USABILITY OF E-GOVERNMENT PORTALS AND CASE LAW DATABASES IN THEORY AND PRACTICE, ESPECIALLY FROM THE VIEWPOINT OF WEB FORMS

by

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A significant expectation has appeared towards the governments to keep abreast with the development of information society: in recent years, there has been an increasing necessity of implementing public sector services, interactions and transactions on the web. The goal of this paper is to introduce the concept of web usability by analyzing some European and national e-government portals and online case law databases, such as the website of the European Court of Justice and the EUR-Lex site that allows access to European Union law. The study gives an overview of the main aspects of web usability (like the way users read on the web and writing web content), and emphasizes the importance of constructing usable web forms. To evaluate these sites, a usability test was carried out; the findings of it are also examined. The results of this study indicate that while there is a wide range of services, features made available by the EU and the Hungarian government, the errors revealed by the usability tests could harm the credibility of the organization behind the website or a form, and could make the users frustrated enough to leave these sites. However, these errors are easy to fix; doing so could improve the usability of these pages significantly. As a result, citizens would be encouraged to use electronical ways to contact the state, which could have a great impact on the efficiency and performance of the public sector.

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KEYWORDS

web usability, e-government, case law database, web portals, web usability test, information technology, best practice, usability guidelines, web forms, ICT, online legal information, online legal database, eur-lex.eu, curia.eu, kormany.hu, eye-tracking

1. INTRODUCTION

Web usability is an increasingly important area in constructing websites. Not only in the private sector, where the competitive environment forces the participants to utilize the newest technologies available for the sake of gaining larger market share from their competitors, but in the public sector as well, given that it became inevitable to deal with the issue of usability in order to fulfill the requirement of e-inclusion, to bridge the digital divide, and to offer usable e-government services, interactions and transactions to the citizens.

This paper attempts to show that using the concepts and best practices of web usability, and conducting simple, low-cost, small-sample usability tests can highly improve the user experience, and as a result, dramatically in-crease the efficiency and credibility of e-government websites and case law databases.

This paper has been divided into two main parts. The first part deals with some aspects of usability (for example how to write for the web, how to construct usable web forms), while the second part examines the findings of an evaluative usability test involving

– the portal, which provides access to the legislation of the European Union: http://eur-lex.europa.eu/ (hereinafter called: the EUR-lex site);

– the website of the Court of Justice of the European Union: http://curi-a.europa.eu/ (hereinafter called: the Curia site); and

– the new Hungarian e-government portal: http://www.kormany.hu/ (hereinafter called: HuGov site)

providing some recommendations on how to make these sites more user-friendly.

1.1. USABILITY OF E-GOVERNMENT WEBSITES – SOME ASPECTS

1.1.1. DEFINITION OF WEB USABILITY, BASICS

Nielsen (2003) states that „usability is a quality attribute that assesses how easy user interfaces are to use." Krug (2006) claims that the most important advice that someone who wants to make a website easy to use should take is: „Don't make me think". It means that a website should be self-evident, obvious. However, he underlines that in some cases, if a site is highly complicated – a good example for this is an e-government site or an online case law database –, the goal to achieve is to make the page self-explanatory.

1.1.2. USABILITY GUIDELINES – FROM THE VIEWPOINT OF WEB FORMS

In constructing a website, one should take advantage of best practices that are proven to be effective. There are many kinds of guidelines published on the Internet: web usability experts, as well as governments, issued several collections of recommendations. Two examples of Nielsen's (2001) guidelines for constructing homepages are the following: the links should be differentiated and scannable, and over-designing a site should be avoided, because too many font styles, other text formatting and design-elements can detract the attention of the user from the main message of the content. As regards to forms, Wroblewski (2009) summarized some guidelines based on a research[1] on an eye tracking of web forms, for instance forms should not contain more columns, since users complete forms from the top to the bottom. Therefore, a vertical arrangement of fields should be applied instead. Avoiding over-designed text is important concerning forms as well: in constructing a form, colored or shaded headings should not be applied in most cases, since these formats can distract the users from the process of filling it out. An example for guidelines issued by governments is the HowTo.Gov site, maintained by the US Government, which offers a template about designing online forms[2], and it even contains

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[1] Web   form   design   guidelines: an   eyetracking   study: http://www.cxpartners.co.uk/cxblog/web_forms_design_guidelines_an_eyetracking_study/ (Available: 16.12.2011.)

