A USABILITY AND EYETRACKING STUDY OVER THE EFFECTIVENESS OF THE

LAYOUTS OF THREE VIDEO-BASED WEBSITES: YOUTUBE, HULU, AND VIMEO

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DEDICATION

To everyone that watched me rant, rave, scream, cry, and experience every other emotion a

person can over this project for the last two and a half years.

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ABSTRACT

Website usability is a practice commonly explored in various studies throughout the past several years (Cha; Madsen; Roth). The feedback gained through these projects allows companies to build sites that best fit their users' needs and preferences. Most usability studies have focused on traditional web design, and Jakob Nielsen found that users frequently read websites in an "F-shaped" pattern where content is located along the left side and top of the webpage (Nielsen 1). As there has been little research over how best to design the layout of a website whose content relies mostly on videos, it is difficult to determine what 'rules' designers should follow for these sites. In this study, we hypothesized that a pattern for video-based websites similar to that of other websites existed and decided to test several sites for the usability of their layouts. The results divided into five categories: account creation, search bar, advertisements, general design, and the video player. In short, some websites caused problems when creating an account, the search bar brought up confusing results for the participants, the participants largely ignored advertisements, the general design can be overwhelming, and the participants preferred a video player without suggestions or other content around it. Overall, results revealed certain patterns followed by the users when interacting with the tested sites and led to the suggestions for the preferable overall design of a video-based website.

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INTRODUCTION

Usability is the practice of determining how usable a product is for an audience. Though the practice of usability has been common since the 1860s, the general population first used the term usability in the 1980s when various researchers adopted the term to replace other less viable terms that had, over several years, gathered different connotations which no longer suited the practice (Suduc, Bizoi, and Filip 149). This movement shifted the public's opinion on what usability was and provided an extended variety of materials that could be tested through these processes. The practice of usability aided in stressing the idea of using a "quantitative but practical engineering approach to product design" (Suduc, Bizoi, and Filip 150). Though this process is commonly used to test physical products, the age of websites and the internet ushered in a new type of usability. This type of usability is better known as web usability and has been on the rise as the influence of the internet expands around the world. According to Peter Brophy and Jenny Craven's article "Web Accessibility", this type "generally refers to the experience the user has when reading and interacting with a Web site" rather than using a more general definition of usability (960). This brought in the idea of building websites that would function much as a product would in terms of making the user feel as if the time spent with the product had been effective rather than a waste of time. Essentially, this type of usability took the "consideration of [our] audiences" as an important part of work when building a website (Blakeslee 199).

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MLA Style Manual

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Now it is assumed that website designers need to start shifting their focus towards making "websites useful and enjoyable for end-users" (Wilkie, Romance, and Rosendale 2). This led not only to more websites but more types and forms of usability tests on various products.

The diverse number of problems that frequently occur with different kinds of websites caused this recent rise in testing. Some of these problems were "due to a lack of understanding of the different ways users interact with and navigate Web-based resources" (Brophy and Craven 961). Other problems arose when the website caused efficiency problems for the audience using it. Wilkie, Romance, and Rosendale's article "Website Usability: Reasons Underlying Emotions Reported by Users" stated "web browsing in particular frequently causes end-user frustration" when a person would use a computer for work, enjoyment, or any activity. Brought in to confirm "why" users appeared upset rather than just "what" the problems that caused these emotions were, usability tests started revealing solutions that people had not been aware of before (Wilkie, Romance, and Rosendale 3). Now used to test different aspects of websites such as their page layouts, information, and overall satisfaction to an audience, usability practices became a widely adopted step essential in the process of creating an online product.

Researchers conducted most of the tests of usability over websites that mainly contained information for a user in the form of text and images. Audiences mostly associated this type of website with media, academic, and other such text-based databases. Several different principles of design for these types of websites developed as various parts went through the testing process. This included the home page, contact page, staff page, and several other

entities of each site. This has led to a distinct pattern in text-based website layouts that several different companies of website designers use when developing websites.

Despite the common success in testing a product that usability has brought throughout the years, it has not been utilized efficiently to review all different types of websites. What has not been covered sufficiently in the past several years is research over the layout of a more video-based website. Currently, little research exists that concerns the most-used and common pattern for website layouts that contain mostly video content. Websites that are used for entertainment such as Hulu, Vimeo, and YouTube are part of this category. Currently, no set or accepted rules for how these websites needed to be designed in order to best fit the user's needs exists. It is essentially up to the website designers of each different company as to what their website will look like. However, these patterns may not be particularly user-friendly or efficient to getting tasks completed. This research project concerned itself mostly with discovering what could be the beginning of a basic set-up for video-based website designs as well as standard rules for designers to follow.

LITERATURE REVIEW

Much research investigates the different aspects and types of usability and what exactly it entails for the designer, audience, and product. For many researchers, usability is defined as "a structured process of getting information on the extent to which a product can be used by the intended users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use" (Ward and Hiller 156). It is said to be "user led" and "refers to the experience the user has when reading and interacting with a Web site" (Brophy and Craven 960). The process of usability itself has served many functions over time. It initially tested "products" rather than websites (Ward and Hiller 156). Over the years, it has shifted into becoming a "much more diverse" practice that "has changed from being an add-on to the development process to becoming an integrated part of it" (Madsen 61). There is even a difference in how it is conducted, as "different domains may require different sets of evaluating criteria/tools" (Zhang et al. 78).

Despite the technical definition of usability, another aspect of what is being tested must be taken into consideration by researchers. Recent studies suggest that "aesthetics may play an important role in product and systems design" (Sonderegger and Sauer 1). It has been suggested that "accessibility of Web-based information can be improved…through adopting good practice in interface design" (Brophy and Craven 950). Design is a base for usability; the two must coexist or a website will fail. Design essentially "relates to how the product communicates" with a user (Rubin and Chisnell 11). However, despite this fact, "design research is a more recent phenomenon" in the realm and "has yet to establish universal standards related to process, presentation, and evaluation" (Roth 18). According to Jason

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Beaird's *The Principles of Beautiful Web Design*, "Some people become caught up in the aesthetics and graphics and forget about the user, while some usability gurus get lost in their user testing and forget about visual appeal" (5). For a website to be successful, it is "essential to maximize both" (Beaird 5). Success "lies also in the design of Web sites" and must be focused on for the website to be effective (Brophy and Craven 955). Overall, "website searching is a goal-oriented activity", and the different elements must cooperate for the website to function correctly (Zhang et al. 78). This cannot be done without an effective design.

