Session 6

Usability Studies in Responsive Web Design

Learning Objectives

In this session, you will learn to:

- Describe usability studies
- Explain the importance of usability studies
- List the steps for testing in usability studies
- Describe usability studies for Responsive Web Design

What is Usability Study?

- Usability studies means evaluating performance to enhance the usability of a product or service while the end users work on that particular product or service.
- Usability studies involves observing and taking annotation while the users explore the product or service. It determines and improves the product in the terms of speed of the product, ease to use, remember the functions, recovering from errors and overall satisfaction of the end user.

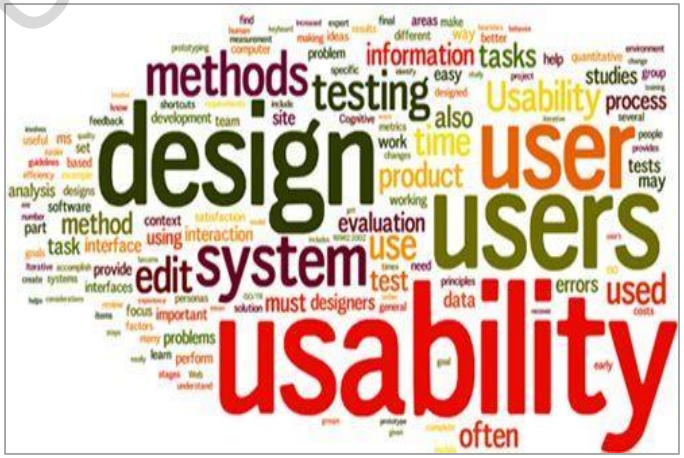

Figure 6.1: Usability Study

Image courtesy: http://unbounce.com/a-b-testing/

Usability Study is a Black Box Technique

- Usability study is also known as Black Box technique. Black Box testing is a software testing method in which the functionality of the Software Under Test (SUT) is examined without peering at the internal code structure, implementation details and inside paths of the software.

Black Box Testing

Steps to Perform Black Box Testing

- Observing initial requirements and specification of the system.
- Selecting valid inputs to verify if the Software Under Test (SUT) processes them correctly. Invalid inputs are also selected to check that SUT is able to identify them.
- Knowing expected output for all the inputs provided.
- Creating test cases with the selected inputs.
- Executing test cases.
- Comparing actual output with the expected output.
- Retesting fixed detects.

Key Components of Usability Testing

- **Learnability**: Ease of completing basic tasks while using the product or the service.
- **Efficiency**: Speed of completing the basic tasks.
- **Memorability**: Remembering how to use the product effectively even after a period of time.
- **Errors**: Detecting the frequency and the severity of the errors.
- **Satisfaction**: Feeling of contentment after using the system.

Considerations While Conducting Usability Testing

- Verifies if users can finish specified tasks successfully.
- Ascertain the time to finish the specified task.
- Validate the approval level of users with the Web function, Website, or other product.
- Categorize the changes necessary to progress the user performance and satisfaction.
- Evaluate the performance if it matches the usability goals.

Advantages of Using Usability Testing for an Organization

- Can be modified to perform other types of testing such as practical testing, structure integration testing, unit testing, and smoke testing.
- Enhances performance of the product by amending all the problems that user may face before the product is finally released.
- Determines possible mistakes, bugs, and potholes in the structure which are not evident to developers.
- It can be very economical, highly effective, and beneficial.

Benefits of Using Usability Testing for End Users

- Improves the quality of software.
- Easy to use software.
- More readily accepted by the users.
- Shortens the learning curve for new users.

Methods of Usability Studies

- Laboratory Experiment:
  - Observed by usability experts by using the quantitative data.
  - Requires more time and is more expensive than other methods of usability testing.
- On-site Observation:
  - Testing is conducted on-site which enables the study of user's actual working environment.
  - Involves long observation period which helps to collect the real environment information.
  - Less expensive than other usability testing method.

Checklist of Usability Testing

- Usability testing checklist is categorised into three parts:
  - Accessibility
  - Navigation
  - Content

Checklist of Usability Studies-Accessibility

- Verifies the loading time of the Website.
- Verifies suitable Text-to-Background contrast.
- Verifies formatting of the text including font and spacing of the text.
- Verifies if Website has its 404 page or any custom designed Not Found page.
- Verifies addition of appropriate ALT tags for images.