[2] Online   Forms: http://www.howto.gov/web-content/manage/online-forms   (Available: 16.12.2011.)

a checklist[3] of best practices to follow. Examples include: „Users can navigate forward and backward without losing their data"; „Content is reduced to the minimum possible to accomplish the form's purpose."; „Form pages include a progress indicator".

1.1.3. READING ON THE WEB – HEATMAP OF A FORM

In fact, most users never read on the web, instead, they are scanning the sites, glancing across its contents. Nielsen (1997) found, that 79 % of the users always scan the pages, while only 16 % of them read every word of the text. To analyze how users read on the web, the concept of „F-shaped pattern" should be examined. Eye-tracking studies (for example: Nielsen (2006, 2009)), show that the reading pattern of the average user is the following: two horizontal, and one vertical stripes. It means that after entering a page, users first scan through the lines of text at the top of the page, then they restart this process after jumping down some lines, and finally they glance at the left side of the screen, scanning through the starting words of each line. However, it needs to be noted, that the number of horizontal movements can vary: sometimes users make a third horizontal stripe, making the pattern look like an „E", other times they just scan through once, making the pattern look like an „inverted L". These patterns appear on a picture called heatmap, in which different colors indicate where users looked most (Nielsen 2006). Jarrett et al. (2008) published a heatmap of a form: they found that users looked most at the labels and fields of the form (and almost never scanned the rest of it), and demonstrated that the participants read the left end of the fields. Tan (2009) also presents several findings of an eye-tracking study of web forms, for instance the results have shown that the participants did not glance at the information section on top of a site; instead they left it out completely.

1.1.4. HOW TO WRITE FOR THE WEB, WORDING OF FORMS

Since an e-government page usually contains an extreme amount of information (lots of text), writing of content must be a priority. There are many aspects of writing for the web, for instance: content should be scannable, take the F-shaped pattern into consideration, and meet the requirements of lower-literacy users and accessibility. Redish (2007) defines the most im-

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[3]   Online Forms Checklist: http://www.howto.gov/sites/default/files/documents/OnlineFormsChecklist.pdf (Available: 16.12.2011.)

portant elements as follows: it should be like a conversation, answer the questions of the visitors, and support the idea of „grab and go". Another crucial aspect is that the content should be written in plain language[4], which is a kind of communication that is understandable for the receiver for the first time of listening or reading. As regards to forms, Jarrett et al. (2008) also express that familiar words and concepts should be applied to make the question easier to understand. They also suggest making the text of the fields as simple as possible: there is no need for „fully formed, grammatical questions or request for each field".

2. USABILITY TEST

2.1. INTRODUCTION

A simple way to describe the essence of usability tests is the following: it is observing someone who is using the subject of the usability test. There are many kinds of usability testing, for instance qualitative and quantitative, formal and informal, large sample and small sample and so on. Among the qualitative tests, the easiest and – in spite of being low-cost – one of the most effective inspection methods is – as Krug (2010) defines it – the „do-it-yourself" usability test. Basically, this term refers to a process, which includes an inspector, a participant, and some tasks to complete. During the test, the participant is asked to think out loud, which allows the inspectors to determine the most serious weaknesses of the tested website.

