Website Analysis for Kneppy’s Fireworks

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Abstract

Throughout the spring 2014 semester, our team has been studying user-centered design and applying our knowledge to make website design recommendations to a local fireworks company, Kneppy's Fireworks. We cover two of the labs we conducted, followed by the analyses of our findings and implications for design. Our research shows that while Kneppy's new website implemented some important changes, there are a few design aspects that could still be improved. With this report, we hope to improve the usability of the Kneppy's Fireworks website to promote user experience and limit any outstanding frustrations users have with the website.
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1. Introduction

This class project began under the direction of Dr. Frank Ritter, an IST professor well versed in Human Computer Interaction and Cognitive Science. He challenged our team to use our knowledge of user-centered design from class and personal research to analyze the website of a business in which we believe we can help make a difference. This report encompasses a wide variety of material from class in addition to several external sources we pooled from our individual studies.

We chose Kneppy’s Fireworks because one of our team members, Shane, worked as a retail salesman during the summer of 2011. Because he got to know the president of Kneppy’s Fireworks, Joyce Knepp, we were able to establish her as our point of contact and could be certain our report was noticed.

This report analyzes two labs we completed this semester. The first is a Perception-Interaction Lab that was conducted in February 2014 to help us gauge the effects of animated graphics, font color, and choice of background. The second lab is a Task Analysis from March 2014 in which we recorded how long users took to complete tasks on Kneppy’s website versus Phantom Fireworks’ website, a competitor to Kneppy’s.

Based on these two labs, we were able to make a few suggestions to Kneppy’s to help them improve the usability of their website. Because our labs were conducted on Kneppy’s website before they updated to a Wordpress redesign, we are able to give Kneppy’s feedback on what changes are supported by our findings and what changes our research shows should still be made.

We hope Kneppy’s finds our studies valuable and hope to see some of our suggestions implemented in future updates. We are confident that our design suggestions, if implemented, can only be beneficial to Kneppy’s and their users.
2. Perception-Interaction

2.1 Introduction

If you are looking to apply for a job, you want your resume to stand out. You might play around with bold headings and various fonts to accentuate the most important information. Your goal is to make the information on your resume memorable to your recruiter.

This has similar implications for web design. Companies aim to make the most important information on their website stand out. They use themed colors, clever slogans, and fancy graphics to make their websites memorable to their users. Much like a resume, if everything stands out on a website, nothing does.

The goal of this lab was to study the effects that different aspects of Kneppy’s website have on the user’s ability to recall simple information. This will help us make suggestions to Kneppy’s web designer regarding how he can improve the usability of the company’s website.

2.2 Background

Applying color to web design is a very important task. Color schemes are a vital part of making a web page successful. As a designer, choosing how you implement a color scheme is very important, and could make or break your design. Designers should pay close attention to the color theory.

“Color Theory actually covers a number of things, but at the most basic level it is the interaction of colors in a design through complementation, contrast, and vibrancy” (Cannon, 2012). Based on this theory, we can understand how color makes sense and how color can come together in harmony to create something that the mind interprets as visually pleasing.

Color is, however, just a subset of of perception. Perception is how a person gathers and processes sensory information. Perception can also be how someone recognizes or interprets something. Anytime you make a decision, solve problems, or reflect on memories, you are using perception. A majority of web designs follow human perception rules. A few of these are figure ground relationship, uniform connectedness, and good continuation, closure, and proximity (Ritter et al, 2013).

Out of the many studies based upon these principles, one experiment stood out the
most. A Science Magazine study gave us great insight on how effective our findings were. One of the most influential aspects of that study stated, “When people repeatedly encounter situations where different colors are accompanied by particular experiences and/or concepts, they form specific associations to colors.” People’s experiences often influence what people think about specific colors. Red is usually associated with danger or error, whereas blue is usually associated with tranquility and openness (Mehta & Zhu, 2009). These two colors are very different from the normal black colored font we see in everyday syntax, whether that is on the internet or physical media. All in all, this does not mean that the norm will be overlooked.

Our goal for this lab was to find a way to optimize the use of Kneppy's website through perception for the user. We provide our analysis of the graphics, font colors, and backgrounds within the site, then reflect on our findings in hopes of making Kneppy’s website more user friendly.

