
Module 4 Assignment:

Usability Test Report:

Pacific Northwest X-Ray Inc. Website

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Introduction:

The purpose of this report is to assess the usability of the Pacific Northwest X-Ray Inc. website, <https://www.pnwx.com/>. As a hub for medical professionals' gear, Pacific Northwest X-Ray Inc.'s online platform must be simple, accessible, and easy to use; lives are quite literally on the line if these professionals cannot locate necessary equipment quickly and easily. The efficacy of PNWX's website can be assessed and analyzed through usability testing.

Heuristic evaluations of PNWX's website revealed a slew of issues negatively impacting usability. The site's chaotic visual design, confusing navigation and operation, and lack of necessary website features resulted in a straining, difficult user experience. To combat these issues, I performed usability testing utilizing 3 participants adjacent to the field. These tests allowed me to further examine the site's issues and create recommendations for usability improvements.

Website:

Pacific Northwest X-Ray Inc.'s website is a space where a broad range of medical professionals can purchase necessary medical equipment. It offers X-ray machine parts, wearable accessories, standard hospital supplies, and a great deal more. Due to its extensive stock, medical professionals including veterinarians, radiologists, dentists, oncologists, and more all utilize PNWX's services.

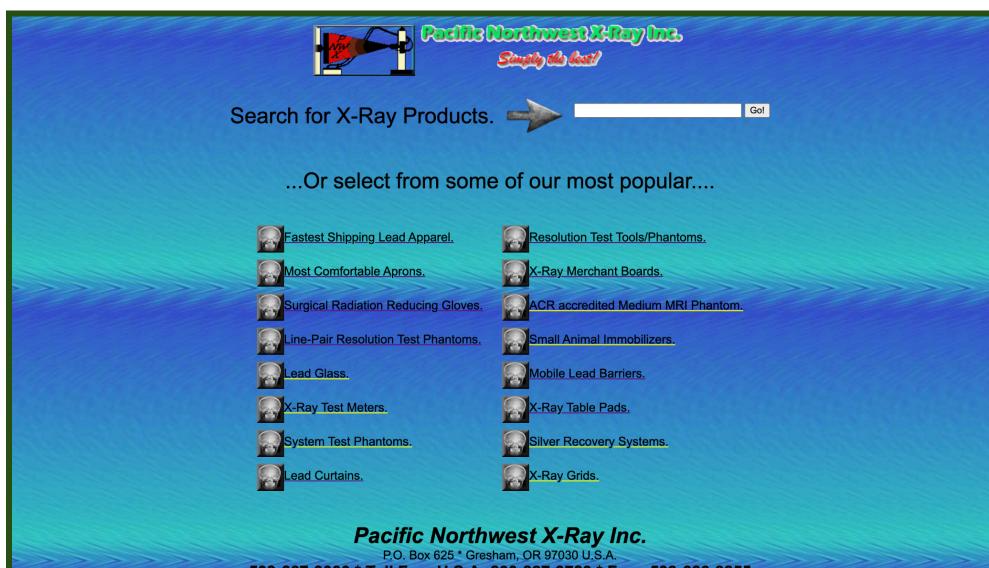


Figure 1: Pacific Northwest X-Ray Inc. Website Homepage

Evaluations of the site's visual design (example in Figure 1) and user interface illuminate a variety of frustrating features that lead to poor usability. By examining the impact of the site's design and interaction features through usability testing, I have determined improvement recommendations that, if implemented, would result in a more positive user experience.

Test Method:

Usability testing is a method of determining the ease or difficulty of a product or site's use through the examination and analysis of real users' interactions with it. I created 3 task scenarios to test specific usability functions of the Pacific Northwest X-Ray Inc.'s website.

These task scenarios put the usability testers in a realistic position, allowing us to more accurately determine the efficacy of the PNWX website for its intended audience:

Task #1: You are a radiologist's new assistant at the local hospital and have been tasked with ordering yourself radiation-shielding accessories. Starting on the homepage, find the site's list of radiation protection products.

Task #2: You must purchase radiation-protective gloves to continue your assistantship. These gloves must be at least **0.5mm thick**, come in **size 9** (standard), and be **brown** to match the other radiation employees' uniforms. From the Accessories Main Directory, find a pair of gloves matching these specifications.