This need for appropriate design and general usability has fostered web usability. As "websites are designed with accessibility in mind", both are essential for usability. Research over the patterns most companies follow when creating, designing, or updating their websites is a popular topic (Brophy and Craven 966). In these patterns, most of the content that users will see is located on the left side of a page for this is where their eyes will look. This is because most audiences learned to read left to right in western culture. Researchers discovered this kind of reading "from a survey of 360 websites" and is labeled "F-shaped" pattern which is pictured below (Sutcliffee and Namoun 679). Therefore, the websites are built to suit the majority's habits and needs (See Figure 1 below).

Figure 1: F-Shape Pattern

Source: http://www.prodality.com/wp-content/uploads/2013/06/f-pattern.jp

The pattern of movement in a user's eyes is important to a usability test because "measurements of eye movement can serve in transferring very useful information from man to machine" (Barbuceanu and Antonya 23). This study and portion of usability testing is typically called eyetracking. This is essentially the practice of tracking eye movements to see the "dynamic trace of where attention is being directed" on a page (Spivey et al. 282). This allows website designers to see the best location for certain materials according to those tested.

Though early usability tests were "conducted in psychology-related fields" that related to advertisement, the extent of use has been growing over the past several decades (Lai et al. 2). Eyetracking is a very useful practice to companies "concerned with where to place advertisements on their web pages" (Rubin and Chisnell 112). Without seeing where a user's eyes move over a page of content, usability experts cannot find patterns or the best way to utilize space on a web page. This is very troubling to some companies who strive to do their best to find the pattern that best works for them and their users. Over the past several years, some of the firms that are leading in visual marketing and eyetracking studies are "Kraft Foods, Microsoft, Google, Yahoo, IBM, Pepsico, Pfizer, P&G, and Unilever" (Wedel and Pieters 2). Without a pattern that is tested and proven to work, some companies would be unable to have a user-centered website. For most websites, the testing is a necessary and private occurrence. In fact, some "companies regard their usability testing as proprietary information and often strenuously resist publication of usability testing data" (Meister and Enderwick 208). This testing, though private most of the time, is "one of the most important success factors in system quality" (Alshamari and Mayhew 402).

However, despite the broad research that has proven usability useful to companies, only a limited amount of research dedicated to different kinds of companies exists. For sites that contain mostly word content, the patterns are easily seen and can be followed to provide a useful and pleasing website. For other sites such as those that carry mostly video content, little research exists. Most of the research that has to do with video-heavy websites has been over ads, such as where advertisements appear and whether or not "in-stream advertisements can improve the viewing experience for users without sacrificing advertising value for advertisers or content owners" (Pashkevich et al. 451). Due to the fact that companies spent

"billions of dollars annually to add a wide range of sophisticated features…to improve users' experience with their websites" this proved to be a problem (Nadkarni and Gupta 501).

However, it left questions unanswered as to other types of websites. As little to no research exists on the subject, no explicitly stated pattern for the websites that contain a large number of videos that users uploaded rather than ones that incorporated videos in just ads exists. There is, as far as it is known, no significant placement of the video being viewed for these websites such as there is for Yahoo or Fox News. Most of the research has been "concentrated on block-structured, text-dominant websites, where visual attention may be biased towards a reading order in text media" (Sutcliffe and Namoun 679). This is critical information to find, as currently "video sharing websites are a driving force behind this rise of the Web as an alternative platform for viewing video content" (Cha 1). It is further needed as "all types of users can be faced with navigational problems" no matter the kind of website (Brophy and Craven 961). Though they make up a significant number of websites, the amount of research dedicated to their design is very small. This leads to companies designing websites that may or may not be the most effective for their purpose, which is to display videos to the users. As YouTube "is the most popular online video community in the United States and in the world", it would be a good candidate to test for usability in order to find patterns for these video-sharing websites to use (Pashkevich et al. 451). The study will be taken further by using various other video-based websites such as Hulu and Vimeo. This study intended to discover how effective the current video-based website designs are for the casual user, and what patterns video website designers should follow when designing their website's user interface.

METHODS

In this research project, ten students from the ENG 3351: Technical Writing and ENG 3352: Business Communications courses at Angelo State University volunteered as the participants. Most of these students identified themselves traditional, having come straight from high school into college. They had varying levels of experience with different video-based websites and computer technologies. The pre-test survey required students to rate themselves from beginner to expert on their website experience level. A course announcement by Dr. Kevin Garrison, Assistant Professor of English, recruited the participants for the research. Dr. Garrison then provided the author with an extra credit sheet for the students to sign in exchange for their participation.

The lab used for the research is located in the basement level of the Academic Building in room 004B. Two different stations are set up for various users of the Usability Lab. Located in one corner of the room are dual computer monitors where the participant being tested and the moderator of the test, are sitting. Attached to these computers is the Mirametrix S2 Eye Tracker as well as the software needed to run the device. The S2 Eye Tracker uses infrared cameras to track eye movements and requires a calibration of nine points on the screen to line up with the user's vision. An error rating of under 80 is good while below 40 is excellent. A lower score means that the data gathered from the S2 Eye Tracker will be more accurate than the data taken from a test with a higher participant calibration. This aids in providing various eyetracking studies with reliable data. The moderator conducting the research sits on the other side of the lab to monitor the participant. The moderator also has a set of dual monitors which record video clips of

linear fixations. The moderator provided a handheld audio recorder to keep record of what the participants said during the post-test interview. The moderator took handwritten notes as well, but used the audio files to get direct quotes. This allowed records to have exact wording of what each participant thought about the test. The moderator of the study administered a pre-test questionnaire to the participants to answer once they had entered the lab. All video clips, audio clips, and answers to the questionnaires were entered into an Excel spreadsheet for easy comparison on a laptop while the paper copies of various results were kept in a folder maintained by the author. The moderator used all of this data to help answer the research questions concerning design, therefore making it all valuable to the project. The moderator conducted the same procedures for each participant in this research.

Recruitment: Dr. Garrison provided contact information for each student on a piece of paper. This contact information included their names and email addresses. This served as the primary means of communication. Once contact with all of these students was established through email, meeting times were scheduled to conduct tests over the course of two weeks.

