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WEBSHOP USABILITY

Case: Vantaan Siemen ja Kone

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ABSTRACT

This thesis reviews state of online retail and theory of usability and combines them in a usability evaluation of a webshop. The evaluation is done as a heuristic evaluation of the webshop and as user test, both from the customer's perspective. In heuristic evaluation, both Jakob Nielsen's 10 heuristics and Whitney Quesenbery's 5 Es are used as guidelines.

The aim of the thesis is to find usability flaws in the webshop and to give improvement suggestions.

Key words: online retail, webshop, usability, heuristics

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TIIVISTELMÄ

Tämä opinnäytetyö käy läpi sähköisen kaupankäynnin tilaa ja käytettävyyden teoriaa ja yhdistää ne verkkokaupan käytettävyysarvionnilla. Arviointi tehdään heuristisena arviointina case-yrityksen verkkokaupasta sekä käyttäjätestauksena, molemmat asiakkaan näkökulmasta. Heuristisessa arvioinnissa käytetään ohjenuorana sekä Jakob Nielsenin 10 nyrkkisääntöä että Whitney Quesenberyn 5 E:tä.

Tämän opinnäytetyön tarkoituksena on löytää käytettävyyspuutteita case-yrityksen verkkokaupasta ja antaa parannusehdotuksia.

Asiasanat: sähköinen kaupankäynti, verkkokauppa, käytettävyys, heuristiikka

CONTENTS

1 INTRODUCTION

Buying products and services online has become common in the wake of the rise of the Internet. Survey done in 2013 revealed that more than 60% of Finns had made a purchase from a webshop during last 12 months and almost 50% had made a purchase during last 3 months. In a similar survey done in 2004 the numbers were around 25% and 15% (Suomen Virallinen Tilasto 2013)

Popular product categories include traveling, electronics and transportation. In 2010, Finns spent more than 3.5 billion euros on traveling and more than billion euros on electronics (Kaupan Liitto 2011).

Key success factor for a webshop is not only the varierty products and prices since it's easy for customers to compare prices and move from one webshop to another. Key factor is not only what, but how (Kaupan Liitto 2011).

Usability of webshop's user interface is a major factor in how products and services are sold. Visual design is important and it contributes to usability but usability as a whole goes beyond that. Usable user interface should be effective, effiecient, engaging, error tolerant and easy to use (Quesenbery 2001.)

This thesis begins with background explanation and then continues by going through characteristics of online retail and theory of usability. The research part is divided into two. The first one is the heuristic evaluation of a case website conducted by the author and the second one is a user test. Thesis ends with conclusions and suggestions how to make webshop more usable.

2 BACKGROUND OF THE THESIS

2.1 The case company

Vantaan Siemen ja Kone Oy is a retailer of garden tools, logger's equipment and professional lawnmower solutions located in Vantaa. According to its website, it's of the leading retailers in its field in Finland. On top of selling new products they also offer repair and maintenance services (Siemenjakone.com 2015).

Part of the company's sales comes from the webshop and according to one of the company owners most common item bought through the web is a chainsaw.

2.2 Motivation & research question

The author of this thesis wanted to study usability and decided to choose a webshop to be the subject of study. In author's opinion, a good and usable user interface is an important factor in software development.

The research question is "What are the usability flaws in the user interface of the case company's webshop?" This research is therefore descriptive and it was conducted qualitatively.

2.3. Scope

The research focuses on the user experience of a customer and doesn't take into consideration the company's part of the webshop software.

The services and products offered in the webshop are not considered in this thesis since the focus is on the usability of the user interface.

The usability of the linked payment gateway "Suomen verkkomaksut" was not included in this thesis.

3 ONLINE RETAIL

3.1 Advantages and disadvantages

Online retail offers convenience to customers, since online stores are available 24 hours a day and customers don't have to travel to reach the store. On the other hand, not being able to go to a physical store means that you can't tangibly examine the product. This makes items of some categories, such as clothes which require try fitting, to be less suitable to online retail. Physical stores would also have clerks which would be available to answer questions (Wikipedia 2015a).

Missing of a physical store and the availability of the internet worldwide makes online retail a global business since customers don't have geographical or opening hour limitations.

3.1.1 Security and frauds

Both online retailers and customers face higher risks of fraud than in face-to-face situations. Retailers have the risk of fraudulent purchases made by stolen credit cards and customers have to trust retailers not to use their credit card information for wrong purposes. Even if this wouldn't happen, the retailer's web site might get breached and personal information be stolen (Wikipedia 2015a).

