COMP 482 – Human Computer Interaction

# Assignment 2

Evaluation Report for the Microsoft Edge Web Browser

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## Section 1: Scenario

The Microsoft corporation has recently developed and released a new operating system (OS) for use across desktop, laptop, and mobile devices called Windows 10. The OS is designed to be familiar to users already using previous versions of Windows, with an emphasis on games and web browsing[1]. Along with the introduction of this new OS, and to enhance their web emphasis, Microsoft has also developed a new web browser for use in Windows 10. This browser is called Microsoft Edge. It has been designed to be an improvement over their previous browser, Microsoft Internet Explorer. The new Edge browser has been developed to make browsing easier and faster compared to Internet Explorer, and recapture market share that has been lost to the Google Chrome, and Mozilla Firefox browsers over the past several years[2] [3].

As our company has been hired by the 3rd party laptop manufacturer, Asus, that will be including the Windows OS on their new line of laptops. Web browsing is a very popular activity among users of these devices[4]. For laptops be successful in a highly competitive market, they must provide the best browsing experience possible to our users. The Edge browser is included for free with the Windows 10 package that will be available on these devices. The manufacturer would prefer that the Edge browser provides an optimal web browsing experience. However, we need to test the browser functionality to ensure that users will be satisfied. If the Edge browser does not provide a positive web browsing experience, we may need to recommend the inclusion of other browsers with the bundled software or having the manufacturer offer a recommendation for users to adopt an alternate browser. This decision can have a critical financial impact of the development of their new laptop line, and an according impact on company profits if we fail to ensure the best experience for the customers.

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1 "Windows 10 – Microsoft Windows," *Microsoft*, accessed October 15, 2015. https://www.microsoft.com/en-us/windows/features.

2 "Microsoft Edge – Microsoft," *Microsoft*, accessed October 15, 2015. https://www.microsoft.com/en-us/windows/microsoft-edge.

3 "Browser Statistics," *w3schools*, accessed October 15, 2015. http://www.w3schools.com/browsers/browsers_stats.asp.

4 "Activities carried out via mobile phone, tablet, laptop in the United Kingdom 2014," *Statista*, accessed on October 15, 2015. http://www.statista.com/statistics/416512/mobile-phone-tablet-laptop-activities-uk/.

## Section 2: Methodology

The usability study began by identifying individuals who were willing to participate in the study. They were contacted via email or Skype to confirm interest and relay the details of the study, including requirements, expectations, and the time/date of the study. 4 volunteers agreed to participate in the study: Rajnesh Sharma, a 36 year old female; Chris Lee, a 36 year old male; Steven Fry, a 28 year old male; and Reina Kim, a 25 year old female.

Each participant was asked to conduct the usability test on an Asus UX303L laptop, upgraded to Windows 10. Each was also given a brand new profile to use with no other programs installed other than what was pre-installed on the laptop. The laptop was placed on a desk, in an office-like home environment, with ample lighting. An office chair was provided and each user was made as comfortable as possible before beginning the evaluations. The browser was not adjusted, and so began with a standard default setting. Each user was provided with a sheet of tasks[5] to perform for the evaluation. During this process the researcher was positioned behind and to the left of the testing individual, sitting on a couch and taking notes.

Evaluations by users all followed the same set of tasks. The first set of tasks covered the basics of web navigation. Users were required to find and open the application on the desktop. The first time that the browser is opened, the user is required to choose a language. Next, they had to navigate to one of 3 of the most popular websites on the Internet, which are Google, Facebook, and YouTube[6]. Users then navigated to another of the top 3 sites, and then navigate back previous choice. Next, in a new browser tab, users were required to navigate to a site of their own choosing, and save that site as a bookmark/favourite within the browser, then refresh the page. Then, users were to open a final tab and use the bookmark/favourite function to navigate to their chosen site. Finally, users were then to close two of the tabs and leave one open in preparation for the next section of the evaluation.

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5 Please see Appendix 1 for evaluation instructions provided.

6 "Alexa Top 500 Global Sites," *Alexa*, accessed on October 15, 2015, http://www.alexa.com/topsites.

