

Copper Country Historical Images

Usability Test Plan

HZH Usability

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Introduction

This document describes a test plan for conducting a usability test during the development of Copper Country Historical Images (<https://cchi.mtu.edu/>). This website is run through the Michigan Technological University's Library and is an archive of historical photographs from the surrounding area. The main feature being tested are searching functions, such as the search bar, the subjects organizations, and applicable filters to the subjects. The usability test will involve observation of four participants completing four key tasks on Copper Country Historical Images. The testing will take place on a desktop or laptop so the user has a mouse for testing. The user will be asked to complete four tasks we consider everyday tasks on this website: 1. Finding two photos and requesting physical duplications of them, 2. leaving a comment on a photo, 3. citing the photo, and 4. downloading a high resolution of a photo.

Test Goals and Research Questions

Overall, the goals of usability testing include establishing and validating user performance and preference measures by addressing efficiency, error frequency, and user satisfaction.

Our usability test focuses specifically on the search-order workflow and the intuitiveness of the website layout. We chose this focus because David Holden suggested this area would benefit from usability testing. David Holden mentioned he would like to learn more about key obstacles in the search-order workflow, ways in which the search feature is broken, and ways to embed guidance on-site usage smoothly. In response, we are addressing the search-order workflow, comment feature, download options, and help sections. We hope to learn the following things:

- Ways in which the search feature breaks
- Where embedded instructions or explanations are most needed
- Obstacles in the checkout process

Our specific research question is as follows: Can researchers easily find images on their area of interest, collect them, order them, and receive them in a reasonable amount of time?

In terms of efficiency, we will address whether or not participants are able to complete tasks and we will measure the time the task-to-completion for each task. We anticipate a benchmark of thirty seconds to five minutes, depending on the complexity of the tasks for completing each task.

In terms of errors, we will record the number and type of issues that occur during testing sessions, and we will rate the impact of these issues on a scale of 1–5. Severe issues are those that deter participants from successfully completing a task, whereas less severe issues are those that slow down but do not prevent successful completion of the task. We anticipate a benchmark of 40% issues at the severe level and 60% issues less severe.

In terms of satisfaction, we will ask participants to rate their impressions of ease-of-use for each task. We will also ask participants to describe their impressions and experiences in a debriefing interview. We anticipate a benchmark of medium-low user satisfaction.

Participants

Usability tests are intended to gather information from representative users, or target users who would be likely to use the product or interface and complete the specified tasks. This test plan explains what we know about target users for Copper Country Historical Images. In addition, we share our plan for recruiting five participants and describe how they fit with the target users.

Target/Representative Users

David Holden shared information regarding characteristics of target, representative users of Copper Country Historical Images. When visiting with us on February 2, 2021, David Holden articulated the following characteristics of target representative users:

- The website is available to the public, so it should be accessible to all age ranges from highschool to senior citizens.
- Education level of the target audience is high school educated people
- Some interest in history

In choosing users, we decided to focus on older adults and senior citizens. We chose to focus on these groups because first, gaining access to a younger demographic (high schoolers) would require more precautions and guardian consent as they are minors, and second, because being young adults ourselves, we found that we were more interested in seeing where older adults might have trouble navigating the site. We believe that focusing on college students may not find where the sight is the most problematic, as younger people tend to be more tech savvy and may be able to navigate the site more easily than older users. We made sure that all our test users had at least a high school education, as well. Additionally, we wanted users who had never used the sight before, so they would have no prior experience with it and we could see how someone would navigate the site through fresh eyes.

Recruiting Plan

Our usability tests will include four participants. We plan to recruit participants by asking our family members, specifically our parents and grandparents who have never visited the website. Our participants reflect characteristics of the target audience of Copper Country Historical Images in the following ways: age (middle age to elderly), race (primarily white), at least highschool education, never visited the site before, and some experience with computers and the internet. See Appendix D for the Recruiting Script.

