The Importance of BDD and Usability Testing

Ensuring devices are user-friendly is essential so that all abilities are able to use them comfortably and confidently. When creating an interface, you have to consider the demographic it is targeted towards, and tailor the design and features to what they find most effective. There are several methods in which you can obtain feedback from users on the design of the interface. However, some are seen as more efficacious than others. In this report I will be discussing a few of these techniques, alongside agile software development practices used by web teams in order to achieve a successful end product.

Interface design in the Workplace

When designing an interface, web teams often find difficulty in choosing which features are the optimal for users. The constant vacillating between usability issues and design concepts end in minimal progress and waste precious time. We, as frequent web users have our own preferences and often think that everyone else has similar views (Krugg, 2014). In addition to there being a divide due to personal preferences, there is also some disagreements depending on professional perspectives. Employees working on web pages all have their own preferences depending on their role in the workplace. For example, designers focus mainly on the aesthetics and what looks visually pleasing, whereas developers prefer implementing more complex design features which will amount to more sophisticated functionality. This conflict between art and commerce adds to the already existing debate between usability issues and requirements (Krugg, 2014).

Once the debates within the workplace are settled, discussions move on to the larger demographic and what suits most users. A common misconception is that there is an “average user” – however this is not the case. “All web users are unique, and all web use is idiosyncratic” (Krug 2014). Conducting focus groups could prove beneficial however there are debates on whether the usability data obtained from the focus groups are reliable or not. Therefore, the most proficient way to design an interface is not to ask questions about personal preferences but to ask if the features implemented within the interface is enjoyable and effective. This can be done by other usability testing methods such as usability lab testing.

There is another form of testing which must be conducted prior to usability testing and that is BDD testing. By conducting BDD testing and creating feature files (user stories) based off user requirements, a lot of time could be saved in the long run. This is because less work will be needed to be improved upon later in the process as both customers and the team will be on the same page about the production of the product (Elliott, 2019). This method enforces a more transparent and effective form of communication between the client and developers.

Behaviour Driven Development (BDD)

BDD is a branch of TDD (Elliott, 2019) and is a common technique used in software development, it uses an agile approach to be effective (Agilest, 2020).

One of the main benefits of BDD is that it significantly improves collaboration between stakeholders (Addico, 2019). BDD, involves human readable descriptions of user requirements and therefore there is no confusion with any terminology. This is because the vocabulary used in BDD will be based on English and be defined between stakeholders, domain experts and engineers from the beginning. Defining objects, events occurring, and output will all be discussed and agreed on by everyone before descriptions are written to prevent any communication gaps.

In addition to this, involving business stakeholders in the development process allows there to be a heavy focus on what features provide the most business value. This is integral to companies as that is how they make their profit (BluePrint, 2020).

Another benefit of BDD is that specifications and tests are more connected. The specification is defined by examples of the clients desired behaviour on how the system should operate for each of the relevant roles (Agilest, 2020). By creating such user stories, you essentially produce the tests as well. In addition to this, ensuring that the requirements of a system are met by focussing on the end-users perspective, you ultimately result in very satisfied customers.

Whilst BDD enables a more “free-flowing” (Agilest, 2020) communication between clients and developers, it is not always advantageous. If the client is unavailable during the user story creation process, it will be difficult for the developer to fully grasp the roles desired behaviour. Furthermore, in the absence of the client, a developer may find it challenging to address queries or uncertainties; potentially inhibiting the progress of the project.

Types of Usability Testing

Focus Groups

Focus groups are seen as an effective way in determining what people look for in an interface and whether the idea behind an interface makes sense and the value proposition is attractive (Krugg 2014). They enable users to discuss their experiences and give suggestions on what may be useful in the particular interface being created. In terms of who should be a part of the focus group, it really depends on the target demographic. For example, if the interface is a university VLE, then the target audience would be university students. Participants are selected by research based on certain characteristics, such as age, occupation, ethnicity and education (Usability.gov, 2020). Ensuring that the focus group consists of people from different backgrounds and exposure to technology will help in creating a more accessible interface.

Participants are selected based on the interface being created. However, for interfaces made for a wide age-range such as e-commerce, focus group members must therefore consist of a range of demographics.

