

UX & User-Centered Problem, Proposed Solution, and Plan:

Interacting with E-Textbooks in the UW- Stout Canvas RedShelf Application when Reading from an iPad

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The purpose of this document is to propose testing that will evaluate the Redshelf application in the Canvas Learning Management Platform at the University of Wisconsin – Stout (UW-Stout) from the perspective of first semester Freshmen and Graduate students who prefer to read course texts from an iPad rather than a laptop. The specific tasks for testing include:

1. From Canvas, Navigate to the textbook “Handbook of Usability Testing” in Redshelf and open it.
2. Navigate to the first page of Chapter 5.
3. Highlight one random line of text on each page throughout Chapter 5 choosing highlight color blue.
4. Create a Note in the margin on page 90 that says, “Hello.” Save the note and then Delete the note.

In the preliminary phases, I chose to conduct a cognitive walkthrough of the current Redshelf app in Canvas paying attention to those exact tasks and goals while using my iPad. My findings were that page navigation could be problematic, highlighting was often difficult, and several times caused a system crash requiring a refresh of the page or a reboot of the entire application, and that deleting notes in the margin was unintuitive.

The proposed usability testing outlined herein will evaluate the Redshelf app using simultaneous First Click and Think Aloud testing methods. Participants will be screened to ensure they are either first semester graduate students at UW-Stout or first semester Freshman students at UW-Stout, proficient iPad users who prefer to read from an iPad rather than a laptop, novice or new Redshelf users, and that they currently have no textbook medium preference or bias. The study will be conducted in a small, unused office or conference room on the UW-Stout campus. The test evaluation will include post-task questions, a post-test questionnaire, and first click data gathered by Chalkmark, with test results will being both quantitative and qualitative.

The testing can be completed within 1.5 months of the start date, and I propose beginning as soon as June 1, 2020. This would allow for IRB paperwork completion and acceptance of the project for human subject participation, all testing and analysis to be completed, and a final report to be prepared for Mr. Robert Butterfield, Director of Instructional Resource Services at UW-Stout.

The University of Wisconsin – Stout (UW-Stout or Stout) provides a laptop to all undergraduate students meeting certain criteria [1], but this does not include a small number of students such as ESL and those seeking a graduate degree. In addition, the University may admit students who come from a background that has encouraged the use of an iPad (instead of a laptop), for example, certain k-12 public school systems [2] and community colleges [3].

1.1 Problem Statement

According to UW- Stout’s E-textbooks and Digital Resources website, “E-textbooks and other digital course resources add to the variety of instructional materials available through Instructional Resources Service (IRS), at an affordable cost to faculty and students” [4]. UW-Stout offers e-textbooks through an e-reader platform called Redshelf which is accessible to students as a link in their Canvas Learning Management Platform – which many students likely read and interact with on their university supplied laptop. However, it stands to reason that, due to past experience, familiarity and/or the lack of access to a laptop for certain parts of the student population, some Stout students may prefer or need to use an iPad for reading course materials in Redshelf. A quick search of the Redshelf Solve help website reveals a note that, “For intense study sessions, RedShelf recommends laptops and desktops. These devices allow for the best highlighting and note-taking experience” [5]. Since Redshelf admits that the program runs best on a laptop, students who prefer accessing the app for reading e-texts on an iPad could run into issues when choosing to read, highlight text, or take notes. For this reason, I feel that UW-Stout should further research the usability of the Redshelf app, specifically when used for e-text reading on an iPad.

1.2 Personal Experience

As an online graduate student at UW-Stout, I was not eligible for a laptop from the University. I have a personally purchased Dell Inspiron Laptop that I use for class writing assignments and discussion board posts. However, when it comes to reading for an extended period, I prefer to move out of the academic setting of my desk/laptop and read in a comfy chair elsewhere in my home. Unfortunately, my laptop is older and has a few issues. 1. The battery life is absurd. I can get approximately 30 minutes of battery time out of it unless it stays plugged in. 2. My internet doesn’t work unless I plug in a network card. So, if I move throughout my house, I must carry with me the charger and make sure I don’t forget the network card. It has been so much easier to just pick up my iPad and go. For this reason, I choose to read my course texts in Redshelf on my iPad. I also like that the iPad is similar in size to a paper text I would read.

Unfortunately, my personal experience using Redshelf for reading my course assigned e-texts has been frustrating. One of the most noteworthy issues for me has been that Redshelf does not work the same on my 11” iPad Pro as it does on my Dell Laptop. At first, I assumed it was due to my age and some unfamiliarity with e-texts in general. However, my final MSTPC project and research have been focused on how students feel about e-texts vs printed texts and what drives them to prefer one over the other. Through this research, especially the previous literature, I found that age was not necessarily a deciding factor in student preference and e-text usability as a whole [6].

This semester, my final at UW-Stout, I have studied a great deal about Usability and User-Centered Research in English 730 with Dr. Spartz. Throughout this course, I have learned concepts that drive home the need for products to work the way people expect them to work. Usability expert Steve Krug says, “As a rule, people don’t *like* to puzzle over how to do things” [7]. Krug also gives some great guidelines for usability testing on Mobile devices which I follow as a guide for the recommendations of this testing plan. The first step is to create personas to represent UW-Stout student Redshelf users.

