



Usability Studies

TEAM

Grant Letz, Khuyen 'Max' Lam, Zoe Xiong

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Overview

Our team investigated REI.com (<http://www.rei.com>), the online retail website for Recreational Equipment Incorporated (REI), a privately held retailer organized as a consumer co-op. REI sells outdoor recreation gear.

REI sells a large variety of products, but uses one approach. There may be distinctions in how customers shop for different products. Our study seeks to identify, analyze and compare these patterns.

In this report, we will discuss the study protocol, our findings, and our recommendations based on what we learned.

Project Description

The project description from REI requested that we study shopping paths for product dichotomies. In other words, choose a product characteristic to serve as the axis for a dichotomy, and have participants shop for a product type from each end of the axis. The project description lists several sample product dichotomies:

- a. Technical products (packs, tents, etc.) vs. non-technical products (clothing, etc.)
- b. Products that require fit (packs, footwear, etc.) vs. products that don't require fit (sleeping pads, etc.)
- c. Inexpensive products vs. expensive
- d. Products that require advice from experts vs. those that don't
- e. Etc.

We chose to test the first two dichotomies, however, it is useful at this time to also note the fourth dichotomy: Products that require advice from experts vs. those that don't.

Our study differs from most usability studies in that we are not testing usability, per se. Instead we will identify and compare differences in shopping patterns. Instead of testing participants' ability to complete a set of tasks, we will look at what participants do and where they go within the website as they shop for various product types.

Research Questions

These were our initial research questions, but they evolved during the course of the study.

- a. Is there any difference in shopping patterns resulted from different dichotomies of products? (e.g. technical products vs. non-technical products and products that require fit vs those that don't)

- b. What is the degree of difference between patterns within each dichotomy?
- c. What kind of differences exist?
- d. How do these dichotomies affect users in finding, evaluating and shopping for various product types on REI.com?
- e. What recommendations do these dichotomies indicate for REI.com?

Methodology

Due to our constricted schedule, we used a combination of lab testing and remote testing to increase the number of participants and gather as much information as possible. We recruited eight participants for lab tests and nine for remote tests. For lab tests we used Morae as our test platform. For remote tests we used UserTesting.com, an online service.

Differences between the lab tests and remote tests were such that it was difficult to combine the study descriptions and findings, so we will present them separately. The main differences were that the remote tests were unmoderated and each test session was limited to 15 minutes. The lab sessions were under moderation and were limited to one hour each. The participant recruitment process also was different for lab vs. remote.

Despite these differences we believe the remote results and lab results can be combined to tell a consistent, high-level story about shopping patterns for different products on desktop and mobile platforms.

Funnel Model

In order to study patterns we thought it would be useful to adopt a model that would help us structure our thinking. In our initial meeting with REI we asked our contacts how they thought of their website at a high level. They told us REI.com is based on the sales funnel model, in which users move through progressive stages of attraction toward a final purchase decision. We didn't feel a need to consider other models.

We researched sales funnels and found that even though it is a somewhat loosely defined model, there is consistency in its generalities. For example, the number of funnel stages ranged from four to as many as six or seven, but the vast majority of sales funnels we saw had four stages. For sales funnels with four stages the terms for the stages are almost always Awareness, Interest, Desire, and Action, in that order. Further, we found that there appears to be a standard color convention for representing these four stages.

Prior to the study we defined each stage of the funnel as a specific section of the REI.com website. This didn't require a lot of thinking. The site naturally maps to the four stages:

- a. Awareness: The homepage
- b. Interest: All content after the homepage and before a product page
- c. Desire: All product-grid pages
- d. Action: All single-product pages

In examining the homepage we identified what we felt would be the likely starting points for participants. Then we followed a simple path from each starting point to an individual product page. Individual product pages are the first opportunity for a user to Add to Cart. We couldn't test actual purchases, so it was reasonable to define these pages as the final stage of the funnel.

The funnel stages, homepage starting points, and example paths are shown in figure 1.

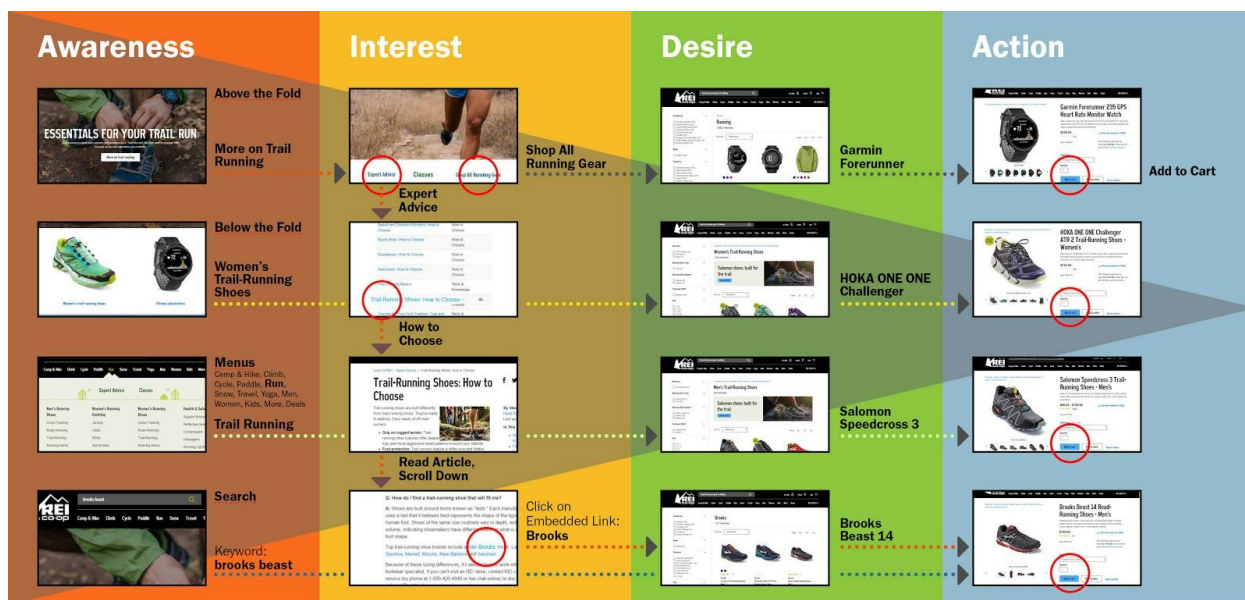


Figure 1: Four Shopping Paths

REI wants to study the differences in customers' shopping patterns for different kinds of products. Four sample paths, starting at REI.com and ending at an individual product page, are shown above. Patterns are defined by data such as number, sequence, and kind of interactions. The time spent in each column, and when users move from one column to another, may be of special interest.

(Click image for full size)

Demographics

Our target user groups are outdoor enthusiasts across different backgrounds and levels of experience. We further sorted our possible participants into these subgroups:

- Gender
- Age group
- Favorite outdoor activities such as skiing, backpacking, hiking, climbing, etc.
- Experience level

- e. Mobile platform user or Desktop platform user
- f. Tech savvy or not
- g. Price constraints or doesn't care about price
- h. Familiarity with shopping at REI's website

Changing Homepage Contents

We realized soon after the project began that REI frequently changes the homepage contents of their website. It seems to change about every two weeks or so, and it rotates among themes based on various outdoor activities. When we did our preliminary interaction maps of the site the featured activity area was trail running. It included links to content in the Interest segment about trail running, and was interspersed with links to various trail-running product-grid pages.

