School of Information Sciences and Technology
The Pennsylvania State University

Website Evaluation and Analysis

HARTLEY’S
POTATO CHIPS
Since 1935

http://www.hartleyspotatochips.com

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Abstract

In this paper, we will be evaluating the usability of Hartley’s Potato Chips Inc.’s website (http://www.hartleyspotatochips.com) and proposing modifications that may improve the usability and overall quality of the site. Our analysis will be divided into two sections – (1) evaluation and suggested modifications for the site in general and (2) evaluation and suggested modifications specifically for the Products/Ordering pages. We will provide support for our recommendations either from our own experimentation or from other appropriate and reliable sources. We hope that the owners of Hartley’s Potato Chips find our suggestions helpful and implement our ideas into the site.
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1) **Introduction**

Hartley’s Potato Chips is a mid-sized company based in Lewistown, Pennsylvania. In 1935, the business began by selling potato chips locally. It has since expanded its product line to include pretzels, cheese curls, and a variety of different styles of potato chips (Plain, BBQ Waffle, BBQ Flat-Style, Sour Cream and Onion, Salt and Vinegar, No Salt, 0g Trans Fat), and Hartley’s now distributes products to much of central Pennsylvania. In recent years, the company has also launched a website (http://www.hartleyspotatochips.com). While the site includes News, Tour, History, Survey and Contact pages, the primary focus is the Products section. Although very little effort has been put into advertising a web presence, the Hartley’s site typically generates between three and six orders daily. By the company’s standards, Internet sales have been fairly successful, but the owners are aware that there is room for improvement.

The most notable complaints (from customers and the company owners) with the Hartley’s website deal with the difficulty of learning the online ordering system and the time required to place orders (especially for first-time users). In this paper, we will be making suggestions that will address the previously mentioned issues and should improve website usability in general. If our suggestions are implemented, users should be able to accomplish their goals faster and with less frustration. By the time Hartley’s is ready to promote its online presence, the website should make for a positive and painless user experience.

2) **Recommended Modifications to Website**

In the following sections, we will outline several modifications that we believe will improve usability of the Hartley’s website. We will explain how each suggested change could be beneficial to the existing system, and we will provide any relevant research (either from our own experimentation or from other appropriate and reliable sources) that influences our conclusions. Because many of our recommendations are specific to the Products/Ordering section of the site, we have divided the modifications into two types – those that could benefit the website as a whole and those primarily concerning the Products/Ordering section.
2.1) General Site

In the sections below, we will inspect some general characteristics of the website and discuss modifications that could improve the usability and overall quality of the site.

2.1.1) Soften Hues

We understand that the Hartley's logo and color scheme are iconic in the central Pennsylvania area and make the company's products easily recognizable to consumers. It is clear why the business would want to keep these aspects essentially unchanged, and we completely support the decision to do so. We do, however, feel that the red and yellow hues used on the website could be toned down slightly. The change could be subtle enough that users may never consciously notice the difference, but we believe it could make the site more harmonious and visually pleasing. Offering users a more pleasant experience makes them more likely to make purchases and return to the website (Daniels, 2006).

To test our theory of more agreeable muted colors, we created a simple survey asking subjects to compare three sets of colors and note their preferences. The left column contained individual and combined colors from the existing color scheme (Red: #FF0000, Yellow: #FFFF00, and Red-Yellow combined), the center column contained altered, slightly muted colors (Red: #E10101, Yellow: #FBED08, and Red-Yellow combined), and the right column contained a series of question marks in case subjects could not tell a difference between the first two boxes. The survey was completed over the Internet by 26 conveniently selected individuals from the Pennsylvania State University. The results of the survey are displayed in Table 2.1.1.A, and a screenshot of the color survey can be seen in Figure 2.1.1.B.

<table>
<thead>
<tr>
<th></th>
<th>Old</th>
<th>New</th>
<th>Can't tell difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>12%</td>
<td>88%</td>
<td>0%</td>
</tr>
<tr>
<td>Yellow</td>
<td>31%</td>
<td>69%</td>
<td>0%</td>
</tr>
<tr>
<td>Combo</td>
<td>34%</td>
<td>62%</td>
<td>4%</td>
</tr>
</tbody>
</table>
As can be seen from the results, the modified red was very popular among subjects. The modified yellow and the combination of the modified red and modified yellow were also preferred over the older color scheme, although not as overwhelmingly. The colors we have selected could be refined and tweaked to better complement one another. Regardless of the specific colors that could be chosen, though, we believe the survey results show that the color scheme could, in fact, be made more appealing for users while still holding true to the traditional color scheme.