Forms: Once they entered the room, the author gave each student a brief tour of the lab to make them comfortable and asked them to fill out the IRB form, a Consent Form, and an Audio/Video Release Agreement. The two forms mentioned can be found on Angelo State University's website. These forms ensured that they knew what would happen during the test and how the data collected would be used.

Survey, Testing, Interview: The moderator provided the students with a pre-test questionnaire. The questionnaire asked for their name and major as well as their experience with the various websites tested and technologies used on the computer. Then, the moderator provided a list of different video-based websites (such as Hulu, YouTube, Netflix, etc.) to the participants and asked them to rate their experience level with them on a Likert Scale that ranged from 1-5. This gave a better idea of what level each student felt represented his or her website competence. After each participant completed the survey, the test began and participants started to complete certain tasks tied to each different website. For YouTube, they located a video about how to make a paper airplane and were told to be able to answer questions about the video after completing the test. If they had an account, they were directed to log in before searching for the video. If they did not, they had to create an account. For the next task, they were directed to navigate to Hulu and find a video of John Oliver talking about the FIFA World Cup and to be able to answer questions about it afterwards. Just as for YouTube, they were told to either log into their account on the site or to create one. For the last task, the participant had to go on Vimeo and find a video where Grumpy Cat is "signing" books. For the question dealing with accounts during the test, they were told to either log in or create an account on each site. The moderator watched them try to complete the tasks without giving any hints as to how to reach their individual goals with each step. Once the participants completed the tasks related to the websites, the moderator conducted an interview with each participant. Each participant responded to questions about how easy or difficult they found their tasks, what they thought of the current website design for each individual site, and what they liked or disliked about each website overall (See attached Appendix B).

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The moderator expected the entire process to take 10 to 15 minutes for each student. The IRB required several measures to be put into place to protect the identity of participants, such as labelling them from 1-10.

The data gained from these tests provided a variety of answers to the main research questions. These included questions having to do with the current level of efficiency of the various website designs being used, whether or not the public users liked them, and what in the user's opinion would be more effective. The main data used for this research was gathered from the video clips taken from the eye tracker, as the moderator wanted to see how each participant interacted with the design of each website. The data was then analyzed to help determine what the "best" design for an audience would be or what pattern should be used to satisfy the largest percentage of users.

RESULTS

For this research project, ten participants volunteered to take part in the testing. Six of the participants identified as male and four identified as female. These participants, recruited from upper division Technical Writing and Business Communication classes, ranged in age from 20 to 29, with a mean of 22.6 and a standard deviation of 3.02. Their calibrations, which indicate how well an eyetracking device could follow them throughout the session, varied. For an eyetracking calibration, a rating of below 80 is good, while below 40 is excellent.

Participant:	Age:	Calibration:
1	20	35
2	29	35
3	21	30.2
4	20	49.8
5	27	41.6
6	22	23.7
7	21	21.3
8	21	30
9	22	31.3
10	23	34.9
Mean:	22.6	33.28

Table 1: Participant Information

Qualitative analysis of the interviews and eye tracking data revealed the following five major results:

1. The first observation dealt with account creation on each of the three websites tested. The participants had no trouble with creating accounts on Hulu and Vimeo though they had difficulties logging on to YouTube due to the connection the site has with Gmail accounts. The participants could not attempt to make an account without the email service website interfering in the process. If they already had an account, they found it easy to log in. If they did not have an account, the participants encountered several different difficulties. The only issues besides YouTube that arose from this part of the test included finding the log in screen on Hulu's website, as the button proved small and difficult to locate for many users.

2. The second result dealt with the search bar and results on the websites. Participants found that YouTube and Vimeo followed a similar pattern when showing results, making it simple to find the video for the task specified in the search. With Hulu, however, the sporadic and disorganized results made it difficult for a participant to find a specific video.

3. The third observed result dealt with advertisements while watching the video itself. Overall, nine of the ten participants either skipped or completely ignored the ads. This held true no matter the advertisement's location. This included being embedded in the video, the homepage, or the search results.

4. The fourth result dealt with the designs of all three websites. The participants found YouTube simple in design and familiar, Vimeo unfamiliar but easier to navigate than

YouTube, and Hulu overwhelming and difficult to work with due to the differences in the layouts of each website.

5. The last observations made concerned the details of video usability on all three websites. Participants watching the Hulu video would have trouble locating the time bar on the video when asked how long they had watched the segment. Some other details of this result included the fact that four participants full-screened at least one of the videos they needed to watch for the test, while the rest watched it in the format originally presented. None of the participants used closed captioning to watch the videos. One participant did skip forward on a video, though this turned out to be an isolated incident in the testing period.

DISCUSSION

The points discussed in the results section of this paper provide good indicators for what the design of a video-based website should include in order to satisfy the user audience that it has been built for. This section discusses how current practices and habits in video-based website design are problematic to users. It further covers and explains how websites lacked in terms of individual usability and could be seen as undesirable by users.

Creating an Account: This research project covered many different areas. The first task the participants attempted dealt with the process of creating an account on each individual website. This served as the location of the first issues in the testing process that highlighting several difficulties the users experienced with each site. According to the data retrieved by the eye tracker, most of the students had no trouble either signing in or signing up for an account on Vimeo. Participants found the link required to sign up for an account on the front page of the website, making it easy to locate and use. Several commented during the process that they found this part of the test simple and not something that caused them to become frustrated. However, the participants found Hulu's account creation section difficult to navigate, and a few expressed dismay at the amount of time it took to locate the button they needed in order to complete the task. Some took several minutes on this one task, which led them to feeling frustrated as a result of this specific action. One participant in particular that had never had an account with Hulu accidentally signed up for the account that requires monthly payments rather than the free one. The participant later stated that he would "go back and cancel it" after the test as he did not wish to have the account in the first place. This task overall resulted in frustration as he did not believe another option existed. The other

participants created free accounts or logged into their old ones without having too much

trouble on the website. YouTube gave participants the most trouble in this task. Due to a

change in ownership, YouTube now requires a Gmail account to sign into an account (See

Figure 2).

