced and will help you discover the art in your building. Look for character defining details--stained glass windows, floor tiles, metal work, etc. which are rooted in art history.

Quiz questions are pulled from each of these sources and designated by the alpha letters (TLT, P, USDI, S, ART) and a number that relates to the Chapter where the question is derived.

##### Objectives:

During this lesson students will:

1. Discover the prehistory/Greek/Roman roots of historic architecture.
2. Judge and argue the significance of historic places by reflecting on personal attitudes about historic places.
3. Identify personal experience with historic buildings by selecting a building to assess.

Lesson 1 addresses learning objectives 1,2,3,5,7,8. All course objectives are posted to the course Syllabus area in Canvas.

### Figure 2.2

#### User 1

##### Objectives

During this lesson students will:

- Discover the prehistory/Greek/Roman roots of historic architecture.
- Identify personal experience with historic buildings by selecting a building to assess.
- Judge and argue the significance of historic places by reflecting on personal attitudes about historic places.

Lesson 1 addresses learning objectives 1,2,3,5,7,8. All course objectives are posted to the course Syllabus area in Canvas.

##### Activities

###### READ

- Tyler, Ligibel, and Tyler (TLT) *Historic Preservation: An Introduction to Its History, Principles, and Practice*.
  - This resource opens the door to what we call "historic preservation"--players, philosophies, activities, and the movement.
- Pile and Gura (P) *A History of Interior Design*
  - This resource provides necessary design background to grasp the rich background of architectural and interior design history since this course is structured to guide design with historic preservation.
- The U.S. Dept of the Interior (USDI) *The Preservation of Historic Architecture*
  - This resource gives technical information in rehabbing.
- The Stromberg Glossary (S) by Stromberg Architectural Products called *Glossary of Architectural Terms*
  - This resource will be useful throughout the course.

###### WATCH

- Video lectures are in each Canvas lesson pulling in the important role of art in the historical context.
- The videos are professionally produced and will help you discover the art in your building.

Look for character defining details--stained glass windows, floor tiles, metal work, etc. which are rooted in art history.

##### SUBMIT

Quiz questions are pulled from each of these sources and designated by the alpha letters (TLT, P, USDI, S, ART) and a number that relates to the Chapter where the question is derived.

## Figure 2.3

### User 2

#### LESSON 1

#### Objectives

During this lesson students will:

- **Discover** the prehistoric/Greek/Roman roots of historic architecture.
- **Judge and argue** the significance of historic places by reflecting on personal attitudes about historic places.
- **Identify** personal experience with historic buildings by selecting a building to assess.

#### Resources

##### Readings

- **Tyler, Ligibel, and Tyler (TLT)**. *Historic Preservation: An Introduction to Its History, Principles, and Practice* opens the door to what we call "historic preservation"—players, philosophies, activities, and the movement.
- **Pile and Gura (P)**. *A History of Interior Design* provides necessary design background to grasp the rich background of architectural and interior design history since this course is structured to guide design with historic preservation.
- **U.S. Dept of the Interior (USDI)**. *The Preservation of Historic Architecture* gives technical information in rehabbing.
- **Stromberg Architectural Products (S)**. *The Glossary of Architectural Terms* will be useful throughout the course.

##### Video lectures (ART)

Professionally-produced videos in each lesson will help you discover the art in your building by pulling in the historical context. Look for character-defining details (e.g., stained glass windows, floor tiles, metal work) rooted in art history.

#### NOTES

1. Lesson 1 addresses learning objectives 1,2,3,5,7,8. All course objectives are posted to the course Syllabus area in Canvas.
2. Quiz questions are pulled from each of these sources and designated by the alpha letters (TLT, P, USDI, S, ART) and a number that relates to the Chapter where the question is derived.

## Figure 2.4

### User 3

#### MODULE 1 : LESSON 1

##### OBJECTIVES

- Discover the prehistory/Greek/Roman roots of historic architecture.
- Judge and argue the significance of historic places by reflecting on personal attitudes about historic places.
- Identify personal experience with historic buildings by selecting a building to assess.

##### MATERIALS

###### READING MATERIAL

- Tyler, Ligibel, and Tyler (TLT) *Historic Preservation: An Introduction to Its History, Principles, and Practice*
  - opens the door to what we call "historic preservation"—players, philosophies, activities, and the movement.
- Pile and Gura (P) *A History of Interior Design*
  - provides necessary design background to grasp the rich background of architectural and interior design history since this course is structured to guide design with historic preservation.
- U.S. Dept of the Interior (USDI) *The Preservation of Historic Architecture*
  - gives technical information in rehabbing.
- The Stromberg Glossary (S) by Stromberg Architectural Products called Glossary of Architectural Terms
  - useful throughout the course.

###### VIDEOS LECTURES

- Video lectures are in each Canvas lesson pulling in the important role of art in the historical context. The videos are professionally produced and will help you discover the art in your building. Look for character defining details --stained glass windows, floor tiles, metal work, etc. which are rooted in art history.

##### IMPORTANT INFORMATION

- Quiz questions are pulled from each of these sources and designated by the alpha letters (TLT, P, USDI, S, ART) and a number that relates to the Chapter where the question is derived.
- Lesson 1 addresses learning objectives 1,2,3,5,7,8. All course objectives are posted to the course Syllabus area in Canvas.