Karen Ballengee Portfolio
Usability Testing
Report
April 2022
https://karen02j.github.io/Portfolio/index.html

Contents

Executive Summary

This evaluation tested the usability of a professional website that I designed for the Education Specialist degree and User Experience and Usability certificate at the University of Missouri. The focus was on the user experience, understanding how the target audience interacts with the website, and what degree of satisfaction they have with tasks and the overall experience of the website.

A usability test with five tasks and six participants was completed through remote monitoring. Overall, the participants found the tasks relatively easy with a task completion average of 83% or above for all tasks. The average ease of use was above 90% for four of the five tasks. The first task (Find a list of courses and a course description) was rated at 71% and the average time on task was one of the highest. The overall System Usability Scale (SUS) for each participant was above 77 and the overall average usability score for all participants was 86.7 which falls into the acceptable range which is defined by Bangor et al. (2009) as over 70.

Design recommendations include the following:

- Change the menu link from **Program** to **Courses**.
- Link the professional development plan from the resume.
- Add instructions for the button to click on for the full resume.
- Change the button text from **Artifact** to **Project**.

Test Procedure

Technology Description

This website is a portfolio containing professional goals, a resume, reflections, descriptions, and artifacts that represent my work in the Education Specialist degree program, the Usability and User Experience certificate, and the Online Teaching certificate. The website will eventually be used as a professional instructional design and technology portfolio.

Goals

To test the usability of the site a usability test using five tasks that a typical user might expect to perform. The objective of this usability test was to determine how usable the website is for those who work in education and what the user's overall experience is using the site. The test also revealed some likes and dislikes and suggested areas for improvement.

Major sections of the website to test:

- The program of study
- The professional development plan
- The resume

- The artifacts
- The usability section

Overall Goals

- Observe participants' interaction with the website
- Collect feedback from participants to provide design recommendations

Questions

Evaluation/Research Questions

- What are the issues that prevent users from accomplishing their goals?
- What features work well for users?
- What features need to be improved?

Task-Specific Questions

- How easy can users find a specific course in the program of study?
- How easy can users find the professional development plan?
- How easy can users find information in the resume?
- How easy can users find an artifact?

Methodology

To conduct the usability test, five tasks were developed and the methods were determined to measure the usability, a script and data collection forms were created, and participants were recruited.

User Tasks

Five tasks were created based on the target audience and the major sections of the website.

1. Find a list of courses and read a course description.
2. Find the professional development plan.
3. Find the experience on the resume.
4. Find experience or coursework.
5. Find an artifact.

See Appendix A for additional details on the task scenario, rationale, and success criteria for each of the five tasks.

Metrics

To evaluate the tasks, the following metrics were used (Misfud, 2015):

- **Effectiveness** was measured with the number of tasks completed. A task that was fully completed was rated a 2, a task that was completed with difficulty received a 1, and a task that wasn't completed or was completed incorrectly received a 0. Tasks completed with difficulty occurred when a participant made two wrong clicks when attempting to complete the task.
- **Efficiency** was measured by the time on task. The timer started as soon as the task was read and the task ended as soon as the participant indicated that they were finished with the task or could not complete the task.
- The **difficulty** of the tasks was measured using the Single Ease Question (SEQ) measured on a scale of 1 to 7. One represents very difficult while 7 is very easy. The score for each task was averaged. Participants answered the question after each task.
- **Satisfaction** was measured using the ten-item System Usability Scale (SUS) where participants were asked ten questions about the website after the tasks were complete. The SUS score was calculated for each participant and averaged for the overall usability score. Any score less than 50 was considered marginal, a score from 50-70 was considered marginal, and a score greater than 70 was considered acceptable (Bangor et al., 2009).

A list of System Usability Scale questions is found in Appendix D.

The following demographic questions were asked of participants:

- Age
- How often do you view websites?
- What is your level of experience with technology?
- Device
- Browser

More details on the demographic questions are found in Appendix C.

Test Procedure Description

This test was conducted using the monitored remote method over video. The participants were informed of the purpose of the testing and read a script before the test. The participants were given the link and asked to share their screen. The think aloud method was employed to help understand some of the navigation choices the participants were making. Care was taken to not give clues or guide the participants in any way. Doing so could skew the results of the testing. The participants completed five tasks and answered an ease-of-use question after each task. Once the tasks were complete, participants were asked ten questions using the System Usability Scale (SUS). Then, participants were given the chance to discuss what they liked or didn't like about the site and discuss any tasks that were difficult or easy.