Trying to sign up for an account on YouTube without involving Gmail proved nearly

impossible for the participants. In the end, many of the participants had to create a Gmail
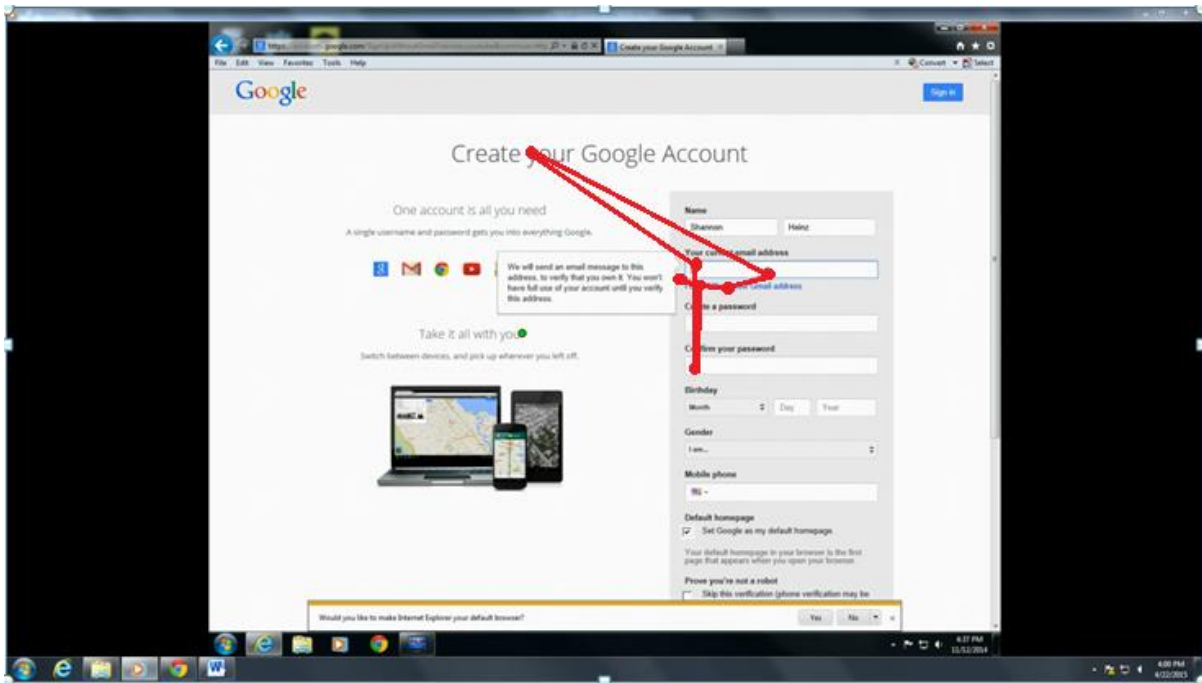

Figure 2: Account Creation

account, log in to their already existing account, or find a way to work around the problem

before being able to get into the website. The two being intertwined added extra time onto

each participant's session, causing them to become frustrated and rather annoyed with the

website as well as themselves. Overall, despite the multiple issues, all ten participants

completed the task and continued with their sessions.

Search Engine: The next point of interest that the research revealed through testing concerned the issues related to the search engines on each site. As one of the participants stated in their post-test interview, "YouTube has just one column of suggestions", which made it easy to navigate and find the video they needed to watch in a short amount of time. This participant liked the fact that the website provided a limited amount of results they could see at one time as it made it easier to locate the specific video they needed to find for the task. This practice of limited results carried through with Vimeo, as this website's search proved so specific that only a few results came up when searching for their video. Vimeo's search results come up in multiple columns, but the names located under the various results gave viewers an idea of what kind of content each video would hold. This allowed the participants to locate the video for the task in a shorter amount of time than it did on other websites tested. However, Hulu proved difficult for the participants to work with as the search engine results appear in four columns and a participant could scroll through a list several pages long before finding the video requested by the task. As there is no break between the pages, the participant would scroll for minutes at a time, which increased the overall time of each session substantially. The lack of a full name on a video caused another round of difficulties on Hulu for the participant to struggle through. With the results reduced down to small squares of a screenshot of the video with cut-off titles across them, the participants had difficulty locating the video needed for the task. This caused the suggestions to be rather sporadic and, as participant 2 said in their interview, "overwhelming". The process proved so complicated on that particular website that often the participants would entirely miss the video about John Oliver discussing the FIFA World Cup despite looking either near or directly at it (See Figure 3 below).
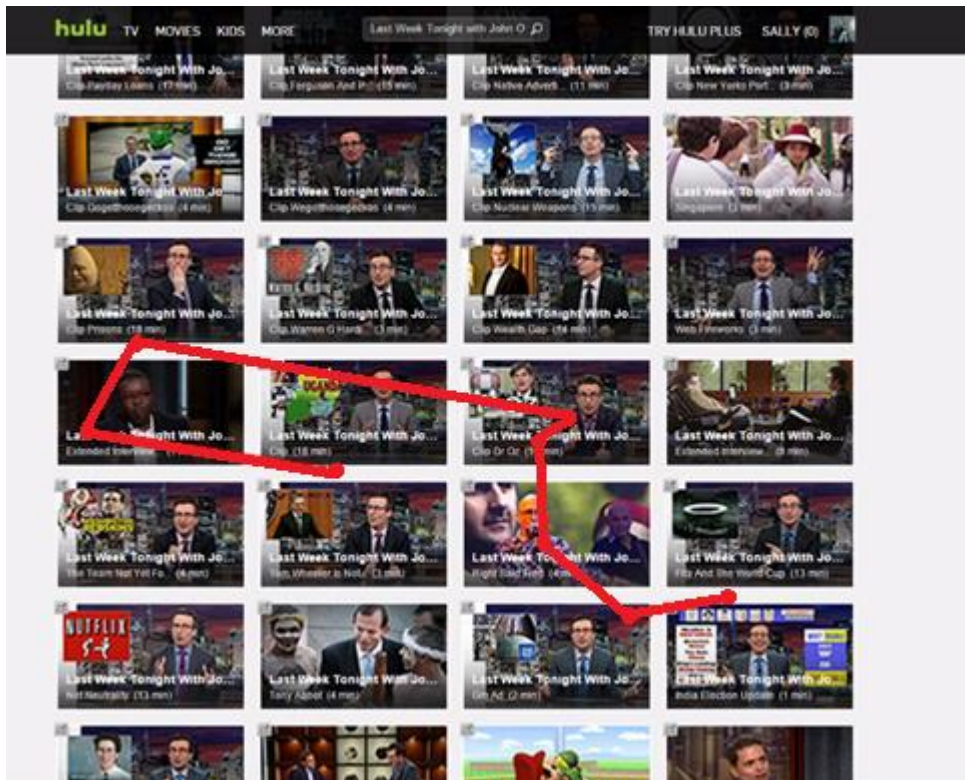
Figure 3: Hulu Search

