

iExploreReviews



Final Project Report

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Introduction

Shopping online instead of going to a traditional "brick and mortar" store has emerged as a major trend amongst American consumers over the last decade (Levin et al). The tangibility of going into stores to touch and hold merchandise, talk to a knowledgeable salesperson for advice and reassurance and finally making a purchasing decision is becoming a thing of the past. A major shift is putting forth a different shopping experience and new consumer behavior - the new wave of an online commodity system. Consumers may browse numerous websites on the Internet and attempt to match what they want to the product or service information available. After much deliberation, a purchasing decision is made – whether right or wrong.

If a consumer who shops online knows exactly what they want to purchase, online shopping can be direct and hassle free, but if they are not exactly sure, it may be difficult to decide on a product without some additional assistance. In some cases an online consumer may not even know what they want or need in regards to use or features of a product, so they might be forced to decide based on product information given by a manufacturer or retailer without knowing what to expect until the product arrives.

Another problem that the online consumer faces in contrast to offline shopping is that online retailers have virtual warehouses of merchandise. In the past they may have had 20 digital cameras to offer a consumer, now retailers have hundreds of choices. Online retailers are attempting to help the online consumer navigate through stores and information repositories, as well as to assist the consumer in making a purchasing decision. To address this need, websites now offer the balance of professional and amateur product reviews. As a service to the online consumer, they can read comments about other consumer experiences and opinions, thus helping to manage all the data sources and information about the products they offer.

Today, there are hundreds of online consumer product review websites. Unless an online consumer knows where to go to find product information and consumer reviews it can be a daunting task. Most people are aware of the popular review sites such as Amazon.com, Epinions.com, Consumer Reports, Buzzillions.com and CNET product reviews. Some of these websites have attempted to match what they think a consumer wants to specific product features and available consumer reviews (Wize.com), however none offer the ability to see what other consumers have written about allowing them to decide on a product for themselves.

Another problem is that writing product reviews has become so popular and many online reviews sites have so many reviews that most are buried so deeply that the information is not easily accessible. This corpus of information often gives a consumer too much to consider and in the end may make it even more difficult to make a purchasing decision. These two aspects of the consumer online product research experience - figuring out what you want to purchase based on what others have said, and wading through the abundance of product reviews - are what our final project attempts to address. Online consumers would benefit from the ability to map their own

needs and wants to what other consumers have written about, and to be able to have an interface which makes the tens of thousands of consumer reviews more easily accessible. iExploreReviews.com attempts to create a more consumer-friendly approach to online product research than what is currently available.

Problem Justification

The use of the Internet in our everyday lives has increased each year, with 74% of American adults (18 years and older) online. Product reviews and recommendations research is listed in the 2009 Pew Internet Survey as the 3rd most popular activity on the Internet, after email and using search engines, and online shopping comes in 5th (PEW). There exist a variety of different resources for finding product reviews and recommendations, ranging from Amazon to Yelp to Wize. The problem with existing solutions is that there are many reviews and products available on the market, and it becomes very time-consuming to browse through the amount of information available. We attempt to address these issues through various disciplines from the School of Information considering different aspects: user research, data aggregation, and information visualization. These aspects will be discussed in greater detail later in the report. Specifically, we are looking to provide a service that helps consumers to find relevant products based on their needs rather than the current method of searching through product features and specifications.

Current research shows that online consumer product reviews contribute to making an online purchase. An Amazon.com study revealed, "As we've watched Amazon customers make purchases on the site, we can clearly see that promoting the most helpful reviews has increased sales in these categories by 20% (one out of every five customers decides to complete the purchase because of the strength of the reviews). From this, we can project it has contributed to Amazon's top line by \$2.7 billion" (Spool). Amazon.com has found a way to get consumers to write comments about products. Other consumers then vote on whether the review was helpful. The results of increased sales indicate that the reading of consumer written product reviews is serving their customers well. This makes us consider that consumer reviews on other product review websites may be as valuable to consumers as the reviews on Amazon.com. Currently, if a consumer is interested in viewing the reviews from other websites they must visit each site individually. This is a time consuming process. We propose a system solution that would give the online consumer access to tens-of-thousands of consumer product reviews from hundreds of review sites in just one place.

The target market for iExploreReviews is a rather broad and diverse group of online consumers. Anyone who has access to the Internet, with basic skills in terms of navigating it, and those who are interested in conducting product research online are the consumers we hope to serve. We envision the target consumer to be someone who also may not know exactly what they want in terms of a product as that consumer tends to go directly to a retail website to make the purchase. The target consumer is someone who sees the value of doing their own product research and who wants to feel confident about a purchasing decision. Some consumer review websites, such as

Angieslist.com require the consumer pay for a subscription to see their reviews. However, we will not charge a fee for access to our site because we want to differentiate our offering as well as provide the consumer with an easy-to-use, hassle-free service.

How We're Different

Consumer-needs-first vs. Product-features approach to product research.

Currently, the online consumer can approach product research in a variety of ways. The following is a brief scenario of how one may go about looking for digital cameras on Amazon.com.

1. Select the department: Electronics
2. Select the product category: Camera, Photo & Video
3. Select: digital camera
4. Consider the choices - there are hundreds of cameras - click on a camera that looks interesting
5. Next, be presented with a webpage of product images, ratings, purchasing information, a link to the brand website, the choice between new, used or refurbished products. If you're interested you can see what other customers ultimately buy after viewing this item, or you can explore similar items, or see special offers and product promotions, and items frequently bought together.
6. Also, there are technical details, product details, product descriptions, more photos, accessories and product ads from external websites.
7. You can rate this item to improve your recommendations, scroll down and see customer reviews, see ratings in detail, see the most helpful customer reviews, rate the reviews as helpful or not, and create your own review. Next there is a customer discussion section.

On this one website there is a lot for a consumer to consider and if you want another perspective you can visit other websites. One of the problems with a website like Amazon is that the research process is product-centric, where the value seems to be more focused on product features than consumers intended use. Also, the consumer must wade through lots of information before they encounter consumer-written product reviews, and these reviews are written about only that one product. While reading reviews you may determine that the product will not address a particular need or use and must start the process again. Even doing this repeatedly does not ensure you will discover the reviews, which answer your questions.

iExploreReviews takes a different approach to consumer online product research. Instead of starting with the product and drilling down to consumer written reviews to determine if it aligns to specific wants and needs, iExploreReviews allows the consumer to start the product search process by looking at product feature topics written about by other consumers. The consumer can select the features, uses and experiences of interest, and then be presented with only products with those selected features as a

filter used to narrow choices. Instead of reading consumer product reviews and determining if the product is a good fit for their needs, only see reviews that have the features self-selected as important. There is a broad assumption that what consumers write about will be of interest to what other consumers consider important in making a purchasing decision. With Amazon's popularity of people writing, reading and rating consumer views we believe that consumer written product reviews are of value for the online consumer.

Our Process

Phase 1: Discovery Idea Generation and Brainstorming

Once the general concept of the project was decided, it was time to develop the idea into a useful service for our target users. The ideas were organized into an affinity diagram. Each team member wrote down concepts related to project ideas on sticky notes. These ideas were grouped into common themes to identify relationships or major links between ideas.

Five key characteristics surfaced from this session to be represented in the final project: 1. a website which creates a satisfying user experience and in the end they feel informed about a product and could confidently make a purchasing decision; 2. a user interface with a simple, clear and concise UI, with up-to-date information using the users' language; 3. present information in a way in which the user could manage feature choices, and the data could be filtered and analyzed; 4. show where data is from to create a level of transparency; 5. offer an incentive for the consumer to save time and feel informed and confident about a purchasing decision.