2.1.2) Sharpen and Enlarge Text

On the current site, we noticed that the text appears to be small and slightly blurred. Both of these factors could make the content difficult for users to read. After speaking with the owners
of Hartley's and discussing the daily orders they receive, we believe that a large percent of the site's visitors are upwards of 40 years old. Members of this age group are more likely to have impaired vision and experience difficulties viewing websites (Curran & Robinson, 2007), so small and blurry text could propose serious readability problems for the most frequent online customers. As mentioned before, offering users a more pleasant experience makes them more likely to make purchases and return to the website (Daniels, 2006), so improving the quality of text could ultimately lead to more sales.

We conducted a simple experiment (a questionnaire taken in conjunction with the color survey described in Section 2.1.1 - Soften Hues), in which we provided subjects with two boxes of text and asked them to specify which they preferred. The first box contained a screenshot of text from the existing site. The second box contained the same content, only presented in a larger, more crisp/clear text as it could potentially be displayed on the Hartley's site. The survey was completed over the Internet by 26 conveniently selected individuals from the Pennsylvania State University. The results of the survey are displayed below in Table 2.1.2.A.

<table>
<thead>
<tr>
<th>Smaller/Existing Text</th>
<th>Larger/Proposed Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

As can be seen from the results, the larger, clearer text was a unanimous favorite. We find this very convincing, and we believe the website's text should be sharpened (made more clear) and enlarged. Having spoken to the original designer of the website, we know that, ideally, this change would have been implemented in the original version of the site. Because of the Flash-based nature of the website, however, the modification would have been complicated and introduced new problems. We will discuss a solution to this dilemma in a later section (2.1.3 – Translate Flash to HTML/CSS).

2.1.3) Translate Flash to HTML/CSS

As mentioned before, we have communicated with the original designer of the website to better
understand why certain decisions were made. In a discussion about his motivations for creating the site using Flash, he informed us that even before starting the project, he was aware that the use of HTML/CSS technologies would have been much better suited for this particular situation. It was mostly his lack of experience at that point in time which influenced his decision. In the following paragraphs, we will briefly discuss some of the benefits to converting the site from Flash to an HTML/CSS format.

2.1.3.1) Plug-In Required
Currently the Hartley’s site is made entirely in Flash and there are no alternatives for users that do not have the necessary plug-in installed to their browsers. If users navigate to http://www.hartleypotatochips.com and have not installed Flash, they see the following screen (Figure 2.1.3.1.A).

**Figure 2.1.3.1.A – Plug-In Required Screen**

![Hartley's Potato Chips Banner]

Macromedia Flash is required to view the content of www.hartleypotatochips.com.
To download the latest version, click the icon below.

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Once Flash Player has been installed, you will have access to all things Hartley’s Potato Chips: news and special offers, a video tour of the factory, a historical account of the company, an online survey, and of course the ability to purchase Hartley’s products online (Plain, Waffle-Cut BBQ, BBQ-Flanstyle, Sour Cream and Onion, Salt and Vinegar, Ug Trans Fat, No Salt, Cheese Curls, Superthin Pretzels).

Note: If you have successfully installed Flash Player and still see this page, you may need to enable javascript in your browser options.
Users would then need to click the red Flash icon, which would take them to Adobe’s website. There, they would be instructed to download and install the Flash plug-in, a process that may take several minutes (especially for users with slow Internet connections) and would likely require them to close their browsers. Users typically dislike being linked to external websites (Walsh, 2007), and the time consumed by downloading and restarting only increases the probability of frustration. Wasting time is not the worst scenario, though. Less computer-savvy users may not be capable of installing the plug-in properly, and some may not want to install Flash to their browsers. By requiring this plug-in, Hartley’s may be completely excluding users and potential customers. Either providing an HTML/CSS alternative to the Flash site or making the main site in HTML/CSS would prevent this problem.

2.1.3.2) Accessibility and Availability

Because the content and structure of the existing Hartley’s site are not separated from Flash’s graphical front-end, search engines and web browsers cannot distinguish the text from the interface (Lancaster University, 2007). As far as Google or Internet Explorer are concerned, the site is one giant image on a page with no text. This means that handicapped users - who may have browsers set to ignore the often extraneous aspects of websites, like images (Toft, 2007) - could see nothing but a blank page. They would be completely helpless and unable to access any part of the Hartley’s site. In addition to losing any online business with these potential customers, the company also projects a negative and unsympathetic image.