2.2. METHODOLOGY

In choosing the most appropriate and effective method, it was considered that a qualitative analysis has several advantages compared to a quantitative measurement. Using a qualitative inspection method enables to conduct a low-cost, small sample, but highly effective test. Moreover, a quantitative test would not serve the purposes of this study, since such tests are most suitable in cases when the current version of a product is to be compared to the previous version. For these reasons, a „do-it-yourself" usability test was chosen to serve as the evaluation method. The research process consisted of nine steps:

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[4] Plain Language.Gov - Federal Plain Language Guidelines
In: ; http://www.plainlanguage.gov/howto/guidelines/bigdoc/index.cfm
Plain Language.Gov - Improving Communication from the Federal Government to the Public In: http://www.plainlanguage.gov/whatisPL/index.cfm (Available: 20.12.2011.)

1. Literature review

2. Choosing the most suitable method for the evaluation

3. Testing the website to point out the weaknesses and strengths

4. Setting the research questions

5. Participant selection

6. Conducting the usability tests

7. Data analysis

8. Identifying results

9. Drawing conclusions

To identify the main strengths and weaknesses of the three evaluated sites, first it was tested by the author. The aim of this preliminary inspection was to find out what kind of tasks should be asked during the usability test.

As a result, 15 tasks were set (6 concerning the EUR-lex site, 4 the Curia site, and 5 the HuGov site). Some of them were about finding certain information (for example on the EUR-lex site it was: „Find this directive by using the Eurovoc keywords! If you don't know, what are these, find out by using the help and FAQ provided by the site!"), some were about finding a form and filling it out (for instance on the EUR-lex site it was: „Find the basic search form, and search for the term „e-commerce"! What do you think about the form? What do you think about the result page?"), and some were about finding a document and download it (for instance on the Curia site it was: „Search for cases where one of the parties is Hungary, then refine the results, search for the case C-253/09, and download the judgement!"). The tasks were designed based on the following aims: they should not take more than two hours to complete in order to maintain the appropriate level of attention and concentration of participants; they should cover the whole relevant (from the viewpoint of forms and legal databases) spectrum of services and information offered in order to explore the whole structure of the site; and finally most of them should be connected to web forms.

Krug (2006) argues that the ideal number of participants of a usability test is three, at most four; and Nielsen (2000) also suggests – based on a series of tests – that with three users almost 75% of the problems can be revealed, and thus adding more participants makes the process less and less effective. To follow this idea, 3 users were recruited to conduct the test. In the beginning of each test, the participants were asked to think out loud. After that, they were shown the homepage. They were asked to tell whose site is it, what are they are thinking about the design, the structure, the or-

der of the elements, what would they click on first and what are their feelings, first impressions and expectations about the site. After this introductory part, they were asked to complete the tasks indicated above.

2.3. RESULTS

The findings presented in this study[5] are discussed in 3 main parts. Each part covers one site and is divided into 2 sections: results related to web forms and results concerning other aspects of web usability. These aspects are: graphics and design; communicating information; content, writing for the web; links; navigation. Hereinafter the study refers to the participants as P1, P2, and P3. In describing the results, the participants comments are reproduced verbatim (evidently, the comments are translated from Hungarian).

2.3.1. EUR-LEX SITE

FINDINGS CONCERNING WEB FORMS

After scanning through the homepage, P2 expressed that the „Connection" button in the sign in form (located on the homepage), and the tooltip of this button („please indicate how would you like your EUR-lex behave") is confusing. In connection with the registration form P1 and P2 commented that the triangle icon on the left of the fields made them click on it (but it is only part of the design), because in the Windows 7 operating system this icon is used for opening and closing.

Each participant could easily find the basic search form. P1 and P2 expressed that the form should not contain three fields to enable the use of logical operators („WITH", „EXCEPT"), since a widely used search engine, Google established a practice for indicating these operators[6]. P3 expressed, that it is good that the form contains guidelines on the right side of the fields, however, these instructions are too technical (it says for example: „* replaces 0 to n characters"). On the contrary, P2 liked that the help is detailed and supported by examples. P2 argued that the search engine should

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[5] Presenting every detail of the findings is beyond the scope of this paper, therefore in this chapter only some results considered to be the most interesting and useful are indicated.