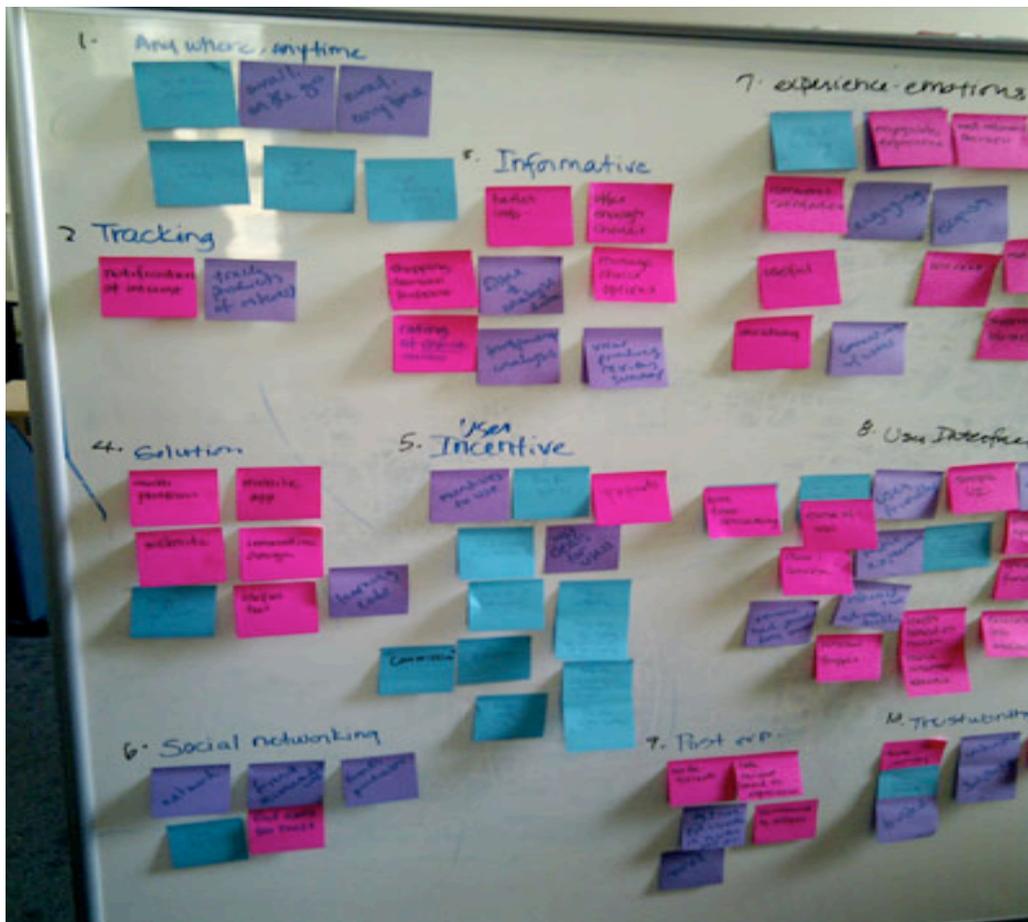


Figure 1: Affinity Diagram of project characteristics

Comparative Analysis

During the project discovery phase we surveyed some of the most popular consumer product review websites on the Internet (see Appendix A). What was revealed is that most of the websites encourage the consumer to look at products first, followed by reading related product information, and ending with viewing consumer written reviews. Only one website attempts to present products that are "best for how people want to use them." (Wize.com) Most give numerous details about product features, but don't take into account a consumer's intended purpose, and none seem to help the consumer in the discovery of what they want or need.

Below is a brief, high-level comparison of some of the most popular (based on Internet traffic) shopping and/or product research websites and how our project compares.

iExploreReviews is similar to these other product review websites in that it offers product related information and attempts to help with making a purchasing decision. The similarities include that they also often include consumer written reviews and price comparisons. However, it is important to take into consideration the incentive or motivation behind why these sites offer product reviews. These sites are not providing this feedback with the intent of helping consumers for the sake of making them better informed but because of financial incentives. Retail websites like Amazon.com or Bestbuy.com also allow customers to leave product reviews and share those reviews with other shoppers because they've learned that it helps to increase product sales. On the other hand, some product review websites provide this content but charge monthly membership fees and the rest earn affiliate revenue, which is revenue earned for referring customers and sales being generated.

iExploreReviews sets itself apart from these other product review websites in that it focuses on a user-centric design and navigation. Instead of offering an experience and navigation that focuses on product's features, iExploreReviews focuses the attention on frequently used terms that are mentioned in customer reviews by owners of the products. iExploreReviews aggregates consumer product reviews from websites across the Internet and uses the ones that it classifies as being potentially helpful to consumers. iExploreReviews then uses these selected consumer product reviews to define what are commonly mentioned items in that product category on a brand-by-brand basis. This provides consumers with a way to explore a given product category by selecting items of most interest to them. iExploreReviews also provides access to all of the consumer product reviews (rated helpful and those unrated) in order to be transparent with its consumers. Unlike other product review websites, iExploreReviews does not have financial incentives with providing this service but is attempting to make an impact with product purchasing research to make the process less time-consuming and leave the consumer with more confidence about purchasing a product because of the research.

Needs Assessment Process

At the start of the project the discussion revolved around developing a service that would help consumers with online shopping. Based on our own personal experience with product reviews and online purchasing, we recognized that the topic of product reviews and recommendations drew our interest. We wanted to better understand how consumers use product reviews and if they influenced purchasing behavior. All of the project team members used consumer written product reviews, with varying degrees of success and satisfaction. We began our inquiry by talking with consumers about their product research process, and determine how satisfied they were with what is currently available to them.

Informal Interviews

We conducted a dozen informal interviews with people who do both online and offline shopping, and to find out how they use Internet product reviews, and if contributed to making a purchasing decision. Questions included: how often they shop; preferences of online and/or offline shopping; likes and dislikes regarding online shopping; whether they like and use product recommendations; if they knew what they wanted to purchase last time they shopped online, and if not, what further information they needed to help with making a purchasing decision. They described their last offline and online purchase; their use of product review websites; which ones they prefer; what they like and dislike about these websites; whether or not they product reviews help with making a purchasing decision; what was missing from the product research experience; and whether or not the found the reviews valuable. One important thing surfaced, no assumptions or generalizations about how each of the interviewees approached product research and shopping.

The sample of people interviewed is from diverse backgrounds, with an equal number of male and female participants. Their ages ranged from 20-59 years old, with Internet experience of 2-12 years. Their regular Internet use ranged from 1 hour a day to 60 hours a week. They live in varied geographic locations: urban, suburban, and rural. The interviews were mostly conducted on the telephone, with a few face-to-face, and via Skype. There were 18 interview questions, including demographics (see Appendix B), and the interviews lasted from 30-60 minutes. Half of the interviews were recorded on an audio device.

Findings

This sample of consumers shopped for non-essential items spanning everyday to every two months. Five consumers mostly shop online, five shop both online and offline, and two consumers shop only offline. What they most like about online shopping is the 24/7 availability from the comfort of home, the huge product selection, price comparisons and access to consumer written product reviews. What they most liked about offline shopping was being able to see and touch merchandise, the instant gratification in purchasing and taking the product home, talking with a salesperson about products,

features and uses, and easy return policy. When asked about their last purchase, eight consumers had purchased a product online, and four had purchased offline at a store. Two of the interviewees do not use online product reviews, and the other ten use them in varying degrees. A few of them use them extensively, and they spend hours on product research before they purchase a product. Others may spend a few minutes seeing what others have written before they either move on or make a purchasing decision.

There were mixed views on the quality of product reviews, usefulness and trustworthiness. General comments included lack of trust in the accuracy of some reviews, sheer quantity of reviews to wade through and poor quality of some consumer reviews. Some felt that reviews of similar products would be useful while others would actually prefer to ask friends or family.

Overall, the interviewees like the quantity and quality of reviews available even though they would have liked to see them in one place, instead of going to numerous websites. Seeing reviews, both the positive and negative was considered valuable. However, the quantity of reviews was an issue, and as a result many reviews are of little to no use whether that was due to bad quality, inconsistency or simply being irrelevant. The reliability of the reviews was also questioned as some seemed biased. Frequently the reviews were perceived as too technical and with too much information. The desire to see reviews categorized by specific features was specifically mentioned.

For most of these consumers, online product research does not necessarily guarantee they will end up purchasing a product. Nor does product research happen exclusively online or offline. One interviewee who was looking for a digital camera first went to an offline store as she wanted to hold and examine the products. Then she went online to find exactly what she wanted, did a price comparison and purchased it online. She did not use product reviews but she did talk with friends and a salesperson at the store. Another interviewee did extensive product research on treadmills and changed her mind about what she was going to purchase because of negative consumer written reviews about maintenance – something that she would not have even considered asking about. She then went to a local store to purchase the product.

Many of those interviewed expressed the frustration with wading through the sheer volume of consumer written product reviews, and instead of feeling more confident in making a purchasing decision, they felt less confident because they didn't have the time or energy to see all that was written, and felt they might be missing something. Many people expressed confusion when faced with technical information about a product and didn't know how to translate features into their intended use. Most of those interviewed liked having access to online consumer written product reviews, but felt it was too time consuming to read more than a few, and were left with a nagging feeling they were missing something.

These interview findings brought us to the conclusion that consumer written reviews are a part of many consumers product research process and they find them generally

valuable. Also, the sheer volume of reviews can tend to overwhelm many consumers and they are unable to take of the potential value on them. Having to visit numerous websites was considered time-consuming and many interviewees would prefer to go to one website to gain access to reviews from many websites. These key areas are what iExploreReviews attempts to address.

Contextual Inquiry

To learn more about the target users we conducted a contextual inquiry, which is a user centered design (UCD) method, this is done at the beginning of the website design process to learn as much from potential users as to their practices. Specifically, it helps to understand how target users currently deal with or work around certain problems. In this particular case, we looked at how our target users currently conduct online shopping research and what information they need to have access to in order to make an online purchase.