User Personas

Personas Are More Than “People”

“Personas are distilled essences of real users. With personas, we build empathy with target users, focus on their world, share insights/knowledge with other stakeholders to gain consensus, make defensible decisions reflecting the persona’s/user group’s exact needs, and gauge our designs’ effectiveness through their eyes. Crucially, we create personas from *observations* about real users, not faceless masses – mapping users’ needs to a design’s functionality demands clearly defining needs *and* users. We shape personas iteratively. In dividing users into manageable groups, we represent each with a typical “embodiment” – a persona” [8]

My personal struggles with using Redshelf to read e-texts caused me to immediately question whether my age or lack of experience was a factor in the struggles and frustrations I was experiencing. For this reason, it is important to create personas, or “a fake person constructed with real user research data to represent a class of target users” [9]. Author Everett McKay recommends being mindful of not creating life stories when creating personas and sticking only to what is most relevant to the scenario and goal [9].

Interaction Design Foundation [8] offers the following advice for creating effective personas:

Name and describe each persona in 1-2 pages, including:

- A picture.
- User’s values, interests, education, lifestyle, needs, attitudes, desires, limitations, goals and behavior *patterns*.
- Extra details about the persona (e.g., interests) – anything to make him/her more real and relevant and help build empathy. A written story is better than bullet points.

Keeping this in mind, I have created personas (see Appendix A) to help us think through the various attributes of student Redshelf users at UW Stout and to also aid in the search for participants later in the usability testing phase.

According to the Usability Body of Knowledge website, “The cognitive walkthrough is a usability evaluation method in which one or more evaluators work through a series of tasks and ask a set of questions from the perspective of the user” [10]. In order to better understand the usability of the Redshelf app in Canvas, I conducted a cognitive walkthrough using the e-text, “Handbook of Usability Testing,” by Jeffrey Rubin and Dana Chisnell. Within the text, I attempted the following tasks: (1) From Canvas, Navigate to the Textbook in Canvas and open it (2) Navigate to the first page of Chapter 1 (3) Highlight text within a chapter and (4) Create and delete notes in the margin. I asked the following questions of each action sequence within each task:

1. Will the user try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect that the user is trying to achieve?
4. If the correct action is performed, will the user see that progress is being made toward the solution of the task?

(Lewis et. al, 1994)

The chart found in Appendix B details the answer to each question with a response of 2 for Yes, 1 for Maybe, and 0 for No.

Below is the rationale for each response:

Task 1: From Canvas, Navigate to the textbook in Redshelf and Open it

For the first action in this task, the user must log in to Canvas and click on the Redshelf app. This scored a 1, or maybe, under the question, “Will the user notice the correct action is available?” This is because the Redshelf app on Canvas is listed as simply a clickable word on the left side column along with other clickable words such as “Home” and “Grades.” The placement of the App could easily be missed. There is also an icon that sometimes appears at the top of the screen, depending on which tab you are viewing that says, “Immersive Reader.” This could be confusing to a new user who may just be looking for something on which to read an e-text and not for the Redshelf app, specifically. The second and third actions (navigate to the textbook and open it) scored well with all questions in the 2, or Yes, category.

Task 2: Navigate to the first page of Chapter 1

For this task, the user must go through a series of action sequences just to begin reading the text. The first action would be for the user to click the four small lines in the top, left corner of the screen once they are in the Redshelf app and have clicked “Start Reading” from task 1. The user will certainly attempt this action, but noticing the action is available, and associating the four little lines with the way to navigate the text is going to depend on the user’s mental models and familiarity with using various websites where the controls are located within the four-line tab. This is certainly not the case with all websites, so this could be confusing.

The second action in the task, “Choose Table of Contents and click on the book title,” scored in the yes category across the board. However, frustrations began with action three, “Navigate to chapter 1 by using the page right arrows on the right side of the screen.” The user would expect, when clicking on “Table of Contents,” that a Table of Contents would come up. However, that is not the case with this text in Redshelf. When the user clicks “Table of Contents,” it takes him to the beginning of the text where he must then page right through all the title pages, acknowledgements, special thanks, etc. to finally reach the table of contents.

However, this action leaves him with a split pane screen (see Figure 1) where he must X the left pane in order to view the right pane in full to find the chapter's starting page number.

Once the Chapter starting page is located, the user will perform the action of clicking the X to leave the double pane screen. Then he will type the page number into the search box at the top and click "Go."

Task 3: Highlight Text within a Chapter

To perform task 3, the user must take four actions. The first, "Use a finger to or stylus to hold down on the first line of text to be highlighted," could be very problematic to new or inexperienced users. This action differs quite a bit from using the Redshelf app on a computer as there, it only takes the simple click of a mouse. On a handheld device, the user must rely solely on mental models of past experiences in order to figure out how to even try to highlight the text. In the second action, the user will move his finger along the text to complete the highlight. This action proved, time and again, to be very problematic. No matter whether I used a stylus or my finger, the result was the same – the text would either leave off the first letter, add on an extra word at the end, or fail to highlight all together which meant I was repeating the action several times just to highlight one section of the text.