Task #3: The head radiologist gave you his company credit card and told you to purchase the radiation-protective gloves regardless of their price. Starting on the brown gloves' information page, find out how to place an order from Pacific Northwest X-Ray Inc.

These scenarios are the foundation of the site's usability test. Task #1 targets users' ability to locate and visit site pages from the homepage. Task #2 demonstrates the ease with which users can find products with narrow specifications. Task #3 illustrates the straightforwardness—or lack thereof—of the site's ordering process.

Pre-Test Preparation:

I took the following steps to prepare myself to perform the usability tests based on my evaluations of the site's purpose and usability issues:

Determine the Goals of the Test:

PNWX's site aims to provide medical professionals with any medical equipment they might need. Participants should be able to easily locate and order their needed equipment.

Prepare Task Scenarios:

Using my evaluations of the site's effectiveness in giving its users a simple and easy navigation system, I designed the 3 task scenarios above.

Completing these tasks will determine to what extent PNWX achieves its site goals.

Establish Evaluation Guidelines:

The evaluation of the website primarily focuses on its visual design, organization, and navigation. Each usability test participant, while focusing on these site aspects, must complete the test in as similar an environment as possible to the other participants. I established the following parameters to apply to each usability test for the most controlled and accurate results:

- Each user will complete the test in person on the same Macbook Air Laptop using the Google Chrome browser in an incognito tab.
 - By using an incognito tab, the paths participants take throughout the test will not be recorded, ensuring that no participant has any navigational hints.
- Each user will complete a pre-test questionnaire before participating in the usability test and a post-test questionnaire after participating.
- Users will have 3 minutes to complete each task before receiving outside assistance.
- The interviewer will not converse with the participant while they are completing each task.
- Users must agree to their usability test being audio recorded before participation.

Test Conducting:

Each participant met me at a cafe on the Hofstra University campus on Friday, November 8, 2024 to complete the usability test. The participants' appointments were 45 minutes apart from each other, allowing ample time for pre-test preparation, the completion of the test, completion of the post-test questionnaire, and summarizing the results of each participant's test. I conducted the test following this general order:

1. Introductions and explanation of test expectations/guidelines
2. Participant answers pre-test questionnaire
3. Participant is given Task #1; I observe and take thorough notes
4. Participant is given Task #2; I observe and take thorough notes
5. Participant is given Task #3; I observe and take thorough notes
6. Participant fills out post-test questionnaire
7. I summarize my test notes and prepare for the next participant

By performing each usability test in the same location, on the same device/browser, and on the same day, the experiment was as controlled as it could have been, eliciting accurate test results.

Participants:

The pre-test questionnaire issued to all participants in the usability test collected demographic information and information about the extent of their experience and comfortability with the internet. Their responses were anonymous. The following data was collected from this questionnaire:

2 of the participants are currently in college in a medical or medical-adjacent major; the other participant is a college biology professor. 2 participants are between the ages of 18 and 25, and the other participant is between the ages of 26 and 35 (see Figure 2).

When asked what devices the participants normally use to browse the internet, they all gave very similar answers: all 3 participants normally use a laptop and smartphone, and one participant also normally uses a tablet (see Figure 3). 2 of the participants feel Very Comfortable using online retail services, and the other participant only feels Comfortable (see Figure 4).

