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USABILITY TESTING IN CMS BACKEND

Appliance of Do-It-Yourself

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The aim of this project was to overcome the overwhelmness of customers, who need to manage a website based on a content management system on their own, by giving them a greater confidence and feeling of real control when managing their website. The study wants to show the importance of paying attention to the administrator site to ensure the customers' capability of performing satisfactorily the management of the website.

The case study of Silta-klubi content management system was used to exemplify how to distinguish relevant usability problems in administrator side of website management system. Silta-klubi's website is based in the leading open source content management systems, WordPress. Also, to show how simple usability testing and a few changes can make sure that the administrators of the websites are capable of using the backend to its fullest. A round of tests were conducted using a suitable method of usability testing, called Do-It-Yourself, introduced by the usability guru, Steve Krug.

The results distinguished not only critical usability problems that need to be changed specifically in the case study but also problems that can be recognized in a more general level of the content management system backends.

Keywords	usability test, backend, CMS

Contents

1 Introduction

Managing a website is nowadays quite doable thanks to user interfaces and systems that make the premise of knowing web-technologies unnecessary. In fact, Content Management Systems (CMS) are the most helpful tools nowadays for an organization to manage a website without the help of a professional developer. Though, in most cases, a web development team is still needed in the beginning to adapt the CMS for the needs of each project.

Furthermore, for the web development team to leave the control of the website in hands of the customer can be sometimes a long process. Since the system can be overwhelming in features, the future web administrator can feel intimidated by the amount of options and technical details. So helping the customer throughout the learning curve can take a considerable amount of time from the development process. But this can be prevented by making the interface much more user friendly and, therefore, the process of leaving the control to the customer smoother and less complicated. Therefore, the aim of this project is to show how testing the interaction of the users with the administrator interface of the website can have great benefits regarding the customer satisfaction, efficiency in time and also the content accuracy.

The usability method Do-It-Yourself was chosen as a suitable method for the case study in this thesis. Usability tests can be a great benefit for the persons who manage a CMS-based website, for the development team and ultimately, the organizations. When building a website for an organization which requires updating and management of the website frequently, the process can be easily funnelled and slowed down just because one person is responsible to transfer the information of the organization to the public website. If everyone could feel capable of approaching the administrator site themselves, it would be a great step forward because that could loosen up the update process, and give the website a more fluid updating flow. Especially the Do-It-Yourself usability test can be easily applied by almost any web development team. Also, it will have remarkable benefits when used in any project of any size.

The case of study in this thesis is the new website of a cultural centre. To start with, the website is based in WordPress, the current leading CMS. Also, the cultural centre’s website has been just redesigned for the first time into a CMS system so the staff is new to

the experience. Finally, the case study suits very well because the updating frequency of the cultural centre is high and different persons are responsible for different activities.

2 Background

2.1 Usability

When building web pages, it is common to measure the usability of the site. Essentially, usability tells whether the system succeeds in of guiding its users through the user interface to complete the goals of the system.

According to the usability pioneer, Jakob Nielsen, usability is considered part of a system's acceptability's usefulness [1]. Nielsen has written about usability since the 90's. He has given an extended vision of usability. Although in my opinion he is currently a bit out-dated, since looking at his well-known book "Usability Engineering", usability seems to be only for experts. Still, he is frequently cited and referred to also. In any case, since Nielsen converted usability into a science already in 1993, his point of view cannot be dismissed.

2.1.1 Standardization

Back in 1998, the European Union funded a project called UsabilityNet. The project's website, published in 2003, describes the purpose as to gather all materials about usability, in order to make it available for usability professionals and consolidating the disseminated usability organizations. [2]

Furthermore, UsabilityNet covers a wide list of topics concerning Human Computer Interaction (HCI) along with usability. For instance, advised techniques, basic rules or guidelines, many types of programs, news about conferences, links to publications either books or magazines, links to professional organizations both in HCI and Usability. In UsabilityNet the international standard for HCI and usability is also mentioned. And the definition is the following:

> 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. [3]

Therefore, all the methods to measure usability should measure how effective the system is and whether it satisfies the customer. The ISO 9241-11 –the usability standard definition- was published in 1998 and gathered in 2003 in the UsabilityNet website [2;3]. Personally, usability together with technology, have increased immensely the accessibility of websites, allowing the users to have a pleasant experience when browsing webpages. On top of that, usability has helped the content to be more visible and accessible.

2.1.2 The Nielsen approach

Moreover, Nielsen has gone through almost all the usability issues and cover the process of usability test in his book “Usability Engineering”. So for instance, according to Nielsen usability can be analyzed if separated into the study of learnability, efficiency, memorability, errors and satisfaction of the given system. Having these as metrics, they can be summed up and so, give the system an overview of its usability. These metrics have been adopted in some level for different usability test methods and reports. As a result, Nielsen’s theory and concept of usability results to be more descriptive and clarifying through his book “Usability Engineering” where he expatiates on usability basic understanding and its process too. [1]

First metric is learnability, which measures the time that takes to the user to reach the “learnt” level. And the “learnt” level of user is reached when the span of time to perform successfully the tasks does not vary anymore so much and becomes consistent. Finally about learnability, thanks to a survey led by Nielsen it has been proven that the highest rated usability characteristics related to learning where three. One, the easiness to understand error messages; second, the availability of undo and third, confirming questions when there are some risky commands. Therefore, it should be better taken into account how long it takes the user to be able to do useful work rather than checking how long it takes to the user to achieve full familiarity. [1, 29-30]

Secondly, the efficiency of use is measured by the time to reach an acceptable level of performance. In addition, an efficient system has to be proven so that it takes less time to achieve tasks. So when the “learnt” stage has been reached the tasks will start to take the same amount of time to be learnt. In other words, the learning process will have reached a steady-state. Therefore, looking at the learning stage graph, in figure 1, the

steady-state of the user can be determined when the curve of the learning stage starts to flatten. This means that the user has reached a steady-state of learning. [1, 30-31]

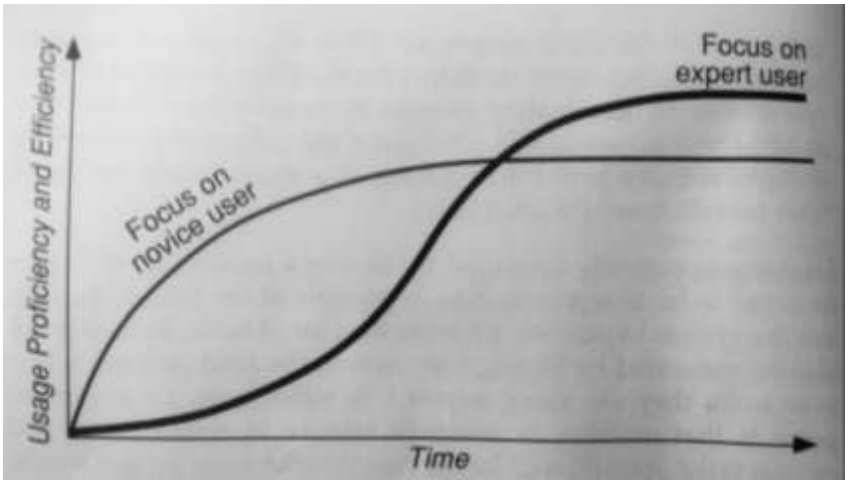

Figure 1. Learning curves for a hypothetical system reprinted from “Usability Engineering” book. [1, 28]

Thirdly, the memorability of the product is another key point to know the system’s usability. If the system’s interface turns to be easily remembered for casual users as well as for users who would have for example, returned after a long break, it follows that the system itself is more usable. If the product is unforgettable, it makes an improvement in the learnability curve of the product as well. [1, 31-32]

However, Tullis and Albert summarize in their book “Measuring the User Experience” regarding the memorability, what Mayes J. et al. have noticed about memorability. In the article of Mayes J. et al. “Information flow in a user interface; the effect of experience and context on the recall of MacWrite screens” they conclude how it is not so important that the users remember as much as possible because the decisive part for the website or product to be usable, is to remind the user how to use the service. [4] [5]

Fourthly, for a good user friendly performance using the system, another important characteristic is to avoid significant and major failures. Although, no errors at all is the desired result, they are always inevitable. In his book “Usability Engineering” Nielsen delineates, what makes an action an error. It would be the case when one particular action does not take a step forward towards the completion of the goal and those actions are the ones that need to be counted as errors. Besides, errors are divided into two types.

