
Keweenaw Time Traveler

Usability Test Evaluation Report

By:

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For: Team Platypus

INTRODUCTION

The Keweenaw Time Traveler App is used to view historical maps in various decades. Users can upload pictures and documents to various relevant locations. Comment on various pictures and documents, share them on Facebook and like the comments posted. The users of the app include tourists, history enthusiasts and students. Team Platypus comprised of five Undergraduate students namely Colin Brevitz, Colin Baldwin, Marcus Stojceovich and Dave Morehouse developed the Keweenaw Time Traveler Application. Dr. Don Lafreniere and Sarah Scarlett were the Scientists associated with this initiative.

To use this app, please click on below link:

<http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/other/GeoDev2/index.html>

For more details of this app, please refer to website:

<http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/>

Description of UI:

The User Interface for the application is comprised of a search bar, a drop down menu for selecting the decade zoom in and zoom out buttons as well as the map on the main page. To make a point on the app at a location the user is supposed to click on the location. Once the point relevant to upload a document is selected, a side pane pops up. The side pane five fields and a submit button. The five fields are comprised of, title of the point, the description of the picture, the date at which the picture was clicked, "choose file" button to upload the pictures and the field to enter your name. The application allows the users to upload up to three pictures and has validation for the description field, which needs at least 10 characters.

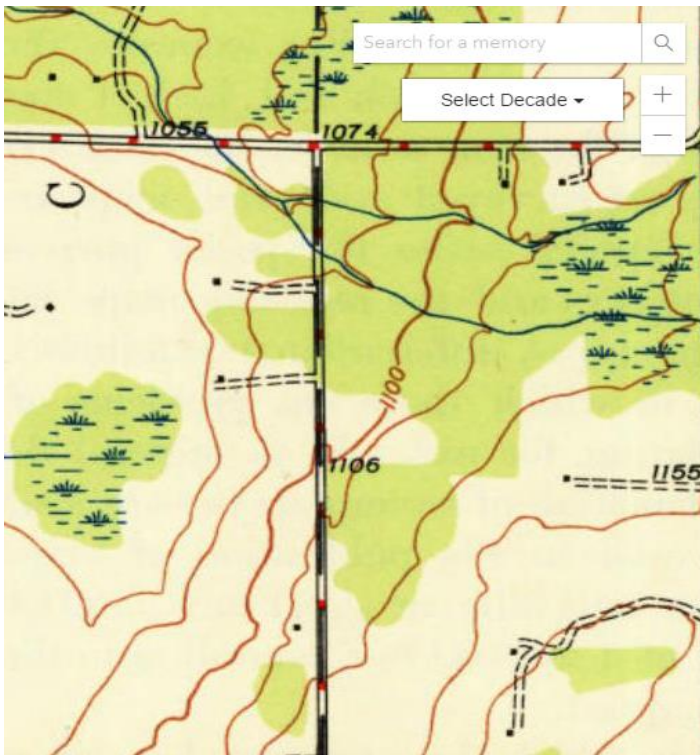


Figure 1: Main page

Figure 2: Side pane of the application

Test Description:

The Test was conducted In MEESE 206, located in the Michigan Technological University campus, over a span of three days. There were two slots of one hour each day. The Usability Testing sessions were attended by the Graduate consultants and the undergraduate development team members. The Graduate consultant introduced herself. The application was thoroughly described to the participant. Consent forms were signed by the participants, and consent was taken to record their voice during the testing session. A pretest questionnaire was filled out by the participants. The Application was described thoroughly to the participants by the consultant. The participant was asked to think aloud while performing the tasks. The participant performed the usability testing tasks while the consultant observed the participants and made notes. The participants were asked to fill the post-test questionnaire after the tests were performed.

Test Schedule:

| Day of Week | Date | Time | Location | Name | Email | Course | Attended |
|-------------|---------------|------|------------------|------------------|------------------|--------|----------|
| Tuesday | 11 April 2017 | 5:00 | Harold Meese 206 | Natalie McGrath | njmcgrat@mtu.edu | CS2321 | yes |
| Tuesday | 11 April 2017 | 6:00 | Harold Meese 206 | Josh Borkowski | jmborkow@mtu.edu | CS2321 | No |
| Thursday | 13 April 2017 | 4:00 | Harold Meese 206 | CharlesSouthward | cdsouthw@mtu.edu | CS1121 | yes |
| Thursday | 13 April 2017 | 5:00 | Harold Meese 206 | Zoe` LaLonde | zmlalond@mtu.edu | CS1121 | yes |
| Friday | 14 April 2017 | 4:30 | Harold Meese 206 | Dean Navaroli | dnavaro@mtu.edu | CS1122 | yes |

Fig 3: Development team attendance

Test Goals:

The application was designed keeping these two main goals in mind:

1. To allow users to upload the historical documents including pictures easily and efficiently.
2. To allow users to go through the locations and view the documents associated with that location.

