Analysis of: Wanamaker Entertainment Group’s Website

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Class Project for IST 331, Sec 001
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**Abstract**

This report examines the website of Wanamaker Entertainment Group, Wanatix.com. An analysis of the website was made and, after completing labs about human learning, perception, and task analysis, suggestions are given to make the website as efficient and clear to the user as possible. Included in the suggestions is a functional model of the website.
# Table of Contents

1. Introduction .................................................................................................................. 4  
   1.1 Objectives ............................................................................................................... 4  
   1.2 Why Wanamaker Entertainment Group? ................................................................. 5  
   1.3 Wanamaker Entertainment Group’s Website ......................................................... 5  
   1.4 Labs ......................................................................................................................... 7  
2. Learning Lab ................................................................................................................... 7  
   2.1 Introduction ............................................................................................................. 8  
   2.2 Methodology ........................................................................................................ 8  
   2.3 Results .................................................................................................................. 10  
   2.4 Analysis ................................................................................................................. 11  
3. Perception Lab ............................................................................................................... 13  
   3.1 Introduction ........................................................................................................... 13  
   3.2 Methodology ........................................................................................................ 14  
   3.3 Results .................................................................................................................. 15  
   3.4 Analysis ................................................................................................................. 16  
4. Task Analysis Lab ......................................................................................................... 18  
   4.1 Abstract ................................................................................................................ 18  
   4.2 Introduction ........................................................................................................... 18  
   4.3 Methodology ........................................................................................................ 19  
   4.4 Results .................................................................................................................. 20  
   4.5 Compared Predictions and Analysis ................................................................... 21  
5. Conclusion ..................................................................................................................... 22  
   5.1 Summary of Lab Results ...................................................................................... 22  
   5.2 Recommendations ............................................................................................... 22  
   5.3 Functional Model ................................................................................................. 23  
Works Cited ....................................................................................................................... 27  
Appendix A. Instruction Forms ......................................................................................... 28  
   A.1 Learning Lab ........................................................................................................ 28  
   A.2 Perception Lab ..................................................................................................... 29  
   A.3 Task Analysis Lab ............................................................................................... 30  
Appendix B. Learning Lab ............................................................................................... 31  
Appendix C. Perception Lab ........................................................................................... 37  
Appendix D. Task Analysis Lab ....................................................................................... 39
1. Introduction

Wanamaker Entertainment Group, known informally as Wanamaker Tickets, is a ticket resale website based out of Philadelphia that focuses on events based out of Philadelphia. With so many big name websites out there to compete with, Wanamaker needs to make sure that their website is as appealing and customer-friendly as possible. We performed studies on usability on their website, www.wanatix.com. These studies, which will include methodologies such as KLM Predictions, GOMS, and perception studies, will help gain an understanding of what improvements need to be made with the website in whole. With the completion of these studies, we will suggest both major and minor improvements to the website. We hope these suggestions can be put into place by the web coder, who we have kept in contact with over the course of the semester, and the overall usability of the site will increase.

1.1 Objectives

As stated, our main objective for this project was to come up with suggestions based on studying users that Wanamaker would be able to use to make their website better. To accomplish that goal we wanted to learn more about what types of studies yield the most useful results when improving website design. We hoped to gain a better understanding of website design through this experience and hopefully learn many methods of testing different aspects of website usability and gathering data which we will be able to use in the future.
1.2 Why Wanamaker Entertainment Group?

We chose Wanamaker because we knew someone involved with the website and we saw that there were definitely improvements that could be made to the website. We thought that since we knew someone so close to the website that our suggestions would have a better chance of being listened to as well.

1.3 Wanamaker Entertainment Group’s Website

Wanamaker Entertainment Group has a bold website with lots of information for its customers. Popular event categories are placed in a menu toward the top of the page, as seen in Figure 1 below.

Figure 1 - Wanamaker Entertainment Group Home Page - www.wanatix.com
Some great customer service information is also shown at the left of the page under, “Why Wanatix.com”. The “Top Events” section is kept up-to-date and has been updated throughout the project. The site is functional, though imperfect. As seen in Figure 1, the top portion of the website is very cluttered and overwhelming to users. One particular issue with this is that the search bar gets lost with so much going on. Another issue is that the company logo is not the most prominent item in that top section of the site. Additionally, the “Why Wanatix.com” menu is not descriptive and, with checkmarks beside each point, appears to be no more than a list of text. There is a great deal of content shown on the homepage, and we thought that the way the “Top Events” were presented was clear and effective. It is also important to note that much of the content on the page is very important, and should remain on a new reorganized, uncluttered website. One aspect of the website we found unnecessary was the “Page Loading Just a Moment...” screen that appeared after every click throughout the website, as shown in Figure 2 below. Wanamaker is a company that is driven by its users having a great experience, and that is prevalent throughout the website. We found the polite “Loading” message to the customer to be bothersome after a few clicks. While it may be a nice addition when the home page is initially loading, we felt it did not need to be repeated.
1.4 Labs

We completed three labs in IST 331 that specifically related to our assessment of Wanatix.com. The first lab focuses on the learning curve. We learned through a simple motor skills test that humans do follow this learning curve. The perception lab was one of the most valuable labs we completed, as it allowed us to assess how users said they felt about the Wanatix.com home page. The results from this experiment were very important when creating our recommendations. The task analysis lab allowed us to test users and analyze their reasoning behind their methods when completing important tasks on the website.

