

# Interaction Design Project: Final Report

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Website Name  
Website URL  
Prototype Site URL

RockAuto  
<https://www.rockauto.com/>  
[Figma URL](#)

## Executive Summary

During this project, we conducted a usability study centered around improving the user experience, user interface, and the overall usability of RockAuto.com, an online automotive parts retailer. Our team successfully identified various usability issues on the original website, including the absence of a guided part finder, cluttered navigation, poor customer support availability/accessibility, hard to find warranty information, and an unclear return process. These issues prevent users from efficiently locating, purchasing, or returning auto parts, particularly for beginner users that are unfamiliar with automotive terminology, which ultimately reduces the usability of the website and leads to high bounce rates and user retention issues.

To address these issues, we used Figma to implement a redesign of these features using a user-centered approach. Our revised prototype included a step-by-step guided part finder, a product comparison feature, user-friendly warranty accessibility, and a streamlined return process. These improvements were made through the use of usability principles such as Recognition over Recall, Jakob's Law, and Nielsen's Heuristics.

Studies were conducted to ensure the prototype addressed usability concerns and aligned with our user-centered design approach. We tested both the original website and prototype using six different participants. Each participant was asked to complete two usability tasks:

1. Finding and comparing front brake pads for a specific vehicle
2. Locating warranty information and initiating a return for a part just purchased

Additionally, users completed demographic and post-task surveys to provide feedback on the task difficulty, satisfaction, and the overall usability of both the original website and prototype.

When analyzing the results from the prototype, quantitative results showed significant improvement in task completion time, user confidence, and user frustration. Qualitative results showed positive feedback from the surveys, with users indicating that the prototype was more efficient, user-friendly, and easier to navigate when compared to the original website. Overall, our findings indicate that a user-friendly, streamlined shopping interface can significantly improve the user experience, usability, and user satisfaction for users purchasing automotive parts online.

## Method

### Who we tested

Twelve participants (6 on the original, 6 on the prototype), having the following demographic characteristics, evaluated the online automotive part retailer RockAuto.

**Gender**

Female	2
Male	10
<b>TOTAL (participants)</b>	<b>12</b>

**Age**

18-20	4
21-30	5
31-40	3
41-70	0
<b>TOTAL (participants)</b>	<b>12</b>

**Educational Background**

High School diploma	1
Some College	2
Associate Degree	1
Bachelor's Degree	6
Master's Degree	2
Doctoral Degree	0
Trait School	0
<b>TOTAL (participants)</b>	<b>12</b>

**Current Occupation**

Construction	1
Consultant	1
Electrician	1
Mech Engineer	1
Science Teacher	1
Student	7
<b>TOTAL (participants)</b>	<b>12</b>

**Familiar with Shopping Sites**

Not familiar at all	0
Not very familiar	0
Somewhat familiar	8
Very familiar	4
<b>TOTAL (participants)</b>	<b>12</b>

**Computer/Internet Usage**

Less than 5 hrs. wk.	3
5 - 10 hrs. wk.	3
11 – 20 hrs. wk.	2
21 – 30 hrs. wk.	3
31 + hrs. wk.	1
<b>TOTAL (participants)</b>	<b>12</b>

**Favorite Website**

Amazon	4
YouTube	3
Best Buy	1
Google	1
Home Depot	1
Reddit	1
Freedom Factory	1
<b>TOTAL (participants)</b>	<b>12</b>

**Computer Usage**

0 to 10 hrs. wk.	2
11 to 25 hrs. wk.	4
26+ hrs. wk.	4
<b>TOTAL (participants)</b>	<b>12</b>

## What participants did

Prototype Site URL

[Figma URL](#)

Participants conducted the study remotely using online meeting platforms (e.g., Zoom, Teams, Meets etc.) with each study lasting around ten minutes to include briefing, testing, and debriefing. Each study was conducted following the Experimental Script to ensure a standardized approach was utilized in testing and to produce results with minimal errors and discrepancies. Before conducting each study, the participant was asked for consent to be recorded visually and audibly. If the participant declined, the experiment was conducted without the participant's video or audio as desired. The participant was then asked to fill out a demographic survey and was given a brief explanation of the study and how the session would be conducted.

