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Usability Simplified: A Basic Guide to Undertaking Effective Usability Testing

Garrison Reeves
Cedarville University, glreeves@cedarville.edu

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By: Garrison Reeves

Introduction

In order to deliver a clean, fresh, and — more importantly — effective user interface, usability tests are required. It is very unlikely any designer, regardless of their reputation and skills, is able to design a good product without doing some kind of research and testing.

Usability testing is a technique used for evaluating a product by testing the product on users who are part of the respective target audience. Testing is used in many fields, but I intend to focus on user-centered interaction design and how to test when designing and developing such a product. Every product has an intended purpose, and the scope and aim of usability testing is measuring if a product meets this purpose with regards to a user. I provide a simple head-start to usability testing based off of my research.

Literature Review: Testing World Wide Usability

Highly usable web sites are intuitive. They are transparent. They support the users and allow users to accomplish their goals quickly, efficiently, and easily. Although the Web is based on a relatively simple interface consisting of links, buttons, menus, text fields, text, and graphics, severe usability problems are common. (Brinck et al.

2002) This discussion provides a road map, per se, to web design usability. While there are certainly many areas that can be troublesome, this discussion should provide a convincing argument for integrating usability testing into web design.

Ubiquitous usability

Usability needs to be a part of every step of the design process. Our approach is pervasive usability—integrating usability into everything we do. The philosophy that usability should not be an add-on, but that everyday processes should be modified to be user-centered is mutual to Brinck (2002) and Nielson (1994, 2000). Make usability part of everything you do. Make it a lifestyle, much like it's a lifestyle for the user. (Brinck et al. 2002)

It is agreed that technical communicators' skills in audience analysis, task analysis, context-of-use analysis, organizing information, and writing are critically important in the future of usability. This is because usability is always prevalent. Usability is about ease of use. Nielson (2000) discusses how it is less about making a system conform to a single way of doing things than finding small ways that the system can be made easier to use."

Subject selection and analysis

Technical communicator's want to make the interaction and interface communicate better and reduce the need for other user assistance. Brink (2002), Jordan (2000), Nielson (1994, 2000), Norman (2004), and Schneider (2005) all agree

that people shouldn't be an afterthought in design. Users need to be considered early and often in the design process. The first thing to consider is whether the test subjects are reflective of the intended audience of the site.

Cooke (2010) provides three basic questions to use when assessing the subjects of your testing; “Who are the intended users of the test object? How much knowledge and experience do they have with similar test objects? How and in what context will they use the test object?” (Cooke 2010, 1). It is important to have a heterogeneous group of subjects with respect to the dependent variable. Improper testing subject selection will result in vastly distorted results. Readers as users transform the role and force of technical documents at the same time that technical documents transform the role and forces of readers as users.

Testing methods

The most effective usability experience (UX) testing method is a usability test. There are many types of usability tests to choose from. Despite the differences in usability testing modes and flavors, all generally have the following in common:

- They use a representative set of users.
- Participants attempt a realistic set of tasks scenarios.
- Data is collected about what users do and say (behavioral and attitudinal data). (Nielson 1994, 13-15)

Behind every usability test there are different goals, which pertain specifically to the observation aims of the tester. The “right” method depends on your research goals, and many studies involve a combination of the usability types. A few opportunities that Brink (2002), Jordan (2000), Nielson (1994, 2000), Norman (2004), Schneider (2005), contribute are as follows:

- Baseline usability testing on an existing site
- Focus groups, surveys or interviews to establish user goals
- Card Sort testing to assist with IA development
- Wireframe testing to evaluate navigation
- First click testing to make sure your users go down the right path
- Usability testing to gauge the user interaction end-to-end
- Satisfaction surveys to see how the site fares in the real world

Usability effectiveness

Usability testing is an invaluable tool for evaluating the effectiveness and ease of use of web sites. All of the elements of UX design, user-centered design, and usability apply to communicating results of user research and of usability testing. Changes to a site should reflect the test results. Everywhere usability methods have been implemented they have proven to be faster, cheaper, and in many regards, more reliable than standard approaches to ensuring design usability, or lack thereof (Jordan 2000).