2. Learning Lab

The objective of the Learning Lab was to better understand how users learn when they repeatedly complete tasks. This will be useful to determine what kinds of tasks users learn the
quickest and what how long we should expect it to take for users to become proficient at completing any new tasks that are created.

2.1 Introduction

The ability to adapt to new surroundings has been the principle human trait which sets them as the dominate species on our planet. The human brain's ability to adapt to new surroundings quickly is remarkable in that it allows us to take one task such as moving to going away to school and as a freshman getting used to your new lifestyle. There is a certain repetitive schedule that the brain has to get used to such as remembering what time and where your classes are, when to go to the gym, when to study, and everything in between. By the end of your first couple weeks of school you have your routine memorized. This is also a function that the brain can do on a much smaller scale. Our group came up with a project based on the brain's ability to memorize things and places and how quickly this can be learned and done swiftly with increasing accuracy. However, in this project you will see, that individual human brains are like fingerprints; not all are the same.

2.2 Methodology

In this experiment, five subjects were chosen to perform a task that tested their learning skills. These subjects were selected from our IST 331 class. We selected the completion of an online jigsaw puzzle (www.jigzone.com) as the task the subjects needed to complete. This task was performed fifteen times in one sitting for each subject. The same image and puzzle cut (amount and shape of pieces), as seen in Figure 3 below, were used throughout the experiment. This specific puzzle cut was chosen because the average completion time was 126 seconds. This meant that the task was long enough to show learning progression, but short enough to be performed fifteen times in succession.
Figure 3 - Screenshot of the scrambled JigZone puzzle

We utilized the stopwatch feature on this website to time our subjects; it starts at the first mouse click inside of the box containing the puzzle pieces. The timer stops when the puzzle is complete. We chose to do this because it was more accurate than a stopwatch controlled by a human—it minimized user-error.

Each user, a student that we know at Penn State, was seated in front of a computer with the correct puzzle and puzzle cut open in a browser window. The users were only tested on the amount of time it took to complete the puzzle. The subjects could initiate the task whenever they were ready. They were given roughly ten seconds between trials. To perform additional trials, the users selected a link on the website named “Start Over”. This simply reset the puzzle, keeping the image and puzzle cut the same. This made it very easy for the users to perform so many trials.

It is important to note that the pieces of the puzzle are constant—the only thing that changes when the puzzle is reset is the physical location of each piece. It reduced the amount
of variables, which made our experiment more accurate. This is what made it an excellent task to choose for our experiment. Keeping the actual puzzle pieces constant allowed for a task that tested the subjects’ learning abilities.

### 2.3 Results

Our results, seen in Table 1, showed that generally, the more times the subjects completed the puzzle, the quicker their finish times became. All of the subjects ended up with a noticeably better time on their fifteenth trial compared to their first trial. The subjects also all showed similar trends of decreasing their times by larger amounts in about the first five trials and then decreasing at a slower pace in about the last ten trials.

<table>
<thead>
<tr>
<th>Trial Number</th>
<th>Subject 1</th>
<th>Subject 2</th>
<th>Subject 3</th>
<th>Subject 4</th>
<th>Subject 5</th>
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</tr>
</tbody>
</table>

*Table 1 - Table of Subject Trials*
We did notice some other interesting facts about the subjects throughout the trials. The first was that the subjects did not always do better than their previous time. 1) Every subject regressed a small amount at least once throughout the fifteen trials. This can likely be attributed to the fact that the subjects did not always go about solving the puzzle the exact same way, and their different strategies or starting points may have ended up taking longer for them. 2) Another interesting note is that every subject seemed to hit a wall somewhere between about 60 and 90 seconds. Somewhere in that range, the subjects’ times generally stopped showing much improvement and started to fluctuate in that range. This led us to believe that around that range, there was little improvement that could be made to the subjects’ ability to solve the puzzle any faster. Lastly, we noticed that none of the subjects’ fastest times were their final times. The fastest times were recorded on the ninth, eleventh, twelfth, and fourteenth (twice) trials. This seemed to be related to the previously noted “wall” that the subjects hit at a certain point.

As far as the differences in the exact times that the subjects finished with, there were a few factors that could explain that as well. Obviously everyone has different levels of puzzle solving ability and learns at different speeds so there were bound to be some differences that arose from that. There were also some factors that we couldn’t control, although we did our best to minimize them. For instance, we did not have each subject solve the puzzle on the same computer so there may have been some differences in the computers that slightly aided or hindered the subjects.

2.4 Analysis

Based on our findings from this lab, it should be safe to conclude that users do indeed get better at tasks the more they do them, up to a certain point. This finding agrees with our initial thinking and hypothesis about the trials as a whole. As previously mentioned, our subject hit a point where the percentage of improvement became insignificant. This point, or “wall”,


usually hit early on - generally around trial 5 or 6. In Figure 8, which is a linear graph of the averages of the subjects’ times, we can see that this ‘wall’ was hit on the fifth trial. This can be seen by noting that the 5th trial is where the subjects begin to have minuscule differences in their times in comparison and relative to the first 4 trials.