If there were no questions, the facilitator would begin the recording and assign the user a total of two tasks to complete. These tasks remained the same for participants using the original website and for the participants using the prototype. The usability tasks consisted of:

### **Task 1 - Finding & Comparing Brake Pads**

*Imagine you need to buy brake pads for a 2013 Toyota Camry. Use RockAuto.com to find a set of front brake pads that will fit this vehicle. Then, compare at least two different brands based on price and features, and add your preferred option to the cart.*

### **Task 2 – Check Warranty and Complete Return**

*You ordered a part last week and it doesn't fit your vehicle. Use RockAuto.com to find warranty information for your order and complete a return.*

The tasks are presented to the participant one at a time beginning with Task 1 and utilize the same start and end criteria. Each task begins when the participant confirms they understand the current task and have no questions, and each task ends when the facilitator can see the task has been completed. If at any point the participant has a question or is lost, they may ask the facilitator and the facilitator will respond or provide guidance in a timely manner and minimize influence on the study outcome.

Task 1 consisted of the participant navigating the website or prototype to find front brake pads for the specific scenario vehicle, a 2013 Toyota Camry. Once the brake pads are found the participant must compare at least two brands of brake pads, then add the desired product to their cart. Once the item has been added to the participant's cart the task is completed.

Task 2 consisted of the participant navigating the website or prototype to find the warranty information for their specific scenario part (brake pads) and then complete a return. This task is considered complete once the return has been completed (prototype) or the process has been followed as far as it can be (original website). Task timing data and completion breakdowns are documented in Table 1 (Original Website) and Table 2 (Redesigned Prototype) for comparison.

**Table 1: Original Website Task Times**

Participants / Tasks	Task 1			Task 2			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
Participant 1	00:10	01:35	01:25	01:50	03:15	01:25	05:35
Participant 2	00:01	03:16	03:15	3:30	5:04	1:34	5:03
Participant 3	02:50	06:35	3:45	07:44	09:37	1:53	5:38

Participant 4	0:32	4:58	4:26	5:27	7:27	2:00	6:26
Participant 5	03:41	07:02	3:21	08:08	11:32	3:24	6:45
Participant 6	1:38	4:49	3:11	4:40	6:40	2:00	5:11

**Table 2: Redesigned Prototype Task Times**

Participants / Tasks	Task 1			Task 2			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
Participant 1	02:38	04:38	2:00	05:59	07:48	1:49	03:49
Participant 2	02:32	04:52	2:20	05:50	08:13	2:23	04:43
Participant 3	00:12	1:28	1:16	1:43	2:36	0:53	2:09
Participant 4	0:21	1:24	1:03	1:35	2:35	1:00	2:03
Participant 5	02:39	2:59	0:20	3:25	4:10	0:45	1:05
Participant 6	0:03	02:06	02:03	02:12	03:31	1:19	03:22

### What metrics were collected

When we collected the data we based it on both quantitative and qualitative usability data from twelve different users who completed two tasks each, six of the users performed the two tasks on the original RockAuto website and the other six users on our redesigned Figma for RockAuto. The following types of data were collected from each user:

- Task Completion Time**  
 Each session was screen-recorded, and the task times were later extracted by our group by reviewing the recordings. We documented the timestamp when the user began and finished each of the two tasks. The time differences (in minutes and seconds) were calculated and entered our data into comparison tables for both the original RockAuto website and the redesigned Figma prototype.
- Task Success Rate**  
 In order to measure the success rate of each user, we coded each task as either a **success (1) or failure (0)** based on whether the participant was able to complete the task without help and reach the desired result/endpoint.
  - The task was marked as a success if the user:
    - For Task 1: Added the brake pad to the cart
    - For Task 2: Located warranty information and reached the return page
- User Satisfaction Ratings**  
 After the user completed both tasks, we asked them to fill out a 16-question post-session usability survey using a 5-point Likert scale **from 1 = Very Poor to 5 = Very Good**. The survey questions covered usability factors such as ease of navigation, task clarity, trust, and visual appeal.

- **Demographic Information**

Before the users started the tasks, we asked them to complete a pre-session survey that collected information on gender, age group, education level, occupation, weekly internet usage, familiarity with online shopping, and also their favorite website. This data helped us confirm the level/scope of user diversity and understand the feedback in a better context.

The following tables summarize the collected data.