Online consumers might also be lead astray by phising web sites which fool consumers to think that they are dealing with a proper retailer but which instead collect private information to a system operated by a malicious party (Wikipedia 2015a).

There are some measures which online consumers can take to protect themselves, such as operating only with known stores, evaluating the professionalism of the website and making sure contact details such as phone number and street address are presented (Wikipedia 2015a).

3.2 Business models

There are four types of online retail models: virtual merchant, bricks-and-clicks, catalog merchant and manufacturer direct (Laudon & Traver 2007).

3.2.1 Virtual merchants

A good example of virtual merchant is Amazon.com. Virtual merchants avoid the costs of having and maintaining physical stores. Instead, the costs come from building and maintaining a website and running order fulfillment process.

Virtual merchants face the challenge of building a brand name from scratch and tight competition (Laudon & Traver 2007).

3.2.2 Bricks-and-clicks

Bricks-and-clicks business model retailers operate with physical stores and offer online services as well. This model is typically used by traditional retailers, such as Wal-Mart and Sears (Laudon & Traver 2007, Wikipedia 2015b).

Bricks-and-clicks also benefit from the phenomenon called reverse showrooming in which customers review products online and come to buy those at a physical store (Adler 2014).

3.2.3 Catalog Merchant

Catalog merchant model retailers have physical catalogs as their most important retail channel, but they also operate online. Printing and mailing catalogs brings high costs but the existing infrastructure and partnerships with package delivery firms bring savings (Laudon & Traver 2007).

3.2.4 Manufacturer direct

As the name says, in this business model manufacturers sell their products and services directly by using both offline and online channels or online only. List of

companies which do this includes names such as Apple, Dell and HP. This eliminates the retailer from the middle and brings the benefit of higher margins (Laudon & Traver 2007).

4 USABILITY

4.1 ISO standard

Usability can be defined in many ways. TheISO 9241-11 standard states that usability is:

“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” (UsabilityNet 2006).

4.2 Nielsen’s 10 heuristics

Furthermore, Jakob Nielsen’s 10 usability heuristics for user interface design state more practical ways of implementing usable user interfaces. These are well known and widely used and will be used in this thesis as well.

1. Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

2. Match between system and the real world

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

3. User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

4. Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

5. Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

6. Recognition rather than recall

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

7. Flexibility and efficiency of use

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

8. Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

9. Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

10. Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be

easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

(Nielsen 1995)

4.3 Not just ease of use

Another approach to usability has been presented by Whitney Quesenbery. There are lots of similarities to Nielsen's thoughts, but her approach is presented in 5 charasteristics: effective, efficient, engaging, error tolerant and easy to learn. (Quesenbery 2001)

4.3.1 Effective

"Effectiveness is the completeness and accuracy with which users achieve specified goals. It is determined by looking at whether the user's goals were met successfully and whether all work is correct." Quesenbery also notes that distinguishing effectiveness and efficiency is not always easy even though they are not the same thing (Quesenbery 2001).

4.3.2 Efficient

Efficiency in short is the speed with which user can accurately complete a given task. This can be measured in clicks, keystrokes or with time spent on a task (Quesenbery 2001).

4.3.3 Engaging

This characteristic is about the visual design of the interface. User interface must be pleasant and satisfying to use to be engaging (Quesenbery 2001).

4.3.4 Error tolerant

Error tolerant system prevents user interaction that causes errors and helps the user to recover from errors that do occur (Quesenbery 2001).

4.3.5 Easy to learn

Easy to learn in short: “An interface which is easy to learn allows users to build on their knowledge without deliberate effort.” (Quesenbery 2001)

4.4 Benefits of usability in webshops

Better usability benefits both the retailer and its customers. Webshop with better usability has a higher success rate of tasks and learning how to use the system is easier. This means also higher user satisfaction and users stay longer as customers (Kuntola 2015).

5 USABILITY STUDY

5.1 General

The study part was conducted in two parts. First part is a heuristic evaluation conducted by the author. The second part consists of a serie of user tests.

5.2 Heuristic evaluation

Heuristic evaluation was conducted by using mainly Jakob Nielsen's 10 usability heuristics with addition of Quesenbery's five characteristics of usability and Avania Consulting's introduction to usability. All of the webshop's customer side pages were evaluated.

5.3 User testing

According to Nielsen & Norman Group, the guideline for usability test task should be: "Engage participants by writing task scenarios that are realistic, encourage an action and don't give away how the interface should be used" (Nielsen Norman Group 2014.) The tasks in this study were built with this guideline in mind.