During the next two actions, the app scored 2's across the board; however, this does not mean this section was without issues. Actions three and four ask the user to choose the highlight color and continue highlighting one line per page throughout the chapter. I conducted this walkthrough at least six times, and each time, I encountered the same issues. After several semi-successful highlights (because, lets face it, highlighting all but the first letter of the first word of a sentence and extending beyond where I tried to end the highlight is only semi-successful), the app would glitch and I would attempt to highlight only to be met with no color choice box. Okay, I guess we will use yellow now instead of blue (see Figure 2). No big deal.

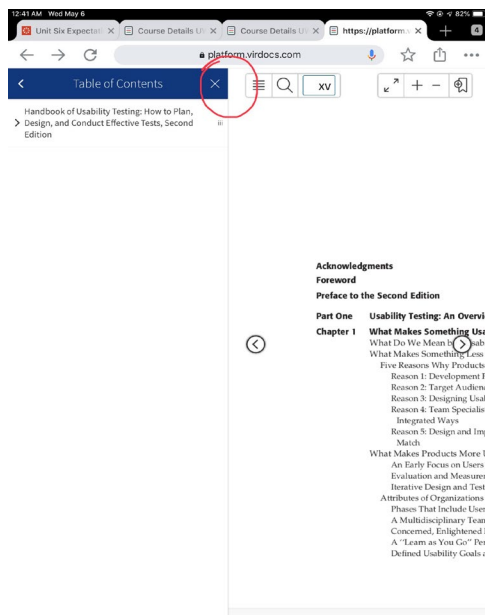


Figure 1: Split Pane Screen in Redshelf Table of Contents

4 Part I ■ Usability Testing: An Overview

What Do We Mean by "Usable"?

In large part, what makes something usable is the *absence of frustration* in using it. As we lay out the process and method for conducting usability testing in this book, we will rely on this definition of "usability," when a product or service is truly usable, *the user can do what he or she wants to do the way he or she expects to be able to do it, without hindrance, hesitation, or questions.*

But before we get into defining and exploring usability *testing*, let's talk a bit more about the concept of usability and its attributes. To be usable, a product or service should be useful, efficient, effective, satisfying, learnable, and accessible.

Usefulness concerns the degree to which a product enables a user to achieve his or her goals, and is an assessment of the user's willingness to use the product at all. Without that motivation, other measures make no sense, because the product will just sit on the shelf. If a system is easy to use, easy to learn, and even satisfying to use, but does not achieve the specific goals of a specific user, it will not be used even if it is given away for free. Interestingly enough, usefulness is probably the element that is most often overlooked during experiments and studies in the lab.

In the early stages of product development, it is up to the marketing team to ascertain what product or system features are desirable and necessary before other elements of usability are even considered. Lacking that, the development team is hard-pressed to take the user's point of view and will simply guess or, even worse, use themselves as the user model. This is very often where a

Figure 2: Redshelf Highlighting Glitch A

Until, a few clicks later, my screen looked like Figure 3.

Task 4: Create and Delete Notes in the Margins

The final task is made up of five action sequences. Each of the actions is straight-forward and simple for the user...so long as the app doesn't glitch. Since the same box appears for changing the highlight colors as for making notes, if the app starts to glitch, as shown above, the box will not appear and then option to make a note is not available at all. Assuming this has not happened, and the app is in normal working order, the user can easily navigate via the left page arrows back to the beginning of chapter 1, click to highlight a portion of the text where the note will be placed, select "note" from the pop-up box, type "sample note" and press Save. However, for this task, the issue appears to be in deleting a note from the margin. The user must delete the contents of the note box and then the note circle should (barring any glitching of the program) disappear. I am used to deleting items from my screen via a trash can icon or a large X in the corner of the screen. This app does not offer such an affordance.

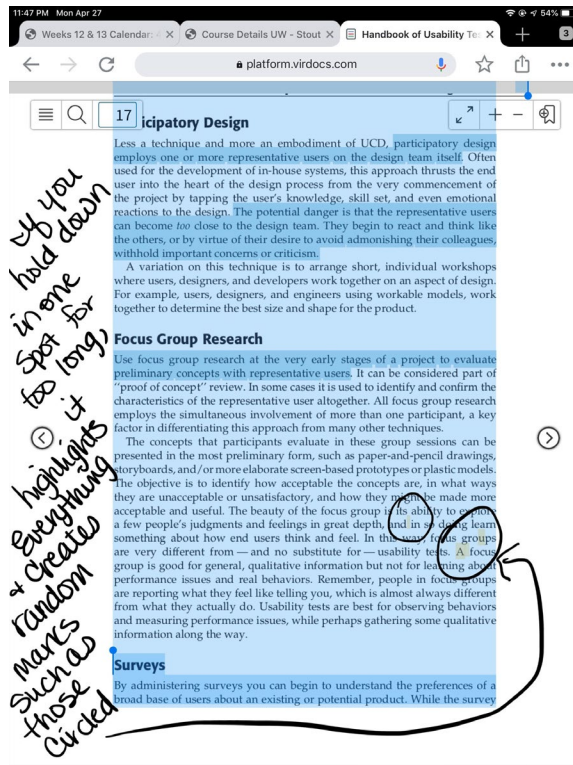


Figure 3: Redshelf Highlighting Disaster

Methodology

The test plan will evaluate the Redshelf app on Canvas when used on an iPad based on the 5E's by Whitney Quesenbury [11]:

- **Effective:** Can he/she accomplish the goal?
- **Efficient:** Can he/she complete the task in a timely manner?
- **Engaging:** Does he/she enjoy using it?
- **Error Tolerant:** Can he/she complete the task correctly or get help when needed?
- **Easy to Learn:** Can he/she complete the task correctly on the first try?

Participant Profile

I used the personas of Suzanne and Steve to develop the participant criteria.

Suzanne is:

- Beginning her first semester of a graduate degree 10 years after finishing her undergraduate degree
- Has not used e-texts
- Proficient with using the internet
- Prefers to read from her iPad rather than her laptop for pleasure or to catch up on news or social media
- Prefers to read in a comfortable setting over an academic setting
- Doesn't mind reading from a screen

Steve is:

- Starting college at UW-Stout as a first semester Freshman
- Used E-texts a few times in high school
- Spends quite a bit of time using the internet using social media
- Uses his iPad almost exclusively for all things digital (including reading)
- Can read anywhere – academic or not

Based on these personas, I will be recruiting participants with the following attributes:

- First semester graduate students at UW-Stout (Suzanne) or First semester Freshman students at UW-Stout (Steve)
- Gender – male or female (prefer some of each)
- Proficient iPad user
- Prefers to read from an iPad rather than a laptop
- Novice or new Redshelf User
- No textbook medium preference or bias

NOTE: Two alternative student participants will be chosen from each persona as back-up, for a total of five participants and 2 alternates for each persona.

Screener

I have used the personas (see Appendix A1 and A2) as well as the above attributes to create a screener for potential participants in this usability study. The screener questionnaire can be found in Appendix C.

Testing Setup – Moderated Usability Study

For this phase of the research, I will create a quiet space in an unused office or small conference room and provide a chair and table for the participant to rest the iPad. Participants will be tested individually using an iPad device that will be assigned by the moderator before the test. The moderator will have access to two identical iPads and will switch between them as each participant completes the test to make sure that any glitching is, in fact, an application issue and not a device issue. For instance, Suzanne is given iPad A to complete her testing. When she finishes, Steve comes in to begin his testing and is assigned iPad B. He finishes testing. Student 3 enters for testing and is assigned iPad A, and so on. The only person who will know which iPad was used for which test will be the moderator and the participants should not see or feel any differences between the devices. For the purposes of this study, all students will be given access to the same e-text within their personal Canvas accounts, “Handbook of Usability Testing” by Jeffrey Rubin and Dana Chisnell, from which to complete the given tasks.

Usability Testing Methods

I will combine First Click testing with Think Aloud testing to gather both quantitative and qualitative data for this usability test.

First Click Testing

The Usability.Org website has the following tips for First Click Testing [12]:

- When creating tasks, focus on providing the participants with a problem to solve; “You are interested in finding out how much...how many...where to...” to foster a more natural interaction with the site.
- Make sure you know and have documented the correct path to complete each task, both for yourself and for your observers. This will simplify note taking and transcription.
- Track each click.
- Time how long it takes the user to make this click. Taking a long time to make that first click may indicate an issue with navigation that will need to be monitored or address.
- After each task, assess whether the participants feel they were able to find the correct information using a satisfaction or confidence scale.
- Next assess the ease or difficulty of completing each task. Using response scales here will aid analysis as well but consider free response options as well to provide additional context.

During the Cognitive Walkthrough, there were several action sequences that I identified as potential pain points for users. These included finding the Redshelf app link on Canvas after logging in, intuitively clicking the four lines in the top left corner to navigate to the Table of Contents, knowing how to close the split pane view so you can see the chapter page number in the Table of Contents, realizing that you have to hold down on the screen or with a stylus to start highlighting, and figuring out that you must delete the contents of the note box to delete the note from the margin as there is no “delete” option for the user to click based on affordances (i.e. a trash can icon or an X in the corner of the box). For this reason, I feel that First Click testing will give a good deal of feedback on the usability of the Redshelf App.

Think Aloud Testing

The user will be asked to talk through the process for each task and voice struggles or frustrations as he/she goes along. Before beginning, the user will be given an example of Talk Aloud to ensure he/she understands how it works. The moderator will then follow a script (See Appendix D) to guide the testing process through each task.