The contextual inquiry was used to record the variety of ways that our target consumers currently conduct product-purchasing research. We designed a set of six tasks organized into three groups, which would represent different ways of searching the Internet for product related information to make a purchasing decision. The sessions concluded with questions, to find out about our target consumers thoughts about sites that they used, information they read and consumer interfaces they used. The groups were based on how complex the set of tasks inside the group were and were designated: easy, moderate and difficult. Each participant was given a sheet explaining each of the tasks and also asked to talk out loud about their thoughts and feeling. After the session, we reviewed the video of the participants completing the tasks and incorporated our notes to create a summary of what we learned. This was used to identify commonalities in the individual results across all participants to identify any set expectations or unmet needs.

The contextual inquiry provided information about how these participants conduct product-purchasing research. The contextual inquiry reinforced what we had found out from our initial interviews that there is a range of different ways that consumers conduct product-purchasing research.

Most of the participants use Google.com as their primary search engine when researching a particular product. Some of the consumers start with Amazon to learn basic information about a product before searching Google for some additional information like price comparisons and video reviews. The overall research process generates too much information and consumers are forced to remember what they have read and save the information while they continue their research. Once they have completed their research, they review all of their saved information across multiple websites saved as tabs in their web browser in order to make a decision.

The participants developed work around methods to navigate the extensive amount of consumers' reviews by only looking at designated as helpful reviews, which are the

highest and lowest rated reviews. “It’s a pain to have to scroll down the whole page just to see the product details,” commented one of the participants. All of our users like Amazon.com but disliked the product details layout because they have to navigate past marketing pitches before they get the information that they wanted to see. They also felt that the Amazon product information page layout was very cluttered and would prefer to have summaries of the key information with the option to view more.

These results helped shape the design of the lo-fi paper prototype. The results emphasized the need to provide a one-stop website of product information for the target users. The results also confirmed to us that most e-commerce and product websites create navigation that is focused on the products features instead of being focused on consumer needs. This confirmed the direction to focus on consumer reviews to help consumers navigate through products.

Additionally, the contextual inquiry highlighted the problem of vital or helpful information buried within review website thus making it unusable and a missed opportunity. Part of the focus of this project is to address this. The results of the comparative analysis, informal interviews and contextual inquiries led us to realize that most of these online websites are focused more on the product and less on the consumer needs. Our proposed solution would focus primarily to design a website to focus on the needs of the consumer.

Phase 2: Design

In conjunction with the User Interface Design and Development class in the spring of 2010 our project ideas went through seven design iterations before we arrived at the final prototype. The design iteration process consists of design, feedback, and ideation as the design continues through this process until a point has been reached where a prototype is implemented. In some ways this process could go on indefinitely, but because of time constraints the working prototype design is the culmination of all the feedback received thus far. The following sections will describe the process of lo-fi, hi-fi, and final implementation prototype. Each section will end with the findings from the test and how they would be used to inform us to make changes to the design.

Lo-fi Paper Prototype

The goal of the low-fidelity paper prototype in the early design stage is to present project ideas to stakeholders and receive feedback on the usability and functionality of the design without a lot of investment in developing an interactive prototype. The users performed a simple usability test of three tasks (easy, moderate, and difficult) to test the basic functionality and navigation of the website. With the introduction of two different data visualizations: a tag cloud to show product categories (weighted list based on term/product frequency and shows of what is available on the website), and a mind map to show features and uses written about by other consumers. The goal is to see how users react to these visualizations, and if the way they gain access to product information is of any value to them.

The low-fi prototype was constructed with cardboard, paper, post-its, markers, and stickers and the processing would be performed by one of the evaluators, acting as the computer, when the user performed an action. The test was given to three users in their home environment, and they talked out loud during the sessions. Evaluators recorded the user comments and problems were logged. After the usability test the logged incidents were reviewed and assigned a severity rating, and based on the rating it was determined if it was a major usability problem which needed to be addressed in the next design iteration.

The lo-fi paper prototype represented the bare bones of functions on the Home, Products List, Explore, and Product Details pages. The tasks consisted of giving verbal instructions to the tester: the first task was to get to the product list from the home page, the second was to navigate to the explore page and select features of interest, and then review the list of products that fit that selected criteria, and chose a product and view the product.

The user feedback from this first usability gave us information about the website design, functionality and navigation. The first thing noted was that each of the users interpreted the task instructions in their own way, thereby affecting how they approached the test. Next, none of the users read the on-screen information; they skipped over it and only referred to it when we directed their attention to it when they encountered a problem.

The data visualization of the tag cloud on the Home page and the mindmap with nodes on the Explore page was well received, but confusing about what to do with them.

They all commented positively about the possibility of seeing reviews from many sources in one place, for this would cut down on the time spent visiting numerous websites, and one user felt this feature would add credibility to the website. The users liked the opportunity to select features that were of most interest to them, and to be presented only with products that had mentioned that feature or use.

The user feedback ranged from cosmetic to major usability issues. The most significant usability issue was that if the website is going to offer new and unfamiliar data visualizations (the tag cloud and mind map), there would have to be a way to show and teach the user how to use them painlessly and effectively. These data visualizations were initially chosen because they could present a depth of information in one high level visual. One navigation change was necessary to direct the users from the Home page to the Explore page instead of the Products List page. One of our users showed us that the Explore page could be bypassed. The reason for this change is because the Explore page is where the user would select features to narrow the search, and even if they chose not to select any and be given the entire list of products, it was important that they make that conscious choice. With such a small sample of users to test the prototype, and tasks performed, we recognized that the next design iteration and resulting prototype would have to incorporate far more functionality.

Hi-fi Interactive Prototype

The goal of the hi-fi interactive prototype experiment was to present our design ideas, refined after the lo-fi, in an interactive environment. Previously, the design was only sketches and paper prototypes. Whereas, the lo-fi allowed us to quickly visualize design concepts and obtain preliminary feedback it did not allow usability participants to actively interact with the design. The hi-fi interactive prototype, was the first opportunity that our usability test participants to interact with the interface and freely roam around the website. The hi-fi prototype simulated all of our features but used mocked static data. The participants performed the simple usability test from our paper prototype, which include the same three tasks (easy, moderate and difficult).

The development of the hi-fi prototype offered an opportunity for our usability participants to experience our website that previous participants had to imagine as they interacted with our simulated paper prototype. While most of the hi-fi prototype utilized mocked up data, it allowed our participants to explore potential product features and narrow their product search to locate products that they are interested in. First, storyboards and wire frames were created to mock up how the hi-fi prototype should look. Second, each page was created to closely fit the intended designs. Third, five participants (who had not participated in the lo-fi test) were used to conduct usability tests on the hi-fi prototype in their own homes. These participants were tested on the same tasks that we tested used for our previous prototypes to find out their feedback on the latest design iteration. All incidents were logged during the test with a discussion

with the participants after the test. All incidents were assigned a severity rating based on how critical of a usability problem they presented. This hi-fi prototype developed in Weebly, which is a prototype tool, and due to the limits of the tool's functionality, not all of our actual design features and functions could be implemented.

Once again the two most problematic areas for the users are the Home webpage tag cloud and the Explore webpage mind map. The tag cloud interface on the homepage created some confusion for our participants because they had not seen one before. In addition to the confusion created by the tag cloud, the participants also did not read any of the content, which explains how to use the interface. With the rise of Google.com, it seemed that our participants were accustomed to seeing search boxes as a main form of website navigation. With the confusion with the tag cloud interface, our participants focused their attention to the search box and thought that it was the only method to navigate our website. Actually, the search box is a secondary way to navigate our website when a participant knows an exact product that they are trying to research.

Another significant issue was revealed. The Explore webpage mind map interface was created in the prototypes with the assumption that it could be implemented as it was designed. However, the usability participants had a hard time using it and as with the tag cloud, did not read the provided instructions on its use. More importantly, through meeting with a natural language processing expert, it was determined that the way that the mind map interface grouped and organized product review features was not technically possible. Terms from the consumer written reviews could not automatically be extracted and grouped and would require the building of tables by hand to accomplish the clustering like terms. This major finding required us to rethink how to present a data visualization, which would show users what other consumers had written about in an interface, which they could use to select features of interest to them.

Additional user comments which appeared to have a major usability component were: the website did not state that its intention is to inform consumers by providing a tool for product research and not about selling products, that the detail information is a mashup of data from different sources (not this website's data), and the selected features needed to be more prominent to help the user to remember what they selected throughout the whole process, the user could remove all selected features at once instead of removing the features individually, and give them the option to start over at any time.