Furthermore, Jakob Nielsen suggests that the best amount of participants for a user test is five with most arguments for using more being wrong. Therefore the number of participants in this study is five as well. (Nielsen 2014)

Test was conducted so that users completed the given tasks and the author observed and made notes of user's actions. Test users were also video recorded during the test.

5.3.1 The tasks

Since the test users were Finns, the tasks were written in Finnish. Following list presents the tasks translated into English.

1. Buy a chainsaw for less than 300 euros.
2. Buy an expensive lawn mower tractor.
3. Buy a leafblower which is on sale.
4. You have moved to address Nikkarinkatu 25, 15500, Lahti. Update your account's address information to be up to date.
5. Change your password to be "TestUser1!"

First three of the tasks aimed at finding out flaws in the basic shopping process as well as finding out how easy or hard it was to find products with some specific attributes (cheap, expensive, on sale). Since there was no test server available, the tests were conducted on the actual webshop and the orders were not completed nor paid.

The last two tasks targeted the user information management functions.

The site doesn't have many other functions besides the two mentioned above and for this reason the number of tasks was kept small.

6 STUDY RESULTS

6.1 Heuristic evaluation

Following chapters will go through the findings from the heuristic evaluation. Some minor findings may have been left out if the author has felt that they are not significant.

6.1.1 Non-functional pages

Non-functional pages mean ones which don't interact with shopping cart, checkout process, managing the user account or send messages to the retailer. These pages are: front page, frequently asked questions, company info and maintenance.

6.1.2 Finding products

Products are divided into categories and each category page has a heading section with general information about products of that category. After the heading there is a list of sub-categories or a list of products.

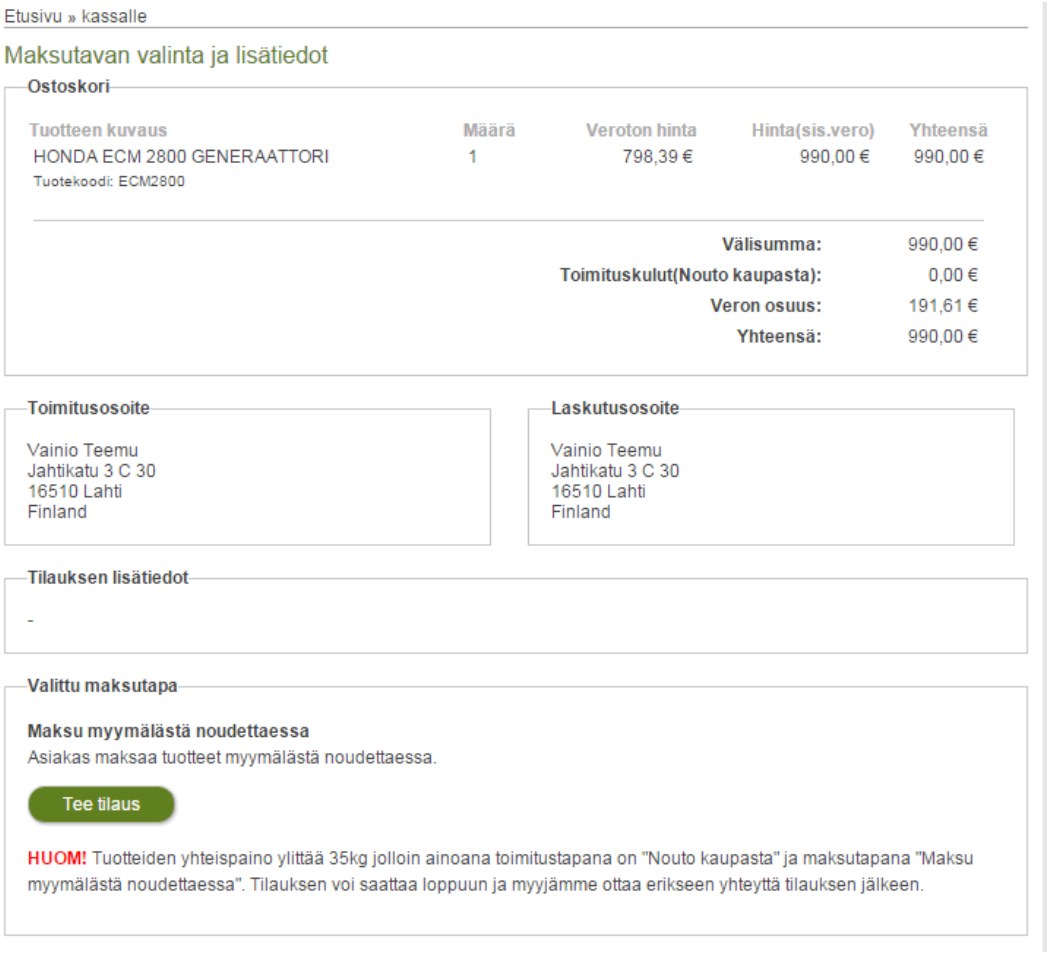
The way how products are categorized and the fact that there is no more than one level of subcategories in the webshop makes finding products fast and easy. This is in line with Quesenbery's first and second E, effective and efficient.