If the site were to be redesigned using HTML/CSS, the accessibility problem could be easily solved. The site’s content could be extracted as text, then information could be communicated aurally to visually impaired users, who currently may be unable to experience any part of the website at all. Additional benefits to having content separated from style include improved searchability on major search engines (Angeletti, 2003) and availability to anyone using mobile devices like cell phones or PDA’s (DeBolt, 2007). In an age where companies are fighting for attention in the digital realm and users need to perform tasks as quickly and conveniently as possible, searchability and online availability are crucial for almost any business. An HTML/CSS website would progress Hartley's in both categories.
2.1.3.3) **Dimensional Limitations / Larger Headings and Keywords**

Flash sites are typically confined to a set of specific dimensions (700 pixels x 525 pixels in the case of Hartley’s) and tend to not incorporate scroll bars as they can introduce various other issues. For sites with little content, these spatial limitations usually cause few problems, but because the Hartley's website does need to present a significant amount of information, we feel that size restrictions are costly and unnecessary.

In Section 2.1.2 – Sharpen and Enlarge Text, we mentioned that text on the existing Hartley's site is small and blurry. The reason for this (as described by the original designer of the site) is that the dimensional limitations of Flash prevent the incorporation of larger text. Because there is a great deal of content to include and a limited space with which to present the information, the easiest solution at the time was to make the text smaller. If the site were to be redesigned in HTML/CSS, however, this dimensional limitation would not exist.

Freeing the site of such confinements would allow for the enlargement of text in general, which, according to our survey results, would be an improvement to the site. Perhaps even more importantly, though, removing the dimensional limitations would allow for more drastic size and spatial differences in headings and other keywords that should draw attention. We believe that several pages on the Hartley’s site could benefit from the use of contrasting text sizes (Proulx & Egeth, 2008) and more distinct spatial grouping/separating (Herd, 2005). The incorporation of both of these strategies would lead to easier visual scanning and allow for layouts that could better control users' attention and communicate the importance of each page to users. This could apply to headings on the News page, logical divisions in the History page, the separation of questions in the Survey page, and most importantly communicating the functionality of Products/Ordering pages (a noted problem of the website).
2.2) **Products/Ordering Section**

In the sections below, we will analyze characteristics of the Products/Ordering sections of the website and discuss modifications that could improve usability.

2.2.1) **Shorten Instructions and Integrate with Order Form**

Upon navigating to the first page of the existing Products/Ordering section (the Ordering Demonstration page), users are confronted with a fairly long paragraph and given the option to watch an animated tutorial. Thinking that the content of this page might require an excessive amount of time to absorb, we decided to conduct a small study to determine just how long users took to view all the material. We conveniently selected eight subjects from the Pennsylvania State University who had never visited the Hartley’s site. Subjects were taken to http://www.hartleyspotatochips.com, where they were instructed to navigate to the Ordering Demonstration page, read the paragraph explaining the ordering process, watch the animated tutorial in its entirety, then go to the next page of the Products/Ordering section. Time was started when users arrived at the Ordering Demonstration page, and time was stopped when they clicked the “Begin Shopping” button. The average time for this procedure was one minute and six seconds (1:06), with the animated tutorial accounting for approximately 35 seconds.

After subjects had completed the procedure, we asked them to create a mock order, selecting any item or items they wanted, and advance to the next page of the Products/Ordering section. Upon being asked whether the ordering process was easy to learn, only four of the eight subjects responded, “yes”.

Even after being exposed to over a minute’s worth of instructive material, half of the users still did not feel comfortable with the ordering system. Because there are few major modifications that can be made to the Product Order Form’s interface without actually modifying the ordering system itself, we feel that the instructions need to be improved to better prepare users. As most sites we have experienced require little to no directions to use an order form, we believe that both the amount/length of instructions and the time necessary to learn the ordering system should be drastically reduced.
Our first suggestion is to shorten the instructions. While the existing paragraph is thorough, we feel that some of the content is superfluous. Incorporating unnecessary information has two negative effects. Firstly, it introduces more reading for users, which costs time. Secondly, it may confuse users by over-exposing them to details that could obfuscate the more important ideas being presented (Orton, Beymer & Russell, 2007). It is beneficial to have the details of the ordering system available for users that may have specific questions, but most users are probably not overly concerned with these facts. We recommend including a “Learn More About Our Ordering System” link somewhere near the instructions. This link could open a new page/window that contains every aspect of the ordering system that Hartley’s feels comfortable revealing. We believe that this approach could provide users (that want to know) with all the information they could ever need about the ordering system, but it would not burden all users with extra reading.