**Table 1 – Demographic Summary**

Category	Subcategory	Count
Gender	Male	10
Gender	Female	2
Age	18–20	4
Age	21–30	5
Age	31–40	3
Education	High School Diploma	1
Education	Some College	2
Education	Associate Degree	1
Education	Bachelor's Degree	6
Education	Master's Degree	2
Occupation	Student	7
Occupation	Construction	1
Occupation	Consultant	1
Occupation	Electrician	1
Occupation	Mechanical Engineer	1
Occupation	Science Teacher	1
Online Shopping Familiarity	Somewhat Familiar	8
Online Shopping Familiarity	Very Familiar	4
Weekly Internet Usage	<5 hrs/wk	3
Weekly Internet Usage	5–10 hrs/wk	3
Weekly Internet Usage	11–20 hrs/wk	2
Weekly Internet Usage	21–30 hrs/wk	3

Weekly Internet Usage	31+ hrs/wk	1
Favorite Website	Amazon	4
Favorite Website	YouTube	3
Favorite Website	Best Buy	1
Favorite Website	Google	1
Favorite Website	Home Depot	1
Favorite Website	Reddit	1
Favorite Website	Freedom Factory	1

**Table 2 – Average Task Completion Duration**

Version	Task	Avg. Time (mm:ss)
Original	Task 1	03:13
Original	Task 2	02:02
Redesign	Task 1	01:30
Redesign	Task 2	01:21

**Table 3 - Average User Post-Session Satisfaction Ratings Comparison**

Survey Question	Original Site Avg (1–5)	Redesign Site Avg (1–5)
How easy was it to read the information on the site?	2.5	5.00
How easy was it to find and navigate through the website menus and links?	1.83	4.67
How confident did you feel that your actions (such as selecting parts) would not cause mistakes?	2.33	4.833
How easy was it to complete the tasks you were given?	1.67	5.00
How easy was it to find the parts you needed?	1.67	5.00
How easy was it to complete a purchase or selection?	2.50	5.00
How well did the site help you avoid or recover from errors?	1.50	5.00

How clear was it what steps you needed to take next while completing your tasks?	2.00	5.00
How visually appealing did you find the website?	1.83	4.67
How enjoyable was it to interact with the website?	1.50	4.67
How much did you trust the website during your tasks?	1.67	4.50
How satisfying was completing the tasks on the website?	2.00	4.67
How much frustration did you feel while using the website?	4.50	1.00
How helpful was the website for completing your assigned tasks?	2.20	4.83
How easy was it to browse or explore additional parts if you wanted to?	2.33	4.50
How well did the website support achieving your goal quickly?	1.67	4.83

**Table 4 - Task Success Rate**

Version	Task	Successes (out of 6)	Success Rate (%)
Original	Task 1	4/6	66.67%
Original	Task 2	3/6	50.00%
Redesign	Task 1	5/6	83.33%
Redesign	Task 2	6/6	100%

### What improvements were made to the site

Usability issues identified on the original website included the absence of a guided part finder, cluttered navigation, poor customer support availability/accessibility, hard to find warranty information, and an unclear return process.

To address these issues, we used Figma to implement a redesign of these features using a user-centered approach. Our revised prototype included a step-by-step guided part finder, a product comparison feature, user-friendly warranty accessibility, and a streamlined return



process. These improvements were made through the use of usability principles such as Recognition over Recall, Jakob’s Law, and Nielsen’s Heuristics.

When analyzing the results from the prototype, quantitative results showed significant improvement in task completion time, user confidence, and user frustration. Qualitative results showed positive feedback from the surveys, with users indicating that the prototype was more efficient, user-friendly, and easier to navigate when compared to the original website. Overall, our findings indicate that a user-friendly, streamlined shopping interface can significantly improve the user experience, usability, and user satisfaction for users purchasing automotive parts online.

Overall Findings & Recommendations

The table below showcases the comparative metrics used for the original website and the redesigned prototype. Each metric is based on a sample size of six participants with the success rate included for each task.