In one hand, the minor errors, which are all actions that did not go in the direction of carrying out the exercise, during the time of performing that exercise, they are considered minor errors. Meanwhile, the major errors are mistakes that make the user loose the flow completely, or they are mistakes which the user does not notice that they are giving the wrong result. Also, if the work done by the user is destroyed along the task, they are important errors to pay attention to before the rest of the usability problems. [1]

Lastly, the subjective satisfaction is probably the most important characteristic of a usable system. Especially for those systems which are not intended to be in a work environment. For instance, entertainment applications, home computing programs, etc. Regarding the satisfaction of users, it is interesting to consider what LaLomia and Sidowski say. They state that the general attitude of the public is not necessarily attracted to the computer interaction because of good usability rather because of the almost compulsory adaption of computers. One user's result might not be what the research is looking for but the average of many users is. This makes the research objective since there will be some common thoughts and opinions about the product. [1, 33-37]

2.1.3 The Krug approach

Still, there are slight discrepancies, approaches or preferences from other experts in usability. For instance, Steve Krug agrees with many things with Nielsen but he also disagrees in some points. Basically, Krug's approach to usability simplifies the extended view of Nielsen of usability as a science; and he does it by presenting usability as a usable tool that can be afforded by every project.

Krug explains in his book of "Don't make me think" all what he thinks is important in order that the usability would be considered essential when building websites especially because it does not take as much time nor effort as it was believed. [6]

First of all, Krug's years of experience credit the validity of his three laws of usability. The first one is "Don't make me think". By this law he means to make the user interface as much self-explanatory as possible. So not self-evident, which is not in many cases completely possible but that the thoughts of the user would not have question marks. By this, Krug shows that the thinking of the user will not be plagued of confusing and uncertainty. For example, if a term is unknown to the user or a button does not resemble a button,

then the confusion is most probably going to happen in the mind of the user. So the users will ask themselves whether it is their fault that they do or do not know the meaning of the term; they also wonder whether they can click that text. [5, 10-17]

To avoid the confusion of the user, Krug insists to make the interface as straightforward as possible because the user is scanning the site, not paying attention in detail. Therefore, the web page will be more effective if it is deciphered at a quick glimpse. And that is one of the ways Krug explains that users are behaving when reading web pages. According to Krug, the user basically examines the web page quickly, choose the first reasonable option and do a lot of muddling through the page. [6]

The second law is based in the latest behavior of the user. And it goes as follows: “It doesn’t matter how many times I have to click, as long as each click is a mindless, unambiguous choice” [5, 41]. Since the user is going to muddle through, the amount of clicks should not be compromising, in order for the user to try things without feeling that he or she is going to be disorientated.

The third and the last one is grounded in the 17th rule of White in The Elements of Style: “Get rid of half the words on each page, then get rid of half of what’s left” [5, 45]. Essentially, the third rule is about simplifying the physical amount of words into the least as possible. That is, to go through a process of removing words at least twice. For that, meaningless or irrelevant text should be taken out of the web page as well as any kind of instructions. [6]

In addition, Krug’s method to carry out usability tests has been of high influence in the case of this research. He describes and showcase it in the book “Rocket Surgery Made Easy” and in the corresponding video which is hosted on his website, although he introduces usability testing in his first book “Don’t make me think”.

Nevertheless, the two gurus in usability nowadays, Krug and Nielsen, agree that detailed planning in usability and a large amount of users is rather a misuse of resources. But personally, I appreciate the way Krug has presented usability and usability testing in a more approachable manner. To begin with, his book is concise and full of practical ideas. In addition, Krug supports that anyone with common sense and general ideas presented in his book, is ready to go for the role of facilitator. On the other hand, the manual on “Usability Engineering” of Nielsen would need more time investment. Also, it is more

focused on greater amount of users participating in the usability tests and therefore, with more data to analyze and present. All in all, in my view Steve Krug has a more practical approach to usability at least for an average project.

2.1.4 Usability in web development

A clear example of usability in web development are the websites which changed right after 1998. Fortunately, the change can be verified because a non-profit organization Internet Archive has been taken snapshots of companies' websites once in a while, apart from archiving other types of materials from the internet [7]. The archive permits to navigate in the website with limitations, due to broken links. So a couple of snapshots have been taken of the example-website before 1998 and after 1998. The examples in table 1 are from pepsi.com, cocacola.com, heineken.com and fazer.fi in the following order.

Table 1. Data gathered from Internet Archive, the Wayback Machine. [8]

Before 1998	Caption	After 1998
	www.pepsi.com ←1996 2000→	
	www.cocacola.com ←1996 2000→	
	www.heineken.com ←1997 1998→	
	www.fazer.fi ←1996 2003→	

Technology has not only helped in the improvement of the website, it is also clear that right after the standard was published or few years later, a notable unification in the website building is seen. For instance, centralizing the navigation to one clear side of the website was one very commonly measure. In the first example of pepsi.com the websites uses position and colors to make it easier to identify the main menu. Moreover, in co-cacola.com and fazer.fi focusing the navigation to one place is also made clearer as a result of paying attention to usability.

Another change that improved usability was the structure of the content. Rearranging and grouping related content helped the usability of the websites as well. In addition, the contrast of colors is used to clarify the location of navigation and main content. Furthermore, the websites have a clearer header, which includes the logo of the company in the left upper corner of the site and the website title. Therefore, to browse websites is becoming simplified since usability defined basic guidelines in 1998.

After many years of practice and more implementation of web usability, the websites have improved significantly in becoming a pleasant experience for the web visitor. Nevertheless, this improvement would not have been possible without the development of web technologies. Still, these technologies have been used at their best, when following usability rules.

Figure 2. Screenshots collected from the Wayback Machine. [8]

Figure 2 above shows an example of user friendly interface and advanced web technology. In my opinion, nowadays the final result does have a successful approach towards the satisfaction of the visitors, the customers.

2.2 Content Management Systems (CMS)

According to Rouse, a CMS is a system which controls content that flows between the Content Management Application (CMA) and the Content Delivery Application (CDA) [9]. In other words, the CMA is the visible side of the end product, the one the end user will use and visit. And the CDA is the administrator side for managing of the product's content, which will create, edit and delete content of the end product. For example, the public face of a website would be the CMA which is the application displaying the content. And the internal face of the website would be the CDA to which the manager has access to, in order to publish, update or delete content from the public face. Consequently, the CMA is known as the website's frontend and the CDA is known as the backend of a website.

So, a CMS system comprehends the frontend of the website, which is visible to the end user of the website. It works so that the CDA assembles the data created and shows it in the website using templates [9]. For this reason, the CDA is the backend of the CMS as it is not visible to the targeted end user. Only the administrator of the website will manage it and have access to it. Moreover, the backend is a sum of tools that will allow the administrator or editor to create, edit and delete content from the website. In the other hand, the CMA is then the frontend, which consists of the public side of the website, displaying the created information and multimedia.

Furthermore, the use of CMS systems to publish and administrate web-based content is becoming very common. In fact, an increasing portion of the websites are using a CMS system. The following statistics in figure 3 show how in only less than four years the usage of a CMS to build websites is increasing. Seeing that, the popularity and preference for CMS systems can be considered as to have a steady growth as a way of building a website.

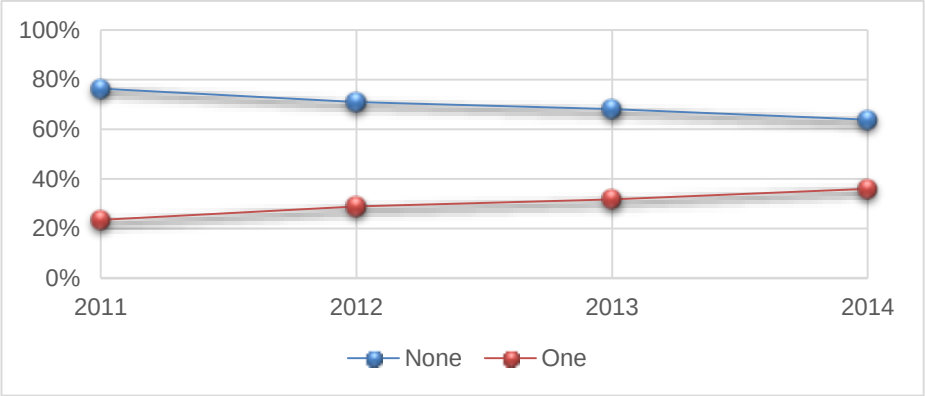

Figure 3. CMS usage, modified from w3techs [10].

When the CMS systems were being introduced, in order to build a website the developer had to know web-technologies and programming languages such as Java, Microsoft ASP.NET, Perl, PHP, JavaScript or Python. Besides the computing language to control the data stored in databases, like for instance Oracle, SQL or MySQL. And for this reason, there were not many open source CMS systems. Still, the companies basing their income in the CMS system's started to appear around the 90's. Not only until the second millennium, the first open source registered as Drupal in 2001 [11]. Then in 2003 WordPress came into the picture [12]. The last open source –of the leading CMS systems currently- to come into the picture was Joomla in 2005 [13]. Of course, there is still a lot of CMS built from scratch and using many different web frameworks. This method to start from scratch is used either for a business that can afford it since it consumes more time and money or in the case specific requirements are on demand.