There is a search tool for finding products which is useful for advanced users and this matches with Nielsen's 7th heuristic. On the other hand, the search tool is very simple and there is only one search field and this might leave some some users wanting for more.

The page produced by the search tool shows a list of products which matched the given keyword. This page is very minimalist and shows only the most important information: a picture, name and price. This matches with Nielsen's 8th heuristic.

6.1.3 Checkout process

First flaw found in the checkout process is the fact that customers have to create an account. This problem was actually recognized by one of the owners as well. On the other hand, customers are able to use their email address as a username, which is good. (Kuntola 2015)



Picture 1 Missing a back button

Checkout process mostly follows the usability guidelines: system speaks the user's language, design is minimalistic and the process follows a logical order. One remarkable flaw in the process is that there is no "back" button to go and change incorrect information in previous steps and this breaks Nielsen's third heuristic.

Furthemore, system tells you that you are in the checkout process, but the current step is indicated only with one general heading. Some visualization of steps ahead

and steps completed would make checkout process to match better with Nielsen's first heuristic.

In the light of Quesenbery's five Es, the checkout process works very well. The process altogether consists of only a few steps and there are not many choices user has to make which means it is efficient, effective, error tolerant and easy to learn. Minimalist design ensures that user interface is also engaging.

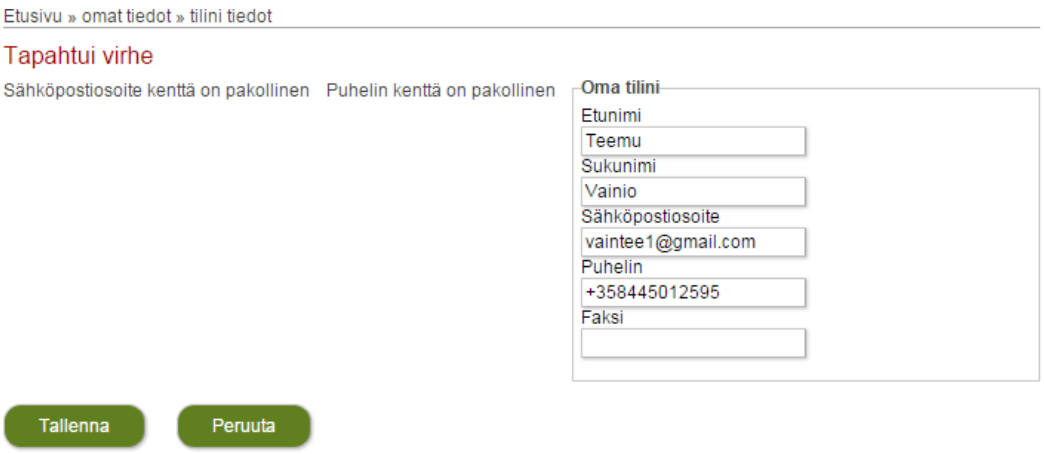
6.1.4 Account management

Account management is easy to access through a link in the shopping cart panel.

In all the forms of account management the cursor turns into a hand when on top of a form field label. This would suggest that the text is a hyperlink (Wikipedia 2015c.) In this case it is not true and this might confuse the user a little.

6.1.5 Account information

Account information validator makes sure that email address is in valid format but same kind of validation for phone number and fax are missing. This makes system less error tolerant. Also, the translation line for invalid email message seems to be missing and system gives an error message in english.



Picture 2 Aesthetic error

There is also an aesthetics flaw with the validator. Fields jump to the right when validation messages are shown.

6.1.6 Address list management

Adding new addresses to the address book is accessed through an easy to find link on the address book management page.

