Evaluating the Usability of an Optimized Website for a Local Coffee Business

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Abstract: A survey by the Pew Research Center (2011) found 55% of American adults rely on the Internet as a primary source of information for restaurants and local businesses, with its ability to quickly sort and personalize data such as what cafés nearby might be widely praised and patronized by online peers. As the Internet becomes prevalent throughout the consumer’s purchasing journey, website usability is crucial for the survival of local businesses with online presence. The purpose of this usability study was to evaluate an optimized website for a local and independent coffee business known as The Curb (http://thecurbco.com). With the affordance of web analytics to capture customer information, three website design iterations were created for optimized landing pages. An open-source web tool known as SurveyMonkey was instrumental in creating and distributing anonymous pre- and post-surveys to six participants. They were asked to complete a series of task scenarios using the “thinking aloud” method while their computer screen and audio were recorded for quantitative and qualitative analysis. Usability metrics were defined by the ISO 9241-11 standard providing guidance on measuring the effectiveness, efficiency, and user satisfaction. The results identified usability issues with the website’s navigational menu, suggesting further design iterations to optimize and improve The Curb’s website usability.

Introduction

The digital revolution has democratized the exchange of information, ideas, and opinions in an ecosystem of multiple platforms to help consumers make well-informed decisions throughout the purchasing process. Today’s technologically-savvy consumers expect websites to provide accurate information and easy navigation about nearby products and services (Accenture, 2013; “BrightLocal”, 2015). According to a recent study, 50% of consumers will visit a store within one day of a local-based search (Google, Ipsos MediaCT, & Purchased, 2014). “For some shoppers, the local store is still a place to browse and talk to experts, but for others, it’s becoming more like a local distribution center where they can pop in quickly to pick up a product they’ve researched in advance” (Samat, 2014, p. 3). As more consumers’ purchase intention is influenced by the Internet, companies are consulting web usability experts to ensure accurate information online can be found quickly for ease of use (Lee & Kozar, 2011).
Due to limited resources and economies of scale, many local and independent businesses have cookie-cutter websites often leading to poor usability that causes users to spend an unnecessary amount of time and effort seeking the desired information (Clayton & Hettche, 2012). The Internet is a customer-dominated medium that has evolved to facilitate efficient interactions between consumers and businesses. To further illustrate this, I approached a small local coffee company with an opportunity to explore website conversion rate optimization by identifying specific goals to help convert their website visitors into customers. The purpose of this usability study was to evaluate an optimized website for a local and independent coffee business known as The Curb (http://thecurbco.com).

In recent years, the specialty coffee industry has embraced innovative technologies to improve the quality, execution, and transparency of ethically sourced coffee into the marketplace (Pozos-Brewer, 2015). “On the retail level, not only are consumers asking for more information about the coffees they drink, and demonstrating a heightened level of expertise in the nuances of preparation, but baristas are also more concerned with the precision of coffee making than ever before” (Ratanas, 2016, p. 2). The Specialty Coffee Association of America recently reported a trending increase of specialty coffee consumption at independent coffeehouses in the United States (Mintel Technomic Inc., 2015).

The Curb had been featured in magazines, newspapers, television, and heavily relied on word of mouth for business. As the company grew from a mobile food truck into brick-and-mortar locations, they created various social media accounts and a website without a strategic branding plan. Consequently, this business lacked an understanding of how users interact with and use their website to achieve their goals. By leveraging web analytics for usability testing, the process of website optimization was to ensure The Curb’s marketing campaign was relevant and intuitive in converting visitors to customers.

**Literature Review**

Usability is explained in a myriad of definitions and contexts. The International Organization for Standardization (1998) on the evaluation of software usability, ISO 9241-11 established technical guidelines on usability in terms of effectiveness, efficiency, and satisfaction. Meanwhile, numerous usability studies determined the quality dimensions of criteria to evaluate and measure the satisfaction of a user’s experience when interacting with a product or system, such as a website (Dickinger & Stangl, 2011; Hasan & Abuelrub, 2011). Krug (2013) suggests defining usability by asking questions related to quality attributes like effectiveness: Does it get the job done? Website usability aims to better understand how and why users are able to complete particular tasks on the website that they view as valuable.