When we began the lab tests the featured activity area was bike-packing. Another version of the homepage that occurred during the project was Clearance Sale. We left it to chance whether the featured activity area on the homepage would happen to correspond to any of the product types we asked participants to shop for.

We do not think the homepage feature had any effect on the lab results. Obviously, if there had been a feature directly on the homepage about any of the product types we asked participants to shop for our results might have been very different.

We do think that the homepage feature dramatically affected the remote mobile test results (See Desktop vs Mobile Findings).

The Study

Lab Study Description

Recruitment Methodology

For our recruitment process, we created a screener survey and distributed through social media groups that are oriented towards outdoor activities. Our selection process tried to include a diverse group of people across experience levels, tech fluency and specific interest within outdoor activities (e.g., trail running, mountaineering, biking).

Respondent Pool Profile

After three days of recruiting, we received 90 responses to our screener. Figures 2-5: Demographics of our respondents.

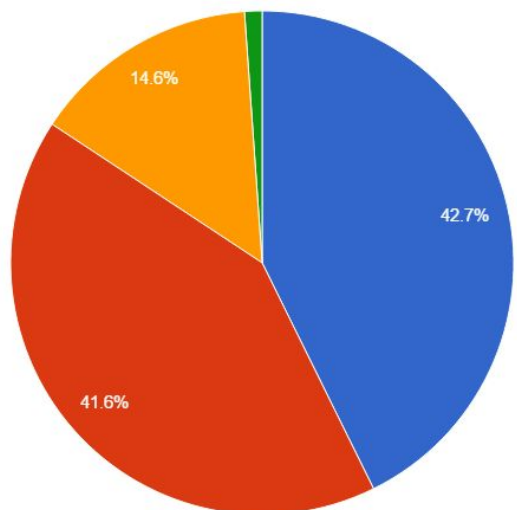


Figure 2: Respondent's Age Distribution

- 18 to 25: 37
- 26 to 39: 38
- 40 to 59: 13
- 60 to 74: 1

Figure 3: Respondent's Gender Distribution

- Male: 29
- Female: 59

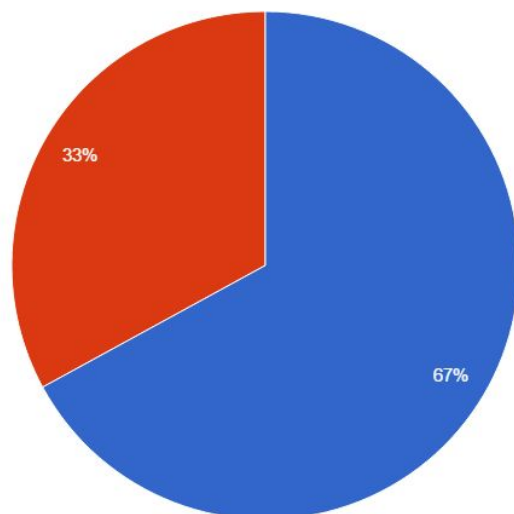
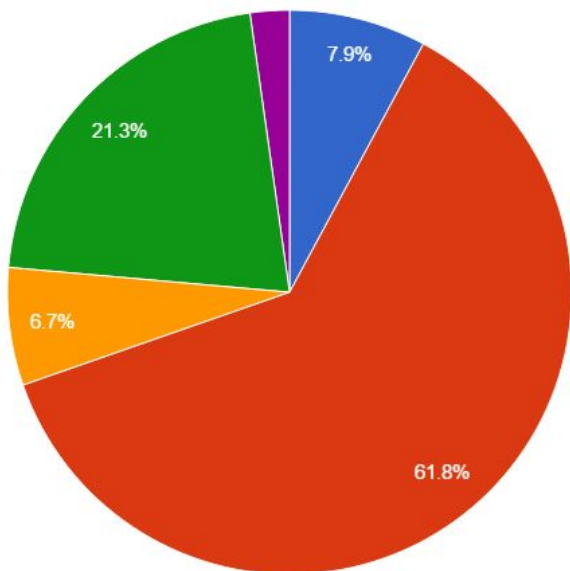


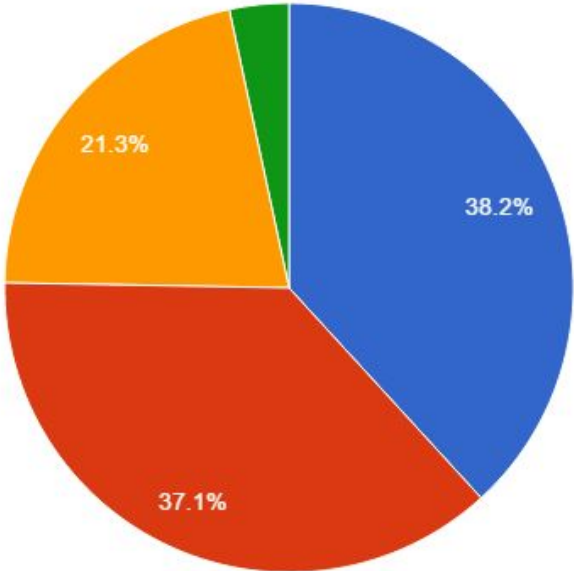
Figure 4: Response to the question, "How often have you visited REI.com?"



- Never: 2
- Once or twice a year: 6
- More than twice a week: 7
- Once or twice a week: 21
- Once or twice a month: 55

Figure 5: "How often do you do outdoor activities?"

- More than twice a week: 33
- Once or twice a week: 34
- Once or twice a month: 19
- Less than once a month: 3
- Never: 0



Participant Selection

We tried to select a broad range of participants. However, scheduling was difficult due to the short notice and the commute. Even after scheduling eight lab participants, there were three cancellations. Ultimately, participant selection was heavily contingent on availability. However, we were still able to recruit a diverse set of participants:

#	Background	Pattern
1	Female, 18 - 25, primarily a runner, does outdoor activity 10> a year, a decade of experience	<ul style="list-style-type: none"> a. Did not know the 'Compare Feature' and opened 12> tabs b. Very price sensitive, and sorted everything from low to high
2	Male, 18 - 25, primarily a hiker/runner, 1 - 5 years of experience, does outdoor activity 10> a year	<ul style="list-style-type: none"> a. Very methodical and knew what features he needed and used filters efficiently
3	Female, 49 - 59, primarily a hiker, 10> years of experience, does outdoor activity 10> a year	<ul style="list-style-type: none"> a. Experienced with the outdoors, but a little unfamiliar with web technology - knows a lot, but doesn't know how to apply it
4	Male, 18 - 25, primarily a climber, 5> years of experience, does outdoor activity 10> a year	<ul style="list-style-type: none"> a. Very experienced hiker and mountaineer who shopped by brand loyalty based on experience b. He was concerned about the reliability of REI reviews and consulted third party review sites for 'professional opinion'
5	Female, 18 - 25, primarily a hiker, goes outdoor 6 - 10 times a year, 1 - 5 years of experience	<ul style="list-style-type: none"> a. She relied on the product description to make her purchases b. She did not use specs most of the time, and when she investigated it, she did not understand the terminology
6	Male, 26 - 39, primarily a hiker, goes outdoors 10> a year, 10> years of experience	<ul style="list-style-type: none"> a. He didn't know a terminology ('heel to toe drop') and it did not appear on the expert advice. He had to do a search and it came up empty. He was lucky it was in the video.
7	Female, 18 - 25, primarily a hiker, goes outdoors 10> a year, 1 - 5 years of experience	<ul style="list-style-type: none"> a. She decided to buy two pairs of the same shoes and return one, costing REI money - she couldn't figure out what would fit for her b. She struggled with terminology and Googled it
8	Male, 18 - 25, primarily a hiker, goes outdoor 10> a year, 1 - 5 years of experience	<ul style="list-style-type: none"> a. He needed guidance and wasn't familiar with sizing and products b. He was very frustrated with finding proper

socks

Lab Procedures

Our 8 participants were asked to arrive to the study 10 minutes early. After they were greeted and seated, the participants were given REI's NDA form, our consent form, and a document that introduces the study and tells them what they should expect.