Address book management doesn't follow Nielsens 5th heuristic on both new address form and address editing form since they are missing validators for the Finnish Business ID and postal code fields. Both of the fields would be easily validatable since their format is strictly defined.

6.1.7 Changing password

The user interface for changing a password is minimal, with only a field for current password and a confirmation field. This conforms with Quesenbery's E for error tolerant as well as Nielsen's 5th heuristic since if there was only one field for password user might make a typo with the new password and this would cause a lot of frustration in trying to log in with the password you thought you typed in. Typing the password twice makes this less likely to happen.

On the other hand, when new passwords don't match, the system shows an error message of missing translation for unmatching password. This is rather an error in configuration than in system itself, but nonetheless it doesn't speak common user's language and thus breaks against Nielsen's 2nd heuristic.

6.1.8 My orders

Page which shows orders made by a user is a plain table with a link for every order to its details page.

The details page shows all relevant information including a list of products ordered.

There is nothing really mentionable here, other than the fact that a test order made by author is shown with state “ready” even though it was never paid for nor delivered.

6.2 User testing

6.2.1 Retrospective

Overall, the tests were conducted quite well but there were a few flaws. Some of the test users had to ask questions during the test because of flawed introduction to the test by the author. The introduction should’ve been more complete by setting the test users into the right context. At first, the author felt that test users should just be told to complete the given tasks, so as to interfere with their behavior as little as possible. It was found out during the tests that some more information should’ve been given, such as that user had to use their email address during the tests.

Therefore the validity of the tests is not very high as the author had to interact with the test users a little during the tests and this might have affected the test users’ behavior.

6.2.2 Findings of the users tests

All of the test users found the account management section of the website to be easy to find and use. The finding of products was also easy although one user gave feedback that the categories could be clearer and that there is now too much text in one category link.

Interestingly, only one user used the search tool to find products. This method proved to be as effective as going through categories with one exception. When hitting browsers back button after viewing a product from search results, the system demands resending of form data.

The first test pointed out the fact that the shopping cart doesn’t give feedback that would be visible right away. The first test user added a product to the shopping

car twice before noticing that the shopping cart actually was located in the lower left part of the page which comes visible after scrolling down a bit.

In the same test, the test user also gave feedback that creating an account during the shopping process didn't work smoothly.

The second test gave similar results regarding shopping cart feedback and creation of an account which was again thought to be a bad thing.

Third test user gave feedback that the account creation process was a bit troublesome but that the items on sale were easy to find.

Fourth user found the shopping cart quickly and the account creation process went smoothly as well. Fourth user was the one who used the search.

Fifth user had some trouble in the account creation process and the test user didn't notice the system's notification that it sent the password as an email. Furthermore, when the test user tried to get a new password, the test user again didn't notice the notification given by the system about an email it sent.

6.3 Summary and suggestions

The case company's webshop had some usability flaws, some more serious than others. The major flaws were the inability to do shopping without creating an account and the location/feedback of the shopping cart. Furthermore, the feedback given by the system during account creation and management process should be more visible.

Admittably, the fact that user is forced to create an account is not purely a matter of usability, but in this case it added elements in the process which were felt to be hard to use. For example, after creating an account and logging in, user is dropped to the front page rather than the shopping cart.

The mentionable minor flaws were lack of validations, missing translations, an aesthetic flaw in the account management pages and lacking navigation between pages of checkout process. Also, the search tool could be more sophisticated and

there should be a way to go back to search results without giving users the feeling of a broken page.

Fixing the flaws mentioned would give users better experience, cause less frustration and give a feeling of professional company.

7 CONCLUSIONS

The goal of the thesis was to find usability flaws in the case company's website and in authors opinion this goal was met. The user tests could have been conducted in a bit more scientific manner and with better initial instructions to the test users, but the major usability flaws came up nonetheless.

The findings of the tests and the results of the heuristic evaluation are probably nothing new to a seasoned software developer with a good understanding about usability, but they are good examples of what can happen when user's point of view is forgotten.

The validity of the user tests is not very high, but the tests were still able to point out some major flaws in the usability of the webshop.

The case company is going to change their webshop provider during fall 2015 and therefore the flaws found in this thesis will be given to the case company as something to be kept in mind when they make their decision.