Furthermore, the Internet presence became more necessary for business of all sizes but especially for smaller companies or different type of organizations. Now CMS systems ease the process to build a website thanks to the CDA being reachable for the administrator user to manage it without any previous knowledge of web-technologies. As a result, in order to build a website using CMS, professional knowledge of web-technologies or programming languages are no longer required. The CMS systems have accelerated the process of enabling individuals and organizations of different sizes to afford Internet presence. Consequently, this has boosted up the Internet presence of companies at some level, as well as the market share of CMS system, especially the open source CMS systems.

When a website is built with a CMS, the CMS will provide the easiest ways for the administrator to create, edit and delete content in a simplified manner. Anyone with a bit of computer and applications experience can manage it with the appropriate education.

Afterwards, more and more different CMS appear in the market, along with the companies depending on the CMS. For instance, Magento, TYPO3, vBulletin and PrestaShop just to name a few. Different approaches are used and also they all had a different engaged community. And not only different CMS systems appeared but after sometime it was possible to find third parties to support multiple plugins, templates and wizards for every one of the CMSs. These plugins, templates and wizards cover the necessities on e-commerce, social media, comments, user role control, registration site and multimedia. At this stage, for the CMS installation to build a website, a developer skilled the CMS web-technology was still needed.

However, it took only sometime for most of CMSs to be installed painlessly without knowing much about web-technologies. The creation and maintenance of a website was available almost for any kind of user.

Anyway, still the websites have to be built by developers, who can choose from the vast possibilities of add-ons and adapt the huge capabilities of any CMS to the needs of the customer. The developer will choose the CMS that fits the necessities of the customer and still after that, customize or simplify the CMS so that it covers no more than the customer's needs.

In addition, the presence in the Internet is nowadays expected. Consequently, companies of almost all sizes, or artists, family-companies or organizations are expected to have a website on the Internet whether they can afford it or not.

The presence on the Internet has become essential for any business growth and visibility. And with the Internet presence being so important, many kinds of companies, organizations, artists, and politicians have been pushed to have that Internet face. However, the ownership of a website can be really expensive –if a specialist has to be hired to develop it and even more expensive if the company has to pay for maintenance expenses as well.

But nowadays, the maintenance, and even the development of a CMS according to your needs can be quite affordable. The knowledge and access can be performed by someone with very basic knowledge on web technologies or by any of the current workers of the organization. So to maintain a decent website for oneself is now possible even for an artist, a nonprofit organization, or an athlete.

Nowadays, many companies, regardless from the size or maturity, non-profit or any type of organizations, and to personal profile individuals are using CMS to manage their Internet presence.

2.2.1 Open source CMS

Open source is a type of privilege which grants the source code of the software or service and it makes it available for modification and edition at a development level. In other words, open source is a type of a license, which implies free distribution at any commercial or non-profit level, the source code with the compiled form of the application and the distribution will not make any difference towards any person, group or research [14].

For the CMS works the same, an open source CMS can be downloaded for free and for any kind of use: personal, commercial or non-profitable. Normally, an open source software provides the necessary documentation also for the developers, or for users with web-technology skills, in order to understand and customize the capabilities of the CMS. Furthermore, open source CMSs are the strongest in the market according to the report on open source CMS market share led by Ric Shreves [15]. There are three main strong open source CMS in the market. In brand strength order, the most competitive open source CMS are WordPress, Joomla and Drupal. They are the strongest because they have a significant market share, millions of weekly downloads and the websites built by them have millions of hits [15].

2.2.2 Leading open source CMS

There is a very good usability in the CMS already. That is why the CMS systems have had such a considerable market share –and still growing- in the website building industry. Despite the good user experience a developer may have, the fact that every CMS system

is subject to change, for every specific project, leaves the default CMS system administrator side in a much more complex situation.

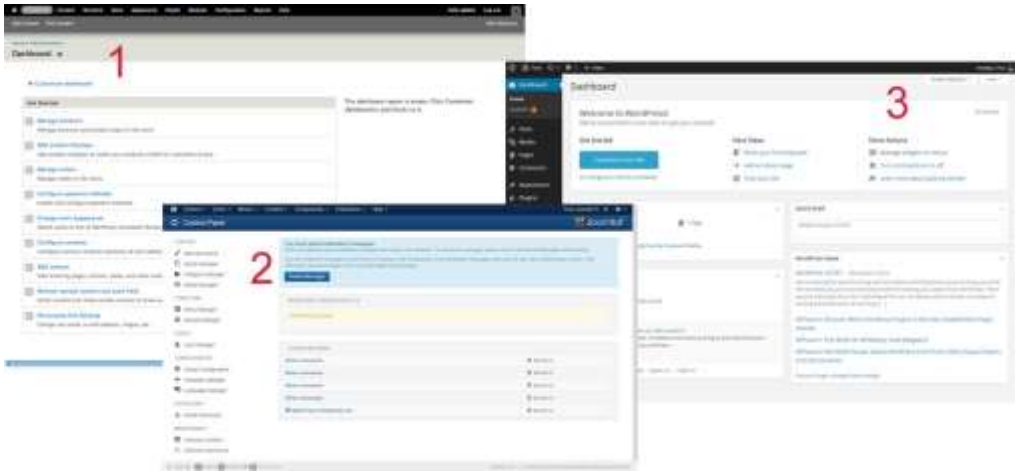

Figure 4. Leading open source CMS systems. [16;17, 47-48]

In figure 4, areas 1 to 3 show the dashboards of the leading open source CMS systems Drupal, Joomla! and WordPress, respectively. These show the simplicity of their backend dashboards. Still, these dashboards along with other options within the CMS, for every project, experience changes. For instance, plugins are added, a theme may be installed, custom post types are created and all these add-ons sum up on top of each other. So for example, a post type's editing view may have new widgets that the plugins included.

3 User experience

It is important to distinguish the term user experience (UX) from usability. In a way, the UX encloses usability because the user experience expects the system or website to have a successful performance and be easy to use. Therefore, a good user experience takes usability one step further taking in account the pleasure that the website usage can give and therefore leaving the user in a positive and forward attitude. At best, the user will be left with a positive attitude towards the website and with a willingness to stay for longer period of time just because of it was pleasant to use the system or website.

3.1 Measuring the UX

Measuring usability can go to the wrong direction if the measurements stay at the performance level. In other words, usability remaining as a pile of about facts and results and data. That is why it is important to take in consideration how to measure the UX. The user should always be the focus of the study.

Therefore, as in Tullis T. and Albert B. point out in their book “Measuring the user experience”, the developer or tester has to be willing to find out what is the user’s most accurate need. And not only just find out which is the user’s goal but also finding out how frequently they use it; whether they must use it during their work day or during leisure time. When the focus of the study is rooted like this, performance and satisfaction can be summed up to have an idea of the UX of the website. Still, it is surprising how these two measurements are not proportionally related. And that is the reason why performance success and positive feeling of the user have to be considered differently even though in the end they will sum up as user experience. [16]

Firstly, when UX is measured by performance, the performance of the product will turn out to be facts and measured time per task. This consists basically of checking, gathering results and analyzing empirical facts. In other words, how the user behaves and interacts with the product. For instance, how many clicks it takes for him or her to reach one page of the website. Also, how much time in seconds it takes for him or her to achieve a “learned” level and how many errors were encountered during the task performance. Consequently, measuring UX by performance will give a complete insight of successes and failures regarding the UX of the system. When dealing with a product that must be

used, without having any competition, the performance is an appropriate way of looking at the success of the product's UX. In general, it would be the case of any working environment. [16]

Ultimately, the UX of any product depends on the satisfaction of the user. That is, what he or she says about the product and thinks about it. Moreover, the satisfaction can be found out through asking questions and making the user to say aloud what he or she thinks. Alternatively, there is a way to read what the users are thinking through reading their face. That is why in many tests is typical to be recording the usability test. Especially, it will give full capability to recognize relevant information concerning the UX from facial gestures. Satisfaction can also be measured by feedback questionnaires and during the test observation. [16]

All in all, user experience relates more to the easiness of using a system or website and the pleasure it gives using it. Meanwhile, usability could have a performance related connotation. That is to say, UX is more about leaving the user with a willingness to spend more time in the system while performance concentrates in no error state. Anyway, performance is essential in order to have a positive satisfaction. So prior to measuring satisfaction, performance has to be pleasant.

For research, performance related analysis is more relevant. Since the backend of the CMS will have to be used by the end users to carry out work related tasks, whether they are able to achieve the given tasks matters the most. In addition, it will be important to make the time spent in reaching a "learned" level as efficient as possible.

3.2 Web usability tests

The usability tests of websites are evaluations of the websites on whether the purpose of the website comes across and is clear to perform through the functionality of the site. Especially, checking whether the website or web-based application is usable for the target group. And as a result of it, the quality of user experience from the usability tests.

During the first years the usability tests were more stiff and complicated as well as costly and time consuming. For example, the book "Measuring the user experience" by Tom

Tullis and Bill Albert tells a good example of a demanding and long-process like usability test.