A more detailed review of the Goals is done below to elaborate the goals from the point of view of various users:

A) Contributor's Interface:

1. Will the contributors find the application efficient and easy to use?

Goal 1(a):

The users will be able to use the application and upload documents, which make up a use case scenario without any external help, in a stipulated period. The users will be timed during the evaluation, to determine the average time required to upload a document.

Goal 1(b):

The users will feel that the amount of time and energy to perform each task in the use case scenario is justified.

2. Will the contributors find it easy to comprehend the instructions and their outcomes while uploading a document?

Goal 2(a):

The users will be able to understand how to upload a document without any assistance or visible or reported difficulty in the first attempt. The users will find the description given to assist the user helpful.

Goal 2(b):

The users will feel that the flow the task of uploading a document matches their natural flow of thought.

3. Will the contributors feel the need of help documentation to assist them with the process?

Goal 3(a):

The users will not feel the need of any help documentation to be provided for the application.

B) Explorer's Interface:

1. Will the explorers be able to navigate through the map and find points on various locations easily and efficiently?

Goal 1(a):

The Users will be able navigate to different various areas on the without any observed or reported discomfort.

Goal 1(b):

Users will be able to locate a point on the map and retrieve the information associated with it within a specific time limit. The users of the application will be timed during the evaluation.

Goal 1(c):

The users will be able to zoom in and zoom out for a more detailed view of the map

2. Will the explorers be able to use the search interface effectively?

Goal 2(a):

Most of the Users will intuitively give the correct search criteria.

Goal 2(b):

Users on giving the correct search criteria will be able to locate the appropriate point on the map in the first attempt.

3. Will the explorers find the comment feature useful and effective?

Goal 3(a):

The users will be able to comment on a point without any assistance.

Goal 3(b):

The users will find the comment feature interesting and useful.

C) All Users

1. Will the application support different platforms (e.g. browsers, OS) efficiently?

Goal 1:

There will be no effect on the performance of the application even if varied platforms are used.

2. Does the Application respond fast enough to provide a good user experience?

Goal 2:

The users will not feel they spent too much times waiting for the application to respond.

3. Are there any functions provided in the application that are not useful?

Goal 3:

The user will feel there is no functionality that is unnecessary and confuses user.

Brief description of tests:

1. The Keweenaw Time Traveler app allows users to upload historical documents with reference to a location on the map. Assume you have a photograph clicked on 12th of August 1900, which was clicked at Mount Ripley. A man named Roger Pendas who was a very famous hockey player clicked this picture. Upload the picture on the application.

2. The Keweenaw Time Traveler app provides the user a platform to view various historical documents. In this task, the user is supposed to find the point named "Roger Pendas" and comment on it .Note: The test Facebook profile for this part is as listed below

Username: 9062759947

Password: testing1234

3. In this task the User is supposed to View the maps for the 1800, 1950 and 1920 decade.

4. In this task users will create a point and include emoticons in the name using three different browsers to compare and evaluate the performance and functionality of the application in each of the Browsers.

TEST PLAN:

Test 1

A. Name:

Upload a Photograph with Description on a point.

B. Test Goals:

1. Verify the functionality of photo upload, point title, description, estimated date, name fields and submit button fields.
2. To verify whether the users find the application easy to use and efficient.
3. To evaluate the responsiveness of the app

C. Quantitative measurement list:

- i. Time taken to find The location where the picture is to be uploaded
- ii. Time to upload the image from the gallery
- iii. Time taken to enter information in the form
- iv. Time taken to save the entered data
- v. Overall time taken for the entire scenario
- vi. The number of attempts a user needs before he successfully uploads a document.
- vii. The number of times the user asks for assistance.