When asked to look for the video dealing with John Oliver and the FIFA World Cup, the results would fill up with soccer games ranging from beginner to professional, advertisements for the World Cup, and random clips of the countries involved in the tournament. Several of the participants spent the majority of their time on this task looking for that one video, oftentimes passing it over several times before eventually clicking on it. This turned into a familiar result, as previous research states that some past websites possessed "single pages that were overly long…mentioned as a problem for some users because they had to keep scrolling down the page and possibly up again, making it a time-consuming process" (Brophy and Craven 963). Some participants proved unaware of it being present on the page as they instead searched for different terms to possibly come up with

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their desired result. As one participant said, "[Hulu] would bring up every video that had any part of the phrase [they] were searching for". One of the participants searched several different terms and brought up the specific video in the results a few times, but never noticed it due to the amount of results surrounding it. Despite people having familiarity with Hulu as many of the participants had accounts with the website either currently or in the past, they felt, as participant 4 stated, "betrayed" by the site as it gave them difficulty in the search engine while the other two did not. The difficulty of the search left them disappointed with the website as well, making them wonder just how much it actually did for them in terms of efficiency and usability. Overall, the participants preferred YouTube and Vimeo's styles of search engines over Hulu's, and they reported greatly reduced satisfaction after participating in the task.

Advertisements: The next results discovered during the testing phase of the research dealt with various kinds of advertisements present on each website. As part of the research was to find how ads interacted with the site and, in turn, participants interacted with them in terms of usability, this section was crucial to all the testing phases of the sessions. Discovered through interviews and tests, participants either consciously or unconsciously ignored the ads while web browsing. The eye tracker revealed that often participants would skip right over the ads even if listed in the search suggestions (See Figure 4 below).
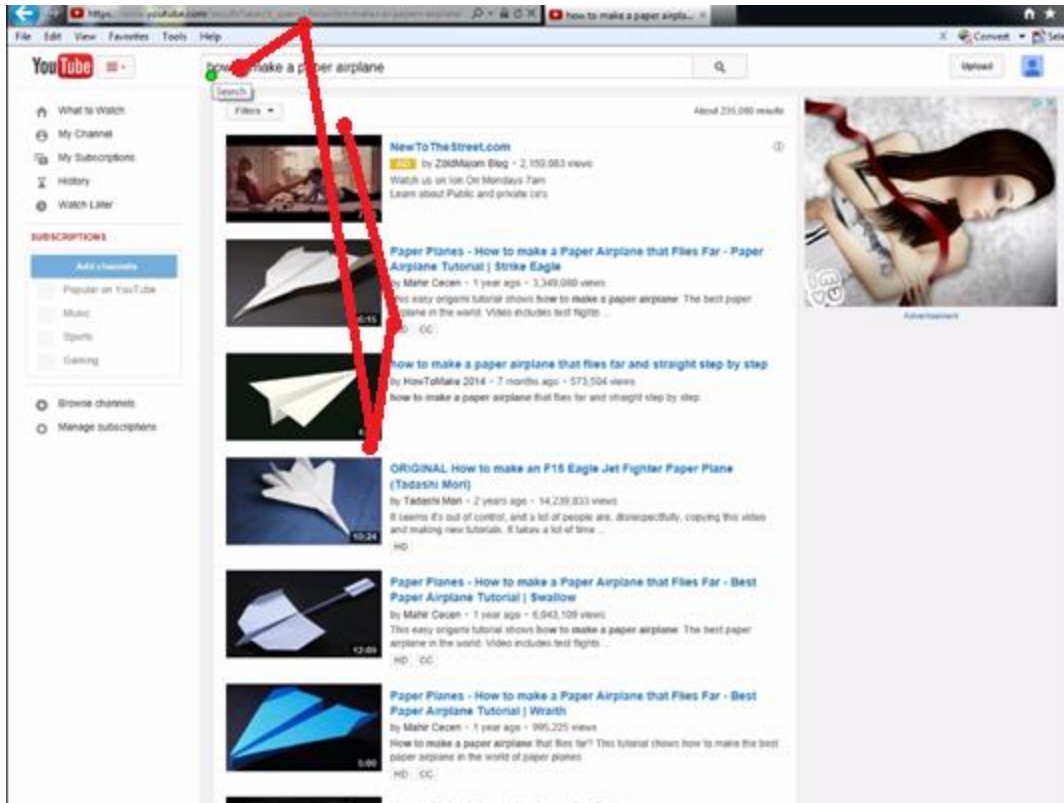
Figure 4: Advertisement Distractions

YouTube in particular had ads that are prominent on the results page, but most of the participants either ignored them entirely or would glance at them for just a second or two. Hulu and Vimeo contained some ads as well, but neither website featured them as prominently as YouTube did.

The only time a student paid attention to the ads was when they had to skip them at the beginning of the video to get to the actual content. This often frustrated the participant, and in the interviews, participant 2 said that the ads only "cluttered" the page and distracted from the actual video content. This occurred on YouTube, a website which participants felt had too many ads. As they did not even look at the ads or pay them much attention, it would seem that the websites had no purpose for the advertising at all beyond funding from outside

sources. This supported the theory that users lacked the "ability to recall and recognize banner ads" despite heavy advertisement on each website (Sutcliffe and Namoun 681). None of the participants commented on the ads for either Vimeo or Hulu, though both websites had them scattered throughout the website. Ad location within the search results, across the top of the page, or on the right side of the page proved useless as the participants hardly looked at the ads. They only had complaints for YouTube, which was the only website tested that actually embedded ads in its videos. Overall, participants would rather the ads disappear entirely from their viewing experience, as they only see them as a hassle and do not wish to interact with them at all.