[6] Google applies AND as a default, if you indicate the term: web usability, Google is searching for web AND usability; the „|" symbol means the OR operator; excluding a term from search is marked with the minus sign („-"); and if an exact search phrase is needed, quotation marks should be used.

Source: http://www.tech-recipes.com/rx/237/google-boolean-and-advanced-searching/ (Available: 13.12.2011.)

rank the results by their relevance therefore it should not be the task of the user task to indicate the range of the search (i.e. searching in the full text or the title only).

Using the „Search in Legislation" option, for two of the participants it was confusing that after choosing the type of the legislation („All", „Secondary", or „International agreements"), the form asks the user to choose „Further search options", which list contains radio buttons such as „Search terms" and „Author", and then a „Search" button takes the users to another search form (determined by the input given at the „Further search options") – instead of a result page. According to their opinion, this solution is not reasonable; there is enough space to place all of the search options on one page, by using an expandable/collapsible component for instance. P1 noted that it is a good practice that the search terms are colored red in the text on the result page. However, he also commented that „it is not easy to spot the beginning and the end of a result, they should be more separated, visually distinctive". P3 expressed that using check boxes instead of radio buttons would serve the purpose of this form better: „It is not logical that I can not indicate multiple queries, for example it is not possible to search for regulations and directives at the same time".

FINDINGS CONCERNING OTHER ASPECTS

It was obvious for each participant that the purpose of this site is to get information about the legislation of the European Union. P2 liked the clean design, however, he expressed that the use of links is inconsistent: some of the clickable texts are blue and underlined, some of them are not. Every participant stated that they are not interested in the news section located in the center of the site, since this kind of content is used mainly by professionals. P3 noticed the breadcrumbs feature, yet she found it to be confusing that the first element of the breadcrumbs takes to a page which is different from the homepage where the test started (this first element was the http://eur-lex.europa.eu/, where users can choose the language of the site). P1 expressed that according to his expectations, a very simple, „one-box" search should be placed on the homepage, on a highly noticeable place.

Concerning the result page of the simple search, P2 stated that there should be more instructions (for example the „Search history" option lacks any guidance). As regards to the construction and design of a result, P1 commented that the first row should contain the title of the relevant docu-

ment (instead of a number). He also expressed that the results are hard to read, he could not scan the lines, but had to go through it word by word.

While completing a task about refining the search results by the type of the document, two of the participants tried to add the „directive" expression as a search term. They should have selected „Type of the document", but that is the last element of the list, therefore it is easy to miss. P2 commented that the font size of the secondary legislation list is too small (it is 7.5 pt). P1 noted that the „Please try again" message is not helpful, it should indicate, what the problem is, and it should suggest some solutions, or at least offer links to the search guides. He also expressed that at this point „If it was not a test, I would give it up now, and try to find this document by using Google."

To complete one of the tasks, the participants were asked to look at the FAQ and the Help option offered by the site to find the description of a special search option (search by Eurovoc keywords). P3 noted that at the FAQ page the wording of links next to each question was „Reply" except one, which linked to an „Answer". After going through the FAQ page, participants found the quick start guides on the „Help" page; however, finding the information indicated was quite difficult for them: the „Simple search quick start guide" is divided into five separated files. This structure proved to be inefficient, since they had to open each file to find out that this guide contains no information about this search option. P1 expressed that the names of the parts are not logical: the first is „Before you begin", the third is the „Getting started", and between them there is a „Document structure" chapter. He also mentioned that the indication of the fact that the last update was in 2006 makes a bad impression on the organization behind the site. Two of the participants noted that these guides should not be downloadable only in .pdf format. P2 commented that the advanced search guide is „like a traditional brochure embedded in the world of web 2.0", with the subheading „Visual Quickstart Guide", divided to „Lessons".