Afterwards, the participants were asked to read aloud a document with an outdoor scenario. There were four such scenarios. Each scenario directed the participant to shop for and purchase a specific type of product. They were reassured by our team to take as much time as they needed, and shop as if this scenario were a real trip. Our team also asked for the participant to voice their thought process aloud.

After each scenario task, the participant was asked to fill out a post-task survey.

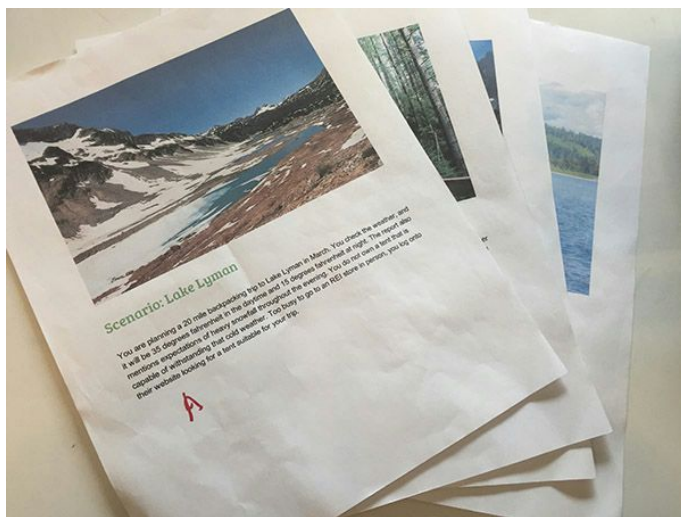
If there was time remaining after the four scenarios, we asked participants to perform some extra tasks related to shopping patterns, usability, and their perception of REI.

Scenarios

Our study design included four realistic outdoor scenarios and asked participants to shop for a particular product type specific to each scenario.

The scenarios' and product types corresponded to the dichotomies:

- a. Requires fit /
Non-fit soft good
- b. Technical product /
Non-technical product.



#	Scenario	Item	Category
1	Running at Tiger Mountain	Trail Running Shoes	Product that requires fit
2	Backpacking at Lyman Lake	Four Season Tent	Technical Product

3	Strolling by Puget Sound	Wool Socks	Non-technical soft goods
4	Thru-hiking Wonderland Trail	Sleeping Pad	Product that requires no fit



Scenario 1: Running at Tiger Mountain

You are interested in adding a new exercise routine involving trail running each morning at Tiger Mountain. You feel your current running shoes is not adequate enough to protect yourself from the terrain of the wilderness, so you decide to buy trail running shoes. You log onto REI's store to find footwear to suit your needs.



Scenario 2: Backpacking at Lyman Lake

You are planning a 20 mile backpacking trip to Lake Lyman in March. You check the weather, and it will be 35 degrees fahrenheit in the daytime and 15 degrees fahrenheit at night. The report also mentions expectations of heavy snowfall throughout the evening. You do not own a tent that is capable of withstanding that cold weather. Too busy to go to an REI store in person, you log onto their website looking for a tent suitable for your trip.



Scenario 3: Puget Sound

You plan on taking walks along Puget Sound, but you have had an issue with the rain wetting your shoes, socks and feet. To protect your feet, you decide to buy wool socks. You log onto REI's site to make a selection.



Scenario 4: Thru-Hiking Wonderland Trail

You are planning to thru-hike the Wonderland Trail in late May. You realize it will take at least a week, and the trail is 90 miles long. Good rest and comfort is very important, and you must be insulated from snow-covered ground, so you search for a sleeping pad. You check REI's website to look at a variety of sleeping pads to best fit your needs.

Time-remaining Tasks

#	Task
1	<p>Shop for a Product of Your Choice</p> <p>We asked participants if there was a type of outdoor gear that they hadn't decided on yet, but were planning to buy soon. Then we asked them to shop for that item.</p>
2	<p>The Compare Feature on Product Grid Pages</p> <p>Task Instructions: You've needed a new pack for some time. There are three packs you've had your eye on for a while, The Patagonia Ascensionist 45 The Osprey Exos 48 and the Granite Gear Blaze A.C.</p>

	<p>(2, cont'd.)</p> <p>but you can't make up your mind because there is so much to consider.</p> <p>You wish you could see these three packs and their information all on one page. Please click on the Camp & Hike menu, and then on Backpacks, and see if you can find a way to do that. Let me know when you're done.</p>
3	<p>About REI</p> <p>Task Instructions: On REI.com, near the bottom of the page there is some green text that says "WHO WE ARE". Please click that link and read the brief article titled "About REI."</p> <p>There will be a brief questionnaire when you've finished reading.</p>

Testing Environment

Most of our testing was done in the LUTE lab at University of Washington.

The note taker and facilitator sat on one side of the divider to observe and manage the technical components of the study. The user and moderator sat together on the other side of the divider.



Data Collection

We collected both quantitative and qualitative data. We used Morae to record every session and kept notes to log qualitative data. We also anticipated that the testing software, Morae, would automatically record a variety of data that we hoped would paint a picture of a shopping pattern. However, for some reason Morae only recorded all the data we wanted for the first session. We had to rely on our notes and video review to fill in what was not recorded. We collected a large quantity of data and data types, but because of the recording glitch that caused us to take extra time for video review, we didn't have time to analyze all of it.

Quantitative:

- a. Mouse clicks
- b. Scrolling
- c. Web page changes
- d. Time per funnel stage
- e. Funnel Stage entries and exits
- f. Total page viewed

Qualitative:

- g. Verbal comments
- h. Questions
- i. Actions
- j. Notes by observer
- k. Path starting points

We logged participants' verbal comments and actions using our note-taking form and added notes to record important thoughts while observing participants. We also counted how many people used certain functions, such as product reviews and specs.

We counted the number of tasks that started from each of:

- a. the menus,
- b. homepage content, and
- c. search.

Also, the top item in every menu is a separate section from the bottom. The bottom section lists the expected product-related options, but the top section has a different typographic treatment and a photo background. It provides access to what we're calling an Activity Area Topic Page, in the Interest stage of the sales funnel. We counted this as a separate starting point from the product-related menu content, but no lab participants used this option.

Lab Shopping Patterns

Every participant went directly from the homepage (Awareness) to a product page (Desire), bypassing the educational content (Interest). Only one subject actually found Expert Advice and went back to the Interest stage to view it, although several subjects expressed confusion and/or desire for definitions and guidance once they arrived at the product-grid pages. This typically occurred while they were interacting with the product filters at the left side of the product-grid pages. Eight participants went from the Desire stage to the Action stage, but returned to the Desire stage without choosing to Add to Cart.