Usability evaluation addresses these underlying quality attributes that assess how easy user interfaces to operate, and to improve almost anything that people use. Given the emphasis on a user-oriented approach, usability evaluations can ascertain whether user needs are met, assess the appropriateness for tasks, and compare the product with others on the market (Gediga, 2010). A
The major component of website usability is user-centered design to assess and improve the quality of customers’ experiences with using a website to accomplish tasks, goals, or features associated to the brand (“Usability Evaluation Basics”, 2012). Nielsen (2012) argues that if a website fails to provide accurate information on what a company offers and what the users can do on the site, visitors leave and never return. Furthermore, without user-friendly navigation, visitors are likely getting confused, frustrated, or lost and leave the website.

Jakob Nielsen (1999) has been the most influential in usability evaluation, advocating “discount usability testing” with small-sample and informal methods. Krug (2009) expands on this with a do-it-yourself approach using qualitative methods involving the recruitment of target participants to attempt specific tasks while communicating perceived aspects of the website design – also known as protocol analysis or the “thinking aloud” method. The facilitator often asks a series of pre-test questions at the beginning of the usability test, followed by post-test questions at the end. Previous studies have extensively used Nielsen’s heuristic evaluation criteria methods due to its approach in noting commonality or overlap of design defects based on the following attributes of learnability, efficiency, memorability, rate of errors, and satisfaction (Clayton & Hettche, 2012).

While the importance of usability is widely accepted as the perceived success of a website, it is not fully intended to convert all website visitors into customers. However, through Conversion Rate Optimization (CRO), its purpose is to create an experience for a landing page visitor that will convert the users into customers (Saleh & Shukairy, 2010). The landing page is where website visitors arrive at, if different from the homepage. Either way, the first impression from a website can determine if a visitor leaves or stays. When good website usability is perceived in conjunction with relevant CRO, it results in positively affecting user behavior and trust that a user has in purchasing from the company (Swaak, De Jong, & De Vries, 2009).

Project Development

Prior to conducting the usability evaluation for this study, the owner of The Curb granted permission to modify their website on WordPress, a free and open-source web development platform. Free web analytics from online and in-store applications were also accorded to help measure and prioritize CRO metrics. Although there would not be immediate and direct value, using data collected from multiple customer touch points supported the visitors’ needs throughout the customer lifecycle so they feel valued and eventually lead to brand affinity. For example, self-reported information for users that chose to follow The Curb’s Facebook pages online (Figure 1) and Belly Card’s dashboard provided in-store check-ins from iPad devices at their café locations for customers interested in redeeming loyalty points for rewards (Figure 2). These data also captured new and existing customer demographics, including a majority of females and customers aged between 25 to 34 years old.
Generally, there are qualitative and quantitative measures relative to users’ performance on a given set of tasks throughout the website design process (Nielsen, 1999). Quantitative data can be used to indirectly supplement and sustain qualitative methods with the recent affordances of web analytic tools. Web analytics provided real-time information that tracked who, what, where, and how visitors were transacting with a connected interface online and in-stores. These web-based query reports were readily available at no-cost to help prioritize resources and focus on issues with critical usability impact (Rizvi & Keole, 2015).

In examining the Google Analytics’ default subset reports, the visitor’s intent when they were entering The Curb’s website from different social media and Internet campaigns. The challenge for this company’s Internet marketing was that their social media lacked a unified message across all of the platforms. Instagram was directing traffic to one of their Facebook pages, while Yelp and another Facebook page directed traffic to their website. Upon discovering The Curb’s homepage was the page that most visitors landed on, it was shocking to also find it had the highest bounce rate close to 50% (Figure 3). This suggested there were usability problems from the homepage because a high number of visitors were immediately leaving their website upon entering, without taking any follow up actions such as clicking to view another page.
Furthermore, “What can’t be measured can’t be managed” (Peterson, Person, & Nash, 2014, p. 18). By establishing a data-driven design with Google Analytics, this powerful tool provided a no-cost audit to quantify and verify a vast number of data about who used their website, when they visited, what they clicked on, what referral channels, etc. For example, see Figures 4, 5, and 6 where visitors who entered from the homepage showed interest in learning more from the our mission, locations, and services pages. In order to extract meaningful data for CRO metrics, five custom acquisition reports for website conversion goals were created in Google Analytics. They indicated if website visitors could find a location, place an order, submit the contact us form, read reviews, and view their services. These clicks to different pages could help to identify if the redesign would engage visitors to find out more about what The Curb offers.