2.3.2. CURIA SITE

FINDINGS CONCERNING WEB FORMS
In general, participants liked that the basic form is located on the homepage, since that is the main purpose and function of this site. P1 noted that the construction of the check boxes for selecting courts is easy to use,

and the indication of the required input format next to each field is a good solution as well. Concerning the design of the form, he commented that the icon of the advanced search should be aligned with the search button. A quite unexpected behavior, which was noticed by each participant, can be experienced after clicking the search button: instead of searching, the site takes to the advanced search form (the very same one that would appear after clicking the advanced search icon, as participants found out while completing a later task), with some of its fields are filled in (based on the search conditions indicated by the user on the simple search form). Another problem with this part is that – as P1 commented – „the design of this form is completely different form the appearance of the simple search form and from the overall design of the site; if it would be a commercial site, I would think that it is some kind of marketing trick, and they want to take me to a page where I did not want to go".

Interestingly, P1 found another advanced search on the homepage, which allows searching the content of the site. Its icon and tooltip is identical to the ones of the advanced search function of the case law database. As regards to this latter mentioned form, P1 found it distracting that the help icon is located on the left side of each field, he felt that „I'm forced to focus on it". Concerning the browsing options, each participant expressed that the form should not use text fields where it is not allowed to type into them. Instead of filling them in directly, there is an icon for browsing on the right end of these fields („More options"), clicking on which opens a new window, where the user can specify the search criteria. P2 commented that it is a good practice that the long browsing lists are in alphabetical order.

The participants noted that on the „Comments and suggestions" form, the fields are not aligned to a vertical grid, and there are two „send" buttons, making it very inconvenient to use. As for the contents of the form, participants did not like that the default category of the „My questions concerns" field is the „information technology questions", and although this field is not indicated as obligatory, there is no option to leave it blank; the user must choose a value from the drop-down menu.

FINDINGS CONCERNING OTHER ASPECTS

Participants liked the design of the homepage. P1 emphasized the importance of RSS-feed, the changeable font size, the disclaimer button and the visual style of the menu. P2 also mentioned that the design is clear, it is easy

to scan through the options. As regards to the problems, P3 stated that some elements of the design is confusing: the „Press Releases" button looks like a heading of a box (it is only a link), there are four different kinds of heading, the footer is missing, the folder icon on the right is a link to the description of the new search engine, there are two „e-Curia" buttons (same color, they only differ in size), and the list of „Practical Information" is located on the lower right corner, which is „the most hidden part of a website".

As regards to the result page of the simple search, the participants liked the tabs and the visually distinctive dividers between the results. The status indicator showing that a case is in progress or it is closed was also mentioned as a good practice. However, P2 expressed that if a piece of data is not available, it should not be indicated with the word „Nil" (instead, they should apply the word „None" for instance). P1 tried to click on the title of a result, then on some other words listed; it took some time until he could find the „Case information" icon on the far right. He stated that „it was confusing that almost every text is bold". P3 noted that the design of the icons of EUR-lex texts do not match the style of other icons and the visual style of the site. P2 mentioned as a good practice that the search terms are colored red in the text on the result page (it works very similarly to the solution that's being used in the EUR-lex site).

Concerning the navigation features of the advanced form, participants commented that the three links on the left side are needless, „the user does not need the link of the Curia site or the EURlex site during the search"), however, they liked the „Sections" box on the case information page, which helps users get to the sections of the page without scrolling.

2.3.3. HUGOV SITE

The target audience of the HuGov site is not international; its aim is to serve Hungarian citizens. Considering this fact, only some of the most important findings are presented in this study, which can reveal certain recommendations for future development of other websites.