Tasks for Testing:

Users will be asked to complete four tasks for both first click testing and think aloud testing done simultaneously. I will be using Chalkmark [13] to record the click data, a camera to record the Participant's screen, and a moderator to guide the process, take notes, and conduct the post-task interviews (see below). Participants will be given the following four tasks based on those I completed for my Cognitive Walkthrough (Appendix B):

1. From Canvas, Navigate to the textbook, "Handbook of Usability Testing" in Redshelf and open it.
2. Navigate to the first page of Chapter 5.
3. Highlight one random line of text on each page throughout Chapter 5 choosing highlight color blue.
4. Create a Note in the margin on page 90 that says, "Hello." Save the note and then Delete the note.

Important Documents Included in this Report

In the Appendix, I have provided a participant signature form (Appendix E) needed for testing with human subjects according to the IRB board. Each participant must elect to take part in the study, give consent to be evaluated and recorded, and be informed of their rights prior to the study.

I have also included the User Task Sheet (Appendix F) – a simple handout to give the participant tester as he/she goes through the tasks. This form gives the main task and then includes a reminder to pause for post-task questions.

Post-Task Questions

The post-task questions (see Appendix H) were created by J.R. Lewis [14] and ask the user to rate overall satisfaction with ease of completing the task, overall satisfaction for the amount of time it took to complete the task, and overall satisfaction with the overall support information available when completing the task on a Likert scale.

The test evaluation will include moderated talk aloud testing notes, first click data from Chalkmark, and post-task and post-test questionnaires. These methods will allow for both quantitative and qualitative data to be collected and reported.

Quantitative

- Time it took to complete tasks
- Number of participants who were able to complete tasks
- Number of clicks required to complete tasks – Data from Chalkmark
- Occurrence of glitching within the app causing a complete shut-down and re-start to continue
- Post-task and Post-test questionnaires

Qualitative

- Participant's comments during the talk aloud testing
- Participant's body language and facial expressions while completing the tasks
- Voiced frustrations and pain points during task completion

Once the data has been collected and normalized, I will use the following criteria developed by Jakob Nielsen and found on the Nielsen Norman Group Website [15] to assign severity of the found usability issues:

- 0** = I don't agree that this is a usability problem at all
- 1** = Cosmetic problem only: need not be fixed unless extra time is available on project
- 2** = Minor usability problem: fixing this should be given low priority
- 3** = Major usability problem: important to fix, so should be given high priority
- 4** = Usability catastrophe: imperative to fix this before product can be released

All data will be compiled into the final report delivered to Mr. Bob Butterfield.

System Usability Scale

The post test questionnaire will be the System Usability Scale. The SUS was created by John Brooke in 1986 to measure the usability of electronic office systems, but it's now applied to a wide variety of web or technology-based applications to measure how easy or difficult they are to use in order to improve" [16]. Usabilitygeek.com says that, "The System Usability Scale (SUS) is a 10-item Likert scale questionnaire that provides an at-a-glance look at the ease of use (or lack thereof) of websites, software, hardware, mobile devices, and other technological applications" [16].

Project Schedule

The task list and Gantt chart below provides an overview of the usability testing from IRB board approval, which is required when testing with human subjects at UW-Stout, to the final report delivered to Mr. Bob Butterfield, Director of the Instructional Resource Services at UW-Stout. Testing should take roughly two months with a tentative beginning date of 6/1/2020 and a presentation of deliverables by 7/17/2020.

| Clipboard | | | | | | | Schedule | | | | | | | Tasks | | | | | | |
|-----------|---------------------------------------------------|----------|-------------|-------------|--------------|--|----------|-----|------|------|-----------|-----|------|-------|--|--|--|--|--|--|
| Task Mode | Task Name | Duration | Start | Finish | Predecessors | | June 6/1 | 6/8 | 6/15 | 6/22 | July 6/29 | 7/6 | 7/13 | | | | | | | |
| | Submit IRB Paperwork for Human Participants Study | 5 days | Mon 6/1/20 | Fri 6/5/20 | | | | | | | | | | | | | | | | |
| | IRB Approval of Study | 7 days | Mon 6/8/20 | Tue 6/16/20 | 1 | | | | | | | | | | | | | | | |
| | Conduct Screening Interviews | 7 days | Wed 6/17/20 | Thu 6/25/20 | 2 | | | | | | | | | | | | | | | |
| | Set up Conference Room | 1 day | Fri 6/26/20 | Fri 6/26/20 | 3 | | | | | | | | | | | | | | | |
| | Conduct Usability Testing | 5 days | Mon 6/29/20 | Fri 7/3/20 | 1,2,3,4 | | | | | | | | | | | | | | | |
| | Compile and Analyze Data | 5 days | Mon 7/6/20 | Fri 7/10/20 | 5 | | | | | | | | | | | | | | | |
| | Present written report to Bob Butterfield | 5 days | Mon 7/13/20 | Fri 7/17/20 | 6 | | | | | | | | | | | | | | | |

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Appendix

**Story:**

Suzanne is an older graduate student who finished her Bachelor's degree in the early 2000's, took some time off from her career to raise her children, and has returned to refresh her skills so she can re-enter the workforce within the next couple of years. She has been married for 17 years and is excited to begin this new journey and obtain her Master's Degree.