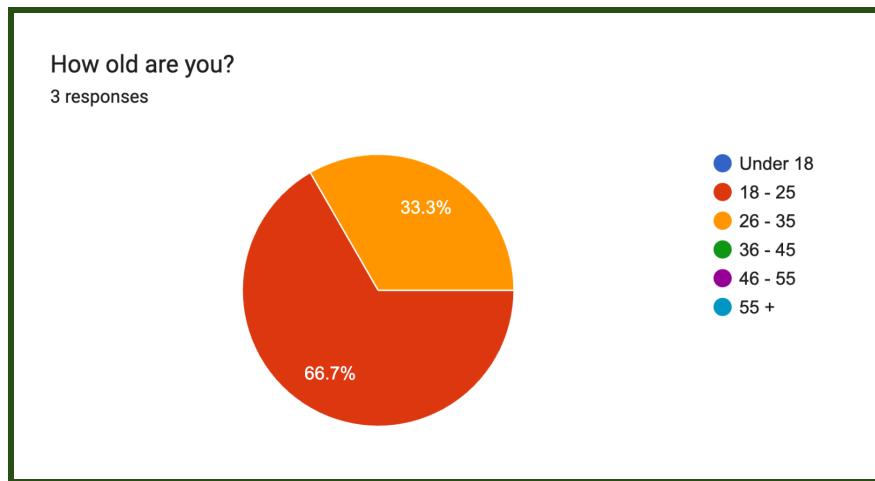


Figure 2: Ages of participants collected from Pre-Test Questionnaire

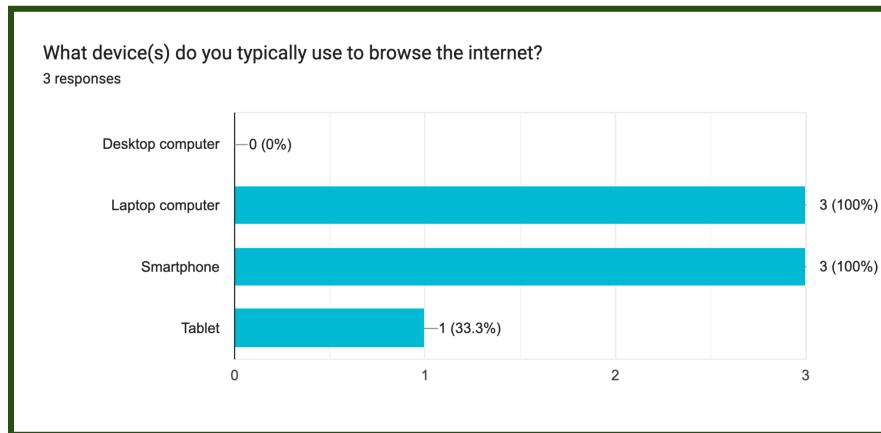


Figure 3: Devices participants normally use collected from Pre-Test Questionnaire



Figure 4: Participants' online retail service comfort level collected from Pre-Test Questionnaire

I collected more detailed information about each participant, which I will share below. Each participant asked for their name and picture to be kept private, so the profiles below are fictitious and meant to represent each participant. Images have been generated using <https://this-person-does-not-exist.com/en>.



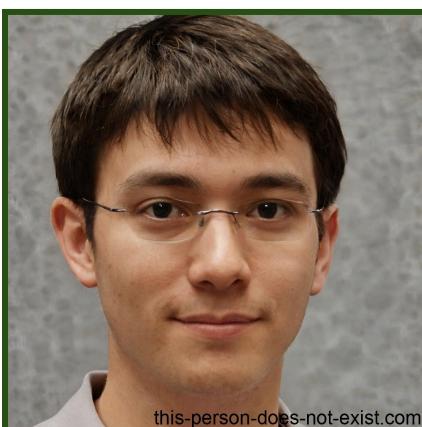
Anna C.

Anna is a college sophomore studying nursing. She currently lives on Long Island in New York, but she grew up in Seattle, Washington. Anna considers herself to be very internet-savvy. She and her iPhone are “connected at the hip,” and almost all shopping she does is online.



Martin F.

Martin is a biology professor on Long Island in New York, where he was also born and raised. His dream is to become a famous rock guitarist, but until then, his heart lies with the human body. Martin tries to distance himself from the internet; he does his best to only use it for work, and he seldom shops online.



Jordan R.

Jordan is a college junior studying healthcare administration. As a kid, he wanted to be a doctor, but he now surprisingly enjoys the calm of administrative work. Jordan spends all of his free time browsing the internet (he primarily uses Reddit and Twitter/X). He jokes that he singlehandedly keeps Amazon in business.

Findings:

The following section will outline the findings gleaned from the usability tests. We will examine the results of each task, both quantitatively and qualitatively, to obtain a firmer understanding of the Pacific Northwest X-Ray Inc. website's usability.