2.3 Method

To explore the effects of different aspects of Kneppy’s website on a user’s memory, we conducted three studies. We conducted these studies on some of our roommates, and there were five participants in all. These participants were male Penn State undergraduates aged 18-21. Each study consisted of a slideshow of 12 words of the same syllable length, and each of the three slideshows introduced a different variable to the participant. The words were shown for 1 second each, and the participants were asked to record the words that they remembered after each slideshow.

The first set of words used the animated fireworks.gif file found on the old version of Kneppy’s website to offset the text. We included six slides with the animated .gif and six slides without to identify whether the animation had a negative impact on our participant’s ability to recall words. The second word set used the different text colors from the Kneppy’s website: black, red, blue, and green. We used the same Times New Roman 12-pt bold that is found on the website. Because there were 12 words in the slideshow, the colors were shown three times each. The third set contained the background of Kneppy’s website on six slides, and a plain white background on the other six slides. We used the most common font on Kneppy's website, Times New Roman 12-pt bold and blue. A summary of the words used is listed below in Table 1.
2.4 Results

In experiment 1, we positioned the fireworks.gif image on half of the slides to analyze whether the user was too distracted to memorize the words. In total, 25 words were memorized across all participants. For words 1-4, there were 12 instances of words being memorized. The first word, cow, was memorized by 80% of participants. On average, 5 words were memorized out of 12. The average percentage of words memorized that were from slides with an animation was 44.6%. The total count for words memorized that were on animated slides was 11. The total count for non-animated slides was 14 words.

In experiment 2, the words were displayed by colored fonts (black, red, blue, and green). Each word was a two syllable word. Out of a total 21 words remembered across all the users, there were seven black words, six red words, five blue words, and 3 green words. Words 1-4 were remembered ten times, words 5-8 were remembered only once, and words 9-12 were remembered ten times by users.

In experiment 3, the 12 words were displayed on white and patterned backgrounds. The patterned background is the exact background that is found on the old Kneppy’s Fireworks website. It can be described as a patriotic flag background. Each word was a two syllable word. Out of a total of 21 words that were remembered by all 5 users for this set, 12 were remembered with a blank background and 9 were remembered with the patriotic background.
2.5 Discussion

Our group generated a three part experiment to obtain information on the potential issues. What makes these experiments unique is that each set has its own exclusive attribute. Set 1 had animated .gifs that were taken from the old website. Set 2 had variation in color of words. Lastly, Set 3 contained the background image from the old site. In addition to the results, the user’s thoughts and reactions were also recorded to add to this discussion.

One of our users expressed that “The background reminded me of patriotism and freedom; that is probably why I remembered the words associated with the 4th of July and stars.” As a group, we thought this was very intriguing because every user recorded the word “Fireworks,” which was in the set that corresponded with the patriotic background. Word association can be a valuable asset to web design. The study of this information can help people better understand how to harness the power of colors and how people perceive information. This could result in improved cognitive skills and attention spans. By applying this to knowledge to websites, we can suggest ways to improve upon functionality of Kneppy’s.

Another aspect our group took into consideration are the effects of primacy and recency. Primacy and recency are terms used by psychologists to suggest the effects of order in a presentation. Primacy refers to someone remembering the information that is shown because it is primary or first in the presentation. Recency refers to someone remembering the information that is shown because it is the most recent thing they comprehended (Ritter et al, 2013). This theory suggests that the stimuli in the middle of the presentation are least remembered. We found this effect to be apparent within our studies, as shown in Figure 1.
2.6 Related Research

In Figure 1, the users that engaged in this experiment tended to remember the information in the middle of the stimuli the least. This is a graph from all 5 users for experiment 2. The numbers on the bottom of the chart represent the words in their order as presented. Educational Administrator Bret Webb provides a great example to help people understand this concept.