The orientation script is available in Appendix B.

Instruments of Data Collection and Analysis

The participants were viewed remotely using Zoom. Participants shared their screen and camera so that their navigation and facial expressions could be observed. These instruments were used to gather quantitative information and find patterns.

- Demographic information
- Task completion rate
- Time on Task
- Single Ease Question (SEQ)
- System Usability Scale (SUS)
- Open-ended questions asking participants what they liked and didn't like about the website

Participants

Recruitment

Participants representing the target audience were recruited and tested from April 20-25, 2022. The participants all work in the education field and were either workmates or classmates at the University of Missouri.

Target Audience

The target audience for this website is education professionals-either who are looking to hire an instructional designer, faculty members in higher education, and those looking for portfolio examples.

Participant Testing

Six participants were tested and had an age range from 40 – 65. All participants view websites every day and 5/6 consider themselves to be advanced technology users. All participants used the chrome browser, with one using a pc, four using a laptop, and one using a Chromebook.
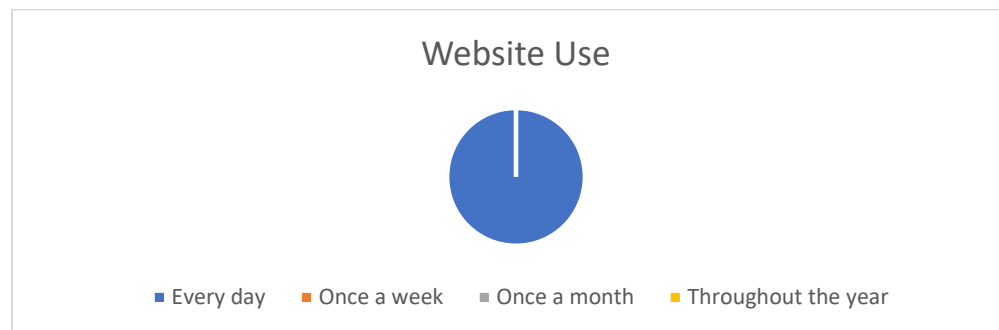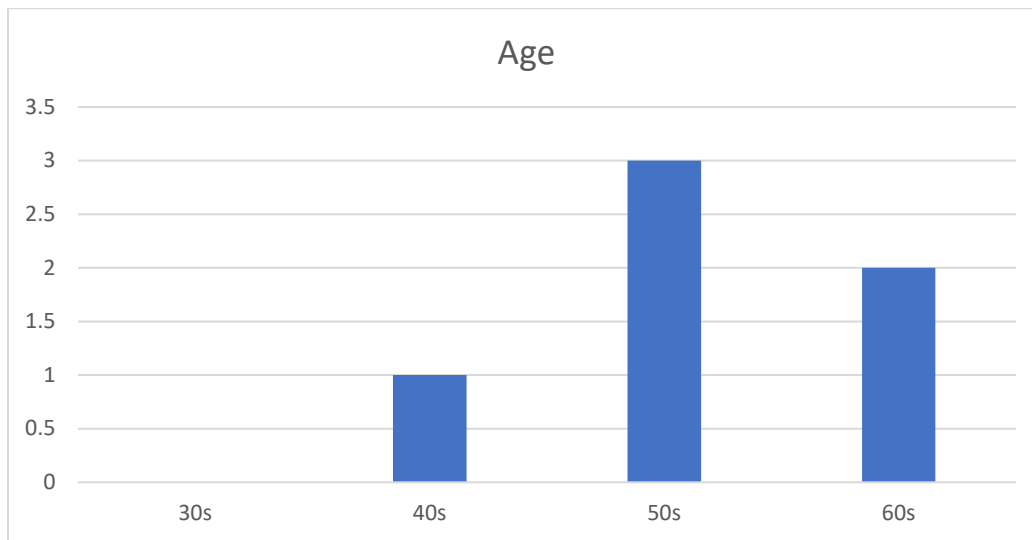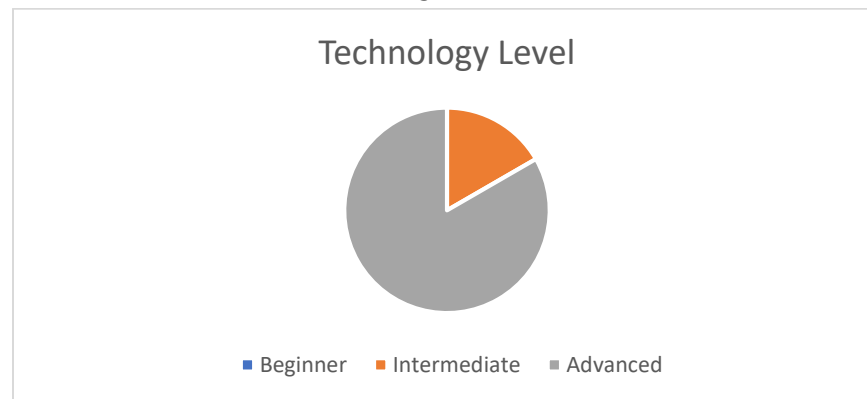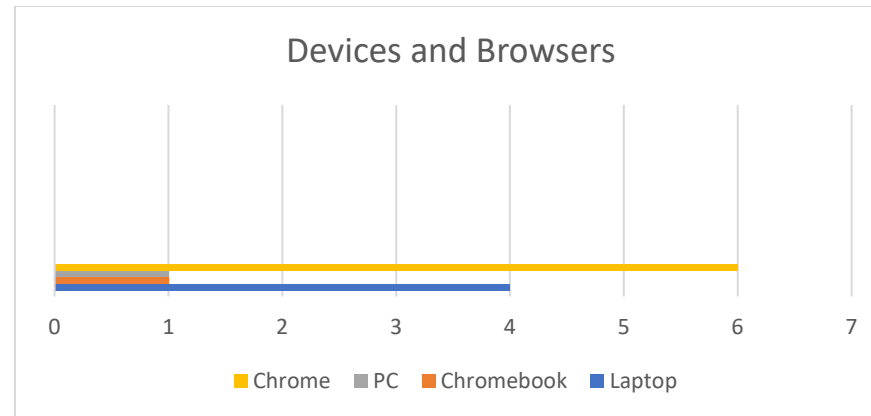