These results were used to design the final interactive website prototype. At this point it was clear to our team that the main function of the website is to assist the consumer to gain access to reviews written by other consumers based on their ability to explore and select features and uses of most interest. The data visualization needed to be clearly documented to enable the user to get to the various levels of the website, and the product details needed to give them access to the product information of most interest. Up to this point the website was referred to as A Good Choice but was now changed to iExploreReviews, because it was clear the consumers must explore before they can make a good choice.

To illustrate the most significant design changes because of usability and functionality issues discovered during usability tests, diagrams from the lo-fi, hi-fi and final interactive prototype show the transition of the Explore webpage.

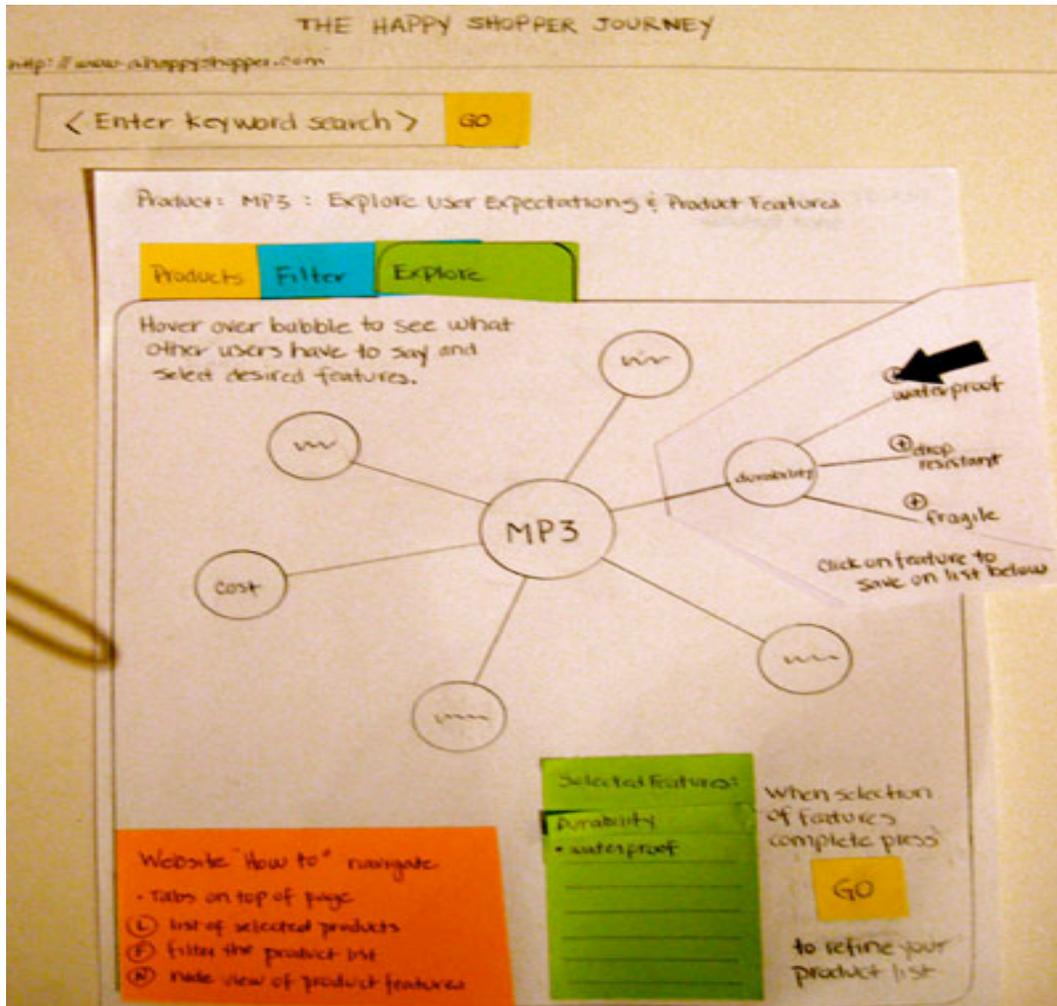


Figure 2: Lo-Fi Paper Prototype Explore webpage

Phase 3: Implementation

As mentioned earlier, most of the current websites that offer product reviews make the consumer select a product before reviews are available, and if the review does not reflect information that is of interest to the consumer they must select another product and repeat the process.

One of the key differences with iExploreReviews is that the consumer begins the product research process by first selecting a product category (e.g. digital cameras) and is presented with a visualization of what are the topics online consumers product reviewers have written about. At this point the consumer may select what is of most interest (e.g. compact, waterproof, and travel), and be presented with products, which only mention those features in the reviews. The consumer may then view both negative and positive helpful reviews, and if they find a product that suits their needs may click on a link and be directed to a website to purchase the item.

In the implementation of the final prototype, the website is divided into three major subsets which were developed using open Web standards. In the iExploreReviews system, the main UI development is the Explore product features subset, which adopts parallel tag cloud visualization to help facilitate the browsing of different tags related to reviews. The second subset is the Product Lists page, which is the next step where a consumer may evaluate the choice of products based on the previously selected tags. Finally, the last subset is the Product Details and Helpful Reviews webpage, which is strategically designed with the purpose of presenting users with reviews that would be pertinent to them.

This final design is the culmination of all the user research and feedback from the usability tests at each design iteration. It reflects the functionality of allowing the online consumer to view the topics other consumers have identified as important and select those, which are of interested. They may see which products are available and have access to the actual consumer written reviews from numerous websites, links to price comparisons, and a link to a retail website to purchase the product.

Usability Test of Final Prototype

The usability test of the final prototype was very limited because of the delay in the implementation of website, and the functionality was not greatly increased from the hi-fi prototype. Availability of users also became an issue. When we did have the opportunity to conduct a session it was a guided walkthrough of the website where the same tasks were performed as the lo-fi and earlier hi-f prototype. The goal was to get user feedback on the usability, functionality, layout and navigation, we particularly wanted feedback on the new data visualization, the parallel tag cloud on the Explore page. The Home webpage had been a tag cloud since the lo-fi paper prototype, but the parallel tag cloud was completely new (see tasks Appendix C).

Instead of the user performing the tasks on their own, we took a different approach and had the evaluator conduct a guided walkthrough with a tester. The evaluator stepped through the task explained how each page works, and asked the user questions.

The user was asked what features were vague or confusing, and she did not really understand how the tag cloud on the Home page worked, she thought the tags in the cloud should be a more inviting visual with different fonts based on the product category. She felt it should somehow convey something fun and helpful at the same time. When asked about the website navigation, the user commented that she found it enjoyable and part of that was because it was a different experience then she had on other websites. The user liked that the website allowed her to browse product information in a “whole new way and that it was taking [product research] up another notch.” She had lots of comments about the appearance of the website and felt the colors were too muted and wanted some of the text to be a larger font. When asked if she thought some people might have problems using the website, and what kinds of people and what kinds of problems, the user commented that the website would appeal to a large age group, late teens to people in their 60’s, but she thought that older users who are not so accustomed to using the Internet might have a problem with understanding the tag cloud visualizations.

A significant moment was when the user clicked on a topic on the Explore page and it highlighted the same topic in the other tag clouds. She was excited to be able to see where else it was mentioned by numerous consumers and commented it gave her a sense that it was more important and drew her interest. When asked what should be changed she thought the selected features box needed to be more prominent and she liked that it is on every page because it reminds her what she selected.

What was learned from this usability test, and also from the previous tests, is that the data visualizations, though they could be seen as useful once the consumer learned how to work with them, they had the potential to cause confusion and frustration. Though this is only at the early stages of development, careful consideration is necessary to find ways to reveal how the visualization works and find a way to teach the consumer about use and benefit it could offer.