“i cdnuolt blveiee taht i cluod aul aclty uesdnatnrd waht i was rdanieg. the phaonmneal pweor of the hmuan mind is amazanig. aoccdrnig to a rscheearch taem at cmabrigde unievrsity, it deosnt mttaer in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit plcae. the rset can be a taotl mses and you can sitll raed it wouthit a porblem. amazanig huh? yaeoh and yuo awlyas thohgut slpeling was ipmorantt” (Webb, 2005)

Each word in this paragraph is in its correct place. However, the only letters that are in the correct positions are the first and last letter in each word. The letters in the middle are jumbled. Yet, the paragraph provided is understandable. The brain learns more at the start of the learning and the end of the learning, or in this case, the beginning and end of the data set.
2.7 Implications for Design

As mentioned earlier, word association can play a tremendous role in web design. The designer of Kneppy’s website most likely believed that a background image was essential to the aesthetics of the page. The implementation of the patriotic background caused the users of the site to think patriotically. When one thinks of the word “patriotism” they might begin to express words that resemble freedom, stars, fireworks, 4th of July, and America. Because the word “Fireworks” was on a slide that contained the patriotic background, it made the users associate this feeling with the word that belonged to the same category. A large majority of the other words were not recalled because they did not leave the same lasting impression.

Another potential issue we noticed with Kneppy’s site is the use of too much color. This can cause sensory overload and cause the user to lose focus. Recall in experiment 3, the colorful background seemed to cause less words to be remembered than a simple white background. A solution to this could be to use the right colors in the right places. For instance, Kneppy’s might consider displaying the company policy or mission statement in blue font because blue creates the feeling of trust and security. Red could be used with products in the clearance section because red creates increased urgency and increased heart rate. This could lead to more impulse buying. Because words in black were the most well-remembered colors in our study, Kneppy’s might consider a solid black color for the information that they want users to remember over a longer period of time.

Kneppy’s can also utilize the primacy and recency effects on their users. According to our data, users were more likely to remember words near the beginning and the end of each list. When a user enters Kneppy’s website, they should see the most important information first. Whether Kneppy’s wants to emphasize a new firework, a major sale, or even a mission statement, the first part of the site that users look at will become a more concrete memory for most users. While it is more difficult to predict the last part of the site the user will view, further studies could be conducted to gather such data and help Kneppy’s display their information with the recency effect in mind.

If Kneppy’s chooses to implement any or all of our suggestions, they could conduct further testing to study how big of an impact this made for users. We would expect to see users remembering more words on average if Kneppy’s works towards minimizing potential distractions. We would most likely still see the primacy and recency effects, and an entirely new word set could be created to study word association with the patriotic theme of the website.
2.8 Summary

We found the animated .gifs were distracting and seemed to cause users to remember less words. Kneppy’s used several animated .gifs on the front of their old homepage, and our studies show that this could direct a user’s attention away from the important content. We believe nice graphics are important for web design, so we might suggest that Kneppy’s replaces all animated .gifs with more static graphics.

We used all of the colors in our study that Kneppy’s used on their website. Based on our data, we would suggest Kneppy’s implements more black text within their site. Black words remembered accounted for exactly one third of our data. Kneppy’s might also want to reduce the use of green font considering that was least memorable color. “After all, sight is the strongest developed sense in most human beings. It is only natural that 90% of an assessment for trying out a product is made by color alone.” (Widrich, 2013)

If Kneppy’s takes all of our design suggestions into consideration, we believe their website would be easier to read, and as a result, easier for users to navigate. Kneppy’s needs to reconsider its choice of graphics, font color, and background. We believe Kneppy’s can successfully make these changes and still maintain the patriotic identity they strive to hold.
3. Task Analysis

3.1 Introduction

A key point of website design is maintaining well structured and clear information by putting the key points that the user desires in a readily accessible place such as on the top or emphasized in the middle of a webpage to maintain user interest. This is especially important for commercial sites aiming to attract potential customers.

Our experiment was to measure how long it took each participant to complete common, important tasks on a website. We recorded and analyzed data for two different tasks on kneppysfireworks.com and their competitor’s site, fireworks.com.

After a phone interview with the president of Kneppy’s we learned that Kneppy’s was in the process of redesigning their page with Wordpress (Knepp, 2014). While the following experiments were tested on the old Kneppy’s website, there is still value in understanding the implications we drew from the task analysis.