Figure 1

Figure 2

Figure 3

Figure 4

Results

Task Completion and Success Rate

Tasks 1, 2, and 5 had a 100% completion rate. Tasks 3 (find experience) and 4 (find experience or coursework) were not completed by one participant. Task 1 (find a list of courses and one course description) had the lowest number of success points.

Participant	P1	P2	P3	P4	P5	P6	Total Success Points	Completion Rate
Task 1	2	1	1	2	1	1	8/12	100%
Task 2	1	2	2	2	2	2	11/12	100%
Task 3	0	2	2	2	2	2	10/12	83%
Task 4	0	2	2	2	2	2	10/12	83%
Task 5	2	2	2	2	2	2	12/12	100%

Table 1

Task Ratings

All tasks had an average ease-of-use above 5. Task 1 (find a list of courses and one course description) had the widest range and the lowest score.

Participant	Task 1	Task 2	Task 3	Task 4	Task 5
1	5	7	5	5	7
2	4	7	7	7	6
3	4	6	7	5	7
4	7	7	7	7	7
5	5	7	7	7	7
6	5	6	7	7	7
Average	5.00	6.67	6.67	6.33	6.83
Average Ease of Task	71%	95%	95%	90%	97%

Table 2

Time on Task

The participants were timed (in seconds) during the tasks. The tasks took between 27 seconds (find an artifact) to 85 seconds (find a list of courses and course description). The widest range in times was task 2 (find the professional development plan) and the smallest range was task 4 (find experience or course).

	1	2	3	4	5	6	Average	Range
Task 1	95	82	75	30	140	90	85	110
Task 2	79	120	4	8	15	40	44	116
Task 3	120	7	30	30	6	9	42	114
Task 4	38	50	68	20	29	60	44	48
Task 5	32	60	10	12	33	18	27	50

Table 3

Summary of Data

The table below displays a summary of the test data.

The overall task completion rate was 93%. Tasks 3(find the person's experience) and task 4 (find the person's course work or experience) were both rated the lowest at 83%. Task ease rating showed that the average rating was 89%. Task 1 (find the list of courses and course description) rated the lowest at 71%. The average time on task was 48 seconds.

Based on the summary of results, the task of finding the course and description need further exploration.

Task	Task Completion (%)	Task Rating on Ease	Mean Time on Task
1	100%	71%	85
2	100%	95%	44
3	83%	95%	42
4	83%	90%	44
5	100%	97%	27
Average	93%	89%	48

Table 4

Overall Measure of Usability

The System Usability Score was calculated overall and for each participant. The participant scores ranged from 75 to 100 with an average of 86.7. All scores fall within the acceptable range described by Bangor et al. (2009).