Task #1:

"You are a radiologist's new assistant at the local hospital and have been tasked with ordering yourself radiation-shielding accessories. Starting on the homepage, find the site's list of radiation protection products."

Observations: Users struggled to find the "Radiation Protection Products" page (Figure 5) of PNWX's website quickly and easily. It took all participants more than 1 minute to complete the task, but they were all successful (and frustrated) in the end. Generally, users first tried to scan the products listed on PNWX's homepage (Figure 1), but after not finding what they were looking for, they used the search function, which yielded successful results. Only 1 user was able to locate the page without using the search function.

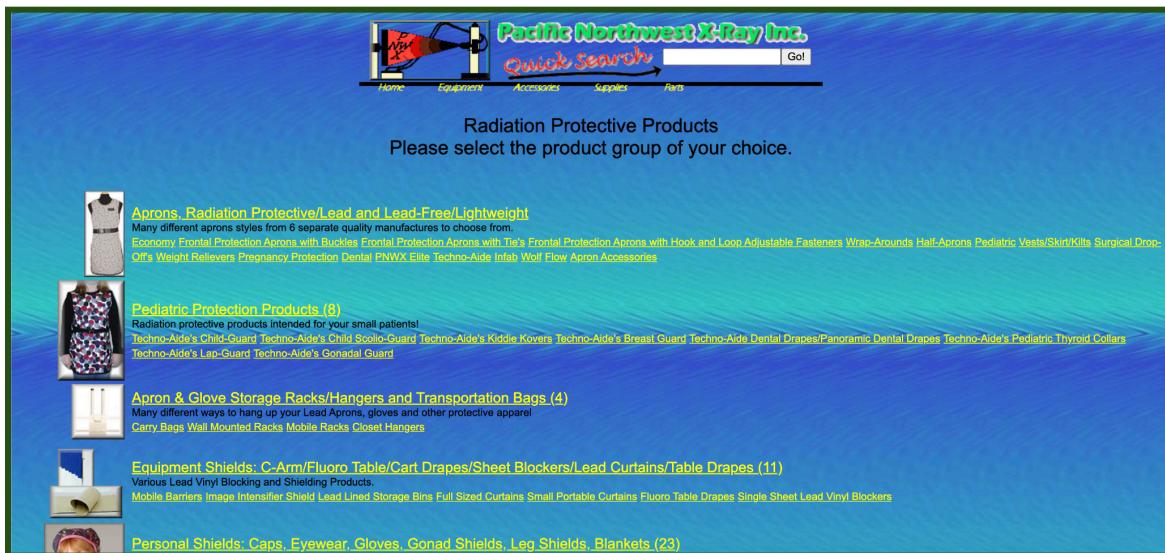


Figure 5: Radiation Protective Products page (desired task #1 end result)

Anna C.:

It took Anna 1 minute and 38 seconds to locate the “Radiation Protection Products” page. She first scanned their “most popular” products listed on the homepage and clicked on the link to “Surgical Radiation Reducing Gloves.” After scrolling through and scanning the linked page, Anna voiced her frustration, saying, “Bro, I should be able to go to all radiation protection things straight from this page.”

Anna then resorted to using the Search function. She typed “radiation protection” into the Search box, pressed the “return” key on the Macbook Air, and was led to the correct “Radiation Protection Products” page after 1 minute and 38 seconds. After finding the page, she asked in humorous disbelief, “People actually use this site for real-life work?”

Martin F.:

Martin had more trouble than Anna with finding the “Radiation Protection Products” page; it took him 2 minutes and 24 seconds. Like Anna, he first scanned the homepage for a link to all radiation protection. Unlike Anna, however, he then clicked the link to “Fastest Shipping Lead Apparel.” This page showed Martin two different types of radiation-protective apparel. He looked at me for approval, thinking he had found the correct page, but I shook my head to indicate he needed to keep searching.

He spent around 20 more seconds scanning the page for anything that might lead him to all radiation protection, but with no luck, he clicked the “Equipment” tab in the navigation menu that appeared once he left the site’s Home page. At this point, Martin said, “I don’t want to use the Search feature yet. I should be able to find it without searching.” He scrolled through the list of equipment products, let out a frustrated sigh, and said, “Whatever. I’m searching.” He typed “radiation” into the search bar and was led to the desired page after 2 minutes and 24 seconds.