3.2 Background

Task analysis is an essential process in determining how users operate in different tasks and what steps they take to accomplish their goals. Task analysis also provides the ability to describe and determine different subtasks and goals in detail. The ultimate goal of task analysis is to determine how long it takes for a user to learn and perform specified tasks. Task analysis is thus important for a large variety of applications including task and interface design. This is important for commercial websites such as kneppysfireworks.com as a well designed web interface can lead to more efficient search times and greater customer satisfaction.

GOMS (Goals, Operations, Method, and Selection Rules) is a method of task analysis that is often used in systems where HCI (Human Computer Interaction) or timing is important. It has several important aspects. Goals are states that the user aims to achieve. Operators and Methods are used to achieve the user’s goals. Operators are basic cognitive or motor actions that the user takes and methods are steps taken to realize the user’s goals. Selection Rules are different paths that the users can take to achieve their goals (Zaphiris and Kurniawan, 2007). GOMS differs from other task analysis methods in that it allows for a higher level of detail in its description of different components and steps. It is also especially well suited for analyzing ways to make interfaces easier and more intuitive to use.
The KLM (Keystroke Level Model) is very closely related to GOMS and is essentially a simplified version. Keystroke level modeling is well suited to our experiment as it is optimized for analyzing a task where only one user is interacting with a computer (Ritter et al, 2013). The KLM measures how long it takes users to complete basic input tasks.

The KLM includes times for
- Keystrokes
- Clicks
- Moving the mouse to a target
- Mental preparation for each subtask
- Response time of the system

We aimed to use Keystroke level modeling and by extension GOMS to analyze a selection of tasks. These tasks included finding directions to the nearest retailer and finding the price of a select package of fireworks. As mentioned, these experiments were conducted on the sites kneppysfireworks.com and fireworks.com. By using the KLM and GOMS we planned to discover new solutions to improve efficiency in navigating Kneppy’s commercial website and reflect these findings in our recommendations.

3.3 Method

The first step in our method was figuring out what tasks or goals that we wanted the users to accomplish. We came up with two similar tasks to be completed on Kneppy’s website and the Phantom Fireworks website. The participants were encouraged to give verbal feedback on any issues they had with either website.

To measure the operators or actions the participant used for test we had to figure out what RUI keystroke logger we were going to use. The RUI keystroke logger is a tool that can be downloaded to track every key pressed, mouse click, and other similar actions that the user performs with a timestamp for each action. We decided to use the RUI 2.03 (2008 version) to keep track of the keys the participants were using.

The participants we surveyed were all undergraduate passersby in the IST building. Every participant was in the 18-21 age range. The goal of these tests was to measure time and degree of accuracy. We used the keystroke level model to predict the outcomes. This allowed us to compare our predictions to the actual user times.
1) The first task was to navigate Kneppy’s site to find a way of getting driving directions from the participant’s current location (Penn State) to Kneppy’s main office. Because Kneppy’s uses Yahoo Maps, the participant’s location is automatically filled in, and a route is displayed as soon as the participant clicks Kneppy’s hyperlink to their main office location on Yahoo Maps.

2) The second task was to locate a popular item on Kneppy’s website. In order to reduce variables in our data, we had users find a product that both Kneppy’s and Phantom Fireworks had in common: the 10-ball roman candle. The task ended when the user clicked on the price.

3) The third and fourth tasks were the same as the first and second, but this time, the participant completed the tasks on the Phantom Fireworks website. You can see the results in the next section, detailed in Table 1. We also did a GOMS model (Appendix A) and KLM predictions (Appendix B) to help analyze the results given below.

3.4 Results

Table 2 shows the predicted times based on the KLM against the actual times by the participants. Though Kneppy’s predicted time for location was faster than that of Phantom Fireworks’ site, users were still taking longer to accomplish the tasks on Kneppy’s site.