Table 5 - Descriptive Statistics

Event	Metric	Original Site		Redesign Site	
		M	SD	M	SD
Task 1	Time	3:13	1:00	1:30	:45
	Lostness	~0.42	0.21	~0.12	0.08
	Post Task SEQ	2.2	0.55	4.83	0.14
	Success Rate	66.67%	0.19	83.33%	0.15
Task 2	Time	2:02	:42	1:21	:38
	Lostness	~0.37	0.20	~0.10	0.06
	Post Task SEQ	2.1	0.44	4.67	0.16
	Success Rate	50%	0.20	100%	0.00
Post-Session	SUS Survey	2.18	0.81	4.83	0.15

The table below showcases the results of independent T-Tests conducted to compare the usability metrics between the original website and the redesigned prototype. Each test used the same sample size as table 5. The significance threshold was set at  $p < .05$ , indicating the probability of the observed differences were caused by different variables is less than five percent. This suggests that the results are meaningful.

Table 6 - T-Test Results

Metric	t-Statistic	p-Value	Significant (Y/N)
Task 1: Completion Time	3.36	0.01	Y
Task 2: Completion Time	1.78	0.11	N
Task 1: Success Rate	-0.62	0.55	N

<b>Task 2:</b>	-2.24	0.05	Y
<b>Success Rate</b>			
<b>Post-Session</b>	-27.18	0.001	Y
<b>SUS Survey</b>			

### Task #1: Finding & Comparing Brake Pads

Task [#1]

Number of participants	12
% successful	[100%]

Finding #1: Lack of Guided Navigation Made It Hard to Locate Correct Brake Pads on the Original Site

Finding Screenshot:

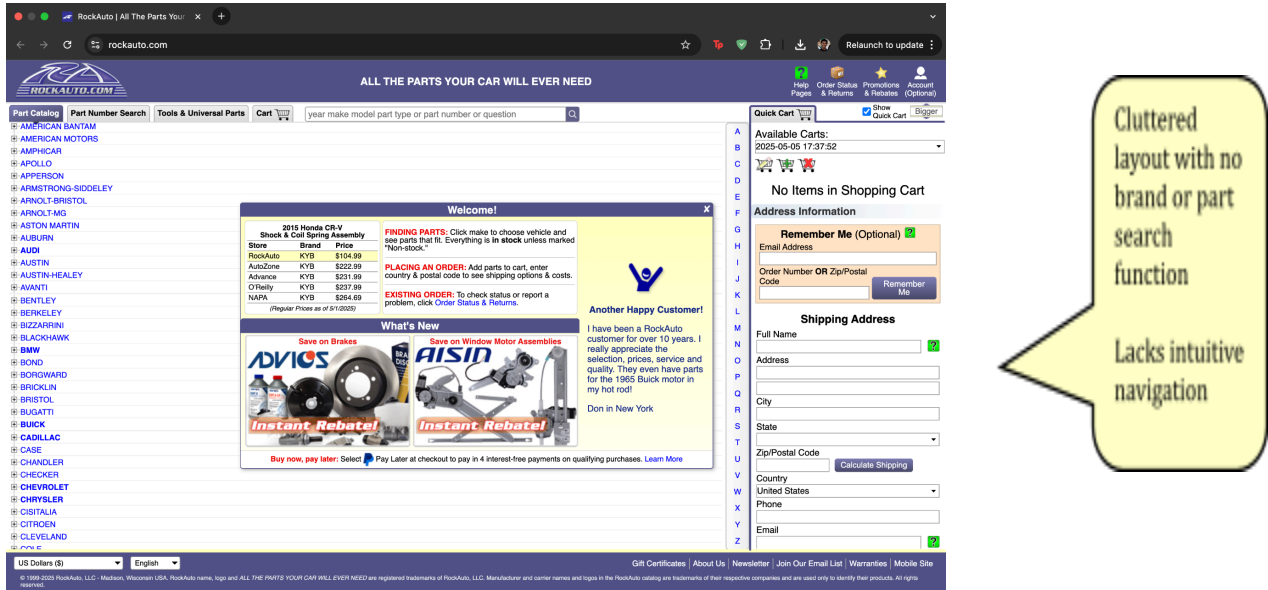
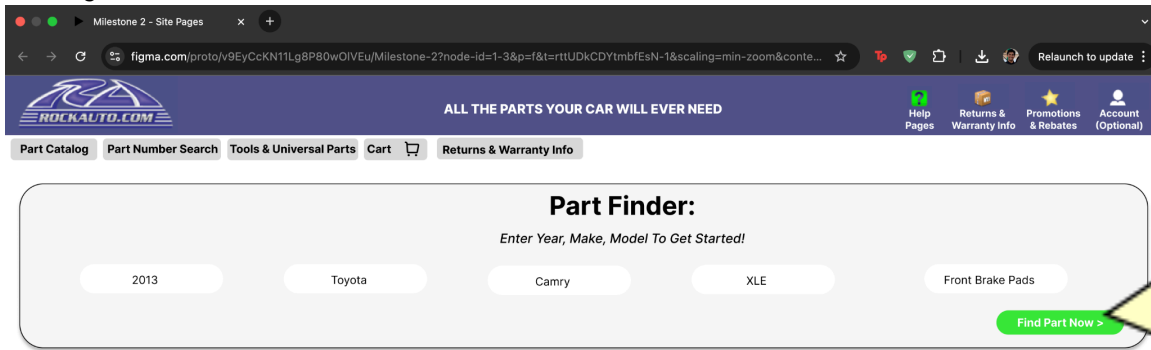