However, not so long ago, a simpler idea of usability testing has been making its way so the companies or web-developers have adopted it as the primary method to test the user experience of their websites. Still, there are some differences within this new concept of making simple the usability testing simple. Some common characteristics of these new usability testing methods are the cost-effectiveness and compared to the previous usability tests, a considerable save of time. As a consequence, the obstacles of many companies that prevented them to make usability tests are fading away.

Even so, the older guidelines and knowledge provides a deeper insight and knowledge about the usability testing. Therefore, they are not completely useless and on the contrary they can give experience and insight to the tester. It is relevant to mention some of the key points when doing a web usability test and the difference approach to these.

From Nielsen's point of view, five users is enough since the 85% of the problems will be discovered. However, he does mention in his article about user testing that three users are minimum to see the diversity of errors. [17]

Krug's books have become popular for a quick usability check-up. For instance, the book has been translated into several languages. After writing about the usability for the web in "Don't make me think", Krug published a short book "Rocket Surgery Made Easy". This book was explaining the logical approach to usability testing as a Do-It-Yourself (DIY) usability test. Still, the book does not make the two hundred pages. In my opinion, the approach of explaining usability in such way, gives a good example of what usability should be.

I think that the original idea of doing usability tests were had the problem of not being flexible enough. Compared to the do-it-yourself usability test by Steve Krug, Nielsen strategy can still be much more simplified. Nielsen has a more scientific idea about the usability tests and he does not discard those massive tests where the data is accumulated in great amounts [18]. On the other hand, Krug concentrates in simpler and faster usability test approach.

3.3 Do-it-yourself usability test

This DIY method of usability testing was introduced by Steve Krug in his book “Don’t Make Me Think”. Afterwards, one of Krug’s aim for web development teams is that they would adopt the method of DIY usability testing because it is much more beneficial and efficient than when done by professionals [19]. I agree with Krug’s point of view because the benefits of doing yourself the usability tests –and for that, little guidance is needed- impact on one’s website development skills and understanding of the real usage of web-sites and web-based applications.

At the core of this method, the usability test has to be kept as simple as possible and perform it at least once rather than none. Another thing is that the sooner a round of test takes place, the better because the changes will not demand as complicated changes as they would if found towards the release of the system. Furthermore, Krug states that one test is better than fifty usability tests towards the end of the development process. Krug also notices that sometimes the effort and priority invested in getting users for the usability tests is exaggerated. That is why, he says that testing regularly and as early as possible is of much more priority than recruiting the appropriate participants. [5, 133-135]

> “Do-it-yourself” usability tests are definitely qualitative. The purpose isn’t to prove anything; it’s to get insights that enable you to improve what you’re building. [20]

With this kind do-it-yourself tests, the purpose is not to scientifically prove anything, the main goal is to inform the judgement of the Web team. If a considerable amount of users is recruited, the preparation and analysis of the statistics can be misleading. On the other hand, when the aim of the usability test is to open eyes of the project members, usability will have a better impact in the whole team. This will be crucial especially for the development team because then they can have a wider and better idea of what the real problems are and the next issues that need to be fixed. [5, 133-135]

Since the point is not to prove anything, three users are enough as Steve Krug strongly points it out. To start with, the first three users find in most of the cases the most serious problems. In addition, and according to Krug, once the first round of tests has been carried out, the second one will take place sooner. In my opinion, the second will happen earlier because the eagerness to see if the improvement works and also to give the web team very specific problems to fix, which thanks to the usability tests, are of the maximum priority and relevance. [5, 138-139]

Furthermore, in the next round, the next three attendants will not face the previous attendant's luck. One great advantage of DIY method turns to be that with fewer participants, the debriefing of the session can be delivered by the same day. Moreover, all the observers of the test learn something. In other words, DIY usability test can be defined as a quick, light, inexpensive and useful method of discovering as many problems in the system as possible. [5, 138-139]

> As a result, do-it-yourself tests can be much more informal and, well, unscientific. This means you can test fewer users (as long as you get the insights you need), and you can even change the protocol mid-test. For instance, if the first participant can't complete a particular task and the reason why is obvious, you can alter the task—or even skip it—for the remaining participants. You can't do that in a quantitative test because it would invalidate the results. [20]

From my point of view, the best advantage of doing usability tests following this method of DIY is the flexibility of the method, as mentioned in the quote of Steve Krug from his book, "Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems". Since quality plays an important role, whether the tester needs to change, skip a task, lengthen or shorten the session, it will be acceptable. Besides, if the problems accumulate, it may be discouraging and therefore, it may mislead the priorities in which problems should be fixed first. [22, 43-44]

Procedure of DIY usability test

First, it is easier to brainstorm a list of tasks. Of course, the list of tasks have to be relevant to the purpose and goal of the project. Then, each tasks is written within a context so the user can identify himself or herself with the task better. Secondly, an inner usability test should be run. In other words, testing that the case scenarios –the tasks in context- are clear so the task is precisely set. And also, whether the equipment to record screen and voice are working properly. This inner test is known as pilot test, it can be done by anyone who has not dealt with the system in question. Finally, the last step is to print a physical copy of the task and have them ready in different sheet of papers to help the user focus in one task per time. [22, 50-55]

In my opinion, Krug's approach resembles a usable method that can be applied in more cases, projects and by web teams with different budgets. Even more, Krug's logic says that everyone can do usability tests because what is most important to perform usability

tests is to have common sense. And everyone has common sense. Therefore they are able to carry out a decent usability test.

Furthermore, S. Krug confesses, supported by the very deep of his experience he can say that in the end that it is not so important that the participant in the tests matches the systems target group criteria. Still, one drawback is that not all of the most serious problems will be uncovered, at all. However, this is overcome immediately by the fact that to find 3 users is easier than a whole lot more. [5, 139]

3.4 UX and usability in WordPress

Surely, all usability guidelines are taken into account when building the frontend of the website and its functionality. In other words, the visible and public face of the website is tested and it will most probably continue to be the priority regarding the usability tests. As for the backend, it is normally quite usable and efficient. Though in my opinion this applies to developers and users with a rather common use of administrator pages.

Moreover, the three most successful open source CMSs are well-known for their user friendliness. Again, it depends on which user is taken into account. On one hand, there is the developer, who aggregates plugins, extensions, modifies post types, adds especial features for the customer and many other settings that are necessary for each website project. On the other hand, there is the end user, a standard customer, who does not have any web-technology skills but works with computers and the Internet. The customer might not be able to invest the required time to the learning of website building process. Or even worse the customer could be overwhelmed by the administration side of the website and would not even dare to begin the learning process.

So the backend of the leading open source CMSs do have currently a great UX. Still, the backend of WordPress for example, can be overwhelming to some customers as Butze S. points out already in 2012 [21]. However, with a bit of learning and experience the management of a CMS, the installation and setup of the CMS can be done. In fact, there are more and more full CMS websites built with WordPress regardless the overwhelming fact that Butze mentions. In fact, w3techs research of all the websites whose CMS system they have knowledge of, 60.2% of them are managed with WordPress [22]. In addi-

tion, WordPress has been downloaded already over 31 million times and these downloads are only of the 3.8 version whereas Joomla claims to have over 35 million downloads but it does not specify which version or the total amount of them [23;24].

As it can be seeing in the statistics provided by w3techs in the graph below, the market share of WordPress compared to any other CMS system is far higher than the other CMS systems, even if they are commercial or open source.

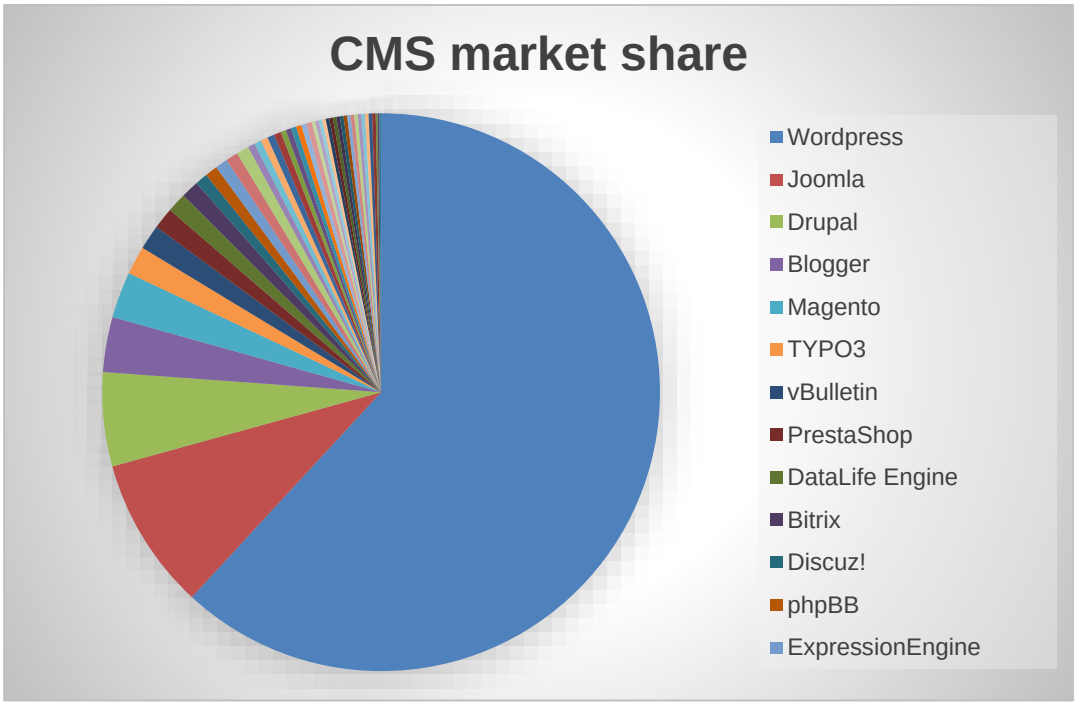

Figure 5. CMS market share. Data gathered from w3techs. [25]

In figure 5 above, Discuz! has the 0.7% and the rest of CMS systems have the same percentage of market share or lower. In addition, the graphic shows how the open source CMS systems have most of the market share.