FINDINGS CONCERNING WEB FORMS

As regards to a registration form allowing to use the „Press" section, P2 expressed that this form is asking for too much information, and therefore a link to a privacy policy or a statement should have been included. P1 noted that the page of this registration form is not using Hypertext Transfer Pro-

tocol Secure (HTTPS), even though asking for personal data would require some kind of a protected connection, to ensure confidentiality of such information. He also mentioned that there are too many needless words in the box containing instructions next to the form. Using the asterisk symbols for obligatory fields is found to be a good solution; however, P3 noted that it is missing in some cases, for instance a password should be indicated as required. Contrary to P2's expectation, the form does not apply instant validation for passwords (the text typed into the „password" field and „password again" should be identical). In P1's opinion, the CAPTCHA[7] used by the form should generate Hungarian words instead of English ones.

FINDINGS CONCERNING OTHER ASPECTS

Each participant commented that it is a good practice to offer a version for visually impaired users, the button of this option can be found easily. P2 expressed that on the „Documents" page, the browsing and the searching option being placed next to each other, divided by tabs is a good solution, making it is easy to navigate through its contents, and the refinement options of the search function is represented by three expandable/collapsible components containing checkboxes. Another thing he mentioned is that the site should indicate the number of search results. A conceptional suggestion stated by P1 was that since the search functions of the HuGov site proved to be quite ineffective in completing the tasks, the metadata attached to the documents and other content should be reviewed in accordance with pre-established guidelines on creating metadata. This way, a consistent, coherent database of metainformation could be built, which is the essential basis of an effective search engine. Another useful comment of the participants was that the site should contain a net of internal links: articles and similar content should indicate links to the law rules, drafts and other relevant parts of the site. None of the participants expected before conducting the test that one main purpose of the HuGov site is publishing the drafts, allowing citizens to participate in the process of adopting a new government decree or a decree of a minister; therefore they noted that this option should be placed on a highly noticeable place on the homepage.

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[7]   CAPTCHA is a test for protecting a website against bots by asking to type formatted (for example distorted) text in. Source: http://www.captcha.net/ (Available: 12.01.2012.)

2.4. DISCUSSION

To serve the aim indicated in the introduction of this study, some suggestions, recommendations can be drawn and listed based on the evaluation of the findings presented in the previous chapter:

- the text of the buttons should be self-evident;

- make obvious what is clickable;

- use well-structured guidelines written in plain language;

- the steps of a search process should be logical;

- the „hot spots" of the page should be used for placing the most popular functions and information;

- construct clean website design, align the design elements on the layout;

- the graphic design of the site should be coherent, to support both safety and credibility;

- avoid duplication of functions, buttons, links etc.;

- provide privacy policy and secure connection;

- build a detailed system of metadata in order to make the content more searchable;

- apply a net of internal links to help navigate through the pages;

- help recover form errors: provide clear and helpful messages;

- the list of the results on the search results page should be visually distinctive; and

- the quality of the navigation is critical; a wide range of navigation options should be offered (for example tab dividers and breadcrumbs).

2.5. LIMITATIONS, FURTHER WORK

The findings in this study are subject to some important limitations, which need to be considered interpreting these results. The most important limitation lies in the fact that the test was conducted by asking higher literacy users to participate; future usability tests are therefore recommended with the participation of lower literacy users. Another limitation, which also supports the need of future test, is that – as Krug (2006) argued – a small-scale usability test is way more effective when follow-up rounds are conducted. A general limitation of each usability test is that it cannot perfectly demonstrate what real users would do: the participants were asked to proceed with a task even if they would have given up in a real life situation. Conducting an eye-tracking study would also support the analysis of these sites.

Moreover, it is recommended that further research be undertaken to investigate the usability of the subject sites from the viewpoint of users with disabilities (for example: screen reader users) aiming to examine whether they meet the requirements of web accessibility.