Analysis: Guidelines to Effective Usability

The four principles

Behind every usability test there are different goals that pertain specifically to the observation aims of the tester. The results can be treated as a control measurement or a baseline. Because several tests can be conducted throughout a period of time, all the results will be compared with the baseline test results.

The four principles behind usability testing are as follows:

- *Efficiency* – the tester measures how much time and how many steps are required for the user to complete basic tasks (find a product, add it to the cart, read the feedback and ratings, ask questions, buy the product. These would be basic tasks for a mobile app.
- *Accuracy* – how many mistakes do users make when trying to perform these tasks and how fatal are the mistakes? Sometimes, with the right information, the mistake is recoverable.
- *Recall* – after a period of non-use, how much does a person remember about the interface and the browsing process?
- *Emotional response* – how does the user feel about the tasks he had to complete? Was the person stressed or confident, and would the user recommend the product to a friend?

These are general principles used in testing user-centered interfaces, but it is important for the tester to set usability goals. Based on these, he will be able to closely monitor the subject and interpret his mistakes or gestures.

Wrong interpretation

Some people interpret the term “usability testing” incorrectly. Just gathering opinions on an object (or a device or an application) doesn’t mean anything more than market research and market research is definitely not usability testing, but rather quantitative research.

In order for such a procedure to be labeled as usability testing, it requires involving a systematic observation under controlled conditions; this determines how well users (always part of the target audience) can make use of the product. Knowing that 86% of the questioned users mentioned that “the application works fine” doesn’t mean you tested the usability of your application and the results were mostly positive, but rather, it means the majority of the questioned individuals seem to think the application works fine and is not enough information for you to use for improving the interface.

One key aspect of usability testing is to involve the users as much as possible. Instead of asking them what they think about how a mobile interface looks, ask them to perform some actions. There are many aspects affecting the browsing process, and most users will not be able to name or discuss them, but they will most definitely be able to show it to you while using the interface.

Methods

When testing a product you need to create a realistic situation in which the participant has to perform a list of tasks using the product you are testing. During this situation, observers should watch carefully and take notes as quietly as possible. Different props such as paper prototypes, scripted instructions, and pre or post-test

questionnaires are also used to gather information and feedback about the product you are testing. The think-aloud testing method, co-discovery learning, and eye-tracking are usability testing techniques that can be used throughout these methods.

Hallway testing

Hallway testing is a general methodology working with a limited number of people, ranged between four and six. The name of the testing comes from the idea that participants to the test should be random people who pass by in the hallway. Hallway testing can be used when your product is not necessarily aimed at a specific target.

Hallway testing should be employed early in the design phase. Test quickly and test often! This means that you will need to go out there several times. The process is quite simple: test on five persons, go back to the drawing board and solve the issues. Go out and test again on five other people, get back inside and solve the issues. After testing three or four times, the number of critical interface mistakes should be narrowed down significantly, and you then can start focusing on developing the product and its features. You will need to test again at some point in time, but knowing you solved most of your interface issues should allow you to focus on the development phase a bit more.

The reason behind using totally random people is because you don't want to test your product on individuals who are somewhat familiar with your product and its interface. You want people who have never seen your interface before, so they all start from a common ground. Moreover, this way you can test newcomers — who are most of the time the easiest to lose — as their level of interest and motivation is not high enough yet. If someone who has not used the application before is very happy with it

and handles all the tasks easily, it means most of the people who will use your application will do the same.

Remote usability testing

Remote usability testing can be used when the product you are testing has prospective users in different parts of the world. Bringing them together poses real financial challenges and might not be possible for a freelancer or a small company. Experts concerned by these issues came up with this methodology — which facilitates evaluations and testing being done remotely — with the user and the tester separated over space and maybe even time. Video conferencing is a way of doing this kind of testing, while another one could be by employing remote applications such as TeamViewer or WebEx. Both of these involve users who have a personal computer and an Internet connection which allows the tester to follow the participant's movements, but not their reactions and emotions. The tester can automatically get a collection of user's click streams, user logs of critical mistakes, incidents that occur while interacting with the interface, and even subjective feedback by the users.