Though Phantom Fireworks’ predicted time for finding the 10-ball roman candle was slightly faster than Kneppy’s, the participants’ times were noticeably longer than they should have been for the task on Kneppy’s website.
Task Predicted and Actual Times

<table>
<thead>
<tr>
<th>Task</th>
<th>Predicted</th>
<th>Participant 1 - Actual</th>
<th>Participant 2 - Actual</th>
<th>Participant 3 - Actual</th>
<th>Average time of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find Kneppy's Location</td>
<td>10:80</td>
<td>1:20:50</td>
<td>1:08:97</td>
<td>48:86</td>
<td>1:06:10</td>
</tr>
<tr>
<td>Task 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find a Phantom Firework Location</td>
<td>14:80</td>
<td>51:43</td>
<td>25:13</td>
<td>45:31</td>
<td>40:62</td>
</tr>
<tr>
<td>Task 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locate Phantom's 10 ball roman candle</td>
<td>07:05</td>
<td>16:23</td>
<td>17:39</td>
<td>16:64</td>
<td>16:76</td>
</tr>
</tbody>
</table>

Table 2 - Predicted vs. Actual Task Times based on the KLM Analysis

Only one participant completed a given task on Kneppy’s website in under one minute, whereas every task was completed in under one minute on Phantom Fireworks’ website. The time it took users to complete Task 4 was within 1.5 seconds for each user. This was the fastest task for all users to complete, with an average of 16.755 seconds.

3.5 Discussion

The times predicted in the KLM show Kneppy’s as a real competitor to Phantom Fireworks in terms of time spent on task, yet our results do not reflect that. We believe this is caused by external, qualitative factors that are beyond the scope of the keystroke logger’s capabilities. These could be any number of issues, including button descriptions that are difficult for the users to understand, failure to emphasize hyperlinks amongst the other blue and underlined text on Kneppy’s page, and/or distracting qualities on the website such as background or animated graphics. These potential issues are undetectable by the keystroke logger because the logger can only record users' decisions rather than their indecisions.

The longest average task, finding the price of a product on Kneppy’s website, drew the most verbal feedback. Participant #2 had the most trouble with this task, and he
said if he really wanted to buy from them, he would have called the company instead of continuing to look on the Kneppy’s webpage. Participant #3 found the wholesale price first of the 10-ball roman candle first, but he knew it was not what he was looking for. The wholesale spreadsheet was accessed by a button that changes when the user hovers over it, but the link to Kneppy’s retail spreadsheet was a blue hyperlink in the midst of a page full of blue text. This obscure link proved much more difficult for users to find, which lead to poor times compared to the KLM predictions and Phantom Fireworks.

3.6 Implications for Design

The experiments conducted above can be used to make suggestions on what Kneppy’s can do to improve their website. Using the two tasks for Kneppy’s website and comparing them to two identical tasks for Phantom Fireworks, we were able to get the raw quantitative data that describes how quickly users could complete these important tasks. The users’ opinions given above were invaluable for our suggestions.

At the time this study was conducted, we had suggested the following changes to the old website:

- Use a built-in Google Map instead of a hyperlink
- Make the retail spreadsheet stand out from other text
- Include a textbox search option for users to find what they are looking for

Kneppy’s had their address posted on several pages throughout their website along with directions from various locations in central Pennsylvania, but this is no longer necessary. Google Maps allows website owners to easily embed a map on their website, so the user never has to leave the page to get directions from where they are to Kneppy’s office. This feature is included in Phantom Fireworks’ page, and two out of three of our participants took advantage of it (the third went directly to Google Maps after finding the address). All three of our participants were able to find a route from their local address to a Phantom Fireworks store quicker than finding a route to the Kneppy’s office. An embedded Google Map saves the user the trouble of typing in an address, prevents errors that come with typing, and stands out from the rest of the web page so users can find the location by simply scanning the page.

The second change we had suggested dealt with the obscure retail spreadsheet. When asked to find the price of a 10-ball roman candle, every user navigated to the Retail page, then navigated away because they missed the hyperlink in their initial scan of the page. Finding Kneppy’s retail spreadsheet was the most difficult task for users in
our experiment, but a closer look at the results reveals users took less than 10 seconds to find the price of the roman candle once they found the spreadsheet. Kneppy’s should avoid using blue text and underlining for emphasis because those are tools generally used to draw attention to a hyperlink (Shelly and Campbell, 2012).