Methods

This evaluation employs a usability test approach that involves representative users and asks them to complete realistic web tasks. The usability test will involve participants who are likely users of Copper Country Historical Images. Procedures include informed consent, background questionnaire, tasks based on scenarios with post-task questions, and a debriefing interview with Product Reaction Cards. A “think aloud” protocol will be used throughout the test, which means that participants will be encouraged to talk while they are completing tasks. These procedures are described more fully below.

Informed Consent

When participants arrive for testing, the “greeter” will brief the participants on the website and instruct the participant that they are evaluating the application, rather than the facilitator evaluating the participant. Participants will agree to an informed consent form that acknowledges: the participation is voluntary, that participation can cease at any time, and that the session will be recorded but their privacy of identification will be safeguarded. The facilitator will ask the participant if they have any questions. See Appendix A for the Consent Form and Appendix B for the Participant Rights.

Background Questionnaire

Participants will complete a pretest demographic and background information questionnaire. The “greeter” will administer the background questionnaire when the participant arrives. The questionnaire asks about demographic information, internet experience and familiarity with the website they will use. See Appendix C for the Background Questionnaire.

Tasks and Scenarios with Post-Task Questions

Following informed consent and completion of the background questionnaire, the “greeter” will introduce the participant to the “moderator” who will guide the participant through the usability test.

The usability test will include four separate tasks that were compiled with assistance from a subject-matter expert. The tasks are identical for all participants. At the start of each task, the moderator will read aloud the task description from the printed copy and the participant will begin the task. Time-on-task measurement begins when the participant starts the task. After each task, the participant will complete the post-task question and elaborate on the task session with the facilitator. The facilitator will instruct the participant to “say out loud what you are doing” so that a verbal record exists of their interaction with the website. The facilitator will observe and record user behavior, user comments, and system actions in the log. Tasks and post-task questions are briefly described here. See Appendix E for exact materials that will be shared with participants.

Task 1: Find a picture of the Italian Hall and a barn in winter and request physical duplications of these photos

Post Task Questions: Did you find anything frustrating about the search function? Anything that was helpful that you liked?

Was anything about the checkout process frustrating? Anything helpful?

On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Task 2: Leave a comment on any photo + post-task question]

Post Task Questions: Did you find anything frustrating about the search function? Anything that was helpful that you liked?

Was anything about the checkout process frustrating? Anything helpful?

On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Task 3: Find the information you would use to cite a photo + post-task question]

Post Task Questions: Did you find anything frustrating about the search function? Anything that was helpful that you liked?

Was anything about the checkout process frustrating? Anything helpful?

On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Task 4: How would you download a high-resolution version of a photo + post-task question]

Post Task Questions: Did you find anything frustrating about the search function? Anything that was helpful that you liked?

Was anything about the checkout process frustrating? Anything helpful?

On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Debriefing Interview with Product Reaction Cards

After all task scenarios are attempted, the moderator will ask participants about their impressions of the site and testing experience. These questions were:

- Did your first impression of the site change over the course of testing the site?
- What was the best part of the experience using the site? What was the most frustrating part of the site experience?
- Is there anything you would change on the site?
- How easy was the site for you to use overall, on a scale of 1-5. 1 being very difficult and 5 being very easy.

Part of the interview involves asking participants to select words from the “Product Reaction Cards” that describe their experience. [See Appendix E for the Product Reaction Cards]

Evaluation Measures and Metrics

Usability metrics refers to user performance measured against specific performance goals necessary to satisfy usability requirements. Task completion success rates, time-to-completion, error rates, and subjective evaluations will be used.

Task Completion Rate

Completion rate is the percentage of test participants who successfully complete the task without critical errors. A critical error is defined as an error that results in an incorrect or incomplete outcome. In other words, the completion rate represents the percentage of participants who, when they are finished with the specified task, have an "output" that is correct. Note: If a participant requires assistance in order to achieve a correct output then the task will be scored as a critical error and the overall completion rate for the task will be affected.

A completion rate of 100% is the goal for each task in this usability test.