Figure 1 — Original website lacks any guided part-finding flow.

### Redesigned Screenshot



The screenshot shows a web browser window with the URL `figma.com/proto/v9EyCcKN11Lg8P80wOIVEu/Milestone-2?node-id=1-3&p=f&t=rttUDkCDYtmbfEsN-1&scaling=min-zoom&conte...`. The page header features the RockAuto.com logo and the tagline "ALL THE PARTS YOUR CAR WILL EVER NEED". Navigation links include "Part Catalog", "Part Number Search", "Tools & Universal Parts", "Cart", and "Returns & Warranty Info". A secondary navigation bar contains "Help Pages", "Returns & Warranty Info", "Promotions & Rebates", and "Account (Optional)". The main content area is titled "Part Finder:" with the instruction "Enter Year, Make, Model To Get Started!". Below this, there are five input fields: "2013", "Toyota", "Camry", "XLE", and "Front Brake Pads". A green "Find Part Now >" button is positioned to the right of the last field. A yellow speech bubble points to the button with the text "Clear search bar to find the specific part you want".

**Figure 2** — Redesigned interface provides a clear, sequential part finder.

### Task #2: Locating Warranty Info and Completing a Return

Task [#2]

Number of participants	12
% successful	[100%]

Finding #2: Warranty and Return Processes Were Unclear on Original Site

*Finding Screenshot:*

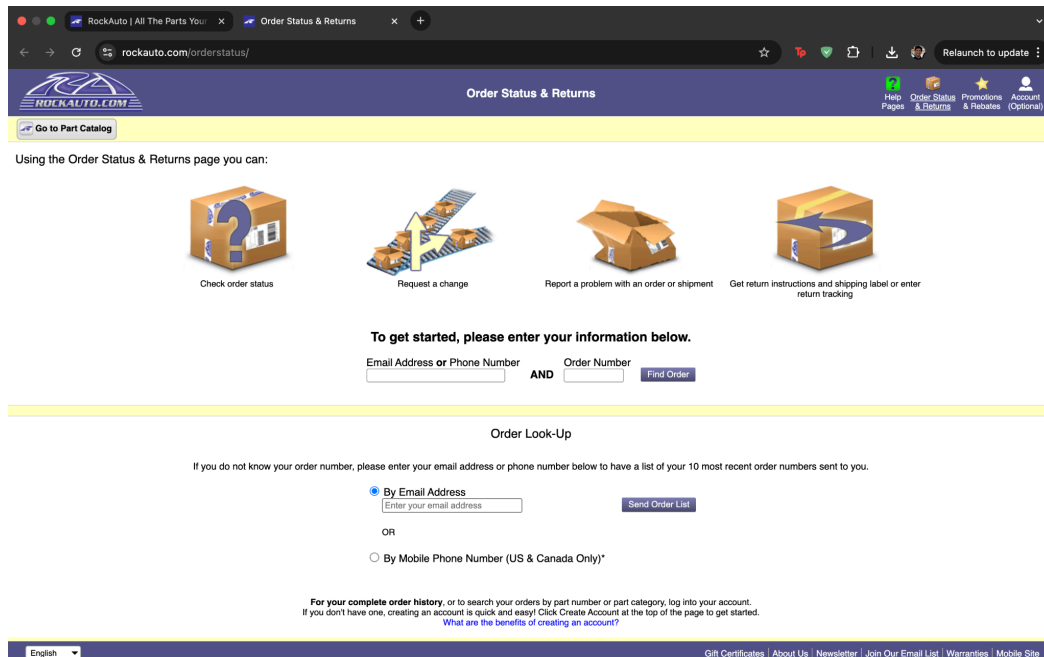


Figure 3 — The original return/warranty info is hidden in the navigation and has a cluttered layout