All eight participants eventually completed all tasks (simulated purchasing a product), but that may be because they were instructed to shop for and buy a product. See figure 6: Lab Shopping Patterns.



Figure 6: Lab Shopping Patterns.

We observed the shopping patterns of eight participants shopping for four different types of products. Four participants also shopped for a product of their choice. In total, we observed 36 different shopping tasks.

We evaluated REI's website as a classic sales funnel. The four stages of the funnel are shown in order from left to right. We recommend improved distribution of links to definitions and expert advice.

(Click image for full size)

Remote Study Description

After our team's lab tests were complete, we expanded to remote testing using a service called User Testing (usertesting.com). The remote sessions differed from our lab studies in both time limit and moderation. Unlike our hour-long lab studies, our remote test sessions had a 15-minute limit. Due to these constrictions, we were unable to have our remote users complete all four scenario tasks. We had to distribute the dichotomy shopping tasks among the nine participants, so we were unable to look at shopping dichotomies per user.

Testing Environment

We conduct our test using Participants' location will vary and they will use their own personal device.

Recruitment Methodology

The demographics of the remote test participants were different from those for lab participants. Our lab users were recruited over social media that targeted outdoor activities. However, User Testing recruits from a general population. We set up a screening questionnaire to help select participants, but we were not able to look into the results and choose participants. We only had control of the questions that were used to define rules for exclusion.

Our detailed questionnaire for lab test screening would not work with User Testing's tight restrictions. So we lowered the qualifications for remote recruiting. Also, we were not able to look at participants' profiles in the same depth as we could for lab participants. We couldn't access the remote screening questionnaire results, so all we can say about remote participants is that they all cleared the bar for participation. However, based on observation, most of the remote test participants seemed to be at a beginner or novice level with regard to outdoor activities.

Remote Procedures

We set up tasks for different participants and added a pre-written description to help the participants have the right mindset before the test. We explained who we are and what we are studying, and also asked participants to follow the "think aloud" protocol. We used the same scenarios that we used in lab tests. But due to the time limitation, we only had two scenarios for each participant. We had one extra task for participants when there was remaining time. Due to the time limitation, we didn't have time for post-task surveys. Instead we designed a post-test survey to let participants rate the overall experience with REI.com.

Tasks

#	Scenario	Item	Category	Number of Participants	Platform
1	Running at Tiger Mountain	Trail Running Shoes	Product that requires fit	6	3 mobile, 3 desktop
2	Backpacking at Lyman Lake	Four Season Tent	Technical Product	3	mobile
3	Strolling by Puget Sound	Wool Socks	Non-technical soft goods	3	mobile

4	Thru-hiking Wonderland Trail	Sleeping Pad	Product that requires no fit	6	3 mobile, 3 desktop
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Three participants were asked to shop for a technical product and a non-technical product on mobile. Six participants shopped for a product that requires fit and a product that requires no fit, three on mobile, and three on desktop.

Time-remaining Tasks

#	Task
1	Shop for a Product of Your Choice We asked participants if there was a type of outdoor gear that they hadn't decided on yet, but were planning to buy soon. Then we asked them to shop for that item.

Six participant did this task.

Data Collection

Usertesting.com doesn't provide as much quantitative data as Morae. Because of this we had to log data manually so we had less data to analyze.

Qualitative:

- l. Verbal comments
- m. Path starting points

We counted a number of tasks that started from each of:

- d. the menus,
- e. homepage content, and
- f. search.

We also recorded the time used for each task and compared task times within each dichotomy.

Findings

Product Dichotomies

We counted the number of individual-product pages viewed per task and per user in lab tests:

Participant	Task A (Tent)	Task B (Sleeping pad)	Task C (Shoes)	Task D (Socks)	Total
1	4	6	3	1	14
2	3	3	1	2	9
3	1	2	7	1	11
4	2	3	2	1	8
5	6	25	5	4	40
6	1	2	3	5	11
7	4	5	3	4	16
8	2	3	1	3	9
Total	23	49	25	21	

If we remove the outlier number of pages viewed by participant 5 when shopping for sleeping pads, the total number of product pages viewed per task is similar.

We counted time spent per task using remote test data and compared it within each dichotomy.

Dichotomy	Technical (tent) > Non-technical (socks)	Technical (tent) < Non-technical (socks)
number of people	3 out of 3	0
Dichotomy	Requires fit (shoes) > Requires no fit (sleeping pads)	Requires fit (shoes) < Requires no fit (sleeping pads)
number of people	4 out of 6	2 out of 6

We found that the dichotomies between product types weren't as distinct as the dichotomies between user types. However, when we set our minds to quit thinking about the individual participants and to start thinking about the products they shopped for we realized that most of the difficulties we observed, or negative comments we heard, occurred for just three of the product types: tents, (technical product), running shoes (product that requires fit), and socks (non-technical product).

We really didn't expect socks to be difficult to shop for, but of all the participants and all the tasks from both lab and remote testing, only one shopping experience was given a satisfaction rating of 1 on a scale of 1 to 5: socks. However, the problems we saw with socks were unrelated to the problems we saw with tents and running shoes. Socks seemed to suffer from being too common to too many activities. Just trying to choose the right menu was an issue. The menus represent eight general activity types plus menus for men's clothing and for women's clothing. Many of the activities menus include footwear among their menu items. There are hiking socks, ski socks, running socks, casual wear socks, etc.

Even after selecting a menu item that led to a display of socks options, many participants had trouble choosing the right set of product filters on the left side of the product-grid pages. One of the participants said, after becoming frustrated with trying to get the product filters to show the product selection he wanted, "Oh, I see. I'm getting a lot of ski socks here." And yet another participant wished there was a filter for eliminating "flashy patterns" from the socks displayed on screen. The problem with socks seemed to be mostly a case of being overwhelmed with too many menu and filter options, or lack of the just-right option.

The difficulties we saw with tents (technical product) and trail-running shoes (product that requires fit) seemed to be of a different type than that of socks. While shopping for trail-running shoes, several participants commented that they didn't know the term "heel-to-toe drop", which is one of the filters available for running shoes. Only one participant had the patience and determination to actually find content explaining the term. After he found a list of Expert Advice articles he chose to read an article on How to Choose Trail-Running Shoes. Once at the article he did a text search for heel-to-toe. The search came up empty. Luckily for this participant, the article was accompanied by a video on the same subject. This intrepid participant actually chose to watch the video and he finally found an explanation of heel-to-toe drop in it. We doubt that many users would have the same amount of patience or time. This particular participant was the only one of eight lab participants to use the entire session time of one hour for the four main shopping scenarios. He did not get to do any of the time-remaining tasks.

While shopping for tents, several participants commented that they didn't know the filter terms under Seasons: "2-season, 3-4-season, 3-season, 4-season".

The nature of the problem with tents and running shoes seems different from the issue with socks. Tents were an example of a technical product, and trail-running shoes were an example of a product that requires fit. Both “technical” and “requires fit” are terms that are open to interpretation. Further, the counter examples for each of these product types, socks and sleeping pads, also both have size options, and are somewhat technical. So it seems that it’s not so much whether a product is technical or requires fit, but the degree to which it is technical or requires fit, that impacts it’s shopping pattern. And since these terms are somewhat arbitrary and open to interpretation, we suggest that what really affects a product’s shopping pattern and would be more useful as a general measure, is the product’s associated complexity. We would include socks in this complex products category, except for socks it is a different kind of complexity.