iExploreReviews.com

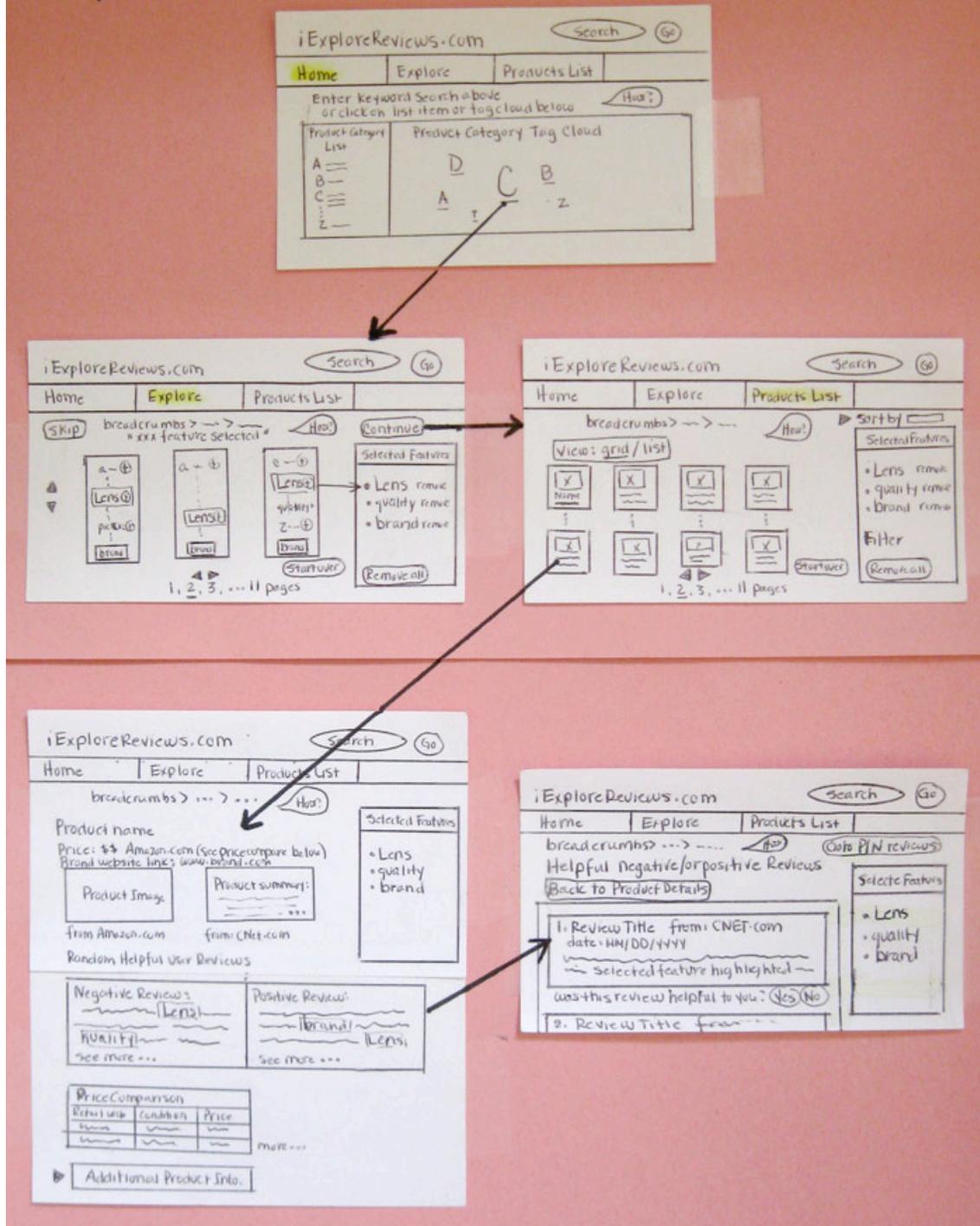


Figure 5: Final Prototype Navigation

System Implementation

iExploreReviews.com - A Consumer Product Reviews Search Website

Core Functionality: Explore -> Select -> View Reviews -> Decide

A scenario is used to illustrate how the website could be used by someone in search of a digital camera for an upcoming trip.

Home webpage

How it works? The consumer may select a product from the alphabetic category list, from the product category tag cloud or enter a keyword search. When a product category is selected the consumer is directed to the Explore webpage. The iExploreReviews.com Home page only displays the product categories currently available on the website.



Figure 6: Home webpage

Explore webpage

The consumer browses the list of features and topics and selects: compact, travel and battery because those are things that she is concerned about for the camera she wants to purchase.

How it works? To see what consumers have written about: the features and topics are presented in a data visualization of parallel tag clouds, and the clouds are sub-divided by a category, e.g. brand. The consumer may browse what others have written about and select those features of most interest. By selecting features it narrows the product search by showing only those products. When the consumer is satisfied with her selection she continues to the Products List webpage.

iExploreReviews

HOME EXPLORE PRODUCTS LIST

Keyword search Go!

Home > Digital Cameras [How?](#)

[Skip this step?](#) **compact feature selected** [Continue](#)

Listed below are things written about by other consumers, please click to select the features you want.

Page: [1] 2 3 4 > >>

Canon	Nikon	Kodak	Sony	Olympus
again	50mm	batteries	battery	14-42
amateur	bag	battery	beaches	14-42mm
bag	batteries	button	better	14-54
batteries	battery	camara	button	14-54mm
battery	before	camera	cables	40-150
better	big	cameras	camera	40-150mm
body	bought	canon	card/stick	aperture
bought	bundle	click	case	around
buttons	buy	digital	clips	bag
camera	camera	down	color	better
cameras	cameras	easy	compact	bought
canon	cameta	easysare	customers	buy
carry	card	enough	design	c-700
charge	click	first	display	c-770
compact	copy	focus	duo	c4000
compact	d3000	format	even	camera
compacts	d70	go	feature	cameras
creative	d90	good	far	charger
days	definitely	great	feature	clean
digital	digital	hate	first	color
drive		kodak	getting	
dropped		type	go	

[remove all](#)

Figure 7: Explore webpage

Products List webpage

The consumer browses the list of products with the selected features: compact, travel and battery or may remove features if she wants an expanded list.

How it works? Based on the selected features (chosen on the Explore webpage) the consumer is presented a list of products, which fit the criteria. The consumer may view the products in either list or grid display format. Either view will show the selected features highlighted for each product. The consumer may also sort the products by price, brand or get an alphanumeric list, and filter the list by indicating a price range. If the consumer decides that she wants to expand the list of products she may remove individual or all selected features. To view the product details for a particular product the consumer may click on the product image or product name and will navigate to the Product Details webpage.

The screenshot shows the iExploreReviews website's 'PRODUCTS LIST' page. The navigation bar includes 'HOME', 'EXPLORE', and 'PRODUCTS LIST' tabs, along with a 'Keyword search' field and a 'Go!' button. The breadcrumb trail reads 'Home > Products List > Digital Cameras'. The page indicates 'Page: [1] 2 3 4 > >>'. A list of products is displayed, each with a small image, a title, a price, a brief description, and a source link to Amazon. A yellow sidebar on the right, titled 'Selected Features', lists 'beaches X', 'bag X', and 'canon X'. The products listed are:

- (Eva Pink + Screen Protector) Digital Camera Case...**
Price: \$7.95
Nicely fits Kodak Easyshare V705 Kodak Easyshare C673 Kodak Easyshare...
from: [Amazon](#)
- 3 Premium Ultra Clear Reusable 3.0" / 3.0-inch...**
Price: \$4.98
3 Premium Ultra Clear Reusable 3.0" / 3.0-inch Digital Camera...
from: [Amazon](#)
- Aiptek MPVR 8MP MPEG4 Digital Camcorder with 4x...**
Price: \$88.80
Aiptek???'s MPVR is a hand held multi-functional Media Player...
from: [Amazon](#)
- Cameta Incognito 1000 Deluxe SLR Case for Canon...**
Price: \$18.95
If you want to carry a gadget **bag** that screams out the brand...
from: [Amazon](#)
- Canon BG-E5 Battery Grip for Canon XSi Digital...**
Price: \$111.95
PRODUCT FEATURES: Dedicated for EOS 450D Easy vertical shooting Accommodates...
from: [Amazon](#)
- Canon Deluxe Photo Backpack 200EG for Canon EOS...**
Price: \$35.12
Made of rugged nylon **canon** Deluxe Backpack 200EG holds up to...
from: [Amazon](#)
- Canon Digital Rebel XSi 12MP Digital SLR Camera...**
Price: N/A
The **canon** EOS Rebel XSi Digital Camera incorporates improved...
from: [Amazon](#)
- Canon DV Cable CV-150F (4-Pin to 4-Pin) for Canon...**
Price: \$1.25
canon started out as a company with a handful of employees and...
from: [Amazon](#)
- Canon EF 75-300mm f/4-5.6 III Telephoto Zoom Lens...**
Price: Too low to display
f/4-5.6 III EF telephoto lens with 35mm equivalent of 75-300mm...

Figure 8: Products List webpage

Product Details webpage

The consumer is presented with a webpage, which is a mashup of information about the camera she selected. She may browse product information and read reviews written by other consumers. She is most interested in the negative comments written so she focuses her attention on those and clicks on the Helpful Negative Reviews link and navigates to the Helpful Reviews webpage.

How it works? The Products Detail webpage displays the product specific information for one selected product.