Layout Design: The designs for the three websites vary in their search bars, layout, and general video player. The participants each spoke about factors that they liked or disliked about each website's layout in the post-test interview. The general consensus of the participants was that Hulu proved more difficult for them to navigate, as so much content is spread randomly around the webpage that they didn't seem to know where to look (See Figure 5 below).
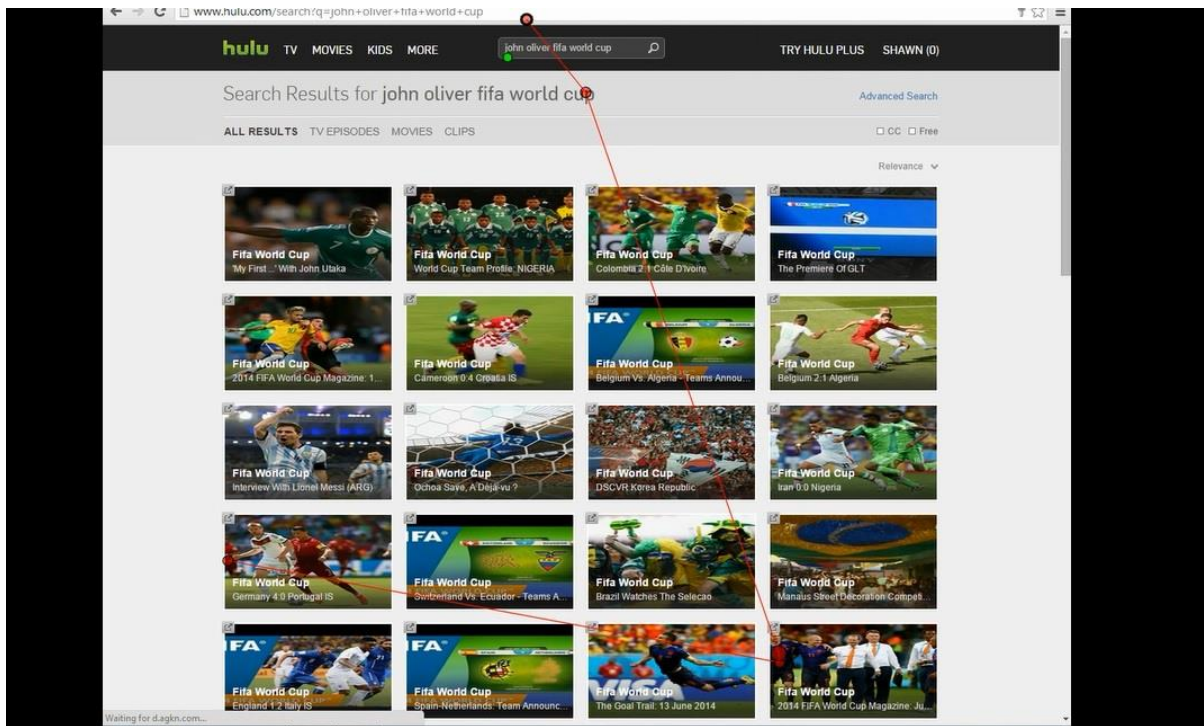
Figure 5: Hulu Confusion

The participants seemed troubled by the amount of suggestions that faced them while trying to decide what to do as well as the "blocky" layout of the website. Hulu was, as one participant said in his interview "good only if you were looking for a specific video that you knew the exact name of". The participants all spoke in their interviews about how they "preferred YouTube" due to its "familiarity" despite the issues brought up during their sessions. It was generally easy for a participant to follow and use to complete the tasks. However, one spoke about how he "disliked how often YouTube changes its layout" and that he would prefer for it to stay one certain way rather than updating so often. One factor of YouTube that the participants seemed split over was the video suggestion bar to the right of the video they watched at that moment. Some liked the suggestions, though others found them "distracting" and felt that they just "caused clutter" on the webpage. According to the

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eyetracking data, many of the participants failed to focus on the video entirely due to being distracted by the suggestions (See Figure 6 below).
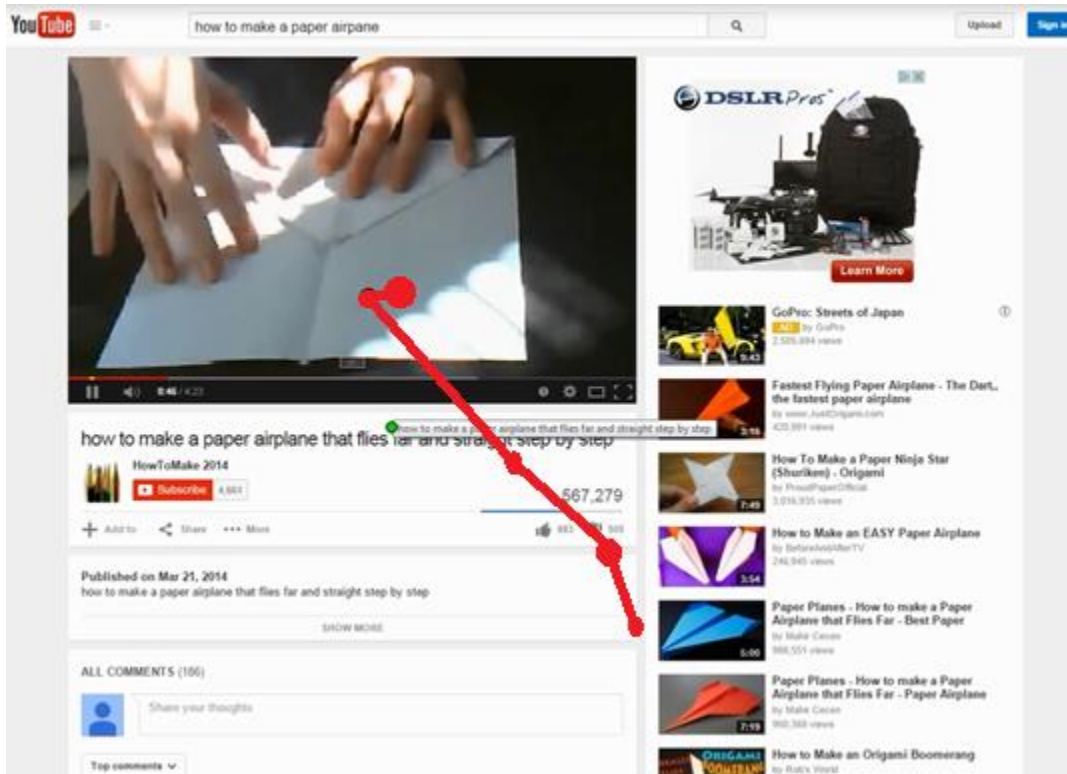