D. Scenario description :

The Keweenaw Time Traveler app allows users to upload historical documents with reference to a location on the map. Assume you have a photograph clicked on 12th of August 1900, which was clicked at Mount Ripley. A man named Roger Pandas who was a very famous hockey player clicked this picture. Upload the picture to the application

E. Task list:

1. For finding the appropriate location:
 - The user will navigate through the map using the hand pointer. Then zoom into the Area where Mt Ripley is Located.
2. For placing the point:

- The User will click on the location of mount Ripley

3. For Entering Details:

1. The User will enter the Name for the point. Then enter the description of a picture.
2. The User will enter the date the picture was taken using the drop down calendar.
3. The User will click on the choose file button select the picture to be uploaded.
4. Enter his name in the Name box

F. Qualitative measurement list :

- i. The Facial expressions of the User.
- ii. Comments of the user about this feature
- iii. User's attention in the application
- iv. User's comfort while entering information
- v. Analysis of post test Questions.
- vi. The Users reactions are captured using an online voice recording service.

G. Potential observations of participant

- i. Type of Questions asked by the user based on The System Usability Scale (SUS)
- ii. The User's Body language and facial expressions
- iii. Attention span of the User while using the application

H. Test set-up details

Open the website <http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/> in the browser. Click on the demo App icon in the bottom left part of the website .Start the Audio recording software say your name before you start the test.

2. Test 2

A. Name:

To search a point, view it, comment on it and share it on Facebook.

B. Test Goals:

1. Verify the functionality of comment feature
2. Verify the functionality of the Search bar feature
3. Evaluate the user experience while navigating through the map to find the specified point.
4. Evaluate the User experience while using the comment feature and the efficiency of interaction between the application and Facebook.

C. Quantitative measurement list:

1. Time taken by the application to load the point addressed in the search query
2. Time required for loading the images completing the task from the side pane related to the point.
3. Time required by the user to find the comment box and the also post on Facebook checkbox.
4. Time taken by the page to redirect to Facebook.
5. Time taken by the application to load the Facebook login form.
6. Total time required to complete the task.
7. No of attempts by user before successfully completing the task.

D. Scenario description:

The Keweenaw Time Traveler app provides the user a platform to view various historical documents. In this task, the user is supposed to find the point named “Roger Pandas” using the search bar. The user then has to comment on it as “Testing Case” using their personal Facebook account or test account created for this purpose.

E. Task list

For finding the Point

1. The user will click on the search bar and type the name of the point to be searched namely Roger Pandas.
2. Click the suggestion in the menu.
3. Click the Search Icon or press Enter.

For viewing the related documents:

1. The User will View the Related documents in the side pane of the Interface and the location of the point on the map is marked by a green color dot.
2. The user clicks on the images in the side Pane.
3. The user Views the image.
4. The user clicks either on the close button at the bottom of the image pane or the “x” sign at in the corner of the image pane to close the window.

For commenting:

1. The user clicks on the text box provided and types the comment.
2. User checks the also post on Facebook checkbox
3. User clicks the Login to post Button
4. User is redirected to Facebook login page
5. User clicks on the Email or Phone field and enters a valid email id
6. User clicks on the password field and enters the password.
7. User views the comment on the side pane of the application.
8. User Views the comment on the wall of the Facebook account used to make the comment.

F. Qualitative measurement list:

1. Body language of the user.
2. Verbal responses of the User
3. The video recordings from hot jar to identify where user spends most of his time.
4. Users expression
5. Users responses to post Usability test Questions based on The System Usability Scale (SUS)

G. Potential observations of participant

1. How the user is interacting with the application
2. How the user is giving attention to the application.

I. Test set-up details

Open the website <http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/> in the browser. Click on the demo App icon in the bottom left part of the website. Wear the Microphone provided. Start the Audio recording software say your name before you start the test.

3. TEST 3

A. Name:

To change the decade of the map

B. Test Goals:

1. Verify the functionality of the Decade feature
2. Evaluate the responsiveness of the application

C. Quantitative measurement list:

1. Time taken by the application to load the new map of the decade.
2. Time required for the user to select the decade to view

3. Total time required to complete the task.

D. Scenario description:

In this task the User is supposed to View the maps for the 1900, 1820 and 1920 decade.