Nevertheless, when building a website with WordPress, it takes rather little time to make the administrator interface more user friendly. This is because every website using WordPress will have different plugins and functionality that vary and add to the default WordPress administrator interface. These add-ons increase the complexity of the backend and therefore, they make the administrator side indeed a bit overwhelming. So, those plugins and add-ons need the correct visibility and accessibility, as well as placing them in a logical and clear style.

Otherwise, the backend is quite complicated for an average user that wants to update the website's content [21]. So unless the backend is changed to be more simplified, the administration of the website will continue to be exclusive for some. It is true that this exclusiveness has been working perfectly until now because normally specialized persons are given the responsibility of taking care of the website. Since I have been one of these persons, it would be much more effective for instance time wise if the person concerned about one update, could edit directly himself or herself the information. Otherwise, all the changes and the updates have to be canalized through a funnel and the updating is slowed down. In my view, whether a good website is updated or not, is the key for the success of the website as a point of reference to its visitors.

User interface of backend

According to the experienced developer Butze, WordPress is in many cases overwhelming for the clients. He recommends in a presentation at WorldCamp Boston 2012 important key techniques to keep a cleaner and more focused administration backend for the clients. First of all, to narrow down WordPress administrator to the indispensable functionalities –for the client. Secondly, adapting the site's backend to their needs, in terms of widgets, etc. [21]

4 Benefits of usability testing in CMS backend

Until now, usability is mainly applied thoroughly in the frontend. The results are stunningly positive as it was shown earlier in the impact of usability in the web development. Moreover, usability could affect positively and in a further extent to the backend of websites utilizing CMS systems. Because for the administrator of the website, in other words, the end user of the backend, it is also necessary to make sure that he or she can cope and is confident to manage the website.

Besides making the user experience better for the end users, the backend only requires some minimum, simple changes and tweaks from the developers. This is to ensure that the backend end users will be able to operate the administrator side of the CMS system. This way, the end users will be able to take advantage of the CMS to its fullest because they will feel confident.

In addition, seeing that not many small to medium sized companies or organizations can afford to hire the adequate person for the job, adopting the Do-It-Yourself usability test would be certainly convenient because the updating process and managing of the website will not be funneled. This means that the updating rate will grow and so will the website's success as a source of information. As a result of making the backend more usable, the management of the website could be at a closer reach of many more individuals, who in normal circumstances would need an intermediary person to publish or update information on the website.

WordPress' good user interface in the backend has been a reason for its obvious success in the CMS systems market share. However, from the UX point of view, not only the visual design, navigation and interaction have to be straightforward, also part of ensuring a good UX, usability tests have to be run as well. In my opinion, even though the CMS system may fulfill the customer requirements and the functionality might be working the performance of the website will not be ready hundred percent until testing has ensured that the customer is comfortable managing the website through the backend interface.

Now it is quite straightforward for an average skilled web developer to manipulate WordPress CMS, rather easily, in order to build a website. Even for a normal non-skilled person in web technologies, who wishes to build a website, the process has been simplified

very much by WordPress. First premise is to find a Web Host, where to locate the WordPress installation. Secondly, WordPress provides a guided five minute installation to perform a quick setup and finally, the documentation to enhance the website by using themes and plugins. [26]

The truth is that in most of the cases, it is a developer who is asked to build the website that the customer wants. Firstly, because the customers normally would run a business which is enough to maintain them occupied so unless they have the time and the willingness to go into the learning process, the task is not going to be taken by them. Secondly, the developer has in the end already the skills, the knowledge and the experience needed to make the process to go faster.

Besides, the CMS backend is full of plugins, add-ons, widgets, and themes, which would make more complicate the decision making of the customers to choose the ones that are going to suit their website. Therefore, the responsibility falls logically to the web developers who can adapt the backend of the CMS system for the real necessities of each project, as well as the frontend for the visitors. And what it would be more important, they end up with the responsibility of organizing and structuring the backend so is that they can pass it to the administrator without much difficulties. The issue concerns more those persons that will manage the website in the future and not the web developers who only deal with it for a concrete and rather short period of time.

Moreover, normally the person supposed to manage the website will always be a new user or a new learner. Therefore, the better the user experience in the backend, the easier it will be that anyone could rapidly learn how to manage the website. And in order for the developers to know if the backend is user friendly, they only need to check whether the customer is comfortable in managing the CMS or not. So if the developers are aware of this and dedicate the little effort it requires, they will make the CMS fully usable from the front and backend.

From my point of view, then follows that for a developer to induce the administrators to have a better user experience in the backend, his or her task will consist in simplifying and tweaking the ready version of the backend of an open source CMS with the set plugins for the specific project. The key, important points to take in account will be listed later on. And the WordPress CMS system implemented in Silta-klubi’s website will serve as a case study to exemplify it.

Also when looking at the usability of the backend, a general user can be found easily because the amount of potential users of the backend of a website is considerably narrower than the amount of potential users for the frontend. And so it will be easier to find the time and the participants for the usability tests because it ensures directly whether they will be able to learn the administrator system.

4.1 Customer satisfaction

As it was just mentioned above, the good usability of the backend of a CMS-based website will be to make certain that the administrator is able to control the backend of the CMS. Since he or she can command well the administrator side, the client will have a more empowering sense because he or she can handle all the aspects of the administrator site and understands, maybe not immediately but rather faster the logic of the website administrator part. Consequently, the customer ends up with a positive and willing attitude.

4.2 Personnel and time efficiency

In addition, the speed in which the website's information is updated should be timely efficient. Firstly, it will cost the minimum investment of personnel and time. Secondly, the efficiency in transmitting content from staff meeting debriefings to the public website is going to be also shortened. Also, for efficiency to be understood that the content will be placed in the right place –ready for publishing- in the minimum amount of time.

To sum up, if the backend has a gone through usability testing, the customer will be able to manage the website with confidence and therefore, he will be satisfied. Secondly, since the customer is encouraged, he or she will be able to take advantage of all the website's features to their fullest. Lastly, the personnel of the company, who is compromised to update the website information, will have it easier to update the web themselves. On top of that, there will not be a funnel effect which would slow down the updating of the website. As a result of these, doing usability tests in the backend is undoubtedly worthy.

4.3 Content accuracy

At the same time, the website's content will be more accurate since the content will not lag behind in the most recent news and information. Every well managed website is expected to be up-to-date and that its content is not behind the schedule. That is why, it is going to be easier to update the information and therefore, the website will be increase its reliability as a source of information because the information will be up-to-date.

All these advantages will increase the confidence of anyone responsible of the administration or management of the website. And as a result, since she or he will feel capable to manage the website on its whole. Consequently, the content of the website together with the confidence of the manipulators will boost up its capabilities to its fullest.

5 Case of study: Silta-klubi's CMS backend

The website of Silta-klubi was used as a case to study the backend of a WordPress CMS-based site. Moreover, the site was switched from static HTML to a full website CMS system not long ago and it was still in process of development but almost really to be published. And the version when the tests took place, was the version 3.7.1 of WordPress open source CMS.

One of the reasons for updating the static HTML website of Silta-klubi to a CMS system was to make the updating process of the site simpler and faster. Having an administrator page will also allow to all staff members and volunteers at Silta-klubi to manage and update the website with the same good level of competence.

5.1 Silta-klubi cultural centre

Silta-klubi is a cultural center where many activities are offered every week. The activities are scoped for a varied range of ages. Normally, activities take place almost daily and they are normally planned one or two weeks ahead. There is a general plan of the semester activities which is planned in the beginning of each semester meaning months ahead. But some activities must be confirmed every week and also some bigger events may need an update in details. Consequently, all the activities are subject to rescheduling at any time. In addition, some activities like seminars or special events can have a blog post, explaining how it went. Thus, there is also a post-activity update to do on the website.