The evaluation continued with a section on using search functions. Subjects were to required to perform search for information regarding the new movie *The Martian*. The specific task was to find the director of the movie. Next, in a new tab, subjects were told to find a picture of their choosing relating to the same movie. The final task was to find a video trailer for the movie, again in a new tab. Then, users were to close all tabs and exit the program.

The next section of the user evaluation focused on the browser configuration and settings. The Edge browser opens to a news feed by default. The user was asked to open the browser and configure this news feed to their liking, then to find the first article or other information that interested them and expand it for further information. The next task was to configure the homepage to any site the user wished, so that the browser would open to it by default. Then the user was asked to change the font size/zoom in the browser display and adjust it to their liking. Finally, the most advanced task required of users was to change the default search of the address bar to be set to Google search.

With these tasks complete, the final section of the study required users to use the browser history to navigate to any previous site. The participant was then free to browse as they liked for 5 minutes. After this time, the evaluation was ended and each participant was thanked for their time and effort[7]. They were told they would be given a questionnaire[8] later that day and contacted for a further interview about the evaluation process.

Each participant was contacted within 3 days of their evaluation to discuss the process with the researcher and return their questionnaire. Each interview was conducted in person or via Skype. The interviews consisted of a series of 6 – 10 individualized questions developed by the researcher based on observations and responses to the questionnaires[9]. Interviews all lasted less than 10 minutes, and were used to help evaluate the system[10].

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7 Please see Appendix 1 for individual evaluation results.
8 Please see Appendix 1 for questionnaire provided.
9 Please see Appendix 1 for individual questionnaire results.
10 Please see Appendix 1 for individual interview results.

## Section 3: Observations

Experimental subject Steven Fry was the first to perform the evaluation, which was completed using the silent observer strategy. The entire session only took 17 minutes to complete. The participant had little difficulty with the basic navigation tasks, completing the quickly and even using keyboard shortcuts to complete some of the activities. The search tasks tasks were also completed using keyboard shortcuts without issue.

The next section, dealing with configuration and settings, was a little more difficult. The user could not find some of the options as easily or as quickly. Additionally, many of the changes were tested to make sure that the settings were indeed changed. The user indicated that this was a bit of a troublesome area, and was slightly dissatisfied.

The final section of free browsing was fairly straightforward. The subject was able to navigate easily, and continued to use more advanced techniques to aid the browsing experience. Upon completion, the subject indicated a general satisfaction with the browser. However, his feelings were that some of the interface was slightly difficult to manage and that using the browser was not worth changing from a more familiar browser already in use.

The second evaluation, using the think aloud strategy, was performed by experimental subject Rajnesh Sharma. This trial was performed in approximately 24 minutes, with the extra time due to the fact that the user was speaking aloud through their steps and was not as comfortable with using the browser. However, the basic navigation section was completed with little difficulty. The subject used the visible menu options to navigate and interact with the interface, such as opening and closing tabs. The search tasks were also completed with little difficulty, but the participant used website search functionality instead of the built in browser features.

The configuration and settings tasks proved more difficult for this participant as well. The user expressed difficulty in finding many of the features, and even failed complete one of the tasks. She

was unsure of the correct actions at many points, even when actually performing the correct action.

This trend continued in the free search section, specifically when trying to find the history. However, the free browsing portion continued without these problems, with the user navigating with ease and enjoying the experience. She indicated that she liked the look and feel of the interface, and basic navigation tasks were easy, but was displeased with the clutter of the opening news feed and the settings menu.

The third and final evaluation was performed with two experimental subjects; Reina Kim and Chris Lee. The two participants performed the evaluation under the constructive interaction strategy. This trial was the longest of the three, due to the fact that the participants first language is not English, even though they are proficient in the language. Also, a further factor making the session longer was the collaborative process. The users spent more time talking to each other while working together, taking a total of about 35 minutes to complete the set of tasks.

Despite the extra time taken, these subjects also had little difficulty with the basic navigation section of the evaluation. They seemed to find the proper commands, easily, with the exception of the favourites list. The search section proved to be easily completed as well. However, one notable feature was the navigation to the Korean website. In this case, the browser suggested using Internet Explorer to view the website, but did allow it to be viewed in the Edge browser. The users only had a limited time to explore the functionality, but they indicated no problems when browsing in this manner.