Jordan R.:

Jordan located the “Radiation Protection Products” page the quickest out of the 3 participants; it took him 1 minute and 6 seconds. He began this task by reading through the site’s most popular products displayed on the homepage, like Anna and Martin, and clicked the link to “Fastest Shipping Lead Apparel,” like Martin. After scrolling through the resulting page, he muttered, “Hmm...” and glanced at me nervously.

Jordan then clicked the “Accessories” tab in the navigation menu. He scrolled through the left-hand column, glanced at me again, and scrolled through the right-hand column. Third from the bottom of the right-hand column was a link to and list of “Radiation Protection Products.” Jordan clicked on the link, reaching the desired page, and said, “That was way harder than it needed to be.”

Task #2:

"You must purchase radiation-protective gloves to continue your assistantship. These gloves must be at least **0.5mm thick**, come in **size 9** (standard), and be **brown** to match the other radiation employees' uniforms. From the Radiation Protection Products page, find a pair of gloves matching these specifications."

Observations: 2 users completed this task in under 3 minutes, and 1 refused guided assistance and completed the task in slightly over 3 minutes. Users were mostly frustrated with the lack of product filters, making it difficult to find products with particular specifications. Participants each used different methods to find the desired destination, which was the Wolf brand Lead Gloves page (Figure 6).



Figure 6: Wolf brand Lead Gloves Page (desired end result of task #2)

Anna C.:

Anna completed this task in 2 minutes and 12 seconds, the fastest out of the 3 participants. She began by clicking on the "Personal Shielding Accessories" link found on the "Radiation Protection Products" page, which contains a list of 6 accessory subsections, including one for "Gloves, Mittens, and Sleeves." Encouraged by the image of a brown glove next to this link, Anna clicked it and was led to another page listing 4 brands of gloves, mittens, and sleeves.

At this point, Anna remarked, "Okay, they don't need to be doing all this. Just show me the gloves you have and I'll filter them and find the ones I need." That first sentence was speaking to me, and that second sentence was speaking to the website. She manually searched all of the brands unsuccessfully, until she reached the right Wolf gloves. She looked at me with a mixed expression of frustrated exasperation and relief.

Martin F.:

Martin was able to locate the correct pair of gloves in 2 minutes and 48 seconds. The beginning of his process mirrored Anna's; he first clicked the "Personal Shielding Accessories" link, then the "Gloves, Mittens, and Sleeves" link, and was brought to the page listing 4 different brands of gloves. At this point, Martin asked me, "Am I allowed to use the Search function?" I nodded my head in affirmation. He typed "brown gloves" into the Search bar and, to his surprise, was led to the same glove brands page.

Martin took a deep breath and began to manually search for a pair of gloves that matched the task's specifications. When he reached the final brand, Wolf Lead Gloves, he looked at me and said, "If the right pair isn't in here, I'm just giving up." He clicked the link, quickly checked the specifications, and whispered, "Yes!" to himself.

Jordan R.:

In contrast with his quick completion of Task #1, Jordan took the longest to complete Task #2 out of the 3 participants: 3 minutes and 21 seconds. Firstly, trying to move quickly, Jordan read the word "Glove" in a link titled, "Apron & Glove Storage Racks/Hangers and Transportation Bags (4)" and clicked on it. He realized his mistake once the page loaded and searched for a way to return to the previous page on the website. Unable to find a built-in "back" button or other method, he utilized the browser's "back" button.

Back to the page on which he started, Jordan clicked the "Personal Shielding Accessories" link, then the "Gloves, Mittens, and Sleeves" link. Like Martin, overwhelmed by the 4 brand options, Jordan tried to search for "size 9 brown gloves." The search results were unhelpful, a long list of lengthy links he didn't want to take the time to read. He once again utilized the browser's back button and began manually searching for gloves that matched the task's specifications.

As he was searching the third brand's page, Jordan's allotted 3 minutes were up. I paused the timer and asked if he would like help completing the task. He responded, "No, no, no. I'm so close, I can feel it. They have to be here somewhere." I continued the timer and, 3 minutes and 21 seconds after he started the task, Jordan located the correct Wolf brand gloves.