Because many of the factors involving these trials remained constant, it can be said that a great attribute to improvement was working memory. Working memory helped our subject by means of focusing on the one particular task and having a short-term memory (STM) block of information being put to repetitive use. The working memory of this task helped our subjects to store information about the repetitive task - which caused the increase in times. Also, the STM provided a big help to the subjects early on, as with each early trial times got much better (Ritter & Churchill, 117-119). We can see the example of this by seeing how early times, which were done with little to no stored memory of the task, were much worse than the later times in which the subjects began to build a memory of where the puzzle pieces were supposed to go and which pieces linked to which other pieces.

These finding can help applications in more than just puzzle solving. For example, we can use this data to help businesses with usability of various parts of their company. As a specific example, if we were to take a corporate website, we could pick apart features of that given website and find the general learning curve for parts of that website. Much of that process would be similar to our trials in that we would graph and analyze the data of time taken and find a learning curve index for those features. This would give us, as analyzers, a rough understanding of how usable and easy to learn that certain feature would be - given how quickly the average user would take to hit the “wall” of improvement.

This very same concept can be applied to any given task with human-computer interaction (HCI). We can do trials, similar to the ones performed with our puzzle, and perform an analysis based of usability and a learning-curve index. This method of giving an index to
usability can be applied to a variety of fields within HCI, and can then allow an in-depth analysis on how easy a given task, aspect of a website, or interaction is for an average user.

3. Perception Lab

The objective of the Perception Lab was to understand how users perceive websites and to learn what they want to see. This would help us develop suggestions on visual changes to the website based on what potential users told us they would like to see. The users’ perceptions are one of the most important considerations when creating a website because if you want users to like the website and come back then it is important to create a design that will appeal to them.

3.1 Introduction

The first impressions of a website are crucial to its success. How fast a user can read and find the information they are looking for can determine the website's overall usability. In order for a website to be successful and continually have tons of daily visitors, it has to be easy to use and the links must be working and efficient. With millions of websites on the Internet, how does one website stand out from the rest? If you wanted to buy tickets to a sporting event, how do you know which websites are legitimate and which ones have the lowest prices?

Websites are very much like people in that they are each unique, individual, and have about 1 or 2 quick seconds to make a good first impression and catch the eye of the potential customer or visitor. If a user goes on a website looking for sporting tickets but instead sees links and pictures of flowers, hotel rooms, cheap airfare, or something irrelevant then the user will find another website and most likely never go back to that one. Our team has devised a
project based on this human reaction; we set up an experiment to test how people react while visiting different websites. People tend to use websites based on how well they work and how quickly a user can get the information that they are looking for. If a user is happy with the results, they are most likely going to go back to that website, making the company successful. As you can see, having a user friendly website is highly important if you want users to keep coming back to it. It seems as if the best designed websites are the ones which have the most traffic, thus making it successful.

3.2 Methodology

We chose to examine seventeen subjects regarding the short-term perception of the website of Wanamaker Entertainment Group (In Wanamaker). This experiment studied seventeen subjects aged 18-22 with varying knowledge of technology. These subjects claimed to have not visited the website previously. The experiment was conducted using Firefox version 8.0 for every trial. The subjects were permitted five seconds to look at the website’s homepage, as seen in Figure 4. For consistency, an iPhone stopwatch was used to time this.

![Figure 4 - Screenshot of wanatix.com homepage](image-url)
The website was loaded before the subjects were permitted to look at it, so as to ensure the answers given were not based on how the website loaded. Additionally, before the subject was shown the website, they were told that this company was a ticket reseller based in Philadelphia, PA. After it was loaded, the subjects were permitted to examine the home page for five seconds. They were then asked:

- What three items were most memorable?
- What three items do you think should be most memorable?
- On a scale from 1 to 10, how successfully do you think the company conveyed their message?

The subjects were asked these questions after they had finished looking at the website. We recorded these answers in a spreadsheet.

3.3 Results

We compiled lists of the top five most reported elements of the website (Table 1) and the top five elements people believed they should notice (Table 2). When we gathered our subjects’ opinions we tried to group similar elements since not everyone was going to report what they saw using the exact same words. As such, we made some assumptions as to what our subjects reported. As seen in Table 1, the things that people reported remembering the most were the Philadelphia Phillies, the No Hidden Fees banner, contact information, social media buttons, and the Wanamaker logo. If this is compared with the results from Table 2 there is a good amount of difference between the two. The average rating that our subjects gave the website for its effectiveness was a 5.35 (with the highest rating being an 8), which reflects the difference between the two tables well and shows that there is some room for improvement as far as the website design goes since the results show that our subjects did not notice everything
that they believed they should on a ticket buying website. Based on these results it would seem that the website would benefit from some visual redesign and/or reorganization that would highlight what users want to see most on a website for buying tickets.

There were some interesting things we noticed during this lab. First, there were a wide range of things that people reported noticing. Even after we grouped some of the answers together there were still eighteen different elements that were reported just from looking at the initial screen. This led us to believe that the home screen is likely overly crowded with information compared to most websites. We also found that our subjects reported a wide variety of elements they thought they should notice (16). This shows that it would be difficult to please everyone when deciding what elements to make most prominent on a website.