The configuration and settings tasks proved to be the most difficult section for the team to complete. The users indicated that the difficulty lay in the partly in the interface design and partly to do with the English language of the interface. The users are proficient in English, but it is not their first language. However, this did not prevent them from enjoying and easily browsing during the free browsing portion of the evaluation. They seemed to feel that the browser worked fairly well, even though one of the users strongly disliked the choice of interface design.

Overall then, most of the tasks were completed without much issue, but the configuration and

settings section proved to be the most difficult for the experimenters. Many indicated that the interface was designed well, except for one user who disliked it greatly. The main areas of concern with the interface seemed to be finding many of the settings required to complete some of the tasks, due to confusing language and clutter. However, the users seemed to complete the basic acts of browsing with ease.

## Section 4: Interpretation

Based on the actual experimental sessions, and user feedback through questionnaire and interview, there are both positive and negative issues that can be highlighted with the Microsoft Edge browser interface. One of the biggest pros of the system seems to be the overall design and style of the interface. Three out of four of the users indicated a very positive response to the overall design and layout. The choice of colours and the clean look of the interface seemed to resonate with the users. The layout is similar to most browsers, but updated to integrate with the overall look and feel of the Windows 10 interface. There is even an option within the browser to change it to a dark theme, though none of the users was able to explore this option to provide feedback.

Overall, there is a clean look to the interface, with clean lines and a streamlined feel. However, this is probably more valuable in the mobile environment, which is constrained in terms of space, but the interface is still visually pleasing nonetheless. The use of the browser on mobile devices may help users become familiar with use and allow them to use the browser on laptops as well, which is useful for the purposes of this study. The problem is that, like current Microsoft browsers, their mobile OS also has little market share. This means that most users will not be experiencing the Edge browser as the main interface for web browsing, but will be using the browsers native to their devices. These browsers are typically Chrome and Safari. Of course, most mobile owners are able to freely download other browsers on their devices, but this is added work and requires motivation on the part of the user.

Another positive aspect of the browser is the relative ease of most browsing activities. All experimental sessions showed that the users were able to complete most of the basic navigation tasks quickly and without any major issues. This trend continued into the free browsing portion of the evaluation. Users were able to browse naturally with ease, performing functions like opening tabs and navigating to their favourite sites without issue. However, this free browsing ease may have been a result of becoming familiar with interface tasks from the previous portion of the session. Nevertheless,

it seems highly unlikely that this had a large impact, because the basic browsing functions are similar to many of the existing browsers in the market.

Another positive outcome of the entire evaluation process was that generally, users indicated that the would be likely to browse with Microsoft Edge in the future, with three out of four subjects indicating this sentiment. Two of these users stated that they would use it simply because it is included with the Windows 10 upgrade. The user not wanting to use the browser objected because they are already invested in another browser, and had previous issues with using Internet Explorer. Despite these statements, this subject also indicated that the browser worked well and they liked the look and feel. It would seem that with standard use, many people will enjoy their browsing experience with Microsoft Edge.

On the other hand, there are some clearly indicated drawbacks to the system. The biggest issue seemed to be in accessing and manipulating the settings and configurations of the interface. All users had at least some type of issue on this portion of the experiment. Several indicated confusion with the interface, and were unsure of what was required to complete the tasks. Many also stated that having the settings menu off to the side created a cluttered and claustrophobic feel. When the settings and other menus are opened, they are displayed in a floating window that covers less than 1/5 of the full screen real estate of the interface[11]. Therefore, these menus do not take advantage of the screen real estate available. Much of this space is taken up by text to indicate the name and function of the settings. This requires users to scroll down or open alternate menus to access all available options. This is likely another concession to the device being developed for use on mobile devices as well, where screen real estate is at a premium. All the same, users reacted negatively to this element of the interface both through verbal statements, and difficulty in use.