The screenshot shows the iExploreReviews website interface. At the top, there is a navigation bar with 'HOME', 'EXPLORE', and 'PRODUCTS LIST' buttons, and a search bar with 'Keyword search' and 'Go!' buttons. Below the navigation bar, the breadcrumb trail reads 'Home > Digital Cameras > Product List > Bestpricecenter'. The main content area is titled 'Products Detail' and features a product listing for a pink camera case. The product title is '(Eva Pink + Screen Protector) Digital Camera Case for for Kodak Easyshare V705 Kodak Easyshare C673 Kodak Easyshare V530 Kodak Easyshare V550 Kodak Easyshare V570 Kodak Easyshare V603 Kodak Easyshare C530 Kodak Easyshare C533 Kodak Easyshare C643'. The price is listed as '\$7.95'. A small image of the pink camera case is shown. To the right of the product listing, there is a 'Selected Features' section with a yellow background, listing 'beaches X', 'bag X', and 'canon X'. Below the product listing, there are two sections for reviews: 'Random Helpful Reviews' and 'Negative'. The 'Negative' section contains a review titled 'Pretty decent case.' with the text: 'This case does what it is supposed to do: protect the camera. It has a velcro tie-down strap which would work with various camera sizes. It also has a section to store accessories (such as a spare battery, memory card, or cable). Well worth the price. Click [here](#) for more helpful reviews.' The 'Positive' section contains a review titled 'camera case for Kodak Easyshare Camera' with the text: 'A great product, a hard case that keeps your camera safe and is easy to carry in your purse or bag. We have had the opportunity to get lots of great pictures because we had the camera with us instead of leaving it at home. JAHuestis Click [here](#) for more helpful reviews.'

Figure 9: Product Details webpage

Helpful Reviews (Positive and Negative) webpage

The consumer is presented with a list of helpful negative reviews. After she has read a few of these and knows she is still interested in this camera she clicks on the button to see the helpful positive reviews.

How it works? The consumer will see all helpful reviews (negative or positive) written about the selected product. The consumer will be able to rate reviews as helpful or not helpful.

The screenshot shows the iExploreReviews website. At the top, there is a navigation bar with 'HOME', 'EXPLORE', and 'PRODUCTS LIST' buttons, and a search bar with 'Keyword search' and 'Go!' buttons. Below the navigation bar, the breadcrumb trail reads: 'Home > Product Details > (Eva Pink + Screen Protector) Digital Camera Case for for Kodak Easyshare V705 Kodak Easyshare C673 Kodak Easyshare V530 Kodak Easyshare V550 Kodak Easyshare V570 Kodak Easyshare V603 Kodak Easyshare C530 Kodak Easyshare C533 Kodak Easyshare C643'. The main product title is '(Eva Pink + Screen Protector) Digital Camera Case for for Kodak Easyshare V705 Kodak Easyshare C673 Kodak Easyshare V530 Kodak Easyshare V550 Kodak Easyshare V570 Kodak Easyshare V603 Kodak Easyshare C530 Kodak Easyshare C533 Kodak Easyshare C643'. To the right of the title, there is a 'Selected Features' box with a yellow background, listing 'beaches X', 'bag X', and 'canon X'. Below the product title, there is a section titled 'Helpful Reviews' with a sub-section 'Good deal for the money'. The first review is: 'This is a nice camera case for the money. It is hard-sided, compact and holds my camera and the SD card case plus a cleaning rag for the LCD screen of my camera. This case was not listed for the camera I purchased but it worked out perfectly. The service from bestpricecenter was also excellent and they delivered what they promised. 1 people out of 1 found this review helpful.' The second review is: 'Pretty decent case. This case does what it is supposed to do: protect the camera. It has a velcro tie-down strap which would work with various camera sizes. It also has a section to store accessories (such as a spare battery, memory card, or cable). Well worth the price. 0 people out of 0 found this review helpful.' The third review is: 'camera case for Kodak Easyshare Camera A great product, a hard case that keeps your camera safe and is easy to carry in your purse or bag. We have had the opportunity to get lots of great pictures because we had the camera with us instead of leaving it at home. JAHuestis 0 people out of 0 found this review helpful.' The fourth review is: 'Great Camera Case for Teenager Ordered this as part of a birthday present for my 13 year old daughter. It is strong, durable and cute @ the same time. Having it be her favorite color as well (purple) was a plus. Would definitely recommend it. 0 people out of 0 found this review helpful.' The fifth review is: 'Camera Case I took this camera case to Europe and back and I was very impressed! The case not only holds your camera snugly, but has an extra pocket inside for storing cash. Which is very useful when you want to carry as little as possible. Leave the purse in the hotel room and just strap this case to your waist! 0 people out of 0 found this review helpful.'

Figure 10: Helpful Reviews webpage

iExploreReview – Backend System

Helpful Reviews

Amazon.com allows consumers to browse and rate a review as "helpful". This enables the browsing consumer to look at reviews that other consumers have deemed as useful in their product search and purchasing decision. Amazon makes the best of both the helpful positive and negative reviews easy to find. Amazon bumps the three most helpful reviews to the top of the list. It tries to balance positive and negative reviews, so shoppers get a balanced perspective. An interesting caveat is that these selected reviews get more votes than the buried reviews as they are seen first by consumers. If a review is controversial, in that not everyone agrees on its helpfulness, their ratio goes down, ranking them lower in the listings thereby allowing other more helpful reviews to rise up past them.

From the user research we found that many consumers start by looking at only the "helpful" negative reviews, using them to try to "talk them out" of buying the product. Interestingly, Amazon now has a feature to easily see the more negative reviews together. These "helpful" reviews stand out as they appear to speak truthfully (both positive and negative) about products that helped consumers make decisions. Amazon has changed the way that they show consumer reviews and by default show the most "helpful" reviews first, alongside a sample of one positive and one negative help review in the product detail summary.

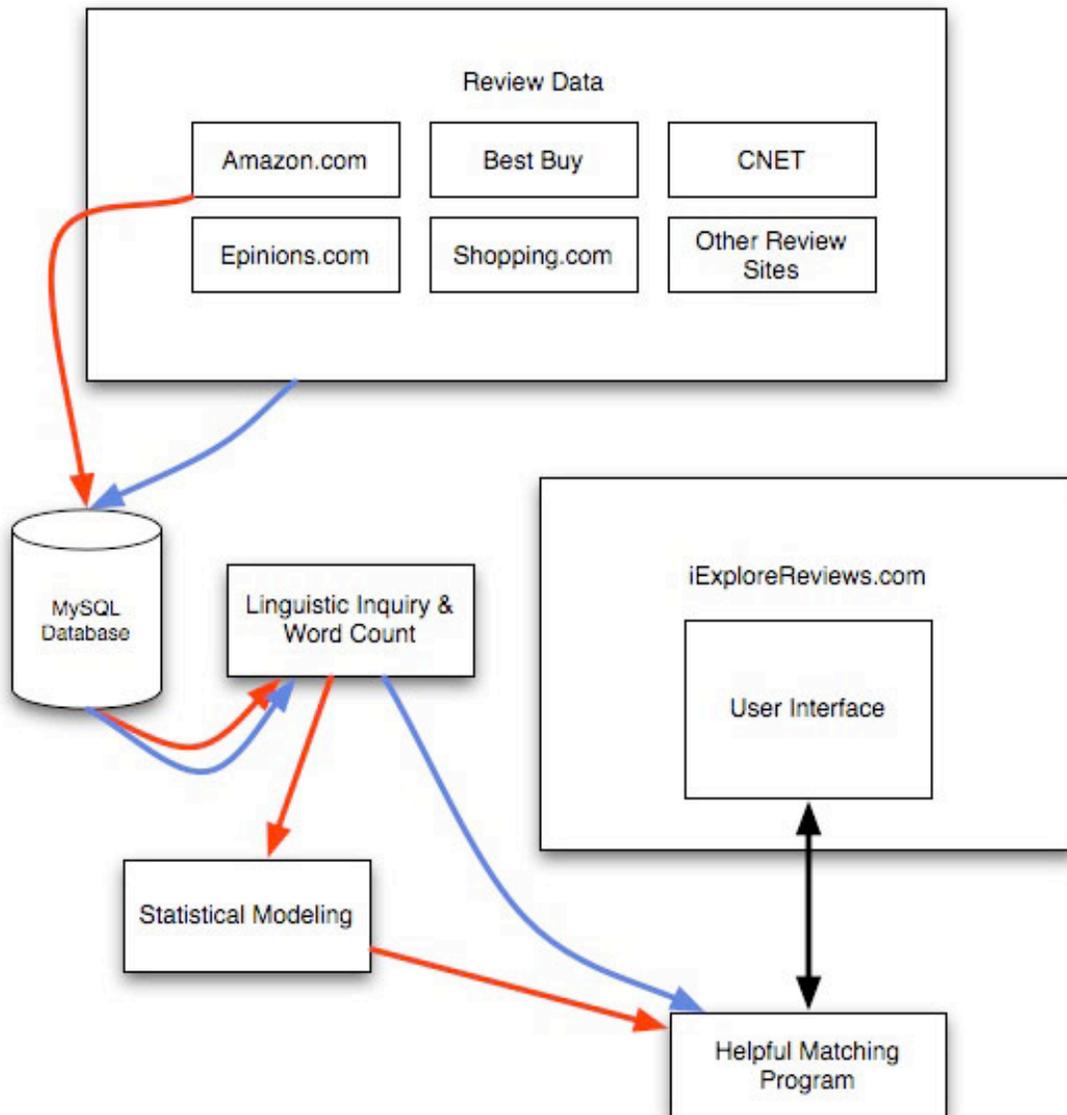
Based on the clear success that Amazon has with "helpful" reviews and the that some of our interviewees told us that they only look at the helpful reviews, we decided to primarily use "helpful" reviews to shape the website. However, the reviews that have not been rated as "helpful" are also available for the consumer to browse in order to remain transparent and unbiased. Using only Amazon's "helpful" reviews would not be sufficient in meeting the purposes of the project goal to give consumers access to all the information written about a product. Instead we will provide consumers with aggregated consumer reviews from across the Internet. The problem that arises is that voting on which reviews are helpful is unique to Amazon and does not exist on many other websites.