3.4 Analysis

Based on our results, we feel it is safe to conclude that our findings, as a whole, show that the average user rating is of 5.35 out of 10. In the comparison between Table 2 and Table 3, only 2 items were consistent with what our subjects found most memorable and what they thought should be most memorable on the website. These 2 items were “Wanamaker Logo” and “Upcoming Events”. For “Upcoming Events” we merged this with top spot in Table 2, which was “Phillies”, as this is a major upcoming event(s) Wanamaker is selling tickets for.

When we asked the subjects about what they thought should be the most memorable aspects of a ticket reselling website, they mainly focused on what events were going to happen, in most cases in their area, and how to get said tickets. With this given information, we can say that our subjects were focused more on knowing what events were in their local area and how to quickly purchase them. However, this did not reflect on what our subjects found most memorable on the website. On wanatix.com, our subjects found contact information and social
media most memorable. This difference in data shows the website’s major flaw in usability and first impression.

According to Palmer Web Marketing, web designers and web pages themselves get 5 seconds to be aptly judged by a user. They mention that users do not know much about web design as a whole, but can certainly be a good judge of poor web design (Palmer). This holds true in our trials - as we gave our users only 5 seconds to view a website they claimed to have never seen before. Another major part of this is the human limitation factor. In section 5.1: Introduction of *The Basics of Human-System Interaction*, it states “We need to understand the users’ limitations, processing capabilities, and characteristics, so that we can allocate functions between the user and the device for maximum effect” (Ritter & Churchhill, 76). This holds true in that, to maximize the effectiveness of a website, we must understand the limitations and characteristics of users. With that information, we would be able to properly place most aspects and items on the web page in the order and place that would be most user-friendly.

### 3.5 Conclusion

To further our reports on the perception about memorable aspects of the website, we feel it would have been good to have gotten insight directly from Wanamaker Entertainment Group. We feel that it would be beneficial to this study to have known exactly what their developers intended to be the most memorable parts of the website. With that information, we could have done further analysis on how closely related what our subjects reported and what the developers intended.
4. Task Analysis Lab

The purpose of the Task Analysis Lab was to figure out how difficult it is for users to complete some of the important tasks on the website by comparing their times to models that predict what the times to complete the task should be. By doing this we can find out if the tasks are designed as well as they could be.

4.1 Abstract

This lab was done in order to examine how easy and fast it was for potential customers to perform important tasks related to buying and selling tickets at wanatix.com. We focused on the two tasks, buying Philadelphia Union tickets and inquiring about selling tickets. Both tasks generally took longer than we had predicted based on our KLM’s. We found that the Philadelphia Union tickets generally went farther over the predicted times than inquiring about selling tickets. We have concluded that both tasks could use some improvement in helping the customer complete the task in a timelier manner.

4.2 Introduction

Imagine yourself sitting at your computer wanting to buy flowers for Mother’s Day. You would want to go to a website that is quick and to the point--get in and get out (no guy wants to be caught by his buddies buying flowers). The quicker you can get on a website, order what you need, and log off, the better. When people in the current age of technology surf the web, they expect a world of information and knowledge to be available be right at their fingertips. Now, we all know that the World Wide Web is so vast that it takes a little bit of browsing to find something specific a user may want from that particular website. In our examples, we used a website for buying tickets to sporting events. We took test subjects to complete tasks in order to
find the standard average time for completing a certain task on that particular website. Some websites may be easier to find the information you are looking for than others, making that website more dependable and giving it higher traffic volume. This is a key point to keep in mind when owning and operating an online business.

4.3 Methodology

Our group chose to analyze www.wanatix.com, an entertainment ticketing website for the Philadelphia area. We selected two crucial tasks that customers must be able to perform: purchasing a ticket and contact the company. For both tasks, each subject began the task with the wanatix.com homepage already loaded in a fullscreen window. Prior to the subject testing, we completed a Keystroke Level Model (KLM) and Goals, Operations, Methods, and Selection rules (GOMS) analysis of the tasks. We completed these analyses in, what we believed to be, the most direct manner. We used the KLM and GOMS to predict a time and method for our subjects. Our subjects were ten students from the College of IST. They each claimed to have never seen the website before. We chose to have subjects find the least expensive ticket for the next Philadelphia Union match and add that ticket to their cart. Then, they were to continue to “purchase” that ticket by using the following information:

Email: coolbuyer##@gmail.com
First Name: Cool
Last Name: Buyer
Phone Number: 1234567890

The task was complete when the subjects had reached the shipping and billing screen. For the second task, subjects were prompted to ask the company about selling a ticket. After
they reached the final “contact” screen, subjects were each given the same contact information to enter. They were instructed to not actually submit their information to the company—just to enter it. The task ended after they had finished entering the given information.