There are no definitions available for terms in the filters on product-grid pages, and there are no links from the product filters to the Expert Advice information on how to choose various types of outdoor gear. These should be provided for products that have complex terminology and/or usage scenarios.

It seems this problem could be attacked from two directions: the bottom or the top.

From the top would be to survey the products REI sells and rate each of them on a complexity scale. Products with higher complexity ratings would be first in line for adding filter term definitions and links to expert advice. This approach likely would be more expensive and require more effort, but would be more thorough.

To attack from the bottom would be to simply do an audit of filter terms independent of products and pick out the most technical or least likely to be understood, and provide definitions for these terms on product-grid pages. The terms would likely be a good proxy for which products also might require links to expert advice.

It’s also interesting to note that shopping for sleeping pads produced by far the most trips (49) to an individual-product page, but we did not notice an unusual amount of frustration or other challenges for participants while shopping for this item.

To summarize the product dichotomies discussion, it seems a more useful product characteristic to evaluate than the dichotomies we have been studying is complexity. Further, it seems there are at least two different kinds of complexity to consider for REI products: depth (technical, requires fit, etc.) and breadth (socks, any other overly ubiquitous products). For depth we recommend providing definitions of filter terms with links to expert advice. For breadth, we recommend further testing of filters and menu items to add more where needed, or to eliminate them where they may cause confusion.

We believe that providing more effective access to decision-support content for online shopping will ultimately increase shopper’s confidence and ability to select the right

product the first time, and thereby increase customer satisfaction and reduce operating costs via fewer product returns.

Desktop vs. Mobile Findings

As we touched upon in Overview, the homepage content of REI.com changed right before we started the remote testing. During remote testing the homepage content was a big, red Clearance Sale ad that visually mimicked an open menu. It listed product-related options just as a menu does. Further, the remote tests were mobile-heavy, with six participants on a mobile platform and only three on desktop. We believe that the combination of the Clearance Sale ad that mimicked a menu, and the smaller screen size on mobile, combined to greatly influence the remote test results toward paths starting with homepage content.

When using the site on mobile, participants had a tendency to look at the homepage Clearance Sale feature if there was a product they were interested in, although most of the participants looked above the fold, and did not scroll further. When the homepage feature was Clearance Sale, five of six users clicked the clearance categories to begin their shopping path.

Participants who had specific features they wanted, e.g., brand or specs, started their path with the search bar instead of the homepage feature. However, we believe the homepage content is useful for some. The lone participant in our remote studies that did not browse the clearance section had trouble finding the task's product. He eventually returned to the homepage to look for deals. Even for experienced users, the homepage is still the nexus of REI.com. It is the most accessible part of the website and users cannot skip it. It is especially prominent on mobile.

We also saw that some page features that are not prominent on the desktop gain undue prominence when viewed on mobile. For example, the "People Also Viewed" feature on individual-product pages was an often-used feature in mobile remote testing, but for the task we asked participants to perform it should have been largely irrelevant.

A positive is that users can find new products to fit their needs, especially when they do not have a precise idea what they want. Also, users will be exposed to potential brands they may normally ignore. However, one issue regarding this shopping pattern is the curated section may have different features than a user's requirement. The user may become lost in a sea of products. See Recommendations for a visual example of this finding.

Another issue we noticed on mobile had to do with REI.com's navigation system. Some mobile participants were confused about what webpage they were on. One participant complained about the limited number of items he could find, but that participant was unaware he was browsing the clearance section, where only sale merchandise was displayed. We noticed there was no difference in the breadcrumb path

for sale items vs regular items, and there is no other indication that it's in the Clearance category except the "clearance" option is automatically checked in the filter on the product grid-page.

Another participant who viewed one REI outlet product listed in search results found that he wasn't able to go back to the homepage by clicking the REI logo at the upper left corner of the page. Instead he was re-directed to REI's outlet homepage. He then used the browser's back button to return to the REI.com homepage.

Also, due to the smaller screen and the increased need to scroll on mobile devices, mobile participants tended to scroll the breadcrumb path off the the top of the screen.

Finally, we were surprised to discover that the Compare feature on product-grid pages apparently doesn't exist when viewed on mobile. There were many positive participant comments about the Compare feature during the desktop tests, but when we asked participants to use the Compare feature on mobile most were quite disappointed and frustrated to find that it wasn't there.

Participants had expectations the feature would be consistently present, and expressed frustration when it wasn't. Some desktop participants opened multiple tabs or used the back button to compare and contrast different products. This is a larger issue on mobile because load times are slower and more clicks are required to jump between pages. See Recommendations.

Recommendations

Improve “People Also Viewed” Relevance

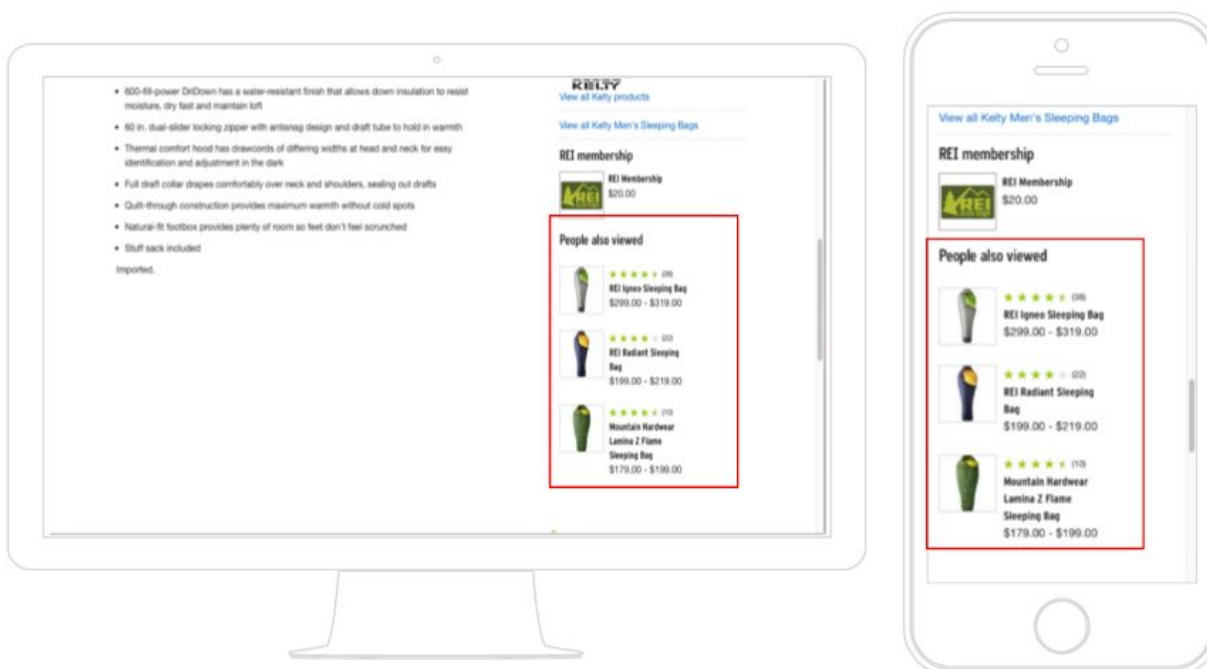


Figure 7: “People Also Viewed”

Above is the comparison between desktop and mobile product page.