Participant	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	SUS Score
p1	3	1	4	1	5	1	5	1	5	1	● 92.5
p2	4	2	5	1	5	5	5	1	4	4	● 75.0
p3	2	2	4	1	3	1	5	1	4	1	● 80.0
p4	5	1	5	1	5	1	5	1	5	1	● 100.0
p5	5	2	5	1	5	1	4	1	5	1	● 95.0
p6	1	1	5	1	2	2	5	2	5	1	● 77.5
AVG	3.33	1.50	4.67	1.00	4.17	1.83	4.83	1.17	4.67	1.50	● 86.7

Table 5

SUS Score	Rating
<50	Not Acceptable
5-70	Marginal
>70	Acceptable
(Bangor et al., 2009)	

Table 6

Likes, Dislikes, Problems, and

Suggestions

At the end of the session, participants provided feedback and comments.

Likes
- The colors worked well.
- The menus were attractive.

Dislikes
- Could not find the PD plan.
- I wouldn't think of program to find a list of courses.

Problems
- The PD Plan was confusing.
- The added items (Canva resume graphic and embedded website for artifact 1.1) were slow to open.
- The word artifact was confusing.
- The artifacts are on a page by themselves.
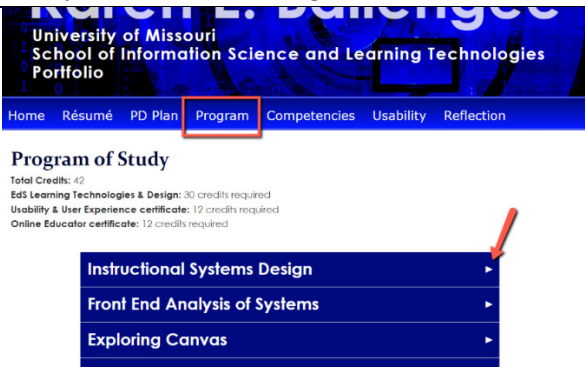- There was too much text in the artifact section.

Suggestions
- Instead of buttons have a clickable image to go to the project.
- The font on the home page could be bolder.
- Link from the resume to the Professional Development Plan.

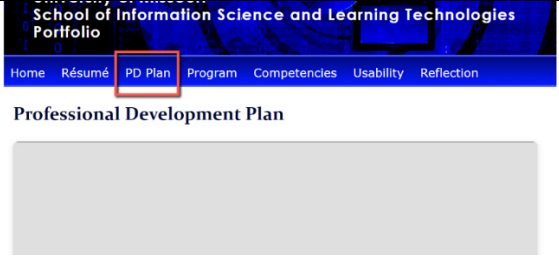- Link the projects from the menu.

Recommendations

1. This person is applying for a Ph.D. at your school. You would like to get an idea of their academic background. Find a list of the courses they have taken and read one course description.
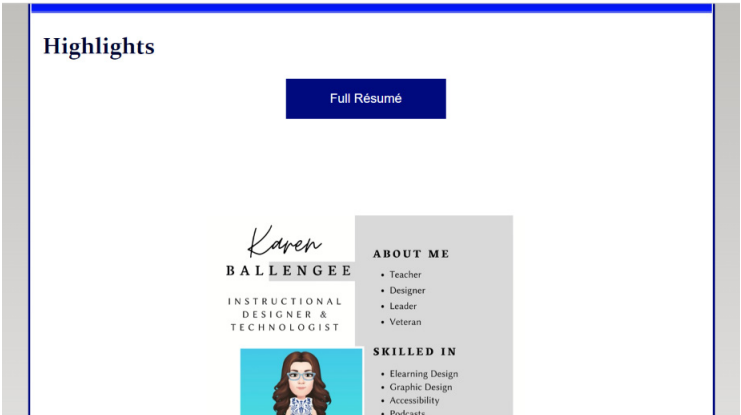
Change	Justification	Severity
Change the menu link from *Program* to *Courses*.	This item had the lowest success points, the lowest average ease of use and one of the highest average completion times. The wording was also mentioned in the questions at the end. Participants were able to figure out the accordion.	Moderate