Figure 3. High bounce rate from homepage in Google Analytics report.

Figure 4. The page about The Curb’s mission was clicked on 65.6% from the homepage.

Figure 5. The locations page was clicked 62% of the time from the homepage.
In viewing the old homepage to examine the high bounce rate from The Curb’s website, visitors were introduced to a large image of a modular espresso machine known as a ModBar (Figure 7). The website was recently updated with a responsive design layout, allowing it to be viewed conveniently on mobile and desktop devices. Despite the graphical emphasis on the headline text and specialty espresso equipment picture, these visuals did not easily suggest nor state anything related to “coffee”; instead, one could easily interpret The Curb was offering truck services. The homepage included a call-to-action button near the bottom of the page for advanced ordering at multiple locations. However, it was rarely used or confused customers about which locations offered advanced online versus telephone ordering.
The reports pulled from Google Analytics helped to determine a majority of visitors were leaving the website from the old homepage. But for those that remained, they showed interest in using their website by either clicking on the our mission, locations, or services pages. These pages provided more information about The Curb and the services they offered. To help the homepage realize its full potential in converting visitors into customers, three new pages were created with iterative and parallel design techniques. These new pages replaced the old homepage and were incorporated into the website to allow participants to easily recognize the similar website address structure and be able to navigate elsewhere on the website organically. The best usability elements would be merged into a new design that would undergo a second round of usability tests. Nielsen (1996) demonstrated the value in design reconciliation to reduce costs and speed up the development time with this parallel design.

In redesigning the old website, the new homepage landing page (http://www.thecurbco.com) needed to quickly and clearly show what else The Curb’s website had to offer. The first half of the page featured an image of coffee cupping, including a headline and tagline that summarized the company, “Keeping it fresh, hot, and cool with intentional coffee” (Figure 8). Two button links would appear further down the page to either one of their two cafe location pages. The existing design framework for the top logo and menu remained the same.

Figure 8. Redesigned homepage with relevant headline and photographs of The Curb.

The second landing page was created to highlight one of their locations in the Kaimuki neighborhood (http://www.thecurbco.com/locations/kaimuki/). Its address, hours, parking, and phone number was placed strategically near the top of this page (Figure 9). Updated
photographs taken from this location were also featured throughout the page. Customer testimonials taken from the Yelp review website had been inserted near a snippet of The Curb’s story and press releases available from other online publications. The components in this page were created to highlight several recognitions and reflect the welcoming personality of The Curb.

![New landing page redesigned with unique information about The Curb’s Kaimuki location.](image.png)

Figure 9. New landing page redesigned with unique information about The Curb’s Kaimuki location.

The third landing page had been created for two locations on the university campus ([http://www.thecurbco.com/locations/manoa/](http://www.thecurbco.com/locations/manoa/)). The call-to-action for placing online orders at one of the locations was placed at near the top of the page, including the location’s address and hours of operation (Figure 10). Additional menu items were available at the Paradise Palms cafe, whereas limited items were at their second library location on campus. While both locations’ information were on this page with testimonials similar to the Kaimuki location, it included a tidbit on drink discounts for bringing your own vessel. Recent photographs of both locations were placed with their corresponding location information.
Figure 10. New landing page redesigned with unique information about The Curb’s university campus locations.

Methodology

To better understand the underlying process associated with consumer value in using The Curb’s redesigned website, a usability evaluation was conducted to measure and identify the cognitive processes and decision-making reasoning for the most effective and efficient way to navigate within the website (“Usability Evaluation Basics”, 2012). A summative task analysis was designed for the usability evaluation to last no more than one hour in length. Six participants were asked a series of questions and given ten task scenarios to complete, using the “thinking out loud” method while navigating throughout the website. The scripted scenarios were goal-oriented tasks where participants attempted to identify directional or informational facts about The Curb. All participants were asked to complete the following tasks:

1. Provide a first impression of the homepage before navigating the website
2. Find directions for the closest coffee shop located near you
3. Find more information about products for sale in the coffee shops
4. Locate a menu for ordering items in the coffee shops
5. Find more information about their item prices in the coffee shops
6. Inquire about their catering services
7. Find more information about events held at the coffee shops
8. Find the direction and hours for an alternative location by same business
9. Inquire about their gift cards
10. Identify what their brand logo means by finding more information about it on the website

The recruitment strategy for this study was conducted by approaching people that were consuming coffee drinks in public areas. The target audience included males and females within the age range of 25 to 34. They were provided with an explanation, requirements, and procedures that would be used to protect their rights in this voluntary study. This process helped the researcher ensure the participants were able to comprehend and speak in the English language. An e-mailed invitation was followed by a recruitment letter upon confirmation for those who expressed an interest in participating. Six participants recruited for this study were required to complete and return the e-mailed consent form before participating in the individual usability evaluation.