Our second suggestion is to integrate the instructions and demonstration with the Products Order Form itself. In addition to cutting out the time of navigating to and from an extra page (the Ordering Demonstration page), we believe that this modification would help users understand the system more easily and effectively. Currently, users read the instructions and watch the animated tutorial, then they have to retain and transfer the processes they observe to their actual order on the next page. Integrating the instructions and demonstration could save the users mental effort required to memorize and transfer steps of the ordering process because everything would be right there, always available and helping to lead them through the actual order (Healy, Wohldmann, Parker & Bourne, 2005).

We suggest including a shortened version of the instructions at the top of the page (convenient for reference) and keeping some aspects of the existing animated demonstration, most notably walking the user through the process of filling boxes with the appropriate number of bags. By utilizing JavaScript technologies, the Products Order Form could incorporate dynamic text boxes. These notifications could appear at appropriate times and in an unobtrusive manner, informing users of upcoming steps or parts of the process they may be neglecting. For example, if users try to increment individual bags of 6oz. chips before specifying that they want to purchase one or more boxes of 6oz. chips, a textbox would alert them that they need to first increment the
boxes. Another frequent use, which we think would be very convenient to users, would be keeping track of the number of bags still necessary to fill the specified boxes. If users are purchasing two boxes of 12oz. chips (which require a total of six bags to fill) and have specified that they want four bags of 12oz. Plain, the textbox would display a message indicating that two more 12oz. bags of chips are required to fill the boxes. We believe that a “smart” interface would offset much of the mental stress currently placed on users, which would help users learn the system and make their experience more enjoyable.

2.2.2) Consolidate Products Order Form to One Page

Due to the dimensional limitations of designing with Flash (see Section 2.1.3.3 – Dimensional Limitations / Larger Headings and Keywords), all eleven types of products being offered by Hartley’s cannot be incorporated into one page of the existing site. Currently, the Products Order Form consists of three separate pages. This introduces two main problems.

Firstly, users may never acknowledge that the second and third pages exist. As can be seen in Figure 2.2.2.A, the “Next Page” button (which does not particularly resemble a button) could easily go unnoticed because of its small text size and color. While red does stand out better than black, its frequent appearance throughout the site causes the typically eye-catching color to lose much of its impact (Turatto & Galfano, 2000). If the button is, in fact, overlooked, users may never know that more obscure and perhaps unexpected products (cheese curls, pretzels, t-shirts, hats, antique bags) even exist. By consolidating all the products to one page consisting of one to two columns, we believe that users would be less likely to miss items near the end of the list. While modifying the current Flash version of the site may be impossible (see Section 2.1.3.3 – Dimensional Limitations / Larger Headings and Keywords), HTML/CSS could easily accommodate such a change.
The second problem encouraged by the current multiple-paged Products Order Form is clutter and reduced size of elements. In the original designer’s attempt to reduce the number of pages as much as possible, headings, buttons, labels and images were made to be very small and compact. In addition to being problematic for older and visually impaired users (see Section 2.1.3.2 – Accessibility and Availability), this also complicates the task of communicating significant elements to user and helping them understand the ordering system. Were the Products Order Form to be made into one long, one/two-columned page, there would be a great deal of flexibility to use contrasting text sizes (Proulx & Egeth, 2008) and spacing (Herd, 2005) that help to communicate ideas and focus the users’ attention (see Section 2.1.3.3 – Dimensional Limitations / Larger Headings and Keywords). This could be very helpful in
eliminating some of the confusion users have with the ordering system.

3) Summary

In this paper, we have analyzed several aspects of the Hartley's website and proposed modifications that could improve the usability and overall quality of the site. The topics we focused on include color use, text size and clarity, medium (Flash v. HTML/CSS), content length, orientation and various time-saving mechanisms. While our proposed modifications would require time and money to implement (particularly if the site is recreated in HTML/CSS), we believe that there could be a potentially huge payoff for the effort. By the company's standards, the website is reasonably successful at this point in time, but if Hartley's starts to heavily advertise its web presence, the number of visitors to the site will increase drastically. If and when this marketing move is made, we expect new users' first impressions to be very influential in the popularity of the site. The site is fine as is, but when there is such a great potential for success, we feel that no chances should be taken. We hope that this paper will have a positive effect on the Hartley's website and lead to a brighter future for the company.
4) References