One of the most cumbersome of these settings was the access to the zoom functionality of the browser. This is used to make web pages smaller and larger, making text easier to read and to have the

11 This value is only relevant to the experimental set up used. It may be larger or smaller depending on the device used, as these configurations were not tested.

page display in a way the user likes. Subject Rajnesh Sharma was unable to complete the task associated with this activity. She mistakenly missed the zoom settings and opened another menu with the unfortunate title of “Reading,” with options for “Reading view style” and “Reading view font size.” The user seemed to misunderstand these as reading the web page, instead of being associated with the reading view feature of the browser, in which users can save articles for later reading. The subjects from the constructive interaction experiment, could not locate the zoom feature easily, and completed the task with a shortcut. They may have found it if they spent more time looking, but it is unclear if they would have understood it's functionality.

A further interface issue was discovered with the news feed feature of the browser. The Edge browser displays a news feed by default when first used. It highlights news stories on various subjects and displays useful information such as sports scores and weather. Individual elements are laid out in a grid pattern in the bottom two-thirds of the interface, with the ability to scroll down and view many more items. The user task associated with this was to configure the feature to their liking. However, many users expressed that there were a lack of customization options available. When users use this feature, there is a choice to choose the language and a mere six subjects to choose from. The subjects also indicated that they noticed little change, despite the configurations made. Additionally, this feature added to the cluttered feeling of the interface experienced by the subjects. This default news feed was a significant source of dissatisfaction with the browser. The options to configure it are extremely limited and do not provide much use to the user.

The final major interface issue concerned the search/address bar located in the default view of the interface. When the user opens the browser, this bar is located directly above the news feed section, appearing with a magnifying glass and the text “Search or enter web address.” The main address bar of the browser is hidden, but available if specifically selected. The study participants seemed to be looking for the standard address bar when first using the browser, as this is a feature across all modern browsers. All of the users either expressed dislike or indicated a disinclination to the default search bar.

The location of this bar makes it seem as if it is associated with the news feed itself, which is exactly what user Chris Lee indicated in his interview. This non-standard way of browsing seems to feel unfamiliar to users, who are mostly coming to the Edge browser from a long history of using other browsers.

There were a number of other minor unfavourable issues discovered as well. One such issue was a lack of feedback when changing the settings. Many users simply changed settings and either thought or hoped that they had completed the tasks. One user went as far as to test to ensure that their configurations had changed. Clearly this is an issue, as a good interface requires proper feedback to be effective. Another concern was that most users did not used any advanced techniques in their experimental sessions. Only user Steven Fry took advantage of keyboard shortcuts and context menus. These features are readily available and similar in functionality to other browsers on the market. It seems that the surfacing of these options is not readily present in the Edge interface, but much of the lack of use could have come from user browsing habits. It remains unknown if they use some or all of these features in their typical browsing sessions in the natural environment.

## Section 5: Suggested Improvements

From the outlining of issues in the previous section, it is clear that there are some significant improvements that can be made to the Microsoft Edge browser. There are at least 5 changes that could be made to improve the interface and increase the satisfaction of the user experience.

**1. Redesign the settings layout**

Based on the troubles experienced and feedback provided by the subject participants, it is clear that there is an issue with the presentation of the various settings and configurations available in the Edge browser. Many of the settings themselves are clear toggle switches with explanatory names and text, which are designed well. However, the layout and presentation of these options are in need of change. Most users felt that these were clustered and hard to identify. This can be changed by granting the menu more screen real estate. Alternatively, a new tab could be used that takes full advantage of the window, leaving more room to explain and provide more spacing between individual options. Presenting the settings in this way should reduce the cluttered and claustrophobic feel, allowing users to more clearly associate tasks with the individual controls.

**2. Make the default news feed more configurable and presentable**

While the default news feed is a handy and interesting feature, several users expressed dissatisfaction with this component. Users clearly expressed that it contributed to a cluttered feeling in the interface and that the customization options were lacking. The layout of elements is in different sizes depending on the content. If it was laid out in a regular grid-like structure, with each element taking up the same amount of space, this regularity may help the interface feel less cluttered. This could be added as an option in the customization settings, helping users feel the feature is more configurable. This can also be aided by adding more subjects available for news items. Another

suggested improvement is that individual items can be configurable, such as the weather and sports information offered. For example, the weather can be set to a location of choice, and the sports information coordinated with the users favourite teams and clubs.