The good part about this kind of testing is that it is carried out in the participant's own environment, which means they will be very confident in their abilities, and you will be able to simulate a real-life scenario testing. Clearly, the biggest advantage of this remote testing methodology is that it allows you to work with people from all over the world without many costs for transport and logistics.

There are several tools a designer can use for remote testing. WebEx and GoToMeeting are the most popular, but delete any remote tool would do the job.

Regardless of how well the tools would work, carrying out a synchronous remote testing is a bit more difficult than it looks, as managing linguistic and cultural barriers through a computer might decrease the efficiency of the test. Interruptions and distractions in the participant's environment are other challenges that are impossible to solve from the other corner of the planet.

Expert review

Expert review is another methodology for usability testing and requires bringing in field experts to evaluate the product in testing. The challenges of this method are mostly financial and logistical, as it would cost a lot to bring in experts from different areas. There is also an automated expert review methodology, which is based on the same principle, only it would be done through the use of different software.

A/B testing

A/B Split Testing is probably one of the most well-known experimental approaches to user experience and interface testing. It aims at identifying the elements of a webpage that increase the user's interest or engagement.

The method is called A/B testing because there are two versions of a website/interface (the A and the B version) that are compared. They are always identical, except for one variation (which can be an element such as a button, contact form or image) that might impact a user's behavior (Norman 2004).

During the testing period the website is monitored through tools such as Google Analytics. In this period, the two versions, A and B, change randomly, which means that you can come on the webpage and find a header image, then refresh the webpage and find the other header image. A/B testing methodology is mainly used behind the scenes

to maximize profit, reduce drop-off rates and increase sales. Although this is mainly used for e-commerce websites, A/B testing can easily be used in interface design as well; and it can be as effective as giving testers an overview of which interface is better between a choice of two or more.

How many users to test?

Carrying out several tests with a limited number of participants is much better than testing once on a larger number of subjects. This translates simply into many quality tests instead of a few quantity tests. Five subjects for each test should be enough to help observers get enough information to work with for a period of time. Once you find out few people are confused by a feature or a website, you gain less from testing the same interface on even more people, as they will most likely be confused by the same elements. The solution is to solve the issues and then go out there and test again on a limited number of subjects. You need to repeat this process several times to get the best out of it.

There might be some downsides to this theory. Usability usually applies to a larger sample of the population, not only to a specific set of users; this means that interface problems might be undetectable by the first group tested. However, carrying out one or two tests with this limited number of subjects is not what this theory suggests.

These tests should be carried out every week — maybe even twice per week — during the design process. The longer the design process, the more you should test.

During this whole process a number of subjects between 50 and 100, or sometimes even larger, could be tested.

It would be more effective to test subjects across a broad spectrum of abilities in the second phase of testing. During the last tests, as the design should already be smooth, you could narrow the observations down and start putting more effort towards testing at your own target audience.

Conclusion

Usability testing is something worth carrying out if you develop an interface and hope to achieve some kind of success with it. It may not be quite as crucial if you are testing a simple website, but you should always involve some testing if developing a more complex website or mobile application.

When conducting usability tests, it is also important to notice the things that work well — not only the ones that don't — and keep testing them over and over again. The theory behind this is that elements not working well should be eliminated, but elements that work well and are enjoyed by users should also be paid attention to. Try to keep them the same as they were in the first instance because they obviously work well. Focus more on the ones that fail instead of trying to change and improve the ones that are already functioning successfully. There is time for that later on during the post-development processes.

Usability testing can also be done more or less for free; you do not necessarily need to invest a big amount of money in logistics. If you feel you only need to test on a

smaller scale, use your friends and relatives for it; it would all be free or very, very cheap (chocolate cake is always a winner).

As you can see, usability testing is something you can do in many different ways and you have to determine which way is right for you and your purposes before starting. It might seem like a very complicated process in the beginning, but even a beginner should be able to carry out such a test and get something out of it. So if in the middle of your design process, do not hesitate to go out there and do some testing — it will improve your interface and your users will be much happier with it.

It is important to note that future research in this field will support or disprove my findings, and the effectiveness of certain kinds of usability testing, as new methods come and go.

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