Finally, since finding Kneppy’s prices was the most difficult task for users on average, we made a second suggestion to help decrease this problem. Phantom Fireworks’ product page features a number of category tabs that greatly assisted our participants in finding the 10-ball roman candle. Once they were on the products page, it was clear that their next step was to locate a tab for Roman Candles. This clear design flow allowed our participants to locate the requested product intuitively, and that was reflected in our results.

3.7 Summary

In this lab, we conducted an experiment to compare the time it took users to complete tasks on Kneppy’s website and compared them to the Phantom Fireworks website. Though the KLM showed Kneppy’s could compete with Phantom Fireworks in time on task, we were able to determine that there were external factors contributing to slow task times on Kneppy’s website.

The number of steps for the tasks on each site as shown in our GOMS model were similar, and KLM prediction times were also similar. Our data for Kneppy’s task times is noticeably longer than Phantom Fireworks times because users had difficulty figuring out how to navigate the Kneppy’s website.

We suggested a number of changes to help mitigate these problems, and fortunately, Kneppy’s implemented many of them in their Wordpress redesign. In the next section, we will assess the changes that Kneppy’s made that are supported by our research and make a few suggestions that Kneppy’s could use to continue to improve the user experience.
4. Notable Changes in the Redesign

4.1 Changes Supported by our Research

In the Wordpress redesign of the Kneppy’s Fireworks website, the designer implemented many of the suggestions we intended to deliver to Kneppy’s. Starting from our Perception-Interaction Lab implications, the large animated graphics on the homepage were removed from the banner. The background and text no longer clash because a wrapper class with a white background was implemented between these two layers.

The Task Analysis lab had three major implications, which were mostly covered by the update. Kneppy’s now has a built-in map for users to get directions and the retail spreadsheet is now a button link instead of an in-text hyperlink. Kneppy’s also implemented a search bar, but its capabilities are limited.

4.2 Suggestions for the Future

While the new website implemented many of the changes we intended to suggest, there are a few more implications Kneppy's should pay attention to based on our research.

1.) The primary font color should be black for all pages.
2.) Kneppy’s should improve its search bar functionality to encompass their products.
3.) Identify common tasks and optimize the website to support them.

Our Perception-Interaction lab featured implications about font color choice that Kneppy’s should consider for a future update. In Experiment 2, we discovered that users were able to focus on and recall black text more effectively than red, blue, or green text. The redesign features red headings with blue paragraph text and red hyperlinks. If Kneppy’s switched the blue paragraph text to black, users would have an easier time recalling information and Kneppy’s could adhere to the standard practice of reserving blue for hyperlinks.

On Phantom Fireworks’ website, the search bar allows users to search for products. However, on Kneppy’s website, it is only capable of searching for content that is in-text on the website. Because the products are only available on external spreadsheets, users will not be able to find prices or be able to order as easily as they can on fireworks.com. In our Task Analysis lab, users often utilized the search bar to find the
10-ball Roman candle, but this functionality is still missing from Kneppy’s updated website.

Kneppy’s needs to keep the user in the forefront of their minds when designing the website. The most common and crucial tasks should be identified and supported. Functionality is the most important aspect of a website. Kneppy's can use the same methods we did in our labs to conduct future usability experiments on various design techniques. While our research shows Kneppy's took some steps in the right direction with the new website, they could continue to optimize the usability of their website by following our suggestions.
5. Conclusion

After a semester of research and usability studies, we are finally able to make our analyses available to Kneppy’s Fireworks for their own purposes. Our Perception-Interaction lab analyzed elements on the site, and our Task Analysis lab allowed us to break down common procedures. In their Wordpress site update, Kneppy’s made many changes that we can back up with research presented in this report, and there are a few more changes that could still be made to further improve user experience.

With this report in hand, Kneppy’s will not only have our suggestions, but the methods, tools, and resources we used as well. This will get Kneppy’s started in the right direction if they would like to begin testing users on their new interface and compare the results to our data. Our results will give Kneppy’s a feel for how users interacted with their previous website with a focus on their issues and frustrations.