### Redesigned Screenshot

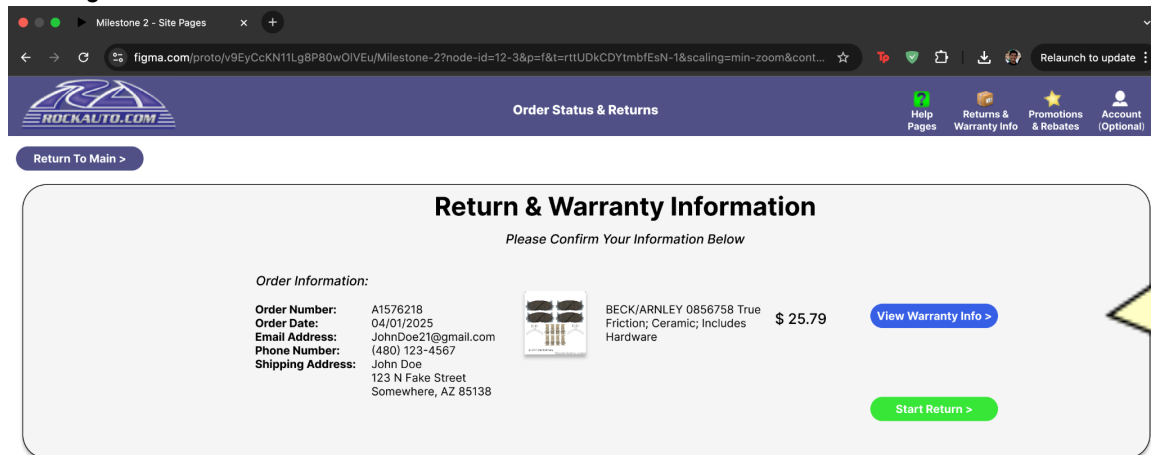


Figure 4 — The prototype clearly shows warranty and return options without multiple cluttered visuals.

Sample Findings	Sample Recommendations
<p>6 participants completed the task with ease (score of “2”) by finding the front brake pads for a 2013 Toyota Camry and adding one to the cart.</p> <p>0 participants needed prompting or had significant difficulty completing the task (score of “1”).</p> <p>0 participants did not complete the task (score of “0”).</p> <p>All 6 participants successfully found the brake pads by manually navigating through RockAuto’s category-driven menu system, selecting vehicle make, model, and part type. However, most noted that the terminology was confusing and the page layout overwhelming.</p> <p>Statistical evidence:</p> <ul style="list-style-type: none"> <li>• Average completion time: 01:30 seconds</li> <li>• Compared to the redesigned prototype, the original site’s navigation structure clearly caused increased cognitive load and decision fatigue</li> </ul>	<p><b>Implement a guided part-finder tool</b> that prompts users step-by-step for make, model, year, and part type—similar to popular automotive sites like AutoZone and Amazon.</p> <p><b>Use consistent, user-friendly terminology</b> for part names and categories—avoid mechanic-specific jargon where possible.</p> <p><b>Simplify the layout</b> by limiting the number of visual elements and comparison distractions on the product listing page.</p> <p><b>Integrate live chat and contact support</b> by adding real-time assistance. This will improve user trust and task recovery.</p> <p><b>Add confirmation and feedback cues</b> during checkout or returns.</p> <p><b>Maintain guided navigation tools across all the product categories</b> by extending the part finder brake pads to other complex auto components.</p>

## Limitations and Future Improvements

Our findings indicate that the redesigned prototype provided clear usability improvements. We do acknowledge that even with these significant results, our study had limitations. Primarily, we recognize that the sample size we used was quite small, at a total of twelve participants. This small sample size may not accurately represent the population of users that interact with this website. Future studies should expand to include a larger sample size and ensure a diverse pool of participants is used. Additionally, we believe that other website features should be looked at when conducting the next usability study (e.g., account management, finalizing checkout) to ensure efficient use of resources during the study.