3. CONCLUSION

This paper has given an overview of some of the basic aspects of web usability, and it presented several findings of a usability test concerning a few websites operated by the public sector. The aim of this investigation was to show that a very simple, low-cost, easily affordable test can reveal significant problems, that can ruin a site's credibility, and can make the users frustrated enough to give up using the site. As Nagy et al. (2011) argues, „These are the types of errors that are hard to detect during development, but become apparent immediately during testing." Consequently, fixing these problems, and conducting further research – since usability testing is most effective as an iterative process (Krug (2006)) – could contribute to build a user-friendly environment, which encourages citizens to use electronical ways to find information related to the public sector (to access online case law and other legal databases, for instance) and to contact the public administration. In addition, presenting the findings of this study is not primarily aiming at fixing the revealed errors on these particular sites, but to offer useful recommendations for future development of websites operated by public and private actors as well.

REFERENCES

[1] Jarrett, C., Gaffney, G. 2008, Forms that Work, Designing Web Forms for Usability, San Francisco, USA: Morgan Kaufmann, pp 50-51,125-126, 70-73 ISBN-10: 1558607102

[2] Kirk, D. 2009, Google Boolean and Advanced Searching In: http://www.tech-recipes.com/rx/237/google-boolean-and-advanced-searching/ (Available: 13.12.2011.)

[3] Krug, S. 2006, Don't Make Me Think! A Common Sense Approach to Web Usability, Second Edition, Berkeley, USA: New Riders, pp 11, 22, 34-37, 134-135, 138-139, 142, 146-155, ISBN 0-321-34475-8

[4] Krug, S. 2010, Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems, Berkeley, USA: New Riders, pp 8, 13-14, ISBN-10: 0-321-65729-2

[5] Nagy, D.D., Kovari, B. 2011, User-Centered Design of Data Entry Forms for Semi-Structured Data, p 6, In: http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=6108506 (Available: 12.01.2012.)

[6] Nielsen, J. 1997, How Users Read on the Web In: http://www.useit.com/alertbox/9710a.html (Available: 16.12.2011.)

[7] Nielsen, J. 2000, Why You Only Need to Test with 5 Users In: http://www.useit.com/alertbox/20000319.html (Available: 23.12.2011.)

[8] Nielsen, J. 2001, 113 Design Guidelines for Homepage Usability In: http://www.useit.com/homepageusability/guidelines.html (Available 15.12.2011.)

[9] Nielsen, J. 2003, Usability 101: Introduction to Usability In: http://www.useit.com/alertbox/20030825.html (Available: 15.12.2011.)

[10] Nielsen, J. 2006, F-Shaped Pattern For Reading Web Content In: http://www.useit.com/alertbox/reading_pattern.html (Available: 23.12.2011.)

[11] Nielsen, J., Pernice, K. 2009, Eyetracking Web Usability. Berkeley, USA: New Riders, p 219, ISBN-10: 0-321-49836-4

[12] HowTo.Gov: Online Forms In: http://www.howto.gov/web-content/manage/online-forms (Available: 16.12.2011.)

[13] HowTo.Gov: Online Forms Checklist: In:http://www.howto.gov/sites/default/files/documents/OnlineFormsCheck-list.pdf (Available: 16.12.2011.)

[14] Plain Language.Gov - Federal Plain Language Guidelines In: http://www.plainlanguage.gov/howto/guidelines/bigdoc/index.cfm (Available: 20.12.2011.)

[15] Plain Language.Gov - Improving Communication from the Federal Government to the Public In: http://www.plainlanguage.gov/whatisPL/index.cfm (Available: 20.12.2011.)

[16] Redish, J. 2007, Letting Go of the Words, Writing Web Content that Works. San Francisco, USA: Morgan Kaufmann, pp 4-5, 263

[17] Tan, Ch. Ch. 2009, Web form design guidelines: an eyetracking study In:http://www.cxpartners.co.uk/cxblog/web_forms_design_guidelines_an_eyetracking_study/ (Available: 16.12.2011.)

[18] Wroblewski, L. 2009, Web Form Layouts: Some Additional Guidelines In: http://www.lukew.com/ff/entry.asp?832 (Available: 16.12.2011.)