4.4 Results

For this lab we ran ten subjects through the two different tasks and recorded their times in Table 4. The mean time for buying tickets to an MLS game was 53.17 seconds and the mean time for inquiring about selling tickets was 47.42 seconds. This indicates that based on our trials, inquiring about selling tickets is the easier task for most people. This would seem contradictory based on our KLM predictions, but this can be explained because most of the subjects did not end up using the KLM path we came up with for buying Philadelphia Union tickets. This shows that there should be some consideration as far as making sure people know the easiest path. There were a couple of subjects that returned outlying results, both high and low, that could be attributed to a familiarity with online purchasing or a lack thereof. The times for buying Philadelphia Union tickets generally seemed to be more standard than the times for inquiring about selling tickets, which were much more varied. This would seem to suggest that the latter is a process that could use further improvement by giving the customer a more defined path. The process for inquiring about selling did have more times around, and even below, our KLM estimate though, which means that there are quick paths that our subjects found. Some of the subjects got lost temporarily while searching though since there is nothing that explicitly says anything about selling. Those quick paths could be easier to find for people who are more unfamiliar with ticket selling websites if such a label was added on to the website.
4.5 Compared Predictions and Analysis

According to our KLM Model, our predictions for both tasks were generally faster than how most of our subjects performed. Our prediction for Task 1, which consisted of buying the cheapest Philadelphia Union tickets, was 23.46 seconds. Our prediction for Task 2, which consisted of asking the company about selling tickets, was 30.26 seconds.

For Task 1, our average was 53.17 seconds. We had one outlier, which was Subject 3, who had a time of 77.75 seconds. With the exception of Subject 3 in Task 1, all of the subjects were within 10-15 seconds of the average. Also, none of our subjects had a time that was faster than our KLM Model prediction.

For Task 2, our average was 47.42 seconds. Similar to Task one, Subject 3 was an outlier in this task, with a time of 127.19 seconds. Within Task 2, we had an interesting find, in that one of our subjects had a time faster than our KLM Model prediction. This subject, Subject 4, outperformed any other subject in our tests and was the only one to get any result that was lower than our KLM Model prediction. We did not expect a result like this to occur. This faster speed can be attributed to a number of reasons, such as our choosing of an average typing speed for the KLM, familiarity with ticket selling websites, or familiarity with contacting websites/companies.

Another interesting find was during Task 1. In our KLM Model predictions, we accounted for the user clicking the “MLS Tickets” button on the website to find tickets for the Philadelphia Union game. As it turned out, not a single one of our subjects clicked this button and every one of them proceeded to use the search bar to search for the Philadelphia Union tickets. We believe this threw off our comparisons to the KLM Model prediction for Task 1.

As for the page and function usability, in Task 1 the average time was 2.27 times slower than the KLM Model prediction. For Task 2, the average time was only 1.57 times slower than the
KLM Model prediction. From this, we can say the Task 1 needs most reworking in terms of usability.

5. Conclusion

From these labs we have found some areas of Wanamaker Tickets’ website that could be improved from a usability standpoint. Based on these findings we will suggest changes that we hope Wanamaker Entertainment Group will take into consideration to help improve their website and business.

5.1 Summary of Lab Results

The Learning Lab showed us how the more times users complete a task, the quicker they will be able to complete it in the future. In the Perception Lab we found that users did not find what they wanted to see on the homepage of Wanamaker’s website. The difference was pretty stark and seemed to merit some considerations for redesign on the visual aspects of the website. The Task Analysis Lab showed that users complete tasks on the website in multiple ways and with very differing times. Based on these finding there are likely ways that would make tasks easier to figure out and complete with more regular efficiency.

5.2 Recommendations

Based on our studies and the experiments we ran we came up with some suggestions that we believe Wanamaker Entertainment Group would be wise to implement. The top of the home screen should be much less crowded. Based on our Perception Lab, we saw that there
was a very wide variety of responses on what users reported noticing the most. If there was less clutter on the homepage, specifically at the top, Wanamaker could make sure that their noticed the most important things and maybe spread some of the less important things to other areas of the screen so that they all received ample attention instead of having users try to take them all in at once. We also thought that the menu buttons could be designed better. They are rather small and are all condensed into an area without much room. We noticed that users did not use them very much which is likely because they don’t stand out and attract the user’s attention. This theory is supplemented by the fact that not many users reported noticing the buttons in the Perception Lab. One way to do this would be to organize the buttons into categories and have each category be a pull down menu. This way the buttons would have more room to stand out and it could also help users find things more efficiently. Another way to help users find things more efficiently would be to add buttons that directed users to some of the more difficult to find aspects of the website. For example, our users had some difficulty finding the correct way to sell tickets, so if there were a button that said something along the lines of “Selling Tickets? Click here”, users would find that very helpful. Finally, we thought that it would be a good idea to get rid of the “Page Loading” screen whenever a user changes pages. It was just something that we thought distracted from the user’s attention and was really unnecessary seeing as the pages load quickly enough. Wanamaker wants to keep the screen though so we did not spend too much time on trying to fix it.

5.3 Functional Model

After working with the web developer of Wanamaker Entertainment group, we have collaborated on a new and improved design for the website. This test website is live and functional, however not advertised to the public, and can be found at:
http://www.wanatix.com/indexTestNew.aspx. This design implements changes that our subjects felt were necessary, changes that increase overall usability, and changes that allow for easier navigation.

As shown in Figure 5 below, the design of the website has been dramatically changed. Per the results of the perception lab, we have decided to create a design with a prominent search bar, a large site logo, upcoming and popular venues, a “Buy Now” button, and a “No hidden fees” disclaimer. With the combination of these features, the website more geared towards what subjects reported that they wanted to see.