Figure 6: Suggestion Distraction

 They would look away from the video and miss important facts as they instead focused on the different suggestions that YouTube had provided. Most participants stated that they did not know what Vimeo was, though the layout provided more satisfaction to the users. None of the participants tested had ever used Vimeo to look up videos, though, as participants 5 and 7 said, they did like its "simplistic design" and "how easy it was to navigate". They did not speak about how different factors distracted them, nor did they look around the web page containing the video player to try and find something else to focus on. Their eyes generally stayed trained on the video rather than wandering around, as they had little content to look at otherwise (See Figure 7 below).
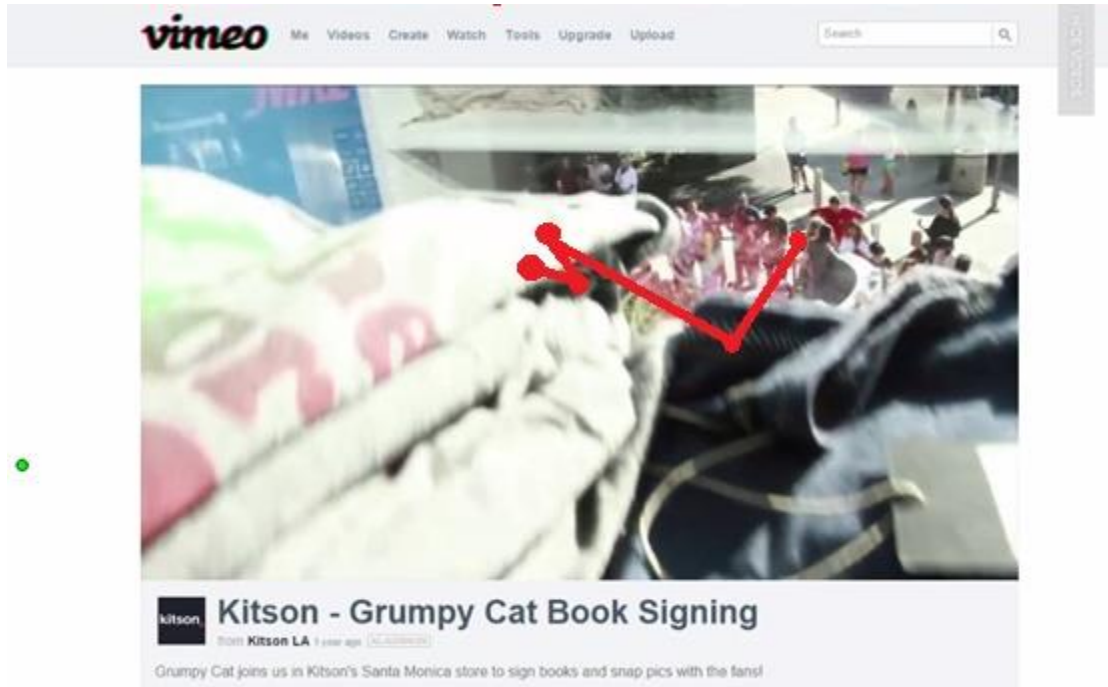
Figure 7: Video Player

This proved different than in the cases of both YouTube and Hulu, in which participants often became distracted by outside elements on the different webpages. Overall, the participants found that despite the unfamiliarity they had with some of the websites tested, these proved easier to navigate and more user-friendly.

Video Player: The research last tested the video players of the websites. The research showed little to no variation for how the students watched the ads individually on the video player itself. Most of the participants waited the allotted five or so seconds before being able to skip the ad, and that was the extent of how they viewed it on YouTube. Overall the results showed little variation for how people watched the videos as a whole, but certain patterns emerged from the group testing. For example, around half of the participants full-screened the videos they watched on YouTube to avoid being "distracted by the suggestions" on the page or anything else as participant 8 stated (See Figure 8 below).
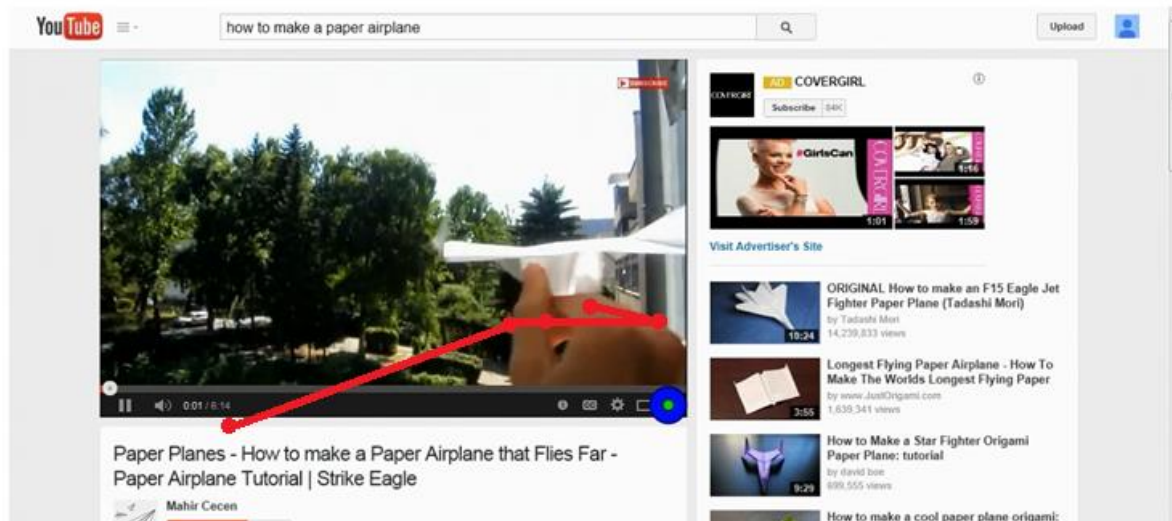
25

Figure 8: Full-screen

They stated that the suggestions for videos provided on YouTube's page distracted them from the content of the main video. For participant 2, it was out of "habit" and for others it was out of "necessity" to view the main video. Another part of the task that the participants found difficult involved discovering how much time had passed while watching the video on Hulu. After being asked if they had watched at least two minutes of the clip, some participants had no idea how to tell if they had watched that amount of content or not. It took several participants a minute or so to find the counter that determined time. Vimeo and YouTube, both of which have bars located at the bottom of each video, gave no problems to the participants in terms of this issue. Every participant failed to use closed captioning (CC) as well, making it the last pattern found in the research. Though some adjusted the volume in different videos in order to hear better, they did not use any visual elements to help their experience. Considering the fact that they experienced trouble hearing some parts of the videos, this was odd as the purpose of the CC is to eliminate that kind of confusion. Overall, the patterns generally showed to have an impact that stretched across the entire group rather than impacting the individuals uniquely.