The website must publish the general planning for the semester twice a year and every week confirm the weekly activities. In addition, bigger events like summer camps or events will need a major update during the semester. Maybe even several updates since the details do not come at once. Also, there will be another update time if there is some change on the previous day of a major event. Silta-klubi's staff needs a high amount of updates. Also, it has be taken into account that the person responsible for the website updates may vary since the cultural center works mostly with volunteers. Therefore, the system has to be understandable, learnable and efficient in order to the whole update process to go smoothly.

In addition, the backend is a new experience since the website has been transferred from being a static HTML to a CMS. So the experience of dealing to publish and control the website of the cultural center will be new for the staff and volunteers of the cultural center. Although many of them, as we will discuss later on, are used to surfing online and trying new applications, both web-based and mobile-based. This will ease the transition of the static HTML maintained by a developer to a CMS maintained by the staff and volunteers of the cultural center.

Consequently, Silta-klubi cultural center's website presents an adequate scenario to analyze the usability of the backend CMS for the organization. Firstly, because this scenario gives the possibility of measuring how well "normal" people can deal with a CMS backend if it is set up well and accordingly to their needs. Also the variety of end users will benefit from the study since the cultural center is run by persons with less years of Internet usage and persons, who compared to those unexperienced ones, have more understanding of the Internet.

5.2 Specific details of Silta-klubi's site

The website is targeted to people with different backgrounds, though its Finnish roots prevail and therefore the Finnish version is the default when opening the homepage. As it can concluded, the site is bilingual since it has a Finnish version as well as an English version. The plugin used to make this possible is xili-language.

The site is divided in two major sections from the very beginning, in the homepage. On one hand, one of the options is to navigate to the club's section. On the other hand, the other section is targeted to the university students and the residents. Both of them share common pages but they differentiate in the activities list, both have a specific blog about the past activities and also a specific gallery and calendar for instance.

Moreover, the site has a collection of sliders which are all across the website. However they are all controlled with the same tool, which is made available by the Cyclone Slider plugin. In addition, the staff and volunteers will be provided by the same editor account which is in the following user level after the administrator.

5.3 Goals of this case of study

Doing usability tests will show whether the administrator page is ready for the staff and volunteers to manage with critical difficulties. That is why, the goal of carrying out the usability tests in the backend of the CMS is to find out the most common usability problems. Usability tests would not be needed if the problems encountered were not affordable to fix by minimum effort and tweaks. So there would be no use in doing a usability test in the backend of the site. Finally, the goal is to prove how by doing short usability tests, the administrator site can be more approachable for a wider range of personnel at any company or organization.

In brief, the main aim of this study is to prove that doing usability tests will fulfil the customer satisfaction and show that anyone in the staff can manage the website and therefore, there will be more hands available when needed. Finally, it should be possible to process quickly and accurately new information to the website.

5.4 User background

The user group for the administration of this website will be women and girls who run or volunteer at Silta-klubi cultural center already for at least three years. These people are from 20 to 50 years old so the differentiation will be depending on the Internet usage. In this study, as it will probably happen with any usability test run for the backend of CMSs, the users are easily identified and normally also accessible for the usability test. Moreover, a list of the users who will participate is provided in table 2 as well as the division which has been made to define the target user groups.

Table 2. General description of participants in usability test

	Internet usage since	Frequency of trying new applications	Age	Years committed to Silta-klubi's project	User group
User A	90's	Usual	49	22	Senior
User B	90's	Low	42	12	Senior
User C	All her life	Usual	23	5	Junior

Understandably the age differentiation comes along with the differentiation of Internet usage in terms of years. Both groups, senior and junior, have currently over 4 hours of daily usage of computer. Table 3 below explains in which applications the users spent

most of their time. Moreover, the devices which they use to connect to the Internet are also named.

Table 3. Usability test participants' connection with the Internet characteristics.

Internet activity	**Browsing**	**Email**	**Social media**	**Instant messaging**	**Other applications**
User A	Android phone	Mac computer	Android phone	Android phone	Mac computer, Android phone
User B	Mac computer	Mac computer	Symbian phone	Symbian phone	Mac computer
User C	Symbian phone	Mac computer	Mac computer	Symbian phone	Mac computer, Symbian phone

Table 3 shows that the selected group is valid because all participants have a fairly wide experience with different devices. For instance, almost all of the OS are covered and also there is a frequent change in the use of platforms.

On another hand, the situation of the users has to be taken into account since it will affect the frequency with which they will update the website and also the commitment with the cultural center because the interest will affect directly also with the willingness to learn the system. For instance, all the target group has a very tight schedule. Then, the amount of time to update the website (calendar, events, information, etc.) will be minimum or is desired to be the minimum –otherwise the interest of maintaining a website will not be high enough and so the content will not have the relevance it would have if the website was updated frequently. So the time spent on the website has to be efficient and successful due to the lack of time to update the website. All the users from the target group have a job or they are full-students, and the commitment of all of them is very high, which is understandable since it is mostly a volunteer work.

5.5 Target users

Still the average time that the target group spends trying out new applications is large enough to know that it will have an impact in the usage of the CMS. Also, the fact that they use the Internet quite actively during the day for work, studies or personal reasons. In conclusion, it can be assumed that most of the target group have a quick understanding of websites. So the users have a high power of learnability.

Volunteers may have a more straight understanding –muddling through correctly- than the senior staff members. Therefore, for the usability tests the target group will be differentiated as we need to know how well they are able to learn.

The target group was divided into seniors and juniors, as shown in table 2. Seniors having shorter experience with computers –in time- and the junior target group will be the volunteers or staff that have a longer experience using computers, smartphones, internet, etc. For the first groups it may be harder to understand the inner culture of the Internet of learning by doing or muddling through in order to perform a task [5, 26].

6 Silta-klubi's backend user testing

Looking at the case of study, the most suitable guidelines were Steve Krug's, given in his book "Rocket Surgery Made Easy". Since the development of the frontend takes most of the development time, the DIY prove to be appropriate. The DIY usability test was the most simple and obvious type in order to keep the usability test's time for the backend to a minimum.

The site is already running but has not yet been published. Since it is a multilingual website, there are still some translations to make and some content editing to do, apart from the update of the current activities and starting the news update.

6.1 Previous backend customization

For the tests, the working version of WordPress version was 3.7.1. In addition, plugins and widgets were added to meet the project's requirements. Moreover, the tests took place only after some basic changes had taken place. Firstly, a separated user account was created for the tester. The user role of the tester was going to be an editor so that the menu of the administrator would not distract the user with extra options, features or possibilities. In my opinion, this is an effortless choice which makes the administrator interface less busy and prevents the users to take paths they are not supposed to take. Figure 6 below shows the menu on the left hand side of the administrator view, which was simplified from an administrator level to an editor user role.

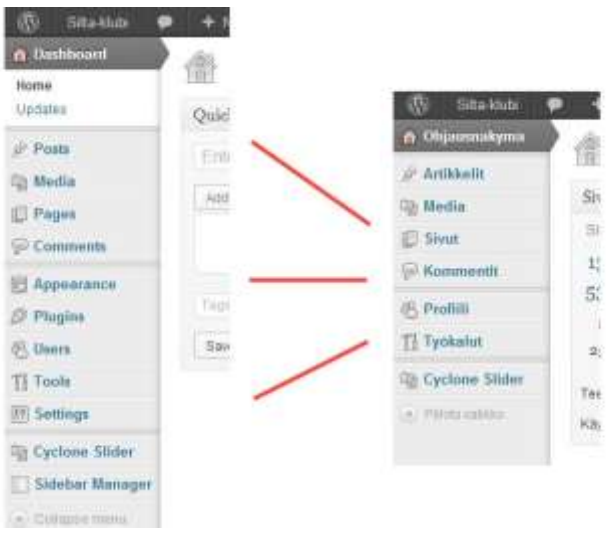

Figure 6. Administrator menu compresses for editor user level.

Secondly, it was essential to take the dashboard into account since it is the first view for the user. The idea was that the dashboard would only show the content of the pages and the drafts that would be pending for publication. However, the dashboard was left with the default widgets, one the website's content summary and second one the quick-publishing widget. A backup was planned in case the quick-release widget would appear to confuse the user. So using the Dashboard Widgets API that WordPress, a set code was aligned in case the quick-release widget turned to be misleading. Further changes were not planned since the usability tests were to tell, which improvement in the interface was more needed.

6.2 User testing plan

The user testing was based in Steve Krug's method, with a rather low budget approach and it basically consisted of two different tasks which could be changed if they did not seem well presented or were confusing. In addition to the tasks, the participants were asked to sign a permission form which would allow the tester to record the test with a Nokia phone as a microphone. Also, the screen was recorded with CamStudio version 2.7.

In my opinion, recording the face of a user is not a must since the facial expressions even though they might help, are not essential to understand what the participant is thinking, because each participant may differ in the level of facial expressions. Since in this case, the test was conducted in Helsinki, Finland, where individuals do not stand out by their facial expressions this was an important factor. In addition, Krug also mentions in his book "Rocket Surgery Made Easy" that recording the face of the users during the test it might motive distraction while, the inflection of the voice can reveal the emotions of the user [22, 89].