E. Task list

1. User clicks on the drop down menu labelled Decade to select the decade as 1900
2. User Views the map for the decade
3. User clicks the drop down menu labelled decade and selects 1820
4. User Views the Map of the Decade
5. User Clicks the Drop down menu labelled Decade and selects 1920
6. User Views the map of the decade.

F. Qualitative measurement list :

1. Body language of the user.
2. Users responses to post Usability test Questions based on The System Usability Scale (SUS)

G. Potential observations of participant

1. How the user reacts while the maps are loading
2. The verbal reactions from the user while the maps are loading

I. Test set-up details

Open the website <http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/> in the browser. Click on the demo App icon in the bottom left part of the website. Start the Audio recording software say your name before you start the test.

4. Test 4

A .Name:

To Test the application on different Browsers.

B. Test Goals:

1. Verify the functionality of photo upload, point title, description, estimated date, name fields and submit button fields.
2. To verify whether the users find the application easy to use and efficient.

3. To evaluate the responsiveness of the app
4. To test functionality of Title field with respect to emoticons.

C. Quantitative measurement list:

1. Time taken to find The location where the picture is to be uploaded
2. Time to upload the image from the gallery
3. Time taken to enter information in the form
4. Time taken to save the entered data
5. Overall time taken for the entire scenario
6. The number of attempts a user needs before he successfully uploads a document.
7. The number of times the user asks for assistance.

D. Scenario description :

In this task users will create a point and include emoticons in the name three different available browsers to compare and evaluate the performance and functionality of the application in each of the Browsers.

E. Task list:

1. For finding the appropriate location:
 - The user will navigate through the map using the hand pointer.
2. For placing the point:
 - The User will click on the location of mount Ripley
3. For Entering Details:
 - The User will enter the Name for the point. Then enter the description of the picture.
 - The User will enter the date the picture was taken using the drop down calendar.
 - The User will click on the choose file button select the picture to be uploaded.
 - Enter his name in the Name box

F. Qualitative measurement list :

1. The Facial expressions of the User.
2. Comments of the user about this feature
3. User's attention in the application
4. User's comfort while entering information
5. Analysis of post test Questions.
6. The Users reactions are captured using an online voice recording service.

G. Potential observations of participant

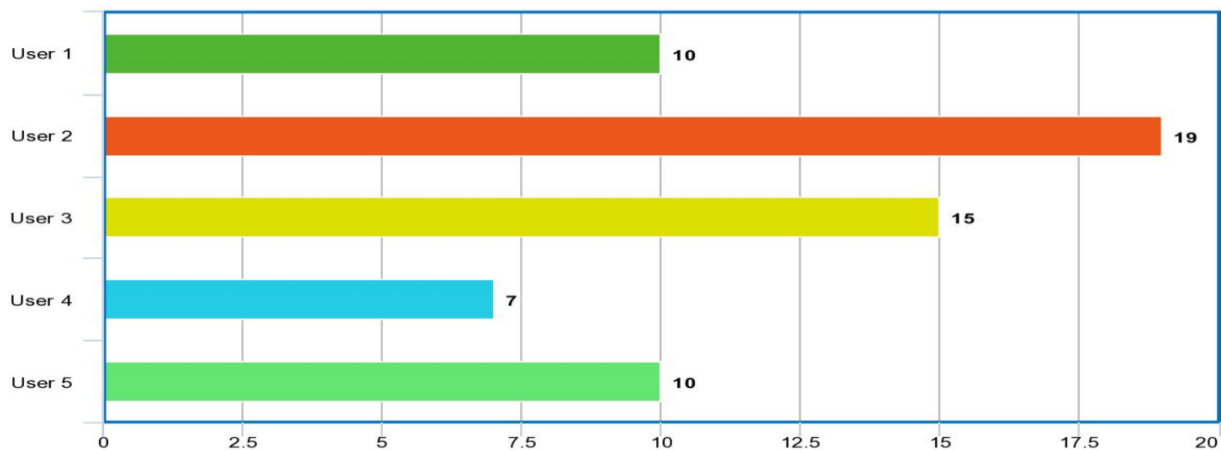
1. Type of Questions asked by the user based on The System Usability Scale (SUS)
2. The User's Body language and facial expressions
3. Attention span of the User while using the application