What this research gathered about the ideal layout of a video-based website and how people watch the videos was that the overall design should aim for being simple rather than complicated if at all possible. The students also preferred consistency and stability in their designs, disliking how some changed their pages often. However, as this research showed, familiarity does not always mean a website will be easy to use. Though participants stated that they knew Hulu and YouTube and used them daily, the two websites had more design and user issues than Vimeo did. Overall, participants still had the most problems with Hulu over the other two, and they preferred Vimeo though the majority had never heard about it until their testing day. Therefore, it has shown that the simplicity of a website's layout can be more valuable to a user than familiarity in terms of usability.

CONCLUSION

The results of this research found that several problems exist with the layout designs of the tested websites. Some of the layouts contain too much clutter and are distracting to an audience while others are confusing to navigate and leave their users frustrated. This was the case for Hulu, which overall was the least efficient for users and the one that participants voiced being most unhappy about. Other issues such as too many suggestions and content on a page exist as well, particularly with YouTube. This site, despite being familiar, presented its own set of problems for users. Vimeo, the final and least known website, seemed to have the least amount of problems when it came to usability. It was simple, easy to navigate, and users had few complaints about it. Despite the favorable layout, Vimeo was only known to a few users out of those tested, making the layout itself hard to justify. However, there is a wide variety of video-based websites and this project only covered a small portion. To make broad claims would be difficult as these three websites are just a sample of the many various websites of their kind being planned, developed, and maintained every day. There are further limitations concerning the participants directly. The range of participants was limited to the Angelo State University undergraduate college students and therefore may not serve as an ideal representation of the user population as a whole. Every participant is a student of the university and most are the typical age of a traditional college student. With the ages ranging from 20-29, this research's results reflect only a small portion of the users who might frequent these website. Further considerations for this research include the audience type looking at each website. As Hulu, Vimeo, and YouTube serve difference audiences, the content of each varies. This leads to more difficulty on deciding what pattern may fit all three the best.

Therefore, the opinions given by the participants about possible improvements on the website layout designs are limited in scope. One further limitation stems from the fact that there is still no universal acceptance for the wide variety of practices in current use for video-based websites. As there is currently no singular set of rules that is well-known for video-based website layouts, unlike the F-shape pattern for text-based websites, designers are using their own knowledge and abilities to create a wide variety of different looks to be both efficient and unique. However, these are still not widely accepted. Despite the limitations, the conclusion that "less is more" when it comes to layouts on video-based websites is still made when it comes to what the college-age population would prefer on their website layout designs due to the fact that "the internet" otherwise is known to "provoke information overload and disorientation to some users" (Rodriguez-Molina et. al. 1). The audience preferred there to be less clutter, suggestions, ads, and for the website to overall dedicate the viewing page to just the video player itself, such as the layout for Vimeo (See Figure 9 below).

Figure 9: Vimeo Video Player Page

However, to implement all of these changes would be difficult, as this is an idealistic

view of the perfect design for a video-based website. As many of the aspects mentioned

(such as the advertisements) help cover the upkeep costs of the websites and provide revenue

for the owners, discarding them would be impossible for websites and the companies that

have them. The advertising part of their websites, whether embedded or simply placed on the

page, remains essential to these various websites. As many cost nothing for their audiences to

use, these aspects are the price the user population pays for such a service. Therefore,

websites must sacrifice certain usability principles in favor of both generating revenue and

providing services at either a low or nonexistent cost to users. This creates one of the largest

limitations of the research as some of the suggestions cannot be implemented in the world

that exists today. However, despite the limitations, the information contained in this research

remains relevant because of the changing trends of the technological generation as well as

any future ones. As the influence of the computer and the internet expands in the developed

world, more people are abandoning older technologies such as television and radio in favor

of tablets and smart phones to get their daily news, entertainment, or any other source of

information. With these devices holding a more prevalent place in daily societal use, it is

important to find what patterns work best for the audience in order for websites to gather

page views and revenue. In the past, companies used the same practices displayed in the

research to generate and increase online revenue (Moran 1). Despite the success, the

practices are not widespread and without this kind of information, website companies stand

to lose both customers and profit due to unfavorable designs that may not be user-friendly or

very accessible. For example, schools may no longer choose to use them as part of their

educational courses (Fleck et al. 1), nor would businesses use these websites to both boost

profits and reach a wider audience (Hubbard 1). The public that uses the websites to learn

about the daily news and political matters may move on to different venues if they feel

unsatisfied (Berrocal 1). Publishing companies may look for new author and materials

elsewhere if the websites fail to prove fruitful (Burling 1). Were they able to, the websites

could implement the findings of this research to develop a website that would be the most

user-friendly for their various markets and user bases as well as profitable for their

companies.

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Appendix A:

Questions from the pre-test survey:

1. What is your name?
2. What is your major?
3. What is your age?
4. How would you describe your level of technological literacy?
5. What do you use a computer for and how often?
6. Rate your experience with the following on a scale from 1 to 5, with 1 being "beginner" and 5 being "expert":
   - YouTube
   - Hulu
   - Netflix
   - Vimeo
   - Amazing Prime
   - Vudu

Appendix B:

Questions from post-test interview:

1. What did you think about the test overall? Which task was the hardest? Why?
2. Which website would you rank the highest in terms of usability? Why?
3. Which website would you rank the lowest in terms of usability? Why?
4. Which website did you like the most? Why?
5. Which website did you like the least? Why?
6. What recommendations, if any, would you have for making these websites better? Please explain any suggestions.

VITA

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