Attributes:

- Conscientious student
- Opinionated
- Responsible
- Ambitious

What matters to Suzanne:

- Time with family
- Making the most out of her education
- The costs of graduate school
- Planning for retirement

Experience using the Internet:

- Uses it for Facebook and e-mail, mostly
- Knows how to do a Google search and find academic articles rather than untrustworthy reports and news articles
- Prefers her iPad and iPhone almost exclusively for Internet access

Preferences for Reading Course Work:

- Needs quiet
- Prefers not to sit at a desk
- Enjoys reading from her iPad more so than from a desktop

Experiences with E-texts and/or Redshelf:

- Never used e-texts to read for academic studies. Does like to read for pleasure on her iPad.
- Open to using e-texts more for graduate studies
- What is Redshelf?

**Story:**

Steve is a first year Freshman at UW-Stout and he is excited for the time he will get to spend with friends and the new adventures he will have as a college student and as an independent, grown man. He has a girlfriend that he has been dating for about a year and his parents live about an hour away. They still support him some, but he is ready to get a part-time job so he can move into an apartment on his own by next Fall.

Attributes:

- Introverted
- Hardworking
- Kind to everyone

What matters to Steve:

- Enjoying time with friends
- Taking courses that interest him
- Making the Deans list

Experience using the Internet:

- Connected 24/7 via social media
- Enjoys gaming when time permits
- Prefers a portable device such as the iPad or iPhone for internet usage

Preferences for Reading Course Work:

- Can read most anywhere if he has his AirPods so he can listen to music
- Likes to be comfortable while reading
- Takes notes on paper so he doesn't forget what he read

Experiences with E-texts or Redshelf:

- Used e-texts a few times in high school, but mostly read paper texts
- Open to using e-texts more in college
- Hasn't used Redshelf but is Confident in his ability to learn any new software or applications needed for his course work with no problem.

| Task/Goal | Action Sequence | Will user attempt correct action? | Will the user notice the correct action is available | Will the user associate the control with the resulting action? | Will user understand system's feedback? |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------|
| | | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) |
| From Canvas, Navigate to the Textbook in Redshelf and Open it. | After logging into Canvas, Click on the Redshelf App | 2 | 1 | 2 | 2 |
| | Navigate to the textbook by clicking on "View Course Materials" | 2 | 2 | 2 | 2 |
| | Select the "Handbook of Usability Testing..." and Click "Start Reading" | 2 | 2 | 2 | 2 |
| Navigate to the first page of chapter 1. | Click on the 4 lines in the top left corner. | 2 | 1 | 1 | 2 |
| | Choose Table of Contents and click on the book title | 2 | 2 | 2 | 2 |
| | Navigate to chapter 1 by using page right arrows on the right side of the screen. Once Chapter 1 Shows, X the left screen to cancel the split pane. | 2 | 1 | 1 | 1 |
| | When the Table of Contents shows the page number for the beginning of Chapter 1, type the page number in the search box and press GO | 2 | 2 | 2 | 2 |

Appendix B – Cognitive Walkthrough (Continued)

| Task/Goal | Action Sequence | Will user attempt correct action? | Will the user notice the correct action is available | Will the user associate the control with the resulting action? | Will user understand system's feedback? |
|---------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------|
| | | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) | Yes (2), Maybe (1), or No (0) |
| Highlight Text within a Chapter | Use a finger or a stylus and hold down on the first line of text to be highlighted | 2 | 1 | 1 | 2 |
| | Move finger along text to highlight an extended section. | 2 | 2 | 2 | 2 |
| | Choose highlight color | 2 | 2 | 2 | 2 |
| | Continue this action highlighting at least one line per page throughout the chapter | 2 | 2 | 2 | 2 |
| Create and Delete Notes in the Margin | Navigate via the left page arrows back to the beginning of Chapter 1. | 2 | 2 | 2 | 2 |
| | Click to highlight a small portion of text where the note will be placed | 2 | 2 | 2 | 2 |
| | From the pop-up box, select "Note." | 2 | 2 | 2 | 2 |
| | Type "Sample Note" into the box that appears with a cursor and press "Save." | 2 | 2 | 2 | 2 |
| | Press on the circle representing the saved note and delete the note. | 2 | 0 | 0 | 0 |

Hi. We are conducting a usability test on the Redshelf App in Canvas to get a better understanding of how well the app works for students while reading from e-texts for course work. Would you be interested in this study? **Yes** **No – Terminate**

Don't ask – but is their English understandable enough for the Think Aloud portion of the testing? **Yes** **No – Terminate**

Sex (don't ask, just circle) **Male** **Female** **Prefers not to identify/not obvious**

Great, I have a few more questions to determine whether you will fit our user profile for the testing.

Is this your first semester at UW-Stout? **Yes** **No – Terminate**

Are you Freshman? **Yes (skip next question)** **No**

Are you a Graduate Student? **Yes** **No - Terminate**

How would you rate your experience using e-texts in the past? **Used often – Terminate** **Used Some** **Used Rarely**

Do you prefer to use a laptop or an iPad to read e-texts? **iPad** **Laptop – Terminate**

How would you rate your proficiency using a iPad? **Advanced** **Intermediate** **Novice/Never used - Terminate**

Do you have a preference for one textbook medium over another (for example an e-text over a printed text or vice versa)?