On mobile, we observed that participants frequently used the “People Also Viewed” feature on individual-product pages, apparently because it’s more accessible than to go back to the product-grid page and click on another product. One issue is that this is not necessarily relevant to what the user is looking for. Our team recommends REI try to account for unintended differences in prominence of features when viewed on mobile.

Literature Accessibility

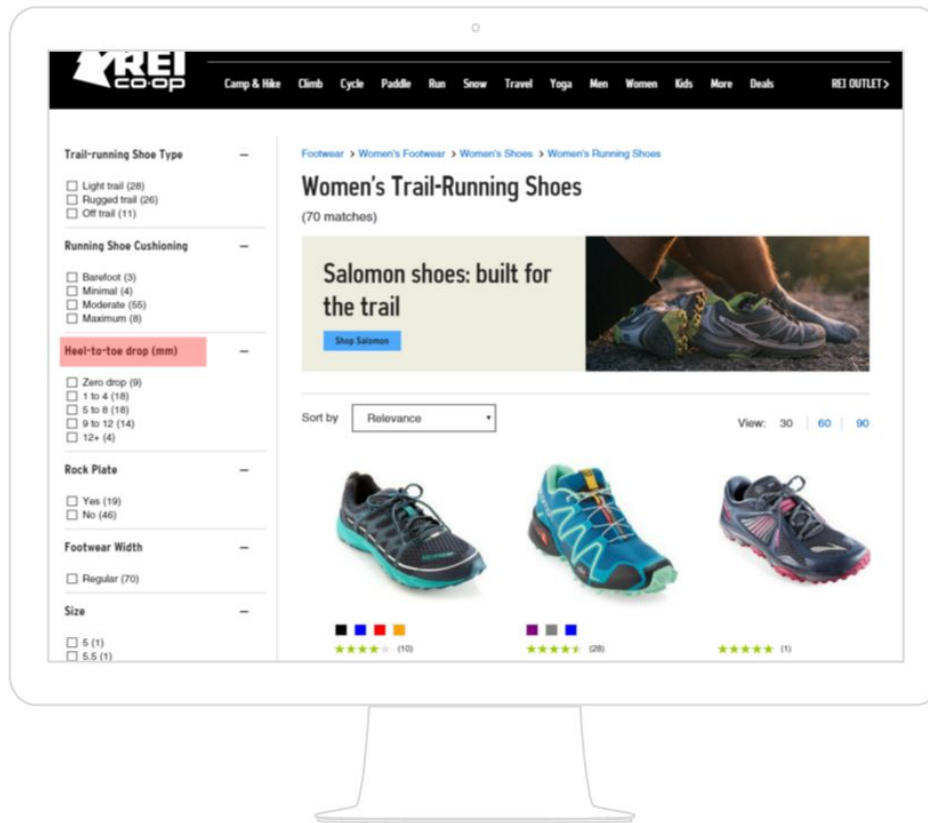


Figure 8: “Heel to Toe Drop”

The figure above is the trail running product page, which users would encounter in our ‘Running at Tiger Mountain’ scenario. Highlighted in the image is the term ‘heel-to-toe-drop,’ which confused our users.

In our lab testing, users struggled with technical terminology such as ‘4 season tents’ or ‘heel-to-toe’ drop and only one out of eight users was able to search for an article that answered their question regarding their desired product.

Our usability test recruited participants from varying levels of backcountry experience. While others partook in extreme sports such as mountaineering and had over ten years of experience, there were also participants who were casual hikers with less experience and knowledge regarding gear. Even among the seasoned participants, there was confusion with certain technical terminology when confronted with a scenario that asked them to shop for a specific type of outdoor activity they were not familiar with, such as ‘heel-to-toe-drop’ in trail running shoes.

Among the eight lab tests we conducted, only one user was able to find the information he needed in a video. However, that video did not specify it would discuss heel-to-toe-drop, and the participant stumbled on the definition by luck.

REI.com has a wealth of knowledge to inform its customers, but it is not always apparent. Our team suggests that REI.com index their articles clearly and provide links to definitions and clarification on product pages.

Compare Feature

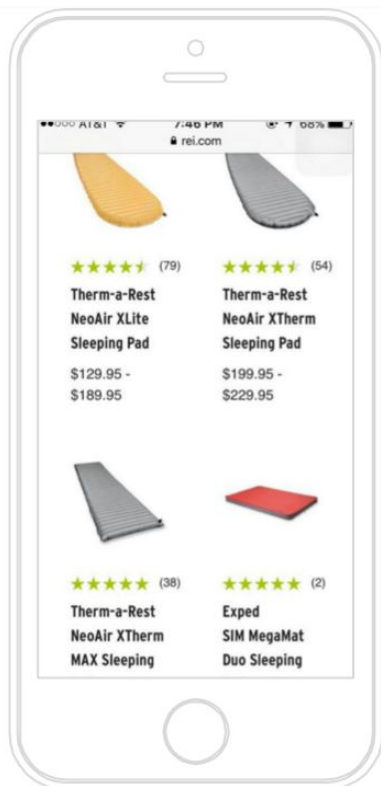


Figure 9: “Mobile Compare Feature”

The image at left is a screenshot of REI’s mobile site. A feature that users appreciated on the desktop site called “compare” is absent from the mobile site.

Participants have the option to use REI’s “Compare” feature throughout all four scenarios and in one time-remaining task, which specifically asks for users to locate this feature. Participants who were either tech-savvy or familiar with REI used the feature without prompting, while others were not aware of the feature. Our first participant opened twelve separate product page tabs to compare between the different items, and was delighted upon discovering the compare feature during the time-remaining task.

Technical features are of importance to shoppers looking for outdoor products. Factors such as material and weight are taken into consideration. The “compare” feature at REI allows participants to drop wares into a pop-up footer and view the specifications of the product side-by-side.

It was absent on at least three occasions:

1. The individual-product pages
2. REI’s mobile site
3. Related products listed on a failed search page

Our team suggests that REI’s design team place the “compare” feature consistently across platforms and pages, and other displays of products.

Fuzzy Search

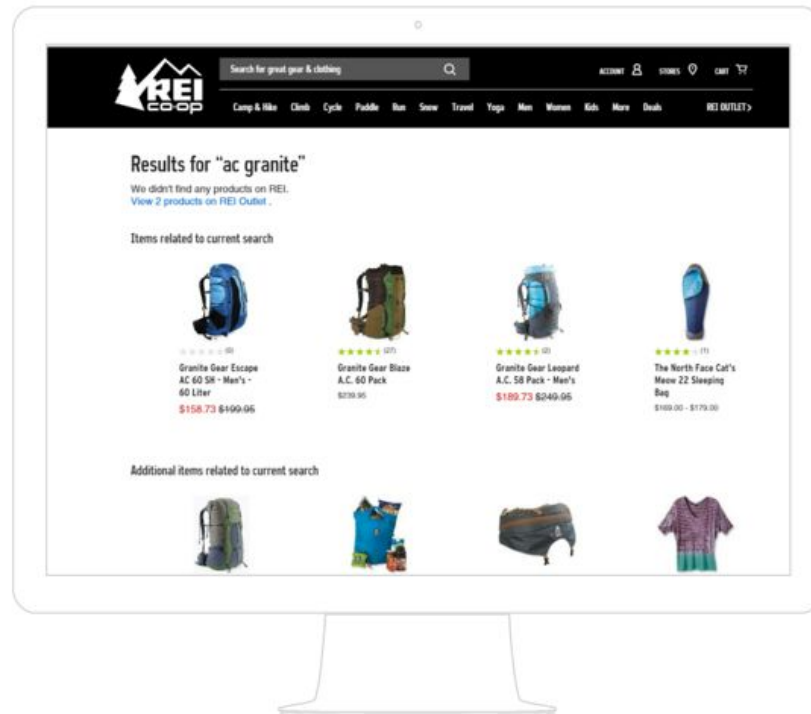


Figure 10: "Search Issues"

The figure above was during a post-task. The participant tried to search for a specific backpack, but because she missed a period in "A.C. Granite" (the backpacking model). Consequently, the search failed.