Task #3:

“The head radiologist gave you his company credit card and told you to purchase the radiation-protective gloves regardless of their price. Starting on the brown gloves’ information page, find out how to place an order from Pacific Northwest X-Ray Inc.”

Observations: All of the participants were able to complete this task in the allotted time, but it was the one with which they expressed the most frustration. Anna and Jordan, who are reportedly more well-versed in online shopping, surprisingly took more time to complete the task than Martin, indicating that the navigation is not intuitive for retail. Each user was able to locate the task’s end result, the order policies page (Figure 7), quickly, but none were pleased with the information they found.



Figure 7: Order policies page (desired end result of task #3)

Anna C.:

Anna took 1 minute and 33 seconds to locate PNWX’s order policies. Beginning on the Wolf brand Lead Gloves page, she first scanned the page for an “Add to Cart” or “Buy Now” button. She started clicking on anything and everything: the product title, the product image, the specifications chart, and the product description. She let out a laugh and said, “I’ve had it with this website. This is ridiculous!”

Anna then scanned the site header for a shopping cart icon or “Order Now” button unsuccessfully. She scrolled down to the site’s footer and first clicked the “Email Sales” link. This link led her to a blank G-Mail page completely off PNWX’s site. Using the browser’s back button, she returned to the website and continued searching the footer. She finally found the line of text that read “For order methods and policies, please click here.” She clicked it, looked at me, and said “What the ***?”

Martin F.:

Martin completed this task in a quick 52 seconds. He scanned the Wolf brand Lead Gloves page for an “Add to Cart” button three times; “I wanted to make sure I didn’t miss it,” he explained after the task’s completion. He then scrolled down and almost immediately noticed the line of text that read “For order methods and policies, please [click here](#).” Though he found the page quickly, Martin stated that he thought these order methods and policies were unnecessarily unconventional.

Jordan R.:

Jordan took 1 minute and 6 seconds to find PNWX’s order policies. His process was almost identical to Martin’s: first, he scanned the Wolf brand Lead Gloves page multiple times for a way to put them in a shopping cart or buy them directly. He scrolled down and attempted to click on the unclickable images of accepted credit cards on the left-hand side of the footer. He then noticed the “For order methods and policies, please [click here](#)” line of text. He looked at me with a confused expression and stated, “I’ve never seen anything like this.”

Recommendations:

Based on the results of the usability tests, I propose the following recommendations to improve the Pacific Northwest X-Ray Inc. website’s usability. All of the usability test participants had similar issues with certain site aspects, outlining distinct areas for improvement.

Fix #1: Improve Navigation and Homepage Layout

Issue: The usability test participants struggled to locate key product categories, such as “Radiation Protection Products,” directly from the homepage due to unclear navigation labels and an overwhelming homepage layout.

Recommendation: Redesign the homepage to simplify navigation by including the navigation menu present on all other site pages on the homepage. Use visual cues like icons or categorized images to help users quickly identify relevant sections.

Justification: In *Don’t Make Me Think, Revisited*, Steve Krug states, “When you’re creating a site, your job is to get rid of the question marks” (Krug, 2014, p. 13). The “question marks” Krug refers to represent user confusion. PNWX’s site navigation, especially from the homepage, causes more confusion than certainty. By unifying all site pages’ navigational features, including distinct visual cues, and simplifying the homepage layout, users can more easily find the medical equipment they need.

Fix #2: Implement Product Filters and Advanced Search Options

Issue: Participants were frustrated by the lack of filters for glove specifications like size, color, and thickness, leading to time-consuming and inefficient manual product searches.

Recommendation: Introduce filter options on product listing pages, allowing users to sort products by specifications such as size, color, thickness, and more. Enhance the Search function to accommodate more specific product searches so that users can quickly find products that match narrow criteria without having to search for them manually.

Justification: Adding filters and advanced search options supports the usability heuristic of “Flexibility and efficiency of use” in *Heuristic Evaluation: It’s Easier Than You Think* (Yurkevich, 2020). These additions will allow both novice and experienced users to efficiently and easily navigate the site.