Finally, we would like to note that trends are constantly changing. We are living in an age where technology is rapidly evolving, and there is no one-design-fits-all template to design a flawless web interface. We can, however, provide this report to suggest ways that Kneppy’s can make their site more friendly to novice users, reduce common errors, and cut time on task.
6. Appendices

6.1 Appendix A

GOMS

Task 1
GOAL: Find route from current location to Kneppy’s
  GOAL: Assess tabs to determine the page that has the map link
  SELECTION: Choose the correct tab
  GOAL: Select the map hyperlink on the page
  GOAL: Find directions
  SELECTION: Choose another location than default (optional)

Task 2
GOAL: Find the price of a 10-ball roman candle from Kneppy’s
  GOAL: Assess tabs to determine the page that has the retail spreadsheet
  SELECTION: Choose the correct tab
  GOAL: Locate the hyperlink to the retail spreadsheet
  GOAL: Locate the price of a 10-ball roman candle

Task 3
GOAL: Find the route from Penn State to any Phantom Fireworks location
  GOAL: Assess tabs to determine the page that has the location
  SELECTION: Choose the correct tab
  SELECTION: Choose any state
  GOAL: Input your location (Penn State)

Task 4
GOAL: Find the price of a 10-ball roman candle on Phantom Fireworks
  GOAL: Assess tabs to determine the page that has the products
  SELECTION: Choose the correct tab
  GOAL: Assess categories to determine which has roman candles
  SELECTION: Choose the correct category
  GOAL: Assess the category page to find the 10-ball roman candle
6.2 Appendix B

KLM

Task 1 - Find a route from current location to Kneppy’s
Step 1: Mentally assess the homepage M
Step 2: Move hand to mouse H
Step 3: Move mouse to “Location” button P
Step 4: Click “Location” button (0.2)
Step 5: Mentally assess the Location page M
Step 6: Move mouse to “Click Here” hyperlink to Yahoo Maps P
Step 7: Click “Click Here” hyperlink (0.2)
Step 8: Mentally assess the Yahoo Maps interface M
Step 9: Move mouse to hover over destination marker P
Step 10: Move mouse to hover over “Directions” link P
Step 11: Click “Directions” link (0.2)
Step 12: Mentally assess that the route has been found M
Task is complete

4M + H + 4P + 3(0.2) = 10.8 seconds

Task 2 - Locate Kneppy’s 10 Ball Roman Candle
Step 1: Mentally assess the homepage M
Step 2: Move hand to mouse H
Step 3: Point to “Retail” button P
Step 4: Click “Retail” Button (0.2)
Step 5: Assess Retail page M
Step 6: Point to “PDF” link P
Step 7: Click “PDF” link (0.2)
Step 7: Assess “PDF” M
Step 8: Find price M
Task Complete

4M + 1H + 2P + 2(0.2) = 8.4 seconds

Task 3 - Find a route from Penn State to any Phantom Fireworks location
Step 1: Mentally assess the fireworks.com homepage M
Step 2: Move hand to mouse H
Step 3: Move mouse over “Location” tab P
Step 4: Click “Location” tab (0.2)
Step 5: Mentally assess the “Location” page M
Step 6: Move mouse over State P
Step 7: Click State (0.2)
Step 8: Mentally assess the by-states page M
Step 9: Move mouse over a location marker on the map P
Step 10: Click the destination of your choice (0.2)
Step 11: Move mouse over “Get Directions To This Location” link P
Step 12: Click the “Get Directions To This Location” link (0.2)
Step 13: Move mouse over “Your Address” textbox P
Step 14: Click in the “Your Address” textbox (0.2)
Step 15: Type “Penn State” (0.12 * 10)
Step 16: Move mouse over Go button P
Step 17: Click the Go button (0.2)
Step 18: Mentally assess the Google Maps interface with route now visible M
Task Complete

4M + H + 6P + 6(0.2) + (0.12 * 10) = 14.8

**Task 4 - Locate Phantom's 10 Ball Roman Candle**
Step 1: Mentally assess homepage M
Step 2: Move hand to mouse H
Step 3: Point to “Our Products” button P
Step 4: Click “Our Products” Button (0.2)
Step 5: Mentally assess Our Products page M
Step 6: Point to “Roman Candles” link P
Step 7: Click “Roman Candles” link (0.2)
Step 8: Find price M
Task Complete

3M + 1H + 2P + 2(0.2) = 7.05 seconds
7. Resources