The usability evaluation was observational only during the task analysis, with the assistance of a screen-sharing web conferencing application known as Zoom. Although it is a paid service, free access was provided to participants via unique invite links into one-on-one meeting rooms online. Due to technical restrictions, mobile tablets and devices could not be used for recording. Personal desktop and laptop devices using Windows and Apple were used. Only the screen and audio recordings were transcribed and coded with pseudonyms identified only by the researcher, to ensure the participants’ anonymity. Field notes were only taken for observations relating to and during the task analysis sessions. All recordings, field notes, and transcriptions were saved on a secure password-protected laptop and destroyed at the completion of this study.

An additional instrument to create and collect data online was a free and open-source web tool known as SurveyMonkey. All participant responses were automatically enabled to be anonymous. Pre-surveys were administered to measure and categorize pertinent user attitudes and behaviors. They provided an opportunity to learn about the target audience. These college graduates consisted three males and three females in the 25 to 34 age group. Everyone indicated they consumed at least one cup of coffee or espresso type drink in a typical day, but one participant skipped this question (Figure 11). All used Internet sources to find a local business or restaurant, except one person used the other option to indicate they used an Internet application.
known as Yelp (Figure 12). The use of a mobile device for social media activities was popular, besides one person had not recently used navigation or location-based information.

**Figure 11.** Participants indicated they consumed at least one caffeinated drink in a typical day.

**Figure 12.** Mobile devices were highly used for consuming products or services on the Internet.

**Results**

Individual findings from the task analysis were sorted into categories using the bottom-up method described by Barnum (2010) as affinity matching (Figure 13). By observing the Zoom recordings and audio transcript, specific ideas and problems while participants were engaged with the website, were revealed during the think aloud process. Three categories were determined from the affinity matching as information architecture or navigation (participants are not able to find what they are looking for because things are not clearly seen or they are in the wrong place), consistency (items or page designs are different and cause participants to be uncertain of where to look for certain things), feedback (website does not help the participant understand what happens when they perform an action or how it is processing a transaction), and readability (words or photos are not legible due to color or size).
Figure 13. Key findings from the task analysis grouped into categories.

Everyone was successful in quickly finding directions and hours of operation for multiple locations. Positive comments were made about the recent photographic images building self-confidence in finding directions. Everyone also easily understood the social media button links, even though they were placed near the bottom of the landing pages without text descriptions. In observing other competitive websites for coffee and food services, it was common to have these social media links placed near the bottom or top of the homepage.

Common navigation errors occurred when participants were tasked to find information and they immediately used the website’s drop down menu. All participants used the website’s drop down menu and hesitantly hovered their cursor over the services sub-menu when tasked to find something. Participants also expressed frustration when they accidentally navigated to a sub-page, requiring additional reading and clicking to find information.

It was interesting to note variations in how people searched for information on the Internet. One task scenario asked participants to find information about gift cards. Although the website did not have links or information about these, success was determined by navigating to the contact us page. One of the male participants failed and later explained it was because he was not comfortable in asking people for help on the Internet. The online contact form did not have value to him, because asking for information in person was more important.

The ISO 9241-11 standard provided guidance on the quality measures used to evaluate the website usability in terms of effectiveness, efficiency, and user satisfaction. See Figure 14 for the performance metrics compiled to determine the participants’ task completion rate, number of errors, time-based efficiency, and user satisfaction questionnaires. Among the variations in determining a successful task completion for effectiveness, success was recognized by the user completing the task correctly and without assistance. The task completion rate was calculated by dividing the number of successfully completed tasks with the total number of tasks, then