In order that the usability test is quite effective, choosing relevant tasks is essential, as well as presenting them in an understandable way. So the tasks should be well lined up with the main goals of the backend. Consequently, a task regarding the multilingual characteristic of the website was selected. And it was combined with the most likely action to be performed, which is to post an article for one of the two different sections of the website, as well as creating its corresponding translation page. The second task was going

to involve uploading pictures to a certain gallery slider. Since the website involves picture uploading from the different activities, it was selected as a basic task that the user should be able to do.

To prepare for the usability test, a quick pilot testing took place. During the session, it was noticed that the scenarios definitely had to be printed and also presented in a clearer way. In addition, there was no previous explanation in the pilot test on how the frontend of the website works. So, a short explanation of the main features was also included for the usability tests. Especially, those which had to do with the task that the participants were about to perform. In order to keep the session as short and light as possible, two tasks were aligned in the end. The final scenarios are shown in figure 7.

It's Monday and we have to create an event for the university students and so you want to announce the event with an article. In order to do that, you have to login in the administrator page. And you have the credentials to do so.

Username:	siltalainen
Password:	500suomi500

You already have the text in both languages so you want just to copy paste the right version.

17:00 - 19:00 Retriitti 19:00- 19:30 Illallinen 4 € 19:30 Puhe Janis Grzybowski, Graduate Institute in Geneva "Statehood outside the International Order? Impressions from Somaliland".	17:00 - 19:00 monthly spiritual Retreat 19:00- 19:30 Dinner 19:30 Talk of Janis Grzybowski, from the Graduate Institute in Geneva will present on: "Statehood outside the International Order? Impressions from Somaliland".

A photographer has taken new pictures of the residence and you want to add them to the gallery-slider of the gallery tour slider and set the pictures to its corresponding floor.

Upload them from the computer, location: test/esittelykierros.jpg

Figure 7. Scenarios of the two tasks to be performed in the usability tests.

I was the facilitator and I planned to follow the guideline of considering an act an error if surpassed the error threshold. So the error threshold was going to be in the user committing three minor or major errors. Then, the user was to be helped. In addition, before the test starts, a simple website should be opened in the computer screen in order that the user can focus on the instructions.

6.3 User testing procedure

First, the tester went through the instructions with the participant. During the instructions reading, a simple and well-known website was displayed so the user did not get distracted. First of all, he or she was handed a permission form to be able to record the session's sound and voice as well as the computer's screen.

Since the website was being also redesigned, the participant needed to understand how the frontend works. So understanding the logic in the visitor's interface (frontend), he or she will be able to perform the tasks. Therefore, a quick overview of the functionality of the website took place first. The features that have to do with the tasks were also covered.

Consequently, the bilingual feature of the site was explained as well as the existing division of the website in two sections, which are club and university students. To show that, the tester went through some articles and pages which had translations already. For the second task, the attendant needed to acknowledge the existence of the sliders all across the site and concretely, to see the house's virtual tour slider.

The test was task-based. The tester will have to perform the task given. This is because in the most common scenario, the user knows what he or she is going to do. So the tasks were given in a separated sheet of paper each and one copy was handed to the participant.

Next, the tester went through some guidelines on how to do the usability test. The tester had a paper with all the instructions written down so none was to be forgotten. The main ideas had been taken from the showcase usability test that Krug hosts in his website. These, applied to Silta-klubi's website are the following. First of all, making clear what is the purpose of the test is, which means checking if the backend is ready to use for the staff of Silta-klubi and whether it is going to last approximately half an hour. The reaction might be of tension so to loosen up, the tester will clarify next that the test is focused on finding problems of the website but the whole session is not about testing the skills of the participant. In fact, some calming phrases can be helpful such as "We are testing the system, not you. **You cannot do anything wrong**. This is one place where you do not have to worry about making mistakes. [27]"

In addition to that, the next step was to make sure that the user was going to say and describe all the things that come across his or her mind, as well as to say aloud why he or she is doing a certain thing [27]. Asking this kindly also helps to make the participant comfortable. So pointing out why the tester is asking such things from the participant will be helpful for the participant. In fact, that they think aloud is most probably the most important thing in order for the usability test to succeed. Therefore, the tester just needs to mention that he or she is asking from the participant to think aloud because it will be of great help for the improvement of the system.

Furthermore, the participants need to know that they can express their views without the constraint of thinking that they will be distressed because of it. Finally, regarding the task performance, the tester tells to the participant that he or she may ask or comment things during the session but that the questions will not be answered. And the tester will explain that this is because the purpose of the test is to resemble a real situation where the participant would not have any external aid. [27]

The tester should also ask the participant to keep trying to complete each task until it is completed or in a real life situation the participant would give up. Meaning he or she would ask for help from support service or leave it for another person to do it.

The following step is to find out the validity of that specific user regarding his or her use of the Internet and experience with the Web. For that, the tester will ask similar questions to this set of questions:

- How much time the participant spends on the Internet in total (browsing and email, social media, etc.)
- What is the difference in terms of amount of time between browsing and email?
- What is the participant's most used type of site (e-shopping, e-service, social media, etc.), a site that you use a lot even is not your favorite?
- Any favorite site? Apart from the one you use most of the time.
- Is there any site that you enjoy using it?

These questions have been taken from the usability test demo that Krug has in the book's "Rocket Surgery Made Easy" website. Before, the professional background of the participant may be asked because it will help the user. In addition, Steve Krug makes the user to feel comfortable, taking out the fears. [27]

7 Results

According to Krug S. the results of a do-it-yourself usability test should be examined preferably the very same day or as soon as possible. Therefore, a list of usability problems was made for each user right after the test and the result list of usability problems included the common problems from the three lists.

For the first two users, the result list was fairly similar. This is because the similarities between them as a user reflect also in the results. That is why the third user was crucial to identify which were the critical usability problems.

Before recollecting the major usability problems that the participants had in common, some of the errors and failures will be discarded. First of all and in no specific order, locating the logging in to the administrator page seemed tricky but two out of three participants achieved the goal. Consequently, it is not something with high priority to be fixed since the participants were able to make their way muddling through. Secondly, the users were not familiar with the administrator interface and so for two users it was unclear whether they could use it to update data. Moreover, two users tried for a couple of times to perform administrator activities in the frontend with the conviction of their actions being completed successfully, when they were not. However, they realized quite fast that they were not in the right place to make changes to the article.

Table 4. Three major usability problems for each participant

	User A	**User B**	**User C**
1	Logging in link to the administrator page, failed because she did not see the link from homepage.	Translation. Clicked in links without knowing what it meant.	Update button was not considered that it would save all the changed options in one page (included the translation)
2	Instead of creating an article from menu, used quick-release, which does not have all details and it does not save an automatic draft.	After previewing the article from quick-release, trying to go back to the editing mode but the quick-release widget was empty.	Placing images within the article text because not relating “Place in text” button’s text to the action of actually saving the selected image to be in the article.
3	User was not aware of how to relate the translated page to the corresponding content page.	Update button was not considered that it would save all the options changed in one page (included the translation)	Not recognizing that the category of the post will make it available in the website (either in the club section or in the university students section)

After looking at the usability problems of each user separately as shown in table 4, three major issues were chosen. To begin with, the translation feature seemed to be very problematic, since it is one of the core features of the website, it has to be confronted. Firstly, the users could not see it without scrolling the translation options. Secondly, there were technical terms and links that were directing to the wrong path or would make the users wonder and consequently, confuse them.

Apart from the translation usability problem, the second major problem dealt with the button to publish an article or to save the changes after editing. Firstly, the button was not outstanding enough or not related necessarily to the article because the article editing view has many enclosed widget areas, visible in figure 8. Secondly, because (a) they could not find it in a reasonable amount of time, (b) they were only looking for the word “save” instead of “publish” or “update”. But most importantly, the user went wrong in assuming that each box of the article’s editing view had to have a separate button to save its contents. Or even worse as in the case of the third user, although she had managed well in the rest of the task, she threw the thought “How do I just send it?” at the figure 8 stage.

Figure 8. Article’s editing view boxes.

So there is a major usability problem regarding the buttons location and assigning them the right functionality. And this happened in different views, in the article editor view, also when using the quick-publication widget and in the gallery widget. In the gallery, when placing a picture in the article or setting an article-picture. All of these buttons were not

visible when the user was scanning the page nor used in the expected order. Therefore, it will be definitely addressed because the fact that the users cannot go forward due to unsuccessful search of the button that would lead them to the next step will make the users to give up fast.

To sum up, the users were able to navigate and understand the administrator page but there were a couple of major errors (not knowing that she did not actually link the page to the translated version, so a fatal error) which proves how the backend of the CMS system was not ready to be passed to the customer.