Including the older generation in research studies will give a more diverse range of suggestions and experience. In addition to this it provides a more realistic approach of demographic realities (Dickinson et al, 2007). Researchers have often observed the lack of inclusion of the older demographic (over 60) when considering ‘mainstream’ human-computer interaction. Although the population of adults over 65 is around 12 million in the UK itself (ONS, 2018). The majority of HCI research is conducted with the younger population, such as university students due to convenience. HCI research is skewed towards the characteristics of the more educated young (Dickinson et al, 2007) which is an unrealistic approach as the majority of the population are not students.

However, there are some HCI professionals who frown upon the dependence on focus groups. This is due to there being an element of biasness and pressure to please the organisers. Individuals can also tend to follow what other members of the focus group are saying in order to impress them (Pernice, 2002) Therefore, the outcome from conducting a focus group may not be entirely reliable. Many HCI experts would much prefer monitoring the behaviour of users while they work and see what proves beneficial and efficient for them. This is seen as a trustier way in creating an effective interface; which is why usability lab/remote testing is integral.

Usability lab testing

Usability lab testing involves watching a person try to use something, e.g. a web page and see if they can conduct tasks in an enjoyable and efficient manner (Krugg, 2014). You can detect whether there are any issues or confusing aspects in the interface and then make changes accordingly. This testing will commence concurrently during the creation of the system, once the interface has some features implemented. This is to ensure that any requirements/features which haven’t been flagged up during prior research can still be implemented in the product before release. There are several things which researchers must take into consideration to ensure that they have made the most of the usability test and received valuable feedback.

When conducting these tests, there are often objectives which the researchers have set in order to achieve the end goal (a successful product). The main aims are the following:

* To determine whether the participant can effectively complete the task at hand by themselves
* Monitor the individual’s behaviour as they complete tasks, to see if it can be completed with minimal difficulty
* See whether the participants enjoy using the interface
* Detect any issues
* Try to mitigate the issues detected

(Interaction design foundation, 2002)

Although there are several advantages to usability lab testing, there are some drawbacks. Conducting these tests will require both lab space and equipment which is quite costly. In addition to this, gathering a group of people to participate in these tests can prove difficult as they have to attend at a specific time and place. This limits the partakers to a local vicinity. Having these tests carried out remotely is more convenient for participants (remote usability testing). Additionally, users may find being watched within a close proximity quite intimidating, which will ultimately affect their ability to carry out the tasks at hand successfully. These users may also feel inclined to try and say the ‘right thing’ when being questioned by the researchers and therefore reduces the reliability of the evaluation (She et al, 2016).

Remote Usability Testing

This form of testing is very similar to usability lab testing however it’s conducted within the user’s natural environment. The user’s behaviour is observed and evaluated while they carry out a given task (Traczyk, 2020). This method is both cost and time efficient and is therefore one of the more preferred techniques. There are two types of remote usability testing, moderated and unmoderated.

Moderated usability testing is very similar to lab testing as it involves a moderator assessing the participant’s behaviour as they use the interface. This can be carried out online or in person.

Un-moderated usability testing consists of individuals completing a task without the presence of a live moderator (online or in person). Several parameters are measured during the test such as time of implementation of a task and number of visited subpages (Traczyk, 2020). Occasionally, some moderators would prefer viewing the facial expressions of users and therefore users will record themselves (using webcam). These results are available to the moderators online once the test is complete.

The downfall of remote usability testing is that some testing requires special equipment or special software, which Is difficult to download/acquire if the user is in their natural environment. Moreover, researchers often finding monitoring the participant in person is more accurate. For example, if a user’s physical movements have to be monitored, using a stationary webcam will not capture the entire movement and therefore is undependable.

Conclusion

Understanding what makes an interface ‘user friendly’ and efficient is imperative when creating a product.

Software development methods such as BDD are often seen as a more effective approach in comparison to more traditional methods such as Waterfall. Using an agile framework has allowed for an improved product quality due to the focus on business value, collaboration and stakeholder engagement.

There are several methods and techniques involving end-users, however some are more effective than others. From the research carried out, we can conclude that users being assessed on their behaviour when using a system provides more reliable results than just discussing preferences. The results are more reliable as moderators can see for themselves if the interface is ‘usable’ and successful at its given functionality or not.