Using the pattern we see frequently in web use, we can predict that the number of reviews that will get any votes follows a power-law distribution. This means that only a few will get a substantial number of votes (helped by the fact they'll be promoted to the top). A handful will get a small number of helpfulness votes, but most reviews won't get any votes at all.

The first step in creating an aggregation of consumer written reviews was to first determine if there are particular data characteristics of Amazon "helpful" reviews, and if there are characteristics could these be applied to determine if consumer written reviews from other websites would be considered "helpful." This process will be described in the following section.

iExploreReviews - Backend System Data Flow Diagram

Data Extraction and Processing



Legend:

Red: Amazon.com “helpful” consumer written reviews

Blue: Other websites consumer written reviews

Figure 11: iExploreReviews Data Extraction and Processing

Data Extraction and Processing

In the first step towards the data extraction process, we pulled an aggregate amount of over 1700 reviews from Amazon's Web Services API. These reviews were processed using a script written in PHP. The script passed REST (REpresentational State Transfer) requests to the Amazon Web Services API, which would then send an XML response for one object, which would be processed into a PHP object that retained the XML structure. The PHP object for each response would consist of the reviews, price data, product features, and other product specifications.

```
[ItemAttributes] => SimpleXMLElement
Object

(
    [Binding] => Electronics
    [Brand] => Cagic
    [Color] => Birch
    [EAN] => 0718122309665
    [Feature] => Array
    (
        [0] => 8.4-inch TFT LCD with TrueVu, Solid Birch Wood Frame Construction
        [1] => Compact Flash (CF), Secure Digital (SD), MMC, xD, Memorystick,
        MemoryStick Pro, MemoryStick Duo
        [2] => 2 SD Card Slots
        [3] => 2GB SD Card Included
    )
)
```

Figure X: Sample Response from Amazon Web Services API

The responses received from the Amazon server were processed and accessed by their attributes and stored into a MySQL database. This MySQL database was the central storage point for the project. Each of the records stored in the MySQL tables were stored based on their respective attributes. In each record, we stored the following attributes of each product review:

- **Amazon Standard Identification Number (ASIN)** of the product being reviewed
- **Average Product Rating** for the product being reviewed
- **Helpful Votes** for the product being reviewed
- **Total Votes** for the product being reviewed
- **Customer ID** of the person who wrote the review
- **Title** of review
- **Content** of review
- **Category** of review (digital cameras or baby toys)

One of the advantages of using Amazon's API was that the helpful votes information was available as a benchmark for determining helpful reviews versus non-helpful reviews. Given this information, we used a natural language processing (NLP) program called Linguistic Inquiry and Word Count (LIWC), which was a word-sense program that

would provide details regarding the characteristics of the document. LIWC compared the text of the review against a corpus of other document texts.

LIWC Results

Details of Writer: No Details

Date/Time: 12 May 2010, 1:12 am

LIWC dimension	Your data	Personal texts	Formal texts
Self-references (I, me, my)	5.91	11.4	4.2
Social words	4.22	9.5	8.0
Positive emotions	2.95	2.7	2.6
Negative emotions	0.42	2.6	1.6
Overall cognitive words	7.17	7.8	5.4
Articles (a, an, the)	5.91	5.0	7.2
Big words (> 6 letters)	18.99	13.1	19.6

The text you submitted was 237 words in length.

Your writing:

I recently purchase the Nikon Coolpix L20 after lots of shopping. I have used only Olympus cameras only up to now. This time I wanted a smaller pocket sized camera, that still took the AA batteries, and that still gave great photos with all the features I was used to. This camera fit the bill! It takes 2 AA batteries, inexpensive SD memory cards and yet still delivers fantastic photos. I have already tried all the features. and was

Figure 12: Sample LIWC output

Because LIWC was only available for use as a sample online application, we wrote a script that would extract the text of each review from the MySQL database, which would then be passed to the LIWC application using a POST request format, so as to simulate using the form. Once the results were obtained, we used a regular expressions script to process and separate the results from the LIWC output, which were then added into the database. The dimensions for LIWC were the following variables:

- Self-references (words such as I, me, my)
- Social words (dependent upon context)
- Positive emotions (happy, joyful, etc)
- Negative emotions (sad, depressed, etc)
- Overall cognitive words (dependent on context)
- Articles (a, an, the)
- Big words (defined as being more 6 letters in length)

After processing the words through LIWC and storing the output into the MySQL database, we then processed the data through a statistics software package called R.

This was accomplished by first outputting the helpful reviews count and the total reviews count from the reviews, as well as the dimensions from the LIWC data, into a CSV (Comma Separated Values) file. These values were then processed and parsed into the R statistics package. Using R, we built a linear model of the data with the helpful votes and total votes compared relative to the LIWC dimensions. We found that the length of the review had a positive correlation to its helpfulness, while self-references and positive emotions tended to indicate negative correlation to the helpfulness of the review. These were our key findings from the statistical data, which we found would be a good measure of the helpfulness of the review.

```
Call:
lm(formula = dat$helpful_votes + dat$total_votes ~ dat$length +
    dat$self_references + dat$positive_emotions)

Residuals:
    Min       1Q   Median       3Q      Max
-15.2655  -1.7415  -1.2618   0.2834  76.1089

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      1.9337600  0.2169457   8.914 < 2e-16 ***
dat$length        0.0010377  0.0001357   7.649 3.36e-14 ***
dat$self_references -0.0833948  0.0268716  -3.103  0.00194 **
dat$positive_emotions -0.0615965  0.0207528  -2.968  0.00304 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.171 on 1723 degrees of freedom
Multiple R-squared:  0.04718,    Adjusted R-squared:  0.04552
F-statistic: 28.44 on 3 and 1723 DF,  p-value: < 2.2e-16

> cor(dat$helpful_votes, dat$length)
[1] 0.2005368
> cor(dat$helpful_votes, dat$self_references)
[1] -0.0738122
> cor(dat$helpful_votes, dat$positive_emotions)
[1] -0.07881206
```

Figure 13: Resulting output from R, which displays the top values having relation to review helpfulness (highlights indicate the relevant data)

After obtaining the statistical results for this data, the next step was to extract consumer reviews from other websites, which would also be extracted and processed through LIWC. The purpose of this is to use the additional review data to find more helpful reviews related to a product.

In our search for further review data, however, we noted that many review websites lacked an API for programmatic access to their review content. Leaving off on this point, we believe that this is an area in which more review websites need to address for other developers to be able to make use of their consumer review data.

Future Website Directions

At the beginning of the project during the ideation phase, many great ideas surfaced with the intention to be implemented in website. However, given the time limitation on the project any idea that was not a core features was excluded and pushed to a future release. These features include automating the backend system, creating user profiles, saving product research history, a mobile application and a social networking component.

Adding content to the backend system is currently a manual process where the content is pulled from the external sources as raw data and then analyzed on the server before being accessed by the final prototype. In order to make our prototype production ready, an automated system would have to be develop to add new content from the multiple sources for current and new product domains.

The final prototype is a straight forward system to demonstrate the core functionality. However, in order to make it useful for its target consumers, it would have to incorporate user profiles. User profiles would help to store user preferences and allow users to save their research history. It would allow users to start and stop their research into a product domain at their leisure. Additionally, this feature would also make it feasible to allow different users share their research history with others.

The target user interviews conducted early in the project found that while users conduct research online, they also tend to make the actual purchase from the research in retail stores. This bought about an idea to develop a mobile application that would allow a user to sign into their account and utilize or continue their product research on the go.

The interviews also found that the most helpful type of product recommendation were recommendations made from friends. Given this response, a social networking aspect of the website seems like a great idea to expand upon in the future. This would allow a user to share with their friends their product research in a particular domain, the product that they end up purchasing and their review of that particular product. The recent rise of new websites like Blippy.com and Swipely.com, which focuses on sharing a user's purchase history through their credit card information with people in the social network, validates this idea.