Yes – Terminate **No**

Are you familiar with the Redshelf app in your UW-Stout Canvas Account? **Yes** **No**

Rate your experience using the Redshelf App on Canvas at UW Stout **Never Used** **Used Very Little**

Used Quite a Bit - Terminate **Use often/very well – Terminate**

Can you be available here on campus the week of June 29-July 7 between 8am and 2pm for the testing? **Yes** **No - Terminate**

Adapted from Steve Krug example found here: https://audioweb.sitehost.iu.edu/T284/krug_questions.html

Note: Moderator dialogue is in Blue. Notes and reminders are in Black.

Introduction

Hi, _____. My name is Rebecca Snyder, and I'm going to be walking you through this session.

You probably already know, but let me explain why we've asked you to come here today: We're testing the Redshelf App in your Canvas account here at UW-Stout because we want to see how usable it is for students who are new to using the app and prefer to read from an iPad rather than a laptop when reading for academic purposes.

I want to make it clear right away that we're testing the site, not you. You can't do anything wrong here. In fact, this is probably the one place today where you don't have to worry about making mistakes.

Describe Think Aloud Testing

We want to hear exactly what you think, so please don't worry that you're going to hurt my feelings. We want to improve it, so we need to know honestly what you think.

As we go along, I'm going to ask you to think out loud (a testing method called "Think Aloud,") to tell me what's going through your mind. I know it seems awkward, but instead of thinking, "Wow, where am I supposed to click? Or "Why can't I undo this action?" I want you to say those things aloud.

Let's begin with a sample of Think Aloud. (Moderator will walk the participant through opening an e-mail on her iPad using talk aloud). Do you think this is something you can do for us? Great!

Provide Signature Form

You may have noticed the camera. With your permission, we're going to videotape the iPad screen and what you have to say. The video will be used only to help us figure out how to improve the site, and it won't be seen by anyone except the people working on the project. It also helps me, because I don't have to take as many notes.

If you would, I'm going to ask you to sign something for us. It simply says that we have your permission to tape you, but that it will only be seen by the people working on the project. (Give participant the Participant Signature Form – Appendix E)

Explain the Testing Process

When it is time to begin, I will ask you to complete a total of four tasks using the Redshelf App on Canvas. If you have never used the app before, that is okay. It is helpful to us to see how easy it is for you to find the app and begin the task. If you have used Redshelf or have already located it within Canvas, that is okay as well.

If you have questions, just ask. I may not be able to answer them right away, since we're interested in how people do when they don't have someone sitting next to them, but I will try to answer any questions you still have when we're done.

After each task is complete, I am going to ask that you stop before going onto the next task so I can ask you a few questions about your experience completing the task.

Do you have any questions before we begin?

During Testing

Hand the Participant the User Task Sheet (Appendix F) and a pencil. Encourage them to check off each task as they complete it.

Stay in the room beside the participant during all testing and take notes (form provided in Appendix G), observe body language and facial expressions during tasks. If questions are asked about where to click, encourage the user to try to discover the answer on their own.

When the user finishes Task 1, pause have the user answer the three post-task questions provided in the Post-Task Questionnaire found in Appendix H. Moderator fills out the sheet.

Have the user continue through the tasks, pausing after each for the post-task questions and writing participant responses on the provided sheet

End of Testing

Before you leave, I have one final questionnaire for you to fill out. I will step out of the room and give you time to finish it – it shouldn't take very long. Feel free to make any comments at the bottom of the sheet if you think of something you would like to share regarding your testing experience using the Redshelf App.

Hand the participant the Post-Test Questionnaire (SUS) found in Appendix I.

Thank you _____ for your time today. Your participation is much appreciated and the feedback we gained from watching you work through these four tasks has been very helpful. Just leave the questionnaire on the table when you finish, and you are free to go.

Usability Test Consent Form

I agree to participate in the study, “Interacting with E-Textbooks in the UW- Stout Canvas RedShelf Application when Reading from an iPad, ” conducted by Graduate Student, Rebecca Snyder, at the University of Wisconsin - Stout.

I understand that participation in this usability study is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the study administrator. I also realize that, if for any reason, I do not want to continue, I can leave at any time.

I understand and consent to my screen and voice being recorded for the purposes of this study. I understand that I give up any right to said recording and realize that the recording may be used only for purposes related to this study.

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

Date: _____

Please print your name: _____

Please sign your name: _____

Thank you!

We appreciate your participation.