**3. Change the default search/address bar**

As indicated by the users, the location of the search bar on the default homepage seems linked to the news feed. Also, the obscurement of the default search bar makes the browser feel unfamiliar to many users. This is a relatively simple change to make, but can be done in a number of ways. The easiest option is to eliminate the default bar, and surface the standard bar. The standard bar can be made to express the same text to highlight it's functionality. The fact that default bar does not appear in any other browsing scenario seems to suggest that this is the best option, since the user will be used to using the standard address bar. Alternately however, the default bar can be moved further from the news content to clearly display that it is not directly associated with the news feed content. This can be further indicated with some kind of separating line or other visual indication.

**4. Better surfacing of advanced features**

Most of the browsing by users was done by direct interface interaction via the mouse. Whether this is due to users being unaware of these features in the browser, or a general lack of knowledge, the fact remains that users seem to be unaware of these features. The user can be made aware of these in several ways. The keyboard shortcuts can be displayed next to the individual settings options. Alternately, they can also be displayed when the mouse hovers over the option. This is already present in the interface when the user hovers over the '+' that opens a new tab. If there is a shortcut available, it should be easily surfaced. Other ways of making these features clear are to have an option that displays the shortcuts, or to have an introductory tutorial explaining some features when the user opens the browser for the first time.

**5. Present the unique features of the Edge browser**

While many subjects indicated that they would use the browser in the future, the did not offer compelling reasons for this decision. To encourage users to use the Edge browser, its unique features should be clearly surfaced to the user. As it stands, many options and features are hidden or unexplained. When users were offered the chance to browse freely, they didn't do anything but browse regularly as they could in any other browser. No user took advantage of any settings or features of the browser. Again, a nice introductory tutorial could help the user identify useful features and attributes that could aid them in using the browser and improving their overall web browsing experience. Surfacing these items may encourage the user to adopt the browser as their default means of browsing, and give users a more positive feeling about many of its elements.

## Section 6: Conclusion

The Edge browser included with the Windows 10 package seems to be a fully functional browser with many features. Users mostly expressed satisfaction with the design choices in terms of style, and had little trouble with basic browsing tasks. Most users said they would use the Edge browser in the future, with half responding that they would change because it is included in the Windows 10 package. This is the OS that the Asus laptops will ship with, so this is a positive sign that users are willing to use the browser. It is recommended that Asus go ahead with their plan of using this OS, and there is no major need to change the default included browser or to recommend another browser to their customers.

However, the Edge browser does have some drawbacks, outlined in the previous section. The browser interface can feel cluttered in the default start page, and many users are unaware of the enhanced browsing features available with the Edge. The biggest problem is access to the various settings features available, which allow users to customize the browser. These were cramped and unclear. It is recommended that Asus contact Microsoft to make them aware of these issues, further prompting adoption of the OS and browser. This will not only help Microsoft users feel satisfied with the OS and browsing experience, but will also cause Asus laptop customers to enjoy their purchase more.

Overall, Asus can feel confident that users will be satisfied with their purchase when it includes the Windows 10 OS with included Edge browser. They can recommend changes in the browser to Microsoft to increase the level of satisfaction. However, with the ease of access to other modern browsers, any users who would like a different browsing experience should be able to easily download and install their browser of choice.

# Appendix 1: Raw Data

The raw data is presented here.  Please see the included files in the included attachments folder.

Evaluation instructions for experimental subjects:  Evaluation Instructions.pdf

Questionnaire presented to all subjects following their experimental session:  Questionnaire.pdf

Questionnaire results summarized in a table format:  Questionnaire Results.pdf

Session notes recorded by researcher during individual experimental sessions:

Steven Fry:  Silent Observer Notes.pdf

Rajnesh Sharma:  Think Aloud Notes.pdf

Reina Kim and Chris Lee:  Constructive Interaction.pdf

Interview questions and notes for individual interviews performed after experimental sessions:

Steven Fry:  Steven Fry Interview.pdf

Rajnesh Sharma:  Rajnesh Sharma Interview.pdf

Chris Lee and Reina Kim:  Chris Lee & Reina Kim Interview