Conclusion

iExploreReviews incorporated many aspects of our collective School of Information coursework. A major focus of the project was User Interface Design and within that process we used many user experience and qualitative research methods. Our goal was to create a working website prototype within the constraints of the Spring 2010 semester. We feel we were able to use the knowledge from much of the coursework into a real-world development scenario.

We recognize that our attempt to address the consumer online product research problem just skims the surface on the depth of the problem and possible solutions. We do believe that it is a problem that deserves more attention. As more and more people use the Internet to support or supplement the activities in their lives, and online product research and shopping are becoming more popular, and more and more data becomes available, it will necessitate that there be applications to make use of these rich sources of information.

At the conclusion of this project we reflect on the reality that things did not turn out exactly as planned. The process of taking an idea and finding a way to present that to a potential user, get their feedback and attempt to improve and in the end make a product that is truly of any value to the user has been a humbling and illuminating experience. It makes one understand why so many websites work so poorly, because "you are not your user"; the user has a whole different way of thinking, doing and solving problems, and adopting things in ways never imagined. In the end we may not have accomplished all we set out to do, but the process has given us an opportunity to develop and implement a website that we hope will offer some value for consumers in conducting online product research.

Special thanks to:

To the users who participated in user research and usability testing.

Coye Cheshire, Final Project Advisor

Jeffrey W. Nichols, i213 - UI Design and Development Professor, Spring 2010

Sandra Yuen, UI Mentor

Appendix

Appendix A: Comparative Analysis

Amazon.com* - quantcast - 73.8M US visitors monthly (02/28/2010) <http://www.crunchbase.com/company/amazon>

Amazon.com Inc (AMZN) is a leading global Internet company and one of the most trafficked Internet retail destinations worldwide. Amazon directly sells, or acts as a platform for the sale of, a very broad range of products, including books, music, videos, and consumer electronics, clothing and household products.

Beeadvised.com - quantcast - 3.7K US visitors monthly (02/12/2010) <http://www.quantcast.com/beeadvised.com>

BeeAdvised.com decided to do a product review to assist consumers on what product is the best to purchase. It caters for people like you, who are searching for in depth product description and reliable product reviews. Each visitor can be benefiting the product reviews and purchasing choices as it is providing unbiased consumer reviews consumer reports and product evaluations. <http://www.beeadvised.com/>

Bestbuy.com* - quantcast - 14.4M US visitors monthly. <http://www.crunchbase.com/company/bizrate>

International retailer of consumer electronics and entertainment software under the names Best Buy, Magnolia, and Future Shop. Also offers online shopping. Store locator, investor information, and career opportunities. [Description from [dmoz](#)]

Bizrate.com* - quantcast - 10.8M US visitors monthly (12/22/2009). <http://www.quantcast.com/bizrate.com>

BizRate.com says it's the world's largest online customer service feedback and ratings platform.

Buzzillions.com - no quantcast data.

<http://www.crunchbase.com/product/buzzillions>

Buzzillions is a user-generated product review site. It gets its reviews from its partner site PowerReviews, which provides customer review software to ecommerce sites. It also incorporates product reviews from companies who use other 3rd party providers or have an in-house review system.

Cnet.com* - quantcast - 3.2M US visitors monthly (12/24/2009). <http://www.crunchbase.com/product/cnet-reviews>

Consumerreports.com - quantcast - 3.3M US visitors monthly (01/27/2010). <http://www.crunchbase.com/company/consumerreports-org>

Consumer Reports features ratings and recommendations on thousands of products and services in categories including appliances, cars, electronics and computers, home and garden, health and fitness, babies and kids, food, personal finance, and travel.

Consumerreviews.com* - no quantcast data.

<http://www.crunchbase.com/person/mike-la-rotonda>, shopping.com api

Consumersearch.com - quantcast - 2.7M US visitors monthly (01/13/2010). <http://www.crunchbase.com/company/consumersearch-com>

ConsumerSearch.com analyzes expert and user-generated consumer product reviews and recommends the best products to purchase based on their findings.

ConsumerSearch.com is part of The About Group, which also comprises the Web sites About.com and UCompareHealthCare.com. The About Group is a subsidiary of The New York Times Company.

Devlib.com - quantcast - 10.4K (02/28/2010). <http://www.devlib.org/> <http://www.quantcast.com/devlib.org>

Global consumer reviews, covering products; services and whatever else we think can be reviewed.

Epinions.com* - 4M US visitors monthly (02/17/2010). <http://www.crunchbase.com/company/epinions>, shopping.com api

Epinions aims at helping people make informed buying decisions by being a source and platform for valuable consumer insight, unbiased advice, in-depth product evaluations, and personalized recommendations.

My3cents.com - quantcast - 711K US visitors monthly (02/20/2010). <http://www.quantcast.com/my3cents.com>

Provides a forum for consumers to send complaint letters, post opinions on any company or product, and interact with other consumers. [Description from [dmoz](#).

pcmag.com - no quantcast data.

Pissedconsumer.com - quantcast - 754K US visitors monthly (02/06/2010). <http://www.pissedconsumer.com/>

Consumer product reviews and complaints for products and services. [Description from [dmoz](#)]

Rateitall.com* - quantcast - 26.3K US visitors monthly (02/10/10). <http://www.crunchbase.com/company/rateitall>

RateItAll is a distributed consumer-rating network powered by widgets, apps, and APIs. It's best described as a distributed [Yelp](#) for everything. Participating members can earn revenue share via the [Google](#) AdSense API, and own all content they contribute.

RateItAll also offers visitors to its site the ability to create their own ratings channels (E.G. "Best [TechCrunch](#) Writer"), and then publish those ratings on their own site via RateItAll's stable of widgets.

Reviewcentre.com - quantcast - 553K US visitors monthly (02/25/2010). <http://www.reviewcentre.com/> <http://www.quantcast.com/reviewcentre.com>

Review Centre is a community of real people, just like you, sharing their product and service experiences. Our community of reviewers is a passionate bunch who wants to help you discover what's right for you.

Toptenreviews.com - 56.1K US visitors monthly (10/18/2009). <http://www.crunchbase.com/company/toptenreviews>

TopTenREVIEWS provides detailed product reviews, side-by-side comparisons, helpful buying guides, articles explaining how to get the most out of a product, and an easy way to get it.

Viewpoints.com - quantcast - 68.7K US visitors monthly (04/22/2010). <http://www.crunchbase.com/company/viewpoints>

Viewpoints Network is a social technology and media company focused on helping consumers make smarter decisions. They specialize in building communities and motivating "social influencers" to share their experiences by writing reviews, blog posts, how to guides, participating in discussion boards and contributing and voting on ideas.

They then help organize and present those contributions to help other consumers make well informed purchase decisions.

Wize.com - quantcast 365K US visitors monthly (01/22/2010). <http://www.crunchbase.com/company/wize>

Finding the products that are right for you and within your budget is a tough task, but Wize has a solution. Wize is simplifying the shopping experience for you by centralizing all of the important information about products and allowing you to easily navigate through product reviews. We understand how hard it is to find the best products specific to your needs and have built Wize.com to help you shop with confidence. Using our proprietary technology, we analyze content around the web and generate Wize product recommendations specific to how people intend to use them.

Retrevo.com - no quantcast data. <http://www.retrevo.com/>

Retrevo is a shopping site focused solely on consumer electronics. The site, which is now one of the largest consumer electronics shopping and review sites online, aggregates product information, reviews and articles from blogs, forums, websites and manufacturers to provide shoppers with accurate, up-to-date shopping advice. Retrevo does their best to provide unadulterated product reviews by filtering out ads, eBay pages and online electronic stores like Best Buy and Amazon.

Appendix B: Interviews

How often do you shop?

Do you shop offline and/or online?

What do you like best offline and or online purchasing?

Do you prefer to have a product recommendation (based on your needs or popularity) or would you rather research a product yourself?

Last time you purchased a product did you get it at a store or online?

Did you already know what you wanted to purchase? If not, what information did you need to help with your decision?

Could you briefly walk-through that particular purchasing experience?

Do you use on-line product review sites? If so, which ones? Which is your favorite?

Why?

Do you use online product recommendations (Amazon top lists)?

Do you use product reviews after you have received a product recommendation?

Could you explain the last time you used a product review site or information?

After you read product reviews did it help with the purchase decision/product selection?

We are asking about your last experience, but are there any other experience you would like to tell us about?

What did you like best about the website or experience?

What did you dislike about the website or experience?

What is missing from your purchasing experience/process that would make it easier?

How valuable do you find product reviews? And why?

What is your end-to-end product research / purchasing process?

Demographics

Male/Female?

Age?

Internet usage per week? How long have you been using the Internet?

Appendix C: Usability Test Tasks

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