I. Test set-up details

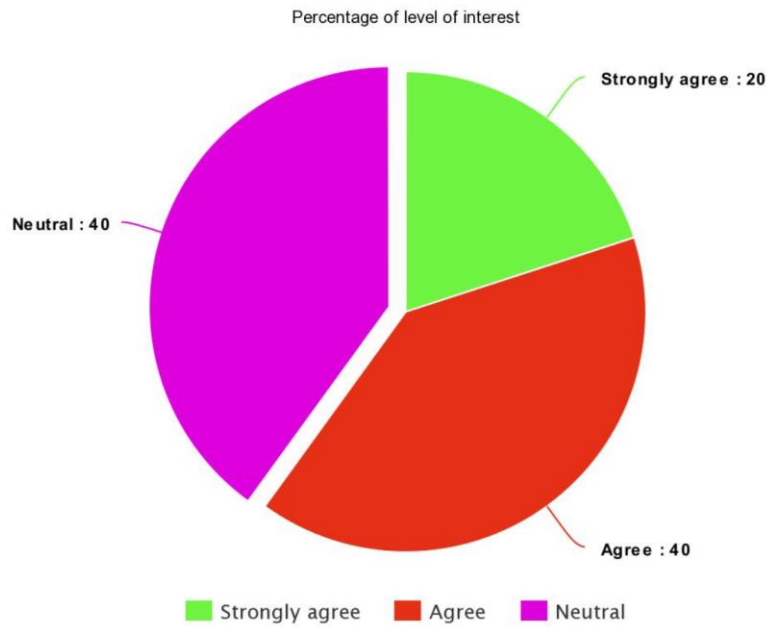
Open the website <http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group1/www/> in the browser. Click on the demo App icon in the bottom left part of the website. Start the Audio recording software say your name before you start the test. Open the demo app in three different browsers.

Pre-test Questions:

Years of computer usage:



I am interested in testing this application:



- What is the most important quality for a UI?
 - Ease of use: 2/5
 - Simplicity: 1/5,
 - Interactivity: 1/5
- Do you have a Facebook account? Would you be willing to use it to make a post for the Application?
 - All the participants had a Facebook account; most of them were comfortable using their own accounts to make posts on Facebook.
- How often do you use Facebook?
 - All the participants used Facebook daily.

Participant demographics:

40% of the users were female while 60% were male .All the users were students in the university. The participants were well acquainted with computers and had been using computers between 7 to 14 years. The participants were all right handed.

Post Test questions:

The participants were asked to indicate their level of agreement to the follow statements: using

- Very much
- A little bit
- Neutral
- Not very much
- Not at all

1. I think that I would like to use this system frequently.
2. I enjoy using this application.
3. Thought the system was easy to use.
4. .I found the system unnecessarily complex.
5. I think that I would need the support of a technical person to be able to use this system.
6. I found the various functions in this system were well integrated.

RESULTS:

1. Task 1

➤ Finding the point to upload the document:

- The verbal inputs and body language of the users indicated that they were comfortable while navigating to look for a point in familiar areas. If the area in which the point was to be made was in an unfamiliar region then users were seen to be confused.
- One of the users tried to find the location using the search bar provided on the application

➤ Making the point:

- Few users intuitively made the point by clicking on the location.
- The users were impressed by the description of each field provided in the side pane.
- All users agreed that the process of making a point was easy and quick.

- One of the users pointed out that for ten characters validation for the description field in the application should be worded properly.

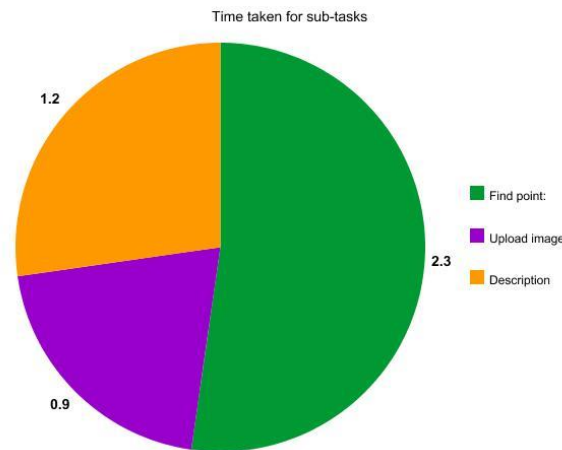


Fig: Average time taken to complete subtasks

This pie chart shows that the Users took most amount of time to find the location of the point. and the least amount of time to upload the image. The average total time taken by the user to complete Task 1 is 4 mins and 40 secs. Users took on an average three attempts to complete the task. The users needed assistance to navigate to the location of the point on the map.