Checklist of Usability Studies-Navigation

- Verifies if user can easily identify the Website navigation.
- Verifies if navigation options are short and easy to understand.
- Verifies if number of buttons/links are realistic.
- Verifies if the logo of the company is linked to the home page.
- Verifies if links are consistent on all pages and are easy to understand.
- Verifies if site search is present on page and are easy to access.

Checklist of Usability Testing-Content

- Verifies if URLs have meanings and are user friendly.
- Verifies if HTML pages are meaningful.
- Verifies if important content is above the fold.
- Verifies if highlighting of the content is used cautiously.
- Verifies if original copy is concise and illustrative.
- Verifies if major headings are clear and meaningful.
- Verifies if styles and colors are consistent.

Steps to Perform Usability Testing

- Create a test plan:
  - Identifying objectives and elements that need to be tested.
  - Specifying the features of the test group and identifies methods and measures to perform the test.
- Select a test environment:
  - Finalizing an environment consisting of required software and hardware where the testing team performs their tasks.
- Search and assign users:
  - Identifying users on which testing is to be performed depending on their usage.

Steps to Perform Usability Testing

- Schedule the test session:
  - Moderator performs actual testing.
  - Moderator is responsible for security and ease for users.
  - Moderator manages the testing team.
- Create test checklist or material:
  - Creating an interview questionnaire for the users to identify possible conditions for the testing scenario.
- Interrogate with users:
  - Take feedback from the users.
  - Attend the interrogation session with users so they can provide suggestions to the moderator.
- Analyze data and observation:
  - Finding the reason of the problem by analyzing data and observations.

Limitation of Usability Testing

- It is tedious and time consuming.
- Conclusion derived is not 100% accurate as the scenarios of testing are different from actual environment.
- It verifies testing for short period of time.
- It is not possible to know response of user in long term.

Mobile Website Testing

Mobile Website testing should be conducted on Mobile devices and not on static devices due to following reasons:

- **Roll-overs**: Roll overs used for navigating or accessing content on static devices do not translate to mobile devices automatically.
- **Re-sizing**: Display in static and mobile devices differ due to variation of screen size.
- **Overlays and Pop-ups**: Some of the features such as light boxes and slide shows use overlays or pop-ups work accurately on the static devices but may lead users into navigational dead ends on mobile devices.
- **Environmental Factors**: Websites created for mobile devices need verification for test designs, color choices, and textures in a variety of environmental light. Mobile devices are used in different environments whereas static devices are used in a particular environment.

Tools Used for Responsive Design Testing

- **Responsive Test**: Helps to know how a Web page will look on devices with different sizes of screen. Some devices supported with this tool are: iPhones, Blackberry and Samsung phones, and Dell laptops.
- **Responsinator**: Accepts a URL and gives output of sequences of device mock-ups by rendering the page. This gives an idea of how the users will experience the layout of Web page on different devices.
- **Responsive**: Provides some keyboard shortcuts. For example, when you press the 'T' key, you will get a tablet preview. This tool helps users to frequently switch between various device previews.
- **Am I Responsive?**: Renders preview of images and is helpful for presentational design meetings.

Tools Used for Responsive Design Testing

- **Viewport Resizer**: Allows resizing the browser into a specific dimension. Example: the dimension of an iPhone and Amazon Kindle Fire.
- **ResizeMyBrowser**: Allows to resize the browser in to 15 default sizes that matches almost all the popular devices like the MacBook's or iPads. It allows to create custom dimensions and allows to know the size of current window.
- **Screenfly**: Takes a URL and provides a preview of Web pages according to the various screen dimensions.
- **Responsive Web Design Tool by Designmodo**: Helps in designing and debugging of responsive breakpoints.
- **Responsive Web Design Tool by pixeltuner.de**: Renders a URL in the several device mock-ups.

Summary

- Usability studies mean evaluating performance to enhance the usability of a product or service while the end users work on that particular product or service.
- Usability study is also known as Black Box technique.
- Black Box testing is a software testing method in which the functionality of the Software Under Test (SUT) is examined without peering at the internal code structure, implementation details and internal paths of the software.
- Usability testing identifies the problems in the design of the product before they are coded.
- There are two methods to perform the usability studies: Laboratory experiment and On-site observation.

Summary

- Usability testing checklist is categorised into three parts: Accessibility, Navigation, and Content.
- The most common elements of a GUI include Window, Menu, Icons, and a Pointer.
- Mobile Website testing should be conducted on mobile devices such as mobile phones and tablets.
- Various free tools used for Responsive Design Test, such as Responsive Test, Responsive, and Screenfly.