(Adapted from Usability.gov)

- TASK 1: From Canvas, Navigate to the textbook “Handbook of Usability Testing” in Redshelf and open it.
- Pause for Post-Task Questions
- TASK 2: Navigate to the first page of Chapter 5.
- Pause for Post-Task Questions
- TASK 3: Highlight one random line of text on each page throughout Chapter 5 choosing highlight color blue.
- Pause for Post-Task Questions
- TASK 4: Create a Note in the margin on page 90 that says, “Hello.” Save the note and then Delete the note.
- Pause for Post-Task Questions

Test Complete - Thank you!

| Task | Action Sequence | Did the user choose this Action Sequence | | Notes: |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----|--------------------------------------------------------------------|
| | | Yes | No | |
| Task 1: From Canvas, Navigate to the textbook "Handbook of Usability Testing" in Redshelf and open it. | After logging into Canvas, Click on the Redshelf App link. | | | |
| | Navigate to the textbook by clicking on "View Course Materials" | | | |
| | Select the "Handbook of Usability Testing..." and Click "Start Reading" | | | |
| Task 2: Navigate to the first page of Chapter 5. | Click on the 4 lines in the top left corner. | | | Did the user intuitively click the 4 lines in the top left corner? |
| | Choose Table of Contents and click on the book title, "Handbook of Usability Testing..." | | | |
| | Navigate to chapter 5 by using page right arrows on the right side of the screen. Once Chapter 5 Shows, X the left screen to cancel the split pane. | | | Did the User intuitively X the Split Screen? |
| | When the Table of Contents shows the page number for the beginning of Chapter 5, type the page number in the search box and press GO | | | |

| Task | Action Sequence | Did the user choose this Action Sequence | | Notes: |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Yes | No | |
| Task 3: Highlight one random line of text on each page throughout Chapter 5 choosing highlight color blue | Use a finger or a stylus and hold down on the first line of text to be highlighted | | | Was it obvious to the user that they needed to hold down for a few seconds to make a highlight begin? |
| | Move finger along text to highlight an extended section. | | | Was every letter of the text highlighted correctly? |
| | Choose highlight color Blue | | | |
| | Continue this action highlighting at least one line per page throughout the chapter | | | Did the user experience any system glitches? |
| Task 4: Create a Note in the margin on page 90 that says, "Hello." Save the note and then Delete the note. | Navigate via the left page arrows back to page 90 in the text. | | | |
| | Click to highlight a small portion of text where the note will be placed. | | | |
| | From the pop-up box, select "Note." | | | |
| | Type "Hello" into the box that appears with a cursor and press "Save." | | | |
| | Press on the circle representing the saved note and delete the note by deleting all of the text. | | | Did the user intuitively know to delete the text in order to remove the note? Did the user search for an affordance such as an X or trash can symbol? |

Appendix H – Post-Task Questionnaire

Based on Lewis, JR (1995) [15] . For each task, mark the Participant's Answer (use a new questionnaire for each participant):

Task 1:

| Question | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree |
|----------------------------------------------------------------------------------------------------------------------------|----------------|-------|---------------------------|----------|-------------------|
| 1. Overall I am Satisfied with the ease of completing | | | | | |
| 2. Overall I am satisfied with the amount of time it took to complete this task | | | | | |
| 3. Overall, I am satisfied with the support information (on-line help, messages, documentation) when completing this task. | | | | | |

Task 2:

| Question | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree |
|----------------------------------------------------------------------------------------------------------------------------|----------------|-------|---------------------------|----------|-------------------|
| 1. Overall I am Satisfied with the ease of completing | | | | | |
| 2. Overall I am satisfied with the amount of time it took to complete this task | | | | | |
| 3. Overall, I am satisfied with the support information (on-line help, messages, documentation) when completing this task. | | | | | |

Based on Lewis, JR (1995) [15] . For each task, mark the Participant's Answer (use a new questionnaire for each participant):

Task 3:

| Question | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree |
|----------------------------------------------------------------------------------------------------------------------------|----------------|-------|---------------------------|----------|-------------------|
| 1. Overall I am Satisfied with the ease of completing | | | | | |
| 2. Overall I am satisfied with the amount of time it took to complete this task | | | | | |
| 3. Overall, I am satisfied with the support information (on-line help, messages, documentation) when completing this task. | | | | | |

Task 4:

| Question | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree |
|----------------------------------------------------------------------------------------------------------------------------|----------------|-------|---------------------------|----------|-------------------|
| 1. Overall I am Satisfied with the ease of completing | | | | | |
| 2. Overall I am satisfied with the amount of time it took to complete this task | | | | | |
| 3. Overall, I am satisfied with the support information (on-line help, messages, documentation) when completing this task. | | | | | |

System Usability Scale

Date: __/__/__

Instructions: For each of the following statements, mark one box that best describes your reactions to the Application(App) *today*.

| | | Strongly Disagree | | | | Strongly Agree |
|-----|----------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. | I think that I would like to use this App frequently. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | I found this App unnecessarily complex. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | I thought this App was easy to use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | I think that I would need assistance to be able to use this App. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | I found the various functions in this App were well integrated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | I thought there was too much inconsistency in this App. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | I would imagine that most people would learn to use this App very quickly. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | I found this App very cumbersome/awkward to use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | I felt very confident using this App. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | I needed to learn a lot of things before I could get going with this App. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please provide any comments about this App:

This questionnaire is based on the System Usability Scale (SUS), which was developed by John Brooke while working at Digital Equipment Corporation. © Digital Equipment Corporation, 1986.