Fix #3: Simplify the Ordering Process with Direct Purchase Options

Issue: To buy a product, users have to call, fax, email, or mail Pacific Northwest X-Ray Inc. their orders, which is confusing, unconventional, and unnecessarily complicated.

Recommendation: Introduce standard online retail elements, such as direct purchase options like an “Add to Cart” or “Buy Now” button. Include a shopping cart icon in the site’s header to lead users to the items they have reserved and their purchase options.

Justification: By utilizing e-commerce Web conventions, site navigation gets easier for users because “they don’t have to constantly figure out what things are and how they’re supposed to work as they go from site-to-site” (Krug, 2014, p. 30). The 2 usability test participants who are self-proclaimed experienced online shoppers had the most trouble figuring out how to order items because PNWX’s order policies don’t follow Web conventions; it was a completely new task for them.

Conclusion:

The usability tests conducted on the Pacific Northwest X-Ray Inc. website revealed several critical areas for improvement, such as navigation, product search functionality, and the ordering process.

Though the test participants are familiar with the medical field in some fashion, these usability issues complicated efficiently locating and ordering specific equipment.

I propose the following recommendations to target these problems and improve the site's usability: streamlining navigation, implementing product filters, and simplifying the purchasing process.

By employing these recommendations, Pacific Northwest X-Ray Inc. will enable medical professionals to find and purchase necessary equipment swiftly and confidently.

Appendix A (Orientation Script):

Hi, _____!

Thank you for taking time out of your day to participate in this usability test. I'm going to give you a quick overview of what this test requires of you and how it works.

I will give you 3 task scenarios to complete on the Pacific Northwest X-Ray Inc. website. I will briefly contextualize each task before you attempt to complete it. Please feel free to vocalize your thoughts and feelings while completing these tasks; detailed feedback will illuminate more specific usability issues, allowing for more helpful and accurate improvement recommendations.

There is no wrong way to complete any of these tasks; the purpose of this usability evaluation is to assess the effectiveness of the website for its intended audience, not to assess your technological abilities!

I'm going to ask you to complete a brief pre-test questionnaire before we begin, and after we finish, a brief post-test questionnaire. These surveys will help me analyze the test results at a deeper and more involved level.

If you have any questions, comments, or concerns at any point during this process, don't be afraid to voice them! If you don't have any questions right now, we'll begin the usability testing process.

Appendix B (Pre-Test Questionnaire):

Pacific Northwest X-Ray Inc. Pre-Usability Test Questionnaire

This questionnaire collects demographic and background information for each participant.

How old are you? *

- Under 18
- 18 - 25
- 26 - 35
- 36 - 45
- 46 - 55
- 55 +

What is the highest level of education you have completed? *

- High school
- Some college
- Bachelor's Degree
- Master's Degree
- Doctorate
- Other...

What device(s) do you typically use to browse the internet? *

- Desktop computer
- Laptop computer
- Smartphone
- Tablet
- Other...

How comfortable are you with using online retail services? *



What is your relationship to the medical field? *

Short answer text

Appendix C (Post-Test Questionnaire):

Pacific Northwest X-Ray Inc. Post-Usability Test Questionnaire

This questionnaire collects participants' thoughts on the site's usability and their experience navigating the website.

What were your first impressions of PNWX's website? *

Long answer text

What was the biggest problem you encountered and why? *

Long answer text

Rank the difficulty of Task #1: Starting on the homepage, find the site's list of radiation protection products. *

1

2

3

4

5

Very Easy

Very Difficult

Do you have any comments about Task #1, specifically?

Long answer text

Rank the difficulty of Task #2: From the Accessories Main Directory, find a pair of gloves matching [certain] specifications. *

1

2

3

4

5

Very Easy

Very Difficult

Do you have any comments about Task #2, specifically?

Long answer text

Rank the difficulty of Task #3: Starting on the brown gloves' information page, find out how to * place an order from Pacific Northwest X-Ray Inc.

1

2

3

4

5

Very Easy

Very Difficult

Do you have any comments about Task #3, specifically?

Long answer text

Do you have any recommendations for improving the site's usability?

Long answer text

How did your final impression about PNWX's website compare to your first impression? *

Long answer text

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