2. Task 2:

Finding an existing point

All the users intuitively used the search bar to find the point.

- The users found the suggestions in the search bar helpful; most users did not type out the full name of the point but used the suggestion provided.
- Verbal and body language cues suggested that the users were very at ease while finding the points.
- Users felt that the points take appropriate amount of time to load.

Finding the comment box:

- All users found the comment box in a single attempt
- Two of the users did not observe the post to Facebook option.

Redirect and Login to Facebook:

- The users found it easy and fast to redirect and login to Facebook.

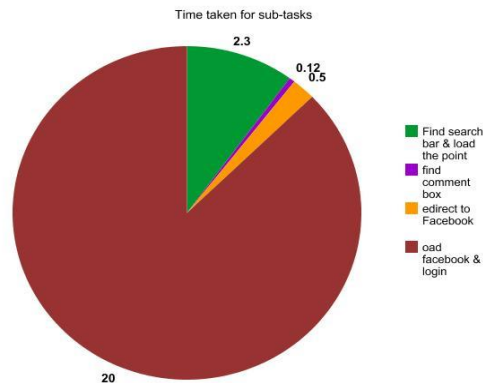


Fig: Average time to complete subtasks

The users spent most of their time Loading Facebook and logging into it. They spent the least amount of time finding the comment box. The average total amount of time required by the users to complete the task was 1 min and 17 secs. Most users completed this task in a single attempt. All users who needed more than one attempts to complete the task were assisted by reminding them to check the post to Facebook checkbox.

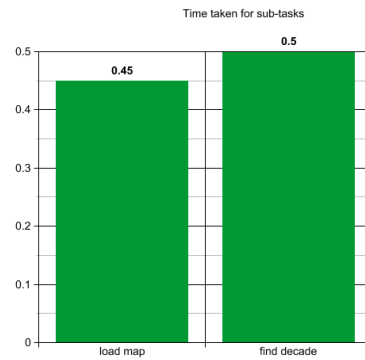
3. Task 3:

Load map

- Few users pointed out that the loading of the maps was a little slow.
- Verbal responses and Body language of the users indicated that the users were losing focus on the application while the maps were loading

Select the decade:

- All the users easily changed the decades of maps.
- One of the users gave verbal cues that indicative of being unsure whether the decade had changed since the map showed no change in the location he had zoomed.
- All users seemed to enjoy looking through the maps and found the interface engaging.



4. Task 4:

The users tested the application on google chrome, Mozilla Firefox, safari and internet explorer browsers.

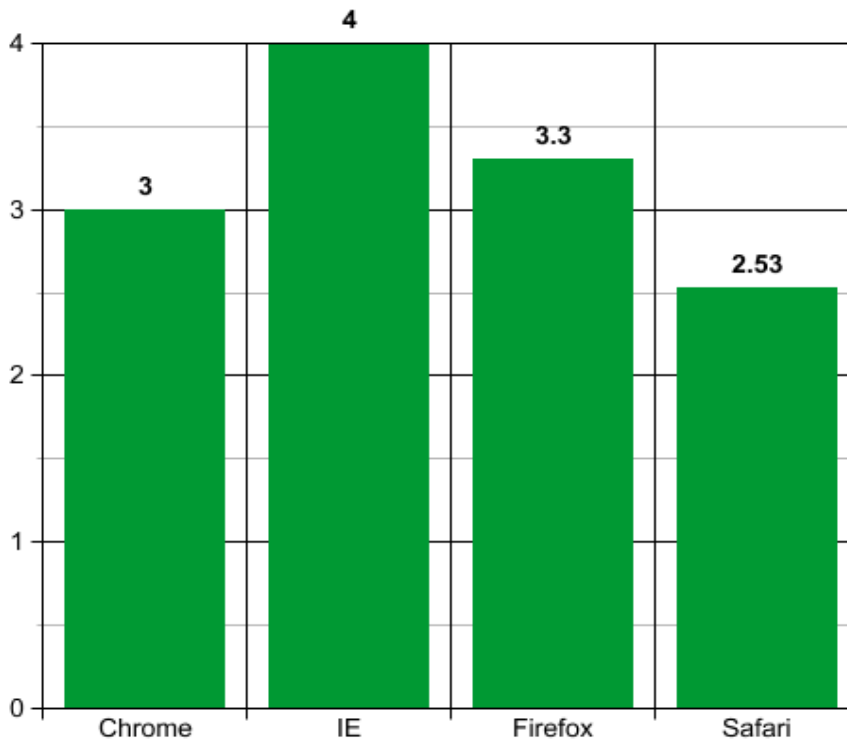
Locate the point:

All Users chose a point in the nearby location of their cursor.