Issue Impact Rate

This item addresses errors that may occur in the course of completing a task. Because errors are not always self-evident, we will address errors by identifying issues and ranking the severity of those issues. Issues can be defined as any kind of obstacle that occurred during task completion,

whether small or large. When issues occur, they will be noted by observers and rated in terms of severity. A non-severe issue is an issue that would not have an impact on the final completion of the task but would result in the task being completed less efficiently. A severe issue would prevent the participant from completing the task. All issues will be identified and rated using the following rating scale:

- **Severity 1** — Low/Unclear Impact, the issue was observed, but the user was able to continue.
- **Severity 2** — Minor Impact, user was confused or frustrated while being obstructed by the issue.
- **Severity 3** — Moderate Impact, user needed a work-around to complete the task.
- **Severity 4** — Major Impact, user had much difficulty completing the task without seeking help.
- **Severity 5** — Catastrophic Impact, the issue prevented the user from completing the task.

Frequency will be noted in that “data loggers” will note how many errors each participant encountered. They will also note which errors were experienced by more than one participant. Frequency is the percentage of participants who experience the problem when working on a task.

- High: 3 or more of the participants experience the problem
- Moderate: 2 participants experience the problem
- Low: 1 or none of the participants experience the problem

An error-free rate of 80% is the goal for each task in this usability test.

Time on Task (TOT)

The time to complete a scenario is referred to as "time on task." It is measured from the time the person begins the scenario to the time the person signals completion. Our goals for the TOT on each task are as follows:

Task 1 - 5 minutes

Task 2 - 0.5 minutes

Task 3 - 0.5 minutes

Task 4 - 1 minute

Subjective Measures

Subjective opinions about specific tasks, time to perform each task, features, and functionality will be surveyed. Post-task questions will ask participants to rate their opinion about the ease-of-use of each task using a rating scale of 1–5, one being very easy and five being very difficult. At the end of the test, participants will rate their satisfaction with the overall system by additional comments. Combined with the interview/debriefing session, these data are used to assess attitudes of the participants. Our goals for subjective measures are as follows:

- Find out what was liked and disliked about the website
- Find out what participants would change

- See if participants have suggestions
- Find frustration points

Test Environment and Roles

Location and Environment

Participants will take part in the usability test over Zoom. The meeting will take place over the Zoom video conference link: <https://michigantech.zoom.us/j/82260453405>. A laptop with the website and supporting software will be used. The participant's interaction with the website will be monitored by the facilitator. A logger will monitor the sessions, connected by video and audio feeds. The test sessions will be recorded and transcribed.

Roles

The roles involved in a usability test are as follows.

Host: Julianna Humecke

- Welcomes participant to the usability testing session
- Provides overview of study to participants
- Reviews and administers consent forms with participants; asks participants for any questions
- Reviews the "Participant Rights" with participants
- Administers background questionnaire with participants
- Introduces participant to the moderator
- Shares screen of the website with participants
- Gives remote control access to the website to participants
- Displays "Product Reaction Cards" via screen sharing at the end of the session for participants to choose words from

Moderator: Claudia Zinser

- Reviews study with participants; asks for any questions before starting
- Defines usability and purpose of usability testing to participants
- Explains the "think aloud" protocol and invites participants to talk during the testing session
- Provides participants with tasks and post-task questions
- Assists in progression of test; does not direct participants in completing tasks; listens attentively
- Administers debriefing questions, including Product Reaction Cards
- Responds to participant's requests for assistance

Logger: Megan Happel

- Records Time-on-Task (TOT) for each task in each complete usability session (start and end time in minutes and seconds).
- Records moment-by-moment narration of participant's actions and comments in each usability test session

- Records frequency of errors; reviews errors after each test and rates them for severity
- Uses the “data worksheets” to log all information
- Communicates with usability team following each test session; reviews session with team to complete data worksheets for each test

Schedule

The lab sessions will occur on March 13, 2021 in Zoom as follows:

Start time	End Time	Description
2:30PM	2:44PM	Meeting Setup
2:45PM	2:59PM	Session One Prep
3:00PM	3:59PM	Session One
4:00PM	4:14PM	Session One Debriefing
4:15PM	4:29PM	Session Two Prep
4:30PM	5:29PM	Session Two
5:30PM	5:44PM	Session Two Debriefing
5:45PM	5:59PM	Session Three Prep
6:00PM	6:59PM	Session Three
7:00PM	7:14PM	Session Three Debriefing
7:15PM	7:29PM	Session Four Prep
7:30PM	8:29PM	Session Four
8:30PM	8:44PM	Session Four Debriefing
8:45PM	9:00PM	Testing Cleanup

*all times listed above are in Eastern Standard Time

Appendix B: Participant Rights

Participant Rights

You are not being evaluated

You are helping us learn how well a software product (such as an application or Web service) works for people. Any difficulties you encounter during this session will help improve the product.

You may leave at any time

Your participation is strictly voluntary. You have the right to leave at any time, without providing a reason. Your decision to participate or withdraw from the session will have no effect on your relationship with the University of Minnesota.

You will be informed

We will answer any relevant questions you may have about the study. If you would like to talk about the session with someone other than the analyst(s), we encourage you to contact the Research Subjects' Advocate Line shown on your consent form.

You have choices about recordings of you

You may request that we not record your session. If you do consent to being recorded, you still have the right to request that the recording be destroyed at any time. When no longer needed for design purposes, any recordings containing your picture or voice from this session will be destroyed.

You will be treated with respect

You have the right to be treated politely and with respect during the session. We will not exceed your scheduled time without your consent. We invite you to tell us if you are feeling uncomfortable at any point during the session.

If you have any concerns about the fulfillment of these stated intentions, please contact either of the instructors:

- Marika Seigel, Associate Professor, maseigel@mtu.edu
- Nick Rosencrans, Teaching Specialist, rosens84@umn.edu

Appendix C: Background Questionnaire

Sample Background Questionnaire

Thank you for helping us evaluate our client website. Before we begin, please tell us a little about yourself.

What is your age group?

- 18-20
- 21-29
- 30-39
- 40-49
- 50-59
- 60+

What is your highest level of completed education?

- High School Diploma
- Some College
- College Degree
- Associates Degree
- Master
- Ph.D.

How do you most often use a computer?

(Check all that apply)

- I don't use a computer
- Work
- Word Processing
- Personal Email
- Entertainment and Games
- Music
- Photo/video
- Internet
- Other - Please specify: _____

How often on average do you use a computer?

(Check one)

- Once a month
- Several times a month
- Once a week

- Several times a week
- Daily
- Several times a day

How often do you use the internet?

(Check one)

- Once a month
- Several times a month
- Once a week
- Several times a week
- Daily
- Several times a day

Which of the following statements best describes your relationship with technology?

(Check one)

- I avoid using technology wherever possible, and I rely on other people to help me.
- I use technology, and I am still learning how best to incorporate it into my life.
- I feel comfortable with technology, and I feel I now know the basics.
- I like technology, and I can mostly troubleshoot any problems that occur on my own.
- Technology is a real passion of mine, and people come to me for help with technical issues when they get stuck.

Have you ever used the Copper Country Historical Images Website?

(Check one)

- Yes
- No
- Unsure

How do you visit most websites?

(Check any that apply)

- I use my phone or mobile device to visit websites
- I use my desktop or laptop computer to visit websites
- Other- Please Specify: _____

Appendix D: Recruiting Script

Recruiting Script

[Subject] Seeking Participants to Assess Web Usability

Dear Mrs./ Mr. ----,

We are conducting a usability study for a class at Michigan Technological University. We would be thrilled if you could participate in this study by helping us test a website. All you will need to do is join our [Zoom meeting](#) at a time that will work for you on Saturday March 13th, perform a few web-based tasks, and answer a few questions. The whole thing will take less than an hour and you will be compensated for your time with a \$5 Amazon gift card. If you are interested, let us know as soon as possible so we can get you a good time slot.

Sincerely,
Julianna Humecke
Megan Happel
Claudia Zinser
David Holden
HZH Usability

Appendix E:

Moderating/ Briefing Script, Task Scenarios, Post Task Questions, Product Reactions Cards, Debriefing Questions.