![Screenshot of functional model](image)

**Figure 5 - Screenshot of functional model**

In our Task Analysis Lab, we had users search for the cheapest Philadelphia Union tickets they could find for the team’s upcoming, at the time of lab, match. During this, we noticed that not many users actually knew what sport the Philadelphia Union played, let alone
knew that the league they played in is called Major League Soccer (MLS). Many subject noted that they did not know what some of the sport acronyms, like NHL and MLS, corresponded to what sport. Because of this, we decided it would be good to add the name of the sport in addition to the sport’s acronym. As shown in Figure 6 below, the sport that corresponds to the acronym has been added to allow a wider user base to be more familiar with the website. This also will decrease the time of the user’s mental operator, as both the name of the acronym and the name of the sport will be present, allowing for both key phrases to be mentally registered by the user.

![Figure 6 - Screenshot of the Sports submenu](image)

One of the main improvements of this website is with its quicker to navigate. Continuing with the results of the task analysis lab, showing that most users use the search bar to find tickets, we have made the search bar more easily recognizable. Because of this, the KLM of
the new design will warrant a quicker overall time. Although the latter steps of finding a ticket will be the same, as we only did a redesign of the homepage, the first steps of homing to the mouse, a mental operator, pointing to the search bar, and clicking the search bar will be a faster process. This is due to the decreased time in the mental operator, which allows a user to find the desired search bar quicker.

Overall, we feel that the new design is successful. It has been redesigned using direct subject feedback, feedback from the web developer of Wanamaker Entertainment Group, as well as the objective results from our labs. The website appears less cluttered than the original, and it will allow for a user to navigate through quicker than the original design. We hope that Wanamaker Entertainment Group will appreciate the benefits of the new design and will consider implementing it as their working design in the near future.
Works Cited


Appendix A. Instruction Forms

These instruction forms are the guidelines we used for each given lab. They break down the goals, guidelines, and explicit instructions for each part of the labs. They can be found at: http://acs.ist.psu.edu/ist331/.

A.1 Learning Lab

In this lab you will explore how people learn, an important component of human behavior, including with respect to human-computer interaction.

Prior to the lab you should prepare a task for subjects to perform. This task should take about 2 minutes on their first trial. You should prepare instructions as well, as you will be having someone from another group perform the task. If the task is longer than 2 minutes, it gets hard to run 10 trials. If it is less than 2 minutes, it may get hard to time as the subjects get faster. 2 minutes is a rough estimate. anywhere from 70 seconds to 210 seconds is likely to work, and greater or lesser amounts will to a certain extent.

In the lab, you will run 2 to 5 subjects on your task. These subjects will come from other groups.

The subjects should each perform the task at least 15 times. You may choose to run 5 subjects on the task 15 times (at most, 5 subjects x 2 minutes x 15 times ~ 100 minutes, so you will have to run in parallel), or you might choose to run 2 subjects over a longer series of trials. You will probably have to split your group in two, some to be subjects for another group, the others running subjects on your task.

You should record the time to perform the task each time, and note if the subject made any errors, significant errors, or catastrophic errors. Some of these suggest that something besides normal learning was going on, or that a trial was unusual.

At the end of the first hour, we will attempt to prepare a spreadsheet noting the times from each group. (This graph may be prepared outside of class.)

In your writeup of the lab, you should

1. Note what your group did, in terms of
   a. the subjects (type and number)
   b. the task
   c. how they did the task
   d. how many times they did the task
2. Provide an analysis, including a plot, of how long it took your subjects
3. You should provide this plot for each subject, or a big plot, and an average plot on both log-log and linear coordinates.
4. You should discuss what it means
5. You should make reference to any of the readings (such as the ABCS) and to the group plot.
   a. about your task
   b. for learning in general
   c. for HCI
   d. for business or some other application
   e. Any other impact or comments on learning

The resulting paper should be written in concise but precise terms and is likely to be between 5 and 8 pages. You will find that figures and tables can take up room.

A.2 Perception Lab

The perception interaction lab can be done in two ways.

(a) The most straightforward way is to use the resources on the web site (e.g., the color-blindness link, the color wheel, the popout applet), and run 4 subjects on a subset of the stimuli that they create.

What the subjects do should be motivated in some way. This motivation can be very direct, for example, we wanted to see the popout effect and how much it helped find things. It can also be related to your course project or to other questions (e.g., one of our group thought that italic might be easier to find on the screen on our project web site).

(b) The less straightforward way is to design some stimuli where perception is important (i.e., not mental models, not cognition, not social) and that is related to your project. One example that comes immediately to mind is a group that is looking at how fast several different fonts are read and how people like each of them. This is directly related to their project because they think the fonts could be improved on their project web site. There are many related choices. For example, bigger fonts are easier to read. But they take up space. How much faster? You would need to know how much faster if you are going to make a reasonable choice about faster to read vs. having to scroll.

Both approaches have to be clear about why you chose what to do (that's the introduction). Both approaches have to say what you did (thus, the methodology), and what you found (the results), and what the results mean (the discussion or conclusions, or both). All these points must be briefly reported in the abstract.

