

# Module\_10

# Usability Testing

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# Introduction and Background

- Usability testing was created to maximize user satisfaction. Bad design will hinder use, comfort, and gratification.
- Overall lowering the chances of a customer becoming a returning customer. One must understand the purpose of the product, the user, methods of testing, data, and one must know how to analyze this information.

# Usability testing

- Usability can be defined as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.” (Barnum 2011)
- The practice of usability testing started around the early 1980s and was known to be very cost effective and time consuming. Only people with extensive knowledge in experimental psychology, cognitive science or human factor engineering were able to conduct these tests

# Usability testing Cont...

- It is costly to conduct 30-40 people for research purpose to have accurate data.
- In the 1990s, *Jakob Nielsen and Tom Landauer* discovered a new experimental method for usability studies.
- They found that you can test five users and the data would still come out accurate. It may take a few more tests and revisions to get the project flawless for the users but it will ultimately still save you a massive amount of time and money.
- *Nielson called this approach the “discount” usability test.*

# Purpose and Importance of Usability

- Doing usability testing the right way, at right time with the right set of people reduces the risk of building the wrong product; thereby saving time, money and other precious resources.
- Usability testing is extremely important in today's web development and program design.

Unnecessary functions can make your development look clunky and unappealing.

# Purpose and Importance of Usability

- If a user finds your website or program difficult or confusing to use, they will leave and find a better version of what they are looking for.
- During your usability testing, if you notice that none of the users are paying attention or using a function then either make it useful to the users or remove the function.
- For successful testing, the developer needs to look at five quality components that make up a great product.

- **Learnability:** How easy is it for the users to understand the functions and abilities of the product?
- **Efficiency:** Does the product have accurate information and quick response time?
- **Memorability:** If the user accessed the product months after the implementation date, could they remember the steps to use the product?
- **Errors:** Does the user find any errors while using this product? How severe are the errors?
- **Satisfaction:** Are the users happy with the design and purpose of the product?

A great example of this is “if the user perceives that the online bill-paying feature offered by her bank is not worth the effort to set up and use, then she will continue to write checks, put stamps on envelopes, and mail in her payments.” (Barnum 2011) Our goal is to make sure the product fits the users’ needs not what the developer thinks is best for the product.

The greater the results of the usability testing the more of an impact the product has on the users. If the product cannot fulfil the goals of the user what is the purpose of creating it?



- With these five quality components, usability testing can be more important than the price or performance of a development because being able to use the interface and understand it can save the company time and money on support lines. If they do not understand the functions, they will not use them.
- Users that are happy with your product can also promote your work by spreading the word to other interested customers. The users decide when a product is easy to use not the developers because those developers have more of a technological sense than the full-time user and will give inaccurate results.



# Scope and Environment of Usability

- One of the first steps in each round of usability testing is to develop a plan for the test.
- The purpose of the plan is to document what you are going to do, how the test is going to be conducted, what data need to be captured, number of users involved in the test, and what scenarios you will use.
- All this is done in the scope and environment of usability testing.
- The usability specialist meets with the site or product owner and members of the development team to make decision on the plan and later circulates a draft to management and the team and get feedback from everybody before coming to a final decision in what is to be tested.

# Scope and Environment of Usability

- Indicating when and where the test will be done. If a schedule have been set, being specific about how many sessions will held in a day and exactly what times the sessions will be.
- The Environment of the software guides the development of the testing of usability. Accommodating to the specific users of the interface rather than a random group of participates.

# Scope and Environment of Usability Cont...

Environment is the last step before conducting a usability test. The area where the test and observation have to be prepared. The process needs to go through for the test to be ready include

Arranging the equipment and the props

- Preparing the product
- Adjusting the audio and video controls
- Preparing the data-logging materials or software
- Labeling tapes and disks

The environment is referred to the importance of the interface to the users that will be using the selected software.

So, in all when deciding to select a method of experiment/review of a software one must take in account the group of people needed to give critic to the software.

In most cases these critics are the people using that software on a day to day basis.

# Usability Experiments

- With the advent of Lean UX ,a kind of science of design the ability to design and conduct an experiment should now be an important part of every designer’s skill set. But what is a design experiment? How do you develop an experiment? And how can you trust the results?(Hodgson, 2014).
- Experiment is a specific method with a specific procedure and a set of rules. It is a well-proven scientific procedure that is used to test a hypothesis. It is conducted by making a change in one thing and then looking to see if that changes

the other thing. When running an experiment, a hypothesis need to be created , participants assigned and measure user behavior.

**Create Hypothesis:** Experimental design begins with a hypothesis ,a guess about causation. This is what we're going to test in our experiment. Hypothesis must not only be testable, but it must also be falsifiable. It is important because we can't actually prove a hypothesis to be true: we can only show that it is false

**Assign participants:** Assigning participants to the test itself. Behavioral measures performance differs considerably between test users.

**Measuring User behavior:** These fall under four categories.

- Latency
- Frequency
- Duration
- Intensity

- **Latency:** Refers to the time that passes from the presentation of a stimulus to the start of a particular behavior.
- **Frequency :** Is the number of episodes of a particular behavior per unit of time.
- **Duration :** The amount of time that a specific behavior takes.
- **Intensity :** Is the breadth of an action. This often requires dividing a behavior into discrete components and then measuring how many times a component occurs per task or per unit of time.

# Analysis and Report of Usability

- When reporting results from a usability test, focus should be primarily on findings and recommendations that are differentiated by levels of severity.
- In general, the report should include a methodology, background summary, test results, recommendations and findings.
- Several types of data will have been collected at the end of usability testing depending on the metrics identified in the test plan. Finding can have implications for other pages in the site.

The cost of supporting users of a poorly designed site is much higher than the cost of fixing the site while it is being developed.

As you are reviewing the data, consider how global the problem is throughout the site and how severe or serious the problem is. Prioritizing the updates that the users need.

For example, you may find that users could not find what they needed on the page because of text density. You could say that just that page needed to be fixed but you should also consider how many other pages are equally dense with text.

Some problems contribute more to participants not being able to complete the scenarios than others. To help differentiate, you should note the severity of the problems on a three- or four-point scale. example:



- **Critical:** If we do not fix this, users will not be able to complete the scenario.
- **Serious:** Many users will be frustrated if we do not fix this; they may give up.
- **Minor:** Users are annoyed, but this does not keep them from completing the scenario. This should be revisited later.

# Statistics

- It's not feasible to design an experiment without also pondering about the kind of analysis that will be needed to carry out on the data.
- A question that always emerges during the presentation of customer research is: "Are the results significant?" Having gone to the trouble of designing and conducting a good experiment, it's important to realize what this question is really asking.
- What the question is really asking is if we got the result by chance or how assured can we be that the changes we have measured in our dependent variable really were caused by changing our independent variable?

# External References

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