7.1 Client satisfaction

The client satisfaction was proved by comments of the participants at the end of the usability test, although they were not asked because this is a system which is to be used. In other words, there is no competition because it is a work tool and so it cannot have replacement. For instance, participant A stated: “This is cool”, with a positive smile and even though she just had had to struggle a couple of times to perform the first part of task 1. Participant B had also a positive feedback though she was not asked. In her words, “It is nice to be able to change things.” This shows that the feeling of control is going to be important to make the user confident about managing of the system. Even more, if the feeling of control was already there, even though she had to deal with some navigation issues, the feeling will be potentially greater after the usability major problems are solved.

7.2 Tweaks for usability problems

So to fix the translation problem, one first option will be to manipulate the file that generates the editing view of the posts and pages to explain how the translation connection between pages work. Or even simpler, using the widget API of WordPress to add a dashboard widget were some simple instructions or screenshots are shown. The costly solution would be to figure out another translation plugin to use but for this option, more money should be invested. But in this case, following Krug’s approach and to keep things simple, an internal link with the corresponding flag will lead –within the same page- to the bottom of the page, shown in figure 6. Also the technical links with the ID field will be hidden from the editor user level.

Figure 9. Translation widget in article's editing view.

In figure 9 the areas that make the user spend too much thinking are circled. All of the participants tried to understand what would happen if they would click or not. That is text which is too technical and therefore makes the user to feel lost or insecure. Surprisingly though, two of the participants clicked even though they were not sure what it was going to do.

In second place, after the second test, it was clear that the dashboard's widget to quick-release was causing unnecessary thinking. So for the third test, the dashboard was empty for the user level of the editor. The result is shown in figure 10.

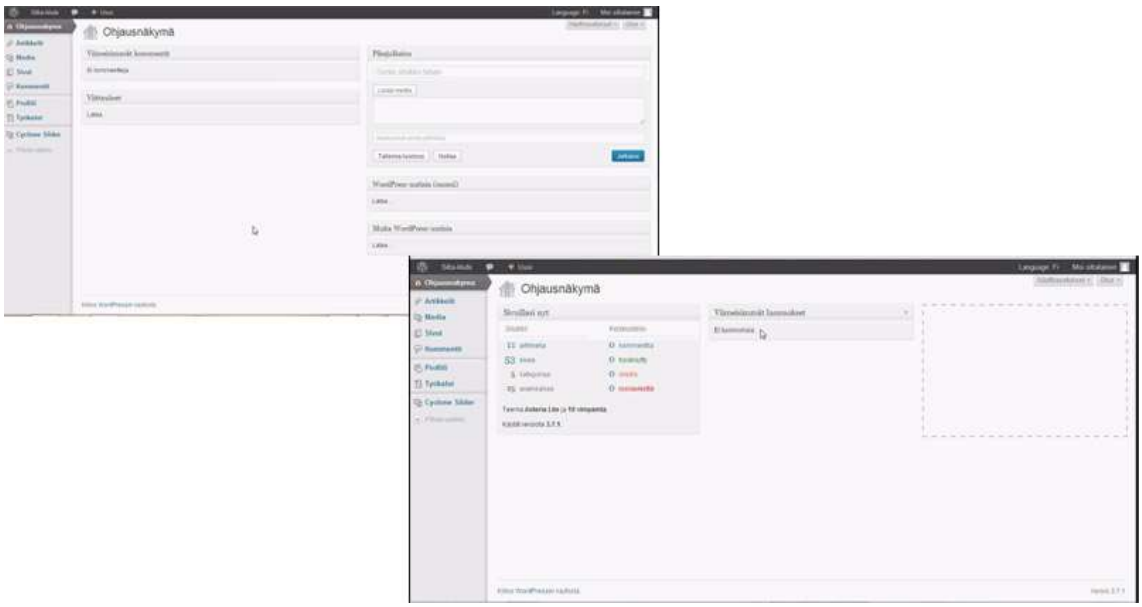

Figure 10. Editor's dashboard with quick-release and without.

The code used to remove the dashboard widgets from the editor user role view is based in the Application Program Interface (API) of the Dashboard Widgets. As listing 1 shows below, the first part of the code is the function that disables all default dashboard widgets and the second part checks the user role level. If the user role is other than administrator, the function is run but otherwise not.

The code basically uses the API that WordPress has made available to remove or show widgets. The function to remove the widget boxes is here "remove_meta_box" and the arguments are first the name of the widget box, the place from which is going to be removed and finally at what level something should happen. Also using the "current_can" function, the user level can be checked, show if it is necessary to have different dashboards for different kind of users.

```
// first part of code
function disable_default_dashboard_widgets() {

          remove_meta_box('dashboard_right_now',
'dashboard', 'core');
          remove_meta_box('dashboard_recent_comments',
'dashboard', 'core');
          remove_meta_box('dashboard_incoming_links',
'dashboard', 'core');
          remove_meta_box('dashboard_plugins',   'dash-
board', 'core');

          remove_meta_box('dashboard_quick_press',
'dashboard', 'core');
          remove_meta_box('dashboard_recent_drafts',
'dashboard', 'core');
          remove_meta_box('dashboard_primary',   'dash-
board', 'core');
          remove_meta_box('dashboard_secondary',
'dashboard', 'core');
}
//second part of code
```

```
if (!current_user_can('manage_options')) {
          //third part of code
        add_action('wp_dashboard_setup',   'disable_de-
fault_dashboard_widgets');
}
```

Listing 1. Dashboard customization with Dashboard Widgets API.

Furthermore, to tackle the problem of the button not being recognized, the contrast in colours will be changed. The button has to have more contrast with the background of the page and with the general colours of the page in order to stand out and make possible to distinguish it at a first glance. Figure 11 shows a proposal for the article editing view.

Figure 11. Proposal of buttons' color contrast.

Those buttons affect to all the options set in for the article. So the functionality of the buttons will be clearer if the widget where the buttons would enclose all the other options. Especially to make clear that for saving any setup or option in the article, to click on those buttons is enough.

Figure 12. Proposal of buttons enclosing all article's options.

Figure 12 shows the idea for the design that would accomplish that. However, in my opinion, it would not be worthy to take the trouble for the moment and wait until the second round of tests are done to see if the new contrasting buttons give the idea that they are absolute for the whole article's options.

8 Discussion

Benefits

The benefits of using DIY usability testing in the backend are clearly positive because the personnel is much more satisfied rather than left on their own to learn the system management. In addition, the funnel effect will not happen because there are more hands capable of doing the update. Consequently, it will benefit the content of the website because it will be accurate and precise. Ultimately, though not demonstrated, it is normal to think that the amount of visits to the website will increase since the website will be more reliable for its information.

Drawbacks

The main drawback could be that a bit more time must be spent in the development process. Though in my opinion it is worth the trouble because it will increase the efficiency and smoothness in the website's updates in the long run.

Reliability

The first round of the test consisted of the users A, B and C, who are part of the staff of Silta-klubi cultural centre and have dedicated twenty-two, twelve and five hours respectively. Consequently, the tasks were familiar to the participants and it was effortless to make that the case scenarios real to the participants.

8.1 Compare results with those expected

In the very beginning the research was going to focus more on the branding and customization of the website but it turned out that it was necessary to improve the webpage in a more basic level. Rather than customizing the administrator page, reorganizing the menu of the admin site, it was more about reorganizing the appearance of the plugins across the backend in order to make it clearer the functionality of the backend. It can be argued that the time spent in the usability test is not worthy it because it is a waste of money. Especially since the customer is willing to meet since it is his company. In my opinion, the really small investment may make possible to have another project from the

same customers. Since the customers feel that the development of their website is also investing in assuring that they can have total control of the website through the backend, they will want to work in a future project with the web development team or at least give recommendations. To sum up, the web development team is taking care not only of the frontend users but also the backend users, who are their actual customer.

8.2 Relation with other studies

So far there has been one presentation that we know of about customizing the backend of a CMS. It was specifically about WordPress administration backend by Butze in 2012 [21]. So it is already time to continue stressing the importance of keeping the backend administrator sides also usable.

Hopefully, the Dashboard Widgets API of WordPress would be for example developed so that, they could connect the plugins installed and have a direct access to the most important features of the website.

9 Conclusion

A round of usability tests were done in the backend of the CMS of a cultural center to see whether if the backend was understandable for daily Internet users. WordPress provides a base for building a CMS that can be customized. Still, when adding plugins, it has to be taken in account whether those plugins “fit” the structure and do not mess up the original interface. Especially, in the probable case that those plugins are important for the site, they should be easy to use in the administrator context. Obviously, the WordPress default administrator cannot prepare to accommodate the different plugins that are going to be installed. Also, in my opinion the default administrator does not necessarily count in the plugins. So the developer may want to arrange the administrator side with minimum actions.

Once the main problems are solved, the backend will be cleaner from extra technical vocabulary and links. As a result, the user will not feel intimidated to manage the administrator side of the website.

After this round of tests, another set of tests will take place in order to face the next round of issues that the backend may present. Furthermore, this usability testing in the backend using DIY usability testing could also be applied with other CMS systems, especially the open source because they may not have one single support for each project since it is free.

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