Making the point and describing it:

The Users seemed very comfortable while making the point, naming, and describing it. The users found the performance of the application in all the browsers impressive. One of the users found that the Chrome browser performs slightly better than the Mozilla Firefox does. The users pointed out that all other browsers were more compatible with the application as compared to the internet explorer browser.

Average performance for various Browsers



CONCLUSIONS AND SUGGESTIONS:

The System Usability Scale for the Application:

The system Usability scale is a measure that is used to measure the usability of the application. SUS has now become an industry standard and has been used in 1300 articles and publications. It is simple to administer to participants and provides reliable results.

| SUS Calculation | | | | | | | | | | | | |
|-----------------|----|----|----|----|----|----|----|----|----|-----|-------------|--|
| Participant | q1 | q2 | q3 | q4 | q5 | q6 | q7 | q8 | q9 | q10 | SUS Score | |
| p1 | 3 | 2 | 2 | 4 | 5 | 1 | 5 | 1 | 5 | 2 | 75.0 | |
| p2 | 2 | 2 | 2 | 4 | 4 | 2 | 3 | 1 | 4 | 2 | 60.0 | |
| p3 | 3 | 2 | 2 | 4 | 4 | 2 | 4 | 1 | 4 | 2 | 65.0 | |
| p4 | 2 | 2 | 2 | 4 | 4 | 2 | 3 | 1 | 4 | 2 | 60.0 | |
| p5 | 2 | 2 | 2 | 4 | 4 | 2 | 3 | 1 | 4 | 2 | 60.0 | |
| | | | | | | | | | | | 64.0 | |

The System Usability Scale score for the application is 64, which classifies it as an application, which is lauded by the Users.

- All users had long spans of attention while operating the application. Which means that the application UI is engaging.
- Users voted integration with Facebook the most novel and interesting feature of the application.
- Many users used the spell check for the description field.
- The Navigation in the application enables the rotate feature. User's feedback suggests that the rotate feature should be disabled.
- As stated earlier the users grew anxious while the maps were loading and were unsure of whether the map had completely loaded before they could perform the task. A loading icon can be introduced to indicate that the map is still loading.
- The "Also post to Facebook" checkbox should be more distinct and visible, to facilitate the user to locate it.
- The "when did your story happen" field in the side pane form used while uploading a picture or creating a memory accepts invalid dates such as 01/01/0000.
- A short graphical tutorial on using the various functions in the application can be included to assist users who are not well versed with computers.
- A feature to map a name of the location to its coordinates should be included for users who are not acquainted with the Keweenaw region but who wish to upload memories to the application.
- The size of the search bar could be increased for easy identification.

- The symbol used to indicate location of a point while creating a memory should be made more distinctive.

APPENDIX B: BUG REPORT FORM

| Day and Date | Time | Attended |
|--------------------------|------------------|------------------------------------|
| Tuesday:11th April 2017 | 5pm to 6pm | David,Colin,Collin,Tate, Marcus |
| Tuesday:11th April 2017 | 6pm to 7pm | David,Colin,Collin,Tate, Marcus |
| Thursday:13th April 2017 | 5pm to 6pm | David,Colin,Collin,Tate, Marcus |
| Thursday:13th April 2017 | 6pm to 7pm | David,Colin,Collin,Tate, Marcus |
| Friday:13th April 2017 | 4:30pm to 5:30pm | David,Colin,Collin,Tate, Marcus |
| Friday:13th April 2017 | 5:30pm to 6:30pm | David,Colin,Collin,Tate, Marcus |

APPENDIX B: BUG REPORT FORM

| Bug number | Bug name | Bug location | Bug description | Bug severity |
|------------|----------------|---------------|---|--------------|
| 1 | Screen freeze | Maps Page | When zoomed screen froze | Low |
| 2 | Facebook Login | Comment panel | When commenting facebook there is no action | High |