<table>
<thead>
<tr>
<th>Category</th>
<th>Participants Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Architecture/Navigation</td>
<td>6 of 6 participants mistakenly navigated to the coffee service page to find a shop menu; Navigation labels were too generic.</td>
</tr>
</tbody>
</table>
| Consistency                      | • 6 of 6 participants identified repetitive links throughout the website.  
• 5 of 6 participants were confused by the copy write; Some information was written like it was for a blog instead of providing factual information. |
| Feedback                         | 6 of 6 participants demonstrated delayed actions when using their cursor to click or hover in the website’s navigational drop down menu.     |
| Readability                      | 4 of 6 participants identified the small headline/tagline text sizes were difficult to read, and table sizes were inconsistent.                        |
| Responsiveness                   | 2 of 6 participants claimed the high resolution dynamic slideshow was distracting and causing their CPU to load slower.                             |
multiplied by 100. The number of errors were counted for any uncompleted task or participant received assistance to complete. Efficiency was recorded by subtracting the end time to start time of completing all tasks.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Task Completion Rate</th>
<th>Task Completion Rate</th>
<th>Time-Based Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50%</td>
<td>6</td>
<td>0:42:15</td>
</tr>
<tr>
<td>2</td>
<td>50%</td>
<td>6</td>
<td>0:29:38</td>
</tr>
<tr>
<td>3</td>
<td>80%</td>
<td>3</td>
<td>0:21:05</td>
</tr>
<tr>
<td>4</td>
<td>60%</td>
<td>5</td>
<td>0:23:14</td>
</tr>
<tr>
<td>5</td>
<td>80%</td>
<td>3</td>
<td>0:20:01</td>
</tr>
<tr>
<td>6</td>
<td>70%</td>
<td>4</td>
<td>0:27:48</td>
</tr>
</tbody>
</table>

*Figure 14. Performance metrics to measure the redesigned website usability.*

Five out of the six participants completed the post-survey questionnaire. User satisfaction was placed upon ten questions adopting John Brooke’s (1996) System Usability Scale (SUS) method in evaluating the usefulness and satisfaction of The Curb website’s functions and features (Figure 15). Participants ranked their responses with a Likert Scale to indicate their level of agreement. The overall SUS score gauged how usable the website was, based on an average of 68. The resulting SUS score of 55 indicated that the redesign was OK, but could improve.

<table>
<thead>
<tr>
<th>Post-survey question</th>
<th>Mean user’s rating</th>
<th>SUS score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How likely are you to return to our website?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2. How much did you find this website to be unnecessarily complex?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3. How easy did you find this website to use?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4. How likely would technical support be needed to use this website?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>5. How engaging is the design of the website?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6. How inconsistent was the design of this website?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>7. I would imagine that most people learn to use this website quickly.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>8. I found this website to be very cumbersome to use.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>9. How much do you trust the information on our website?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10. Did you feel like you needed to learn a lot before getting along in this website?</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*Figure 15. System Usability Scale score to gauge the usability of the redesigned website.*
The post questionnaire also included three open-ended questions for participants to write their own responses about their favorite and least favorite experiences using the website. Only four participants responded to these type of questions. Also following four of the task analysis sessions were open discussions with participants willing to elaborate the usability aspects of the website. These insights were considered with the reported findings and analysis to highlight on further improving the usability of The Curb’s website.

**Discussion and Conclusion**

Today’s online search behaviors are driven by specific goals that often answers a question, solves a problem, or to find information. But people are not looking for one particular answer; instead, consumers are task-oriented in their online search to find, compare, and understand their purchasing options. By utilizing web analytics to capture silos of customer data, a better understanding of creating a user-centered redesign was implemented for a small local coffee company known as The Curb. Finally, by customizing CRO metrics for the website after the redesign, a baseline for future improvements to the bounce rate can be measured (Figure 16).

![Customized CRO metrics of ongoing website traffic for The Curb in Google Analytics.](image)

This summative usability study evaluated and measured quantitative and qualitative metrics of a redesigned website using iterative and parallel design techniques. Although the initial focus was on optimizing the homepage with CRO metrics and usability guidelines, findings from the task analysis identified numerous global issues throughout the website. This became apparent during the task analysis as participants attempted similar errors by using the existing website’s navigational menu. The usability issues impacted the user’s experience negatively and were categorized as information architecture/navigation, consistency, feedback, readability, and responsiveness. All suggestions as a result of this usability evaluation will be applied in continuous design iterations and evaluations.
References