REFERENCES

Adler, E. 2014. Bricks-And-Mortar Retailers Have One Big Advantage Over E-Commerce Companies. [Referred 2.5.2015] Access method: http://www.businessinsider.com/bricks-and-mortar-retailers-have-one-big-advantage-over-e-commerce-companies-2014-7?IR=T

Kaupan liitto 2011. Suomalaiset ostivat lähes 10 miljardilla eurolla verkosta 2010 - Ulkomainen verkkokauppa haastaa kotimaisen erikoiskaupan [Referred 1.5.2015]. Access method: http://www.kauppa.fi/ajankohtaista/tiedotteet/suomalaiset_ostivat_laehes_10_miljardilla_eurolla_verkosta_2010_ulkomainen_verkkokauppa_haastaa_kotimaisen_erikoiskaupan_19549

Kuntola, J. 2015. Avautuuko ovesi oikeaan suuntaan? [Referred 3.5.2015] Access method: http://www.avania.fi/artikkelit/johdatus_kaytettavyyteen.pdf

Laudon K., Traver C. 2007. E-commerce. [Referred 2.5.2015] Access method: http://www.cpe.ku.ac.th/~mcs/courses/2008_01/214571/slides/Laudon_Traver_E-commerce4E_Chapter09.pdf

Nielsen, J. 1995. 10 Usability heuristics for user interface design. [Referred 1.5.2015] Access method: http://www.nngroup.com/articles/ten-usability-heuristics/

Nielsen, J. 2014. How Many Test Users in a Usability Study? http://www.nngroup.com/articles/how-many-test-users/ [Retrieved 24.8.2915]

Nielsen Norman Group 2014. Turn User Goals into Task Scenarios for Usability Testing. [Referred 24.8.2015] Access method: http://www.nngroup.com/articles/task-scenarios-usability-testing/

Quesenbery, W 2001. What Does Usability Mean: Looking Beyond ‘Ease of Use’. [Referred 1.5.2015] Access method: http://www.wqusability.com/articles/more-than-ease-of-use.html

Suomen virallinen tilasto 2013. Verkkokaupan kasvu hidastui. [Referred 1.5.2015] Access method: http://www.stat.fi/til/sutivi/2013/sutivi_2013_2013-11-07_kat_003_fi.html

UsabilityNet 2006. International standards for HCI and usability. [Referred 1.5.2015] Access method: http://www.usabilitynet.org/tools/r_international.htm#9241-11

Siemenjakone.com 2015. [Referred 1.5.2015] Access method: http://www.siemenjakone.com/vantaa/fi/home

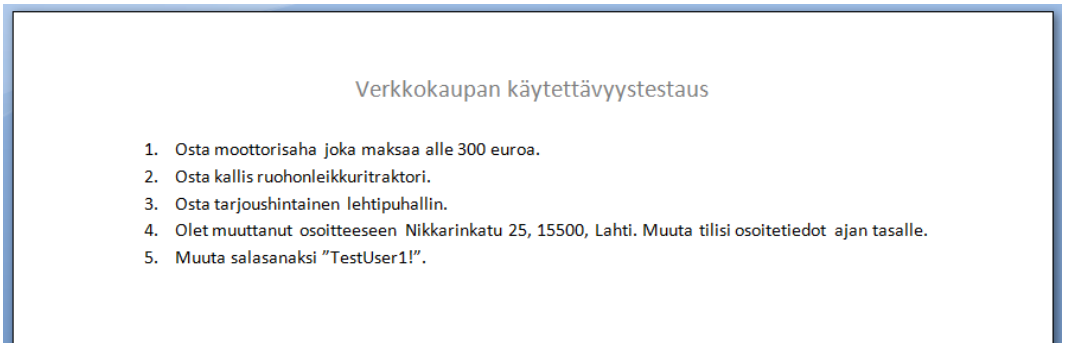
Wikipedia 2015a. Online shopping. [Referred 1.5.2015] Access method: http://en.wikipedia.org/wiki/Online_shopping

Wikipedia 2015b. Bricks and clicks. [Referred 2.5.2015] Access method: http://en.wikipedia.org/wiki/Bricks_and_clicks

Wikipedia 2015c. Pointer (graphical user interfaces). [Referred 18.5.2015] Access method: http://en.wikipedia.org/wiki/Pointer_%28graphical_user_interfaces%29

APPENDICES

1. The test form:



Verkkokaupan käytettävyystestaus

1. Osta moottorisaha joka maksaa alle 300 euroa.
2. Osta kallis ruohonleikkuritraktori.
3. Osta tarjoushintainen lehtipuhallin.
4. Olet muuttanut osoitteeseen Nikkarinkatu 25, 15500, Lahti. Muuta tilisi osoitetiedot ajan tasalle.
5. Muuta salasanaksi ”TestUser1!”.