2. You would like to find this person's future goals. Find where these are located.

Change	Justification	Severity
Link the professional development plan from the resume.	Although this task has the biggest range of times, and was mentioned in the comments as being slightly confusing, the overall completion range and user satisfaction were acceptable. Spelling out Professional Development would crowd the menu. In the future I will consider linking to it from the text in the introduction paragraph on the main page. I will also check in Canva (that is what I used to create the plan) to see if I can set the media to	Low

| | load on the page faster as one participant mentioned this as a problem. | |

School of Information Science and Learning Technologies Portfolio

Home   Résumé   PD Plan   Program   Competencies   Usability   Reflection

Professional Development Plan

3. You are hiring a new instructional technologist and your position requires three years of prior experience as an instructional technologist. Find where this person lists their experience.
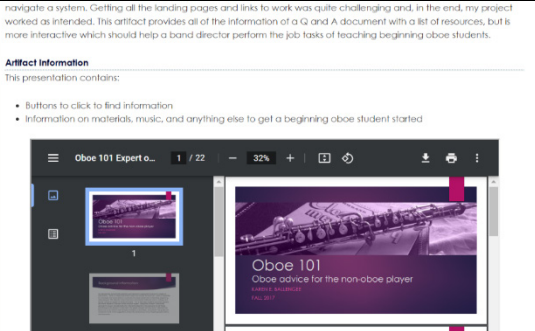
Change	Justification	Severity
Add instructions for the button to click on for the full resume.	This task had one person who did not complete it but had a high ease of use score. Users were able to find it and find the information. The accessible PDF seemed to confuse people and they clicked on it thinking it may be the full resume.	Low

4. You work at a community college and are hiring an adjunct to teach an online course. Find out if this person has any online teaching experience or coursework related to online teaching.

Change	Justification	Severity

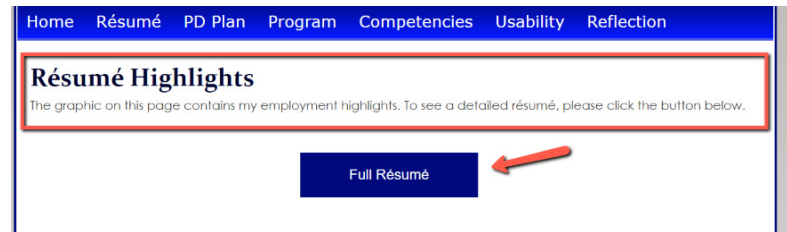| None	This task had one person who did not complete it, but it had a high satisfaction rate and users were able to complete the task quickly.	Low

5. You would like to hire someone to test the usability of your educational products. View any projects related to usability that this person has created.

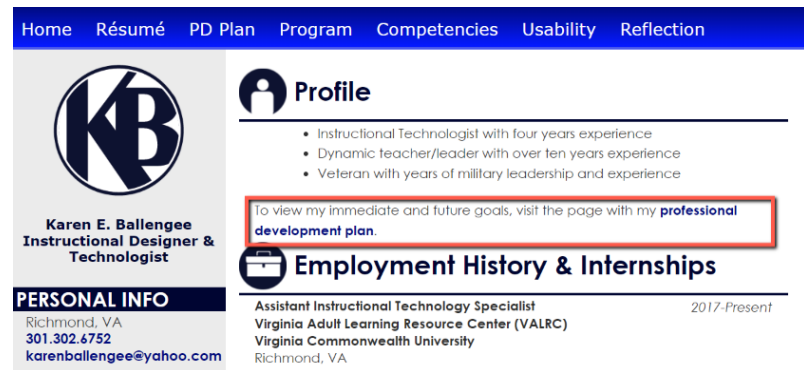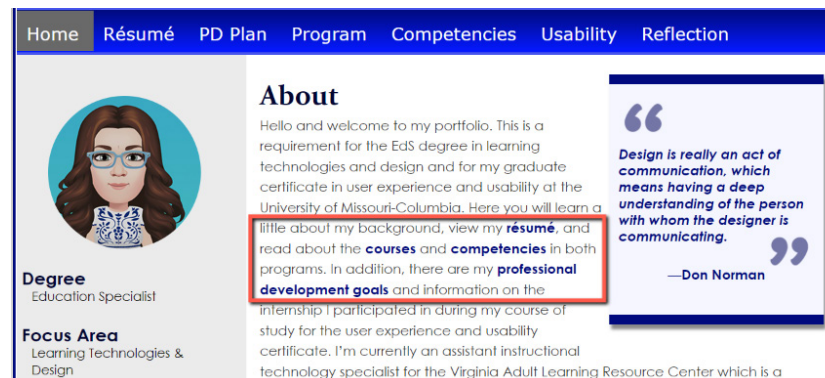| Change	Justification	Severity
Change the button text from *Artifact* to *Project*.	Users were able to complete this task quickly and it had a high satisfaction rating.	Low

Change Summary

Immediate Changes

- Add instructions for the button to click on for the full resume.