In one of our post-tasks, one of our participants was frustrated because her search failed when she missed a period. She did not understand why she could not find the product, and had to defer to 'related products' below. Our team suggests REI improve their fuzzy search parameters to prevent this issue.

Reviewer Profile

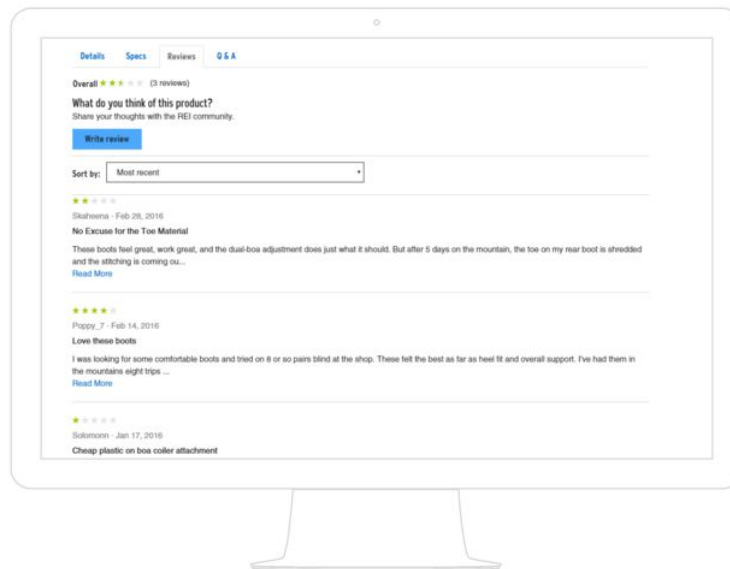


Figure 11: "Review Trustworthiness"

The figure above shows reviews from a product page on REI. At least one user found the reviews distrustful because there was not context on the reviewer.

Product reviews have an important role in convincing users to purchase a product. In our usability study, we had one participant who skipped the product description and jumped to read reviews to ascertain how she felt about an item.

One participant who was an experienced mountaineer voiced a troubling opinion that he found REI's reviews unreliable. His reasoning is that REI serves a very large customer base with unverified and varying levels of experience and expertise. He did not trust these anonymous reviews, and would often research a product on third party sites such as Outdoor Gear Lab, which is operated by professional outdoors people.

Another participant made a semi-related statement where she was not entirely sure whether or not she could fit shoes in our 'Trail Running at Tiger Mountain Scenario.' After reading REI's return policy, she decided to buy two shoes and return whichever was a poor fit. Such shopping habits cost REI money.

Our team recommends that REI includes a user profile for the reviews. This is utilized on websites such as Modcloth.com, as displayed in the figure below.

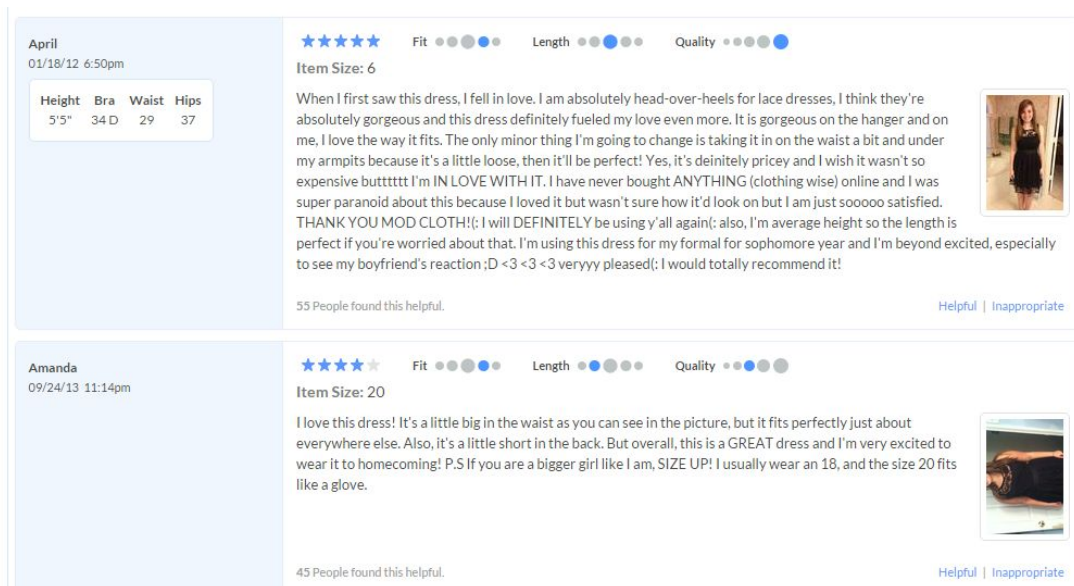


Figure 12: “ModCloth Reviews”

Modcloth.com is an online retailer that specializes in clothing, and each review includes a user profile that specifies their customer’s measurements.

REI could have a similar feature to ModCloth that includes a user profile that asks for measurements, but their years of experience and level of expertise regarding what sport the product is used for.

Navigation

We recommend that the mobile breadcrumb path include some visual indication when the product display is being automatically filtered, for example, for Clearance items.

We also recommend users not be put into virtual modes where navigation doesn’t work as expected, for example, we saw that sometimes clicking the REI logo leads to REI’s outlet site instead of REI.com. See Desktop vs. Mobile Findings.

Summary

In summary, we set out to identify and compare differences in shopping patterns on REI.com for product types at opposite ends of two dichotomies: technical product vs. non-technical, and product that requires fit vs. product that doesn't require fit.

We used two test methods: lab testing and remote testing. There were four main shopping tasks, in which participants were directed to shop for a particular type of product that fit each of four outdoor scenarios. If time allowed we asked participants to perform some time-remaining tasks.

Eight lab participants performed a variety of tasks on both desktop and mobile platforms: six on desktop and two on mobile. Lab test sessions were one hour each and all participants completed the four main shopping tasks.

Nine remote participants also performed a variety of tasks on both desktop and mobile platforms: three on desktop and six on mobile. Remote test sessions were only fifteen minutes each so we could not have all participants perform the four main shopping tasks. Instead the tasks were distributed among participants and we could not study shopping dichotomies per participant because of this.

There were also other significant differences in the test conditions, such as a Clearance Sale ad that was featured on the homepage at the time of remote testing. However, we believe that after accounting for the discrepancies between the two test methods they ultimately tell very similar stories.