This is thus a real, live lab, that can lead to individual learning, and that can have impact on your project. When you turn in two copies, we will mark up one, and another group will mark up another. (Having two audiences in mind is helpful, as when you write, you may think differently about how to explain things to them, and in doing so, your writing and thinking will be clearer. This is a very general lesson that will transcend this class if you let it.)
A.3 Task Analysis Lab

1. Choose two tasks related to your web or project interface analysis.
2. Analyse the two tasks using the keystroke level model
3. Put these tasks in the context of a GOMS analysis (These tasks correspond to Methods in GOMS).
4. Compare the predicted times with each other and with the times from at least 3 users not from your group. With fewer users, they may do the task several times, with more users, they might do less tasks.

In a four to six page writeup,

1. Introduce your report
2. Describe your task and the the task analysis of your task
3. Describe how you got your data, and report the data you got.
4. Compare your predictions and your measured.
5. Describe what the results mean for the task analysis and for your project.
6. Include anyother insights you can make.
7. Write an abstract that reports your main findings

This should lead directly into your group report, and, with revisions, can be included.
Appendix B. Learning Lab

Figure 7 - Logarithmic Graph of Subject 1’s Results

Figure 8 - Linear Graph of Subject 1’s Results
Figure 9 - Logarithmic Graph of Subject 2's Results

Figure 10 - Linear Graph of Subject 2's Results
Figure 11 - Logarithmic Graph of Subject 3's Results

Figure 12 - Linear Graph of Subject 3's Results
Figure 13 - Logarithmic Graph of Subject 4’s Results

Figure 14 - Linear Graph of Subject 4’s Results
Figure 15 - Logarithmic Graph of Subject 5's Results

Figure 16 - Linear Graph of Subject 5's Results
Figure 17 - Logarithmic Graph of the Average Subjects' Results

Figure 18 - Linear Graph of the Average Subjects' Results
Appendix C. Perception Lab

<table>
<thead>
<tr>
<th>What was the element?</th>
<th>How many subjects reported that element?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillies</td>
<td>15</td>
</tr>
<tr>
<td>No Hidden Fees</td>
<td>5</td>
</tr>
<tr>
<td>Contact Information</td>
<td>4</td>
</tr>
<tr>
<td>Social Media Buttons</td>
<td>4</td>
</tr>
<tr>
<td>Wanamaker Logo</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2 - Top Five Things Subjects Reported As Most Memorable

<table>
<thead>
<tr>
<th>What was the element?</th>
<th>How many subjects reported that element?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upcoming Events</td>
<td>7</td>
</tr>
<tr>
<td>Tickets Sold</td>
<td>5</td>
</tr>
<tr>
<td>Search Bar</td>
<td>3</td>
</tr>
<tr>
<td>Buy Now</td>
<td>3</td>
</tr>
<tr>
<td>Wanamaker Logo</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 3 - Top Five Things Subject Thought They Should See
<table>
<thead>
<tr>
<th>Subject Pseudonym</th>
<th>What 3 things stuck out the most?</th>
<th>What 3 things do you think should stick out the most?</th>
<th>On a scale of 1-10, how successfully do you think they conveyed their message?</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>No hidden fees, Phillies tickets available, phone number</td>
<td>Tickets they’re selling, price of said tickets, contact info</td>
<td>6</td>
</tr>
<tr>
<td>S2</td>
<td>76ers, Phillies, Contact information</td>
<td>What they’re selling, prices of tickets, how to get the tickets</td>
<td>6.5</td>
</tr>
<tr>
<td>S3</td>
<td>tickets on sale, philly, baseball</td>
<td>“buy tickets now”, what’s on sale, if the events are near you</td>
<td>8</td>
</tr>
<tr>
<td>S4</td>
<td>Phillies tickets on sale, no hidden fees, sixers.</td>
<td>price of tickets, no hidden fees, what tickets currently available</td>
<td>7</td>
</tr>
<tr>
<td>S5</td>
<td>Giant banner (top), 5x6 square in center, all social buttons</td>
<td>Checkout/purchase button, upcoming events, help/contact area</td>
<td>5.5</td>
</tr>
<tr>
<td>S6</td>
<td>Scrolling picture on the right, their phone number, list on the left</td>
<td>The search bar, upcoming events, current special offers on tickets</td>
<td>5</td>
</tr>
<tr>
<td>S7</td>
<td>Phillies tickets, university park (aka: user’s location), twitter</td>
<td>sport, team, location</td>
<td>7</td>
</tr>
<tr>
<td>S8</td>
<td>Phillies stuff, McAfee certified, “Buy Tickets Now” button</td>
<td>Big buy tickets now button, big search bar, list of big events happening</td>
<td>4</td>
</tr>
<tr>
<td>S9</td>
<td>Big phillies banner, mobile app, “University Park” (aka: user’s location)</td>
<td>Where to buy tickets, search bar, what team they are advertising</td>
<td>7</td>
</tr>
<tr>
<td>S10</td>
<td>Baseball on banner, ebay ad on the top, No hidden Fees</td>
<td>What they are selling, how to buy the tickets, Upcoming events</td>
<td>6</td>
</tr>
<tr>
<td>S11</td>
<td>Phillies logo, company logo, links on bottom</td>
<td>Current sales, big events, site navigation tools</td>
<td>3</td>
</tr>
<tr>
<td>S12</td>
<td>Phillies, ebay logo, wannamaker logo</td>
<td>List of events, big upcoming events, list of bands</td>
<td>2</td>
</tr>
<tr>
<td>S13</td>
<td>Phillies, no hidden fees, mobile tickets app</td>
<td>logo, mobile ticket app, upcoming events</td>
<td>4</td>
</tr>
<tr>
<td>S14</td>
<td>76ers, the color red, Philadelphia tickets</td>
<td>pictures of the event, schedule of events, name of team or event</td>
<td>5</td>
</tr>
<tr>
<td>S15</td>
<td>phillies, social media links, no hidden fees</td>
<td>mobile ticket app, no hidden fees, phillies picture</td>
<td>3</td>
</tr>
<tr>
<td>S16</td>
<td>phillies, no hidden fees, logo</td>
<td>upcoming events, mobile ticketing, logo</td>
<td>6</td>
</tr>
<tr>
<td>S17</td>
<td>Navigation bar to choose type of ticket, User’s location. Big baseball picture</td>
<td>Dropdown to choose ticket type, top upcoming events, Name of website</td>
<td>7</td>
</tr>
</tbody>
</table>