Moderator Script

Hi, I'm Claudia Zinser. Welcome to our session. I'll be facilitating your session today.

I'm from HZH Usability, and we're helping Copper Country Historical Images to test their website. One of the design team's goals is to make the website as intuitive and easy-to-use as possible. They have some questions about it, so we've asked you here to use it and tell us what you think — what's easy to use, what's difficult, and what can be improved.

Give intro to design

Today, you'll be trying out the Copper Country Historical Images website and helping to evaluate its usability. The Copper Country Historical Images website is an archive that stores images from the history of the Keweenaw peninsula. This archive is run by the Van Pelt and Opie Library at Michigan Tech, and this website is free for anyone to use.

The most important thing to remember today is that **you are doing the evaluating**. You are not being evaluated in any way, and you don't have to worry about making a mistake.

Typical tasks / Think out loud:

So you have some context for evaluating the design, we'll give you some everyday tasks that people would complete. While you show us how you would complete these tasks, we want you to say out loud what you are doing. Tell us what you are thinking as you go. Say what you're looking for, and what you think of what you see. Describe your experience almost as if I was trying to follow along but I can't quite see your screen. If there's anything you didn't expect, if something confuses you, or if there's something you like as you're going through the site, let us know.

We want to make sure we can pick up all of your thoughts on the process, so it would be great if you could speak as clearly as possible—like you might do over the phone.

Testing Setup

1. Next, I'm going to share my screen with a web browser up, and two tabs: one is our list of tasks, and the other tab is the website we will be testing. Can you read the text on your screen clearly? Now I'm going to give control of my screen to you, so you can use it like if you sat at my desk.
2. During your session you'll take control of our screen from your location. That means you will experience some lagtime issues. Your controls might feel a little different, you may need to scroll more slowly. That's all part of the experience.
3. Can you move the cursor around for me?

Introduce Tasks

Before we start, can you give us your initial impressions of the site?

1. So, for your first task, we'd like you to find two images for us and try to request physical duplications of them. The two images we'd like you to find are a picture of the Italian hall and a picture of a barn in winter. As you're doing this, remember to say your thoughts allowed, and remember, you can't do this wrong, so don't worry about that. Do you have any questions before we start?

Post task questions:

- Did you find anything frustrating about the search function? Anything that was helpful that you liked?
- Was anything about the checkout process frustrating? Anything helpful?
- On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Next, we'd like you to navigate back to the Digital Archives tab before we start the next tasks. (The user does that).

2. For your next task, we'd like you to navigate to an image, any image you would like. Once you find the image you would like to work with we'd like you to leave a comment on that image. You can make the comment whatever you want it to be, but if you would not like to make your own comment, you can simply comment the phrase test comment.

- Was there anything about that task that was surprising or you didn't expect? Anything frustrating?
- On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

3. On that same image, can you show us if you were to cite this image, where would you find the information you would need to cite it?

- Was there anything about that task that was surprising or you didn't expect? Anything frustrating?
- On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

4. On that same image, if you were to download that image onto your computer, can you show me how you would go about downloading that image?

- Was there anything about that task that was surprising or you didn't expect? Anything frustrating?

- On a scale of 1-5, 1 being very difficult and 5 being very easy, how would you rate this task?

Debriefing Script

Qualitative Questions

1. Did your first impression of the site change over the course of testing the site?
2. What was the best part of the experience using the site? What was the most frustrating part of the site experience?
3. Is there anything you would change on the site?

Quantitative Questions

How easy was the site for you to use overall, on a scale of 1-5

1-Very difficult	2-difficult	3-neutral	4-easy	5-very easy
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Ordinary	Distracting	Low maintenance	Innovative
Convenient	Impersonal	Accessible	Unapproachable
Gets in the way	Connected	Sophisticated	Not secure
Comprehensive	Unrefined	Disconnected	Clear
Confident	Old	Secure	Collaborative
Undesirable	Annoying	Inconsistent	Irrelevant
Cutting edge	Poor quality	Uncontrollable	Anxious
Valuable	Confusing	Stimulating	Slow
Busy	Calm	Boring	Complicated