In general, the entry points to the Interest stage of the sales funnel, which provides articles and expert advice on a range of topics, including how to choose the right products for your needs, are under used. This includes homepage content and the top-level items in each of the menus.

After leaving the homepage, most participants advanced directly to a product-grid page. At the product-grid pages most users made adequate use of the filters at the left side of these pages, but for certain products they were frustrated by lack of definitions for some terms in the product filters. Many participants also expressed a desire for more guidance or more information on how to choose when they were at the product-grid pages.

Some participants also became frustrated shopping for soft goods that don't require fit, specifically socks. This seemed to be an issue of too many options for finding and sorting socks, and lack of the just-right option.

We also found that participants liked the compare feature, and were generally able to use it easily, but were very frustrated when they expected it to be available in places that it wasn't.

On a personal note, we'd like to thank REI and our instructors for HCDE 517, Sean Munson and Brook Sattler, for providing the great learning experience we've had the privilege to enjoy this quarter.

Appendix

Source

Scenario Images

Figure “Tiger Mountain”:

<http://www.pinkbike.com/news/race-report-cascadia-dirt-cup-tiger-mountain-2015.html>

Figure Lyman Lake:

<https://northwesternimages.wordpress.com/2014/12/21/upper-lyman-lake-glacier-peak-wilderness/>

Figure Puget Sound: <http://www.zbaugher.com/zbaugher-com/photography/>

Figure Wonderland Trail:

<http://themountainnewswa.net/2011/02/18/beth-rossow-woman-of-the-mountain-siren-of-the-sound/>

Lab session videos (.mp4):

1: https://drive.google.com/open?id=0B_531MSRa8M-LTA1djM3SzBwYW8

2: https://drive.google.com/open?id=0B_531MSRa8M-U3FFaGU2UIRWbG8

3: https://drive.google.com/open?id=0B_531MSRa8M-Nmh2a3VPakpKNkE

4a: https://drive.google.com/open?id=0B_531MSRa8M-RINPc0VNbjJuc3c

4b: https://drive.google.com/open?id=0B_531MSRa8M-eHjiMIM1Yk1WUIE

5: https://drive.google.com/open?id=0B_531MSRa8M-ek4wRmUtSHVnelU

6: https://drive.google.com/open?id=0B_531MSRa8M-emstaDRjYUhaMIU

7: https://drive.google.com/open?id=0B_531MSRa8M-bUplNXdiRGdVMjg\

8: https://drive.google.com/open?id=0B_531MSRa8M-T0VrWDdsOC14ZTA

Remote session videos (.mov):

1: <https://drive.google.com/open?id=0B99tprghWk3mVGc0Rzc4ZXVBcUU>

2: <https://drive.google.com/open?id=0B99tprghWk3mMTRjY3NtRlB6NVk>

3: <https://drive.google.com/open?id=0B99tprghWk3mek9UVTJHUzhnVku>

4: <https://drive.google.com/open?id=0B99tprghWk3mNFd2VzlWam1tLWs>

5: <https://drive.google.com/open?id=0B99tprghWk3mWE14QW5mQWxnOHc>

6: <https://drive.google.com/open?id=0B99tprghWk3meG8xdi14bVh5RVU>

7: <https://drive.google.com/open?id=0B99tprghWk3mRlhjaVpyQk1nSGM>

8: <https://drive.google.com/open?id=0B99tprghWk3mcWc2Rlc2ZlEzT2M>

9: <https://drive.google.com/open?id=0B99tprghWk3mQml1TjFIVINxTlU>

Video Review Notes:

1

https://drive.google.com/open?id=1DrdUxQ4lxOo7sMVXgboDfNz-cGeBq_fLMVRp-a4auFg

2

<https://drive.google.com/open?id=1kh6lChc1R88ci5Fj6LuNEKD-k8VW2F8eel0GnS1yDNs>

3

https://drive.google.com/open?id=14Aqobfd7ftqwh6TEAa_roYb4AR04aucGj9BcyRSr7LQ

4,5,6

<https://drive.google.com/open?id=1TkRppkLiVWj7TTSon9F6fNiv6ef1-fnWD3NXt0x2L20>

6,7,8, and remote

<https://drive.google.com/open?id=1Hsj44mKlFBIqq5BH0Pa5-GB1ieDVXTh5RSusSgetFI>

Sales funnel: Interest Stage Content

<https://drive.google.com/open?id=1USoQboIUhMjDfpl-qhAdK5Iibod6YFjJQjuFOZcvmns>

About REI survey data:

<https://docs.google.com/document/d/1rbNMV0hQ4pA9wGvTniafhU6W5NGJ10N1D9FPgIw6bKs/edit>

Post-Task Surveys Data:

<https://docs.google.com/spreadsheets/d/1zV5Y4s0HYHP0pOEFsTfVGiTtF4oU-0Cx9tEACYZONGM/edit#gid=0>

Screening Survey (For Lab)

- 1) Please check each of the sessions you would be able to attend (if selected, you will only be asked to attend one session)
- 2) Gender?
 - a) Male
 - b) Female
- 3) Do you, or does anyone in your home, work for REI?
 - a) Yes
 - b) No
- 4) Which of the following best describes your age?
 - a) 18 to 25
 - b) 26 to 39
 - c) 40 to 59
 - d) 60 to 74
- 5) Which of the following best describes your annual personal income?
- 6) Which of the following describes your highest level of education?
- 7) What are typical activities you do on the computer in your personal time?

-
- 8) About how many hours per week do you spend on the computer?
- a) 0 - 10
 - b) 11 - 25
 - c) 26+
- 9) What computer platform do you usually use?
- a) Windows
 - b) Mac
- 10) Mobile platform?
- a) iOS
 - b) Android
 - c) Other
- 11) In the last year, how often have you visited REI.com?
- a) Once or twice
 - b) Once or twice a month
 - c) Once or twice a week
 - d) More than twice a week
 - e) Never
- 12) Which of the following best describes how you visit REI.com?
- a) From a computer only
 - b) Mostly from a computer, sometimes from my phone
 - c) 50% computer, 50% phone
 - d) Mostly from my phone, sometimes from a computer
 - e) From my phone only
- 13) Please check the box for each activity you have participated in during the past two years:
- a) Downhill Skiing
 - b) Snowboarding
 - c) Snowshoeing
 - d) Backpacking
 - e) Hiking
 - f) Camping
 - g) Climbing
 - h) Mountaineering
 - i) Cycling
 - j) Kayaking
 - k) Trail running
 - l) Yoga
 - m) Cross country skiing
 - n) Backcountry skiing
 - o) Canoeing
 - p) Paddle board
 - q) Cross training
 - r) Road running

14) How often do you do any of the above activities?

- a) Less than once a month
- b) Once or twice a month
- c) Once or twice a week
- d) More than twice a week

15) Of the above activities, which do you do most frequently?

16) How frequently do you do this activity?

- a) Less than once a year
- b) Once or twice a year
- c) 3 to 5 times per year
- d) 6 to 10 times per year
- e) More than 10 times per year

17) For how many years have you participated in this activity?

- a) Less than a year
- b) More than one year less than five years
- c) More than five years, less than ten years
- d) More than ten years

18) Please list any outdoor gear you purchased in the past three months.

19) Please list any outdoor gear you plan to purchase in the next three months.