Figure 19 - Screenshot of spreadsheet used to enter what the Subjects reported
Appendix D. Task Analysis Lab

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>TASK 1 (in seconds)</th>
<th>TASK 2 (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>51.89</td>
<td>41.60</td>
</tr>
<tr>
<td>Subject 2</td>
<td>48.76</td>
<td>31.96</td>
</tr>
<tr>
<td>Subject 3</td>
<td>77.75</td>
<td>127.19</td>
</tr>
<tr>
<td>Subject 4</td>
<td>53.99</td>
<td>23.54</td>
</tr>
<tr>
<td>Subject 5</td>
<td>39.21</td>
<td>36.89</td>
</tr>
<tr>
<td>Subject 6</td>
<td>45.12</td>
<td>54.32</td>
</tr>
<tr>
<td>Subject 7</td>
<td>49.35</td>
<td>33.13</td>
</tr>
<tr>
<td>Subject 8</td>
<td>55.23</td>
<td>42.92</td>
</tr>
<tr>
<td>Subject 9</td>
<td>58.77</td>
<td>34.54</td>
</tr>
<tr>
<td>Subject 10</td>
<td>51.63</td>
<td>48.06</td>
</tr>
</tbody>
</table>

**AVERAGE**

<table>
<thead>
<tr>
<th>TASK 1 (in seconds)</th>
<th>TASK 2 (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>53.17</td>
<td>47.42</td>
</tr>
</tbody>
</table>

Table 4 - Table of Subject trials in both tasks

**KLM (Keyboard Level Model)**

**Task 1:** Find cheapest ticket for the next Philadelphia Union game - any quantity.
   

**Task 2:** Find out how to ask the company about selling a ticket.

GOMS (Goals, Operations, Methods, and Selection rules):
Buying tickets for the next Philadelphia Union game:

User has prior knowledge of MLS and Philadelphia Union
Step 1: Click “MLS tickets”
Step 2: Click “Philadelphia Union”
Step 3: Find the next available game in the list on the page
Step 4: Click “Buy” next to the game from Step 3
Step 5: Find the game with the lowest price.
Step 6: Click “Buy” next to the game from Step 5
Step 7: Click in the text box below “Enter your email address”
Step 8: Enter the email address provided (coolbuyer##@gmail.com)
Step 9: Click the button labeled “Continue”.

Alternate Method: User does not have prior knowledge of MLS or Philadelphia Union

Step 1: Click in the search box at the top.
Step 2: Enter “Philadelphia Union”
Step 3: Find the next available game in the list on the page
Step 4: Click “Buy” next to the game from Step 3
Step 5: Find the game with the lowest price.
Step 6: Click “Buy” next to the game from Step 5
Step 7: Click in the text box below “Enter your email address”
Step 8: Enter the email address provided (coolbuyer##@gmail.com)
Step 9: Click the button labeled “Continue”.

Inquiring about selling tickets: User’s mental model shows customer service links at the tops of websites

Step 1: Click “Contact Us” at the top right of the screen.
Step 2: Click the drop down button next to the field labeled “What is your inquiry?”
Step 3: Choose “Sell my tickets” from the drop down menu
Step 4: Click in the text box labeled “Your Name”
Step 5: Enter the name “Cool Buyer”
Step 6: Click in the text box labeled “Your Phone Number”
Step 7: Enter the phone number “1234567890”
Step 8: Click in the text box labeled “Your Email”
Step 9: Enter the email address provided (coolbuyer##@gmail.com)

Alternate Method: User’s mental model shows customer service links at the bottoms of websites

Step 1: Click “Contact Us” at the bottom of the screen.
Step 2: Click the drop down button next to the field labeled “What is your inquiry?”
Step 3: Choose “Sell my tickets” from the drop down menu
Step 4: Click in the text box labeled “Your Name”
Step 5: Enter the name “Cool Buyer”
Step 6: Click in the text box labeled “Your Phone Number”
Step 7: Enter the phone number “1234567890”
Step 8: Click in the text box labeled “Your Email”
Step 9: Enter the email address provided (coolbuyer##@gmail.com)
Figure 20 - Graph of Subject times in Task 1 against the Average time and the KLM time

Figure 21 - Graph of Subject times in Task 2 against the Average time and the KLM time