- Link the professional development plan from the resume.

- Link to resume, professional development plan, and courses from the home page introduction.

Changes to be Made in the Next Three Months

- Will change the menu link name from **Program** to **Courses** so that (will do this this summer to transition it from a school portfolio to a professional portfolio). Right now the accordion for each class only closes when another is open. I would like to code the accordion to close when it is clicked.
- Once I have completed the program I will change the button from **Artifact** to **Project**.
- Make all PDFs accessible and add captions to the Accessibility Video and the Usability summary video.
- Link PD plan from the biography on the home page.
- Create a video for the home page.

Limitations

The test was limited because there were not a diverse range of participants, although all participants work in the education field which is the target audience. A second test administrator would have helped to capture more subtle nuances in the participants' responses.

Conclusion

The results showed that this website is overall easy to use are reflected by the SUS score of each participant (70 and above) and the over SUS score of 86.7. The average task completion of 93%, task rating on ease of 89%, and mean time on task of 48 seconds also suggests ease of use. There were still recommendations for improvement based on the ease of use and recommendations by the participants. These recommendations will enable the target audience to complete their tasks in a timely and efficient manner.

References

Bangor, M., Kortum, P., & Millwe, J. (2009). Determining what Individual SUS scores mean: Adding an adjective rating scale. *Journal of Usability Studies*, *4*(3), 114-123.

Misfud, J. (2015). *Usability metrics – A guide to quantify the usability of any system.* Usability Geek. https://usabilitygeek.com/usability-metrics-a-guide-to-quantify- system-usability/

Appendices

Appendix A: Detailed User Tasks

Task 1:

Scenario: This person is applying for a Ph.D. at your school. You would like to get an idea of their academic background.

Task: You would like to get an idea of their academic background. Find a list of the courses they have taken and read one course description.

Rationale: This website is a portfolio that demonstrates academic history.

Success Criteria: The participant has found the list of courses and used the accordion to open a course description.

Task 2:

Scenario: You would like to find this person's professional goals.

Task: Find where these are located.

Rationale: Future employers would need to know what the person has planned professionally in the future.

Success Criteria: The participant found the PD plan and clicked through it to find the goals.

Task 3:

Scenario: You are hiring a new instructional technologist and your position requires three years of prior experience as an instructional technologist.

Task: Find where this person lists their experience.

Rationale: Potential employers would need to know if the person's experience aligns with the job requirements.

Success Criteria: The participant found the resume and job experience.

Task 4:

Scenario: You work at a community college and are hiring an adjunct to teach an online course.

Task: Find out if this person has any online teaching experience or coursework related to online teaching.

Rationale: Employers would need to know if the person's experience or coursework qualifies them for the job.

Success Criteria: Participant found courses related to teaching online or found experience in the resume.

Task5:

Scenario: You would like to hire someone to test the usability of your educational products.

Task: View any projects related to usability that this person has created.

Rationale: Future employers would like to see examples of projects.

Success Criteria: The participant found the usability section and viewed one of the projects.

Appendix B: Orientation Script for Participants

Thank you for agreeing to help with this usability test. Today you will be testing the website portfolio that I created as part of my degree program at the University of Missouri. During this test, I would like you to share your screen and be on camera. I will not record this meeting, but I will take notes and ask questions. Please share your thoughts out loud as you complete the tasks. You will be given five tasks to complete. Please let me know when the task is complete or you are stuck and unable to complete the task. After each task, I will as a question on the ease of use. Once all the tasks are complete, I will ask you ten questions on the use of the website. After the ten questions, I will ask for any additional comments or feedback. Remember this is a test of the system and not you. All information will be confidential and you may quit the test at any time. Are there any questions?

Appendix C: Demographic Questions

- What is your age? (20s,30s,40s,50s,60+)
- How often do you visit websites? (Every day, once a week, once a month, a couple times a year, never)
- What is your technology proficiency level? (Beginning, Intermediate, Advanced)
- Device
- Browser

Appendix D: System Usability Scale Questions

1. I think that I would like to use this website frequently.
2. I found the website unnecessarily complex.
3. I thought the website was easy to use.
4. I think that I would need the support of a technical person to be able to use this website.
5. I found the various functions on this website were well integrated.
6. I thought that there was too much inconsistency in this website.
7. I would imagine that most people would learn how to use this website very quickly.
8. I found this website very cumbersome to use.
9. I felt very confident using the website.
10. I needed to learn a lot of things before I could get going with this website.