

AN APPROACH TO GUIDELINE INSPECTION OF WEB PORTALS

Andrina Granić, Ivica Mitrović* and Nikola Marangunić

Faculty of Natural Sciences, Mathematics and Education, University of Split, Nikole Tesle 12, Split, Croatia

* Arts Academy, University of Split, Glagoljaska bb, Split, Croatia

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Abstract: Overall research is aiming to design discount evaluation methodology for web portal assessment. A number of problems was identified during testing user tasks in scenario-based usability testing while others were detected through tasks mentally simulated by HCI experts using an inspection method. This paper reports on the experience regarding the latter one. Designed inspection has proved very promising, although obtained comprehensive quantitative and qualitative data revealed the need for some improvements. Revision of the evaluation form along with subsequent assessment with adequate expert sample is needed.

1 INTRODUCTION

Web portal, generally considered as a single point of access to information, resources and services on a wide range of topics (Waloszek, 2001), is typically based on the more advanced technologies that go beyond simple interface of the just information based standard web page. *Broad-reach portals*, also called "general" or "generic" portals, bring together services such as search engines, e-mail, news, forums, event guides, maps, on-line shopping, travel information and the like. Accordingly, information presented in every page can be delivered to a number of users having different needs, motivations and goals which portal design has to reflect.

Market research findings related to Croatian web sphere undertaken in the last few years report that broad-reach portals are the most visited web sites (GfK Croatia, 2006; GemiusAudience, 2007). This is the basic distinction from countries with high level of Internet literacy, where there are much more *specialized web portals* seen as gateways to the variety of web information related to the specific context (Tatnall, 2005).

When considering *web portal usability*, it should be noted that current research on usability evaluation is mostly concerned with focused, domain specific portals, e.g. (Boye, 2006; Carstens and Patterson, 2005; Brantley *et al.*, 2006). This is the result of global trend of portal specialization when is quite

difficult to find any studies related to broad-reach web portal assessments.

The objective of the overall study is the design of "discount evaluation" approach to web portal usability assessment. We conducted the experiment in order to evaluate how easy and efficient the most visited portals are. The study is placed in Croatian web sphere where broad-reach web portals, as the most visited sites, are much more popular than the specialized ones. Such context seems appropriate for this research, since it implies end users and designers familiarity. We expected to find different sets of problems because a wide variation in tasks and applied diverse usability evaluation methods, both empirical and analytic. A number of problems was identified through testing user tasks in *scenario-based usability testing*, which comprised a number of test methods. Other problems were discovered throughout tasks mentally simulated by experts from the field of human-computer interaction (HCI) using an *inspection method*.

Strong point in such approach is the chance to supplement results from the guideline-based inspection and the user-based one, enhanced with feedback on users' pleasantness while working with the portal. In this paper we report on and discuss the results obtained through guideline-based inspection.

2 GUIDELINE INSPECTION

We conducted a controlled experiment which included less strict heuristic evaluation (Nielsen, 1994), i.e. *guideline inspection*, supplemented with *scenario-guided user evaluations* involving task-based end user testing, usability satisfaction questionnaire and semi-structured interview, all used to collect both quantitative data and qualitative "remarks", cf. (Shackel, 1991). In the following we describe the guideline inspection along with the acquired results and discussion of findings. Scenario-guided user evaluation along with the achieved results is addressed in (Granić *et al.*, 2008).

2.1 Experts, Instruments and Measures

Particular procedure was conducted with a group of ten "instant" specialists from the HCI field. With the intention of overcoming the problem of not having enough usability experts who could be involved in the web portal evaluation process, we had the guideline inspection performed by "instant experts" (Wright and Monk, 1991). Those were web design practitioners who learnt principles of good user-centered design and provided usability expert assessment of the selected portals.

Evaluation form consisting of a set of principles/guidelines augmented with auxiliary guidelines, as additional explanations related to web portals, was prepared. Individual expert's *marks* and *comments* concerning the assessed portals were collected. The score for every portal was calculated as an average mark on a seven-point Likert scale. Additional *observations* concerning the inspection procedure could be provided as well. Four *broad-reach web portals* were included in the study: Index portal (www.index.hr), Net portal (www.net.hr), Vip portal (www.vip.hr) and T-Portal (www.tportal.hr). Those portals were selected as the most visited whilst also the earliest broad-reach web portals.

2.2 Assessment Procedure

Document containing detailed instructions and prepared evaluation form was sent to chosen experts. Aiming to discover possible problems in the interface design, they had to mentally simulate the tasks to be performed on portals, mark and comment on in the evaluation form, following the instructions and the provided guidelines along with the auxiliary ones. Consequently, in order to supply all necessary information, the evaluation form had to be very detailed and self-explanatory. Nielsen's usability

heuristics as a set of ten key principles (Nielsen, 1994) is explained and adjusted to portal usage. Besides, as additional explanation to the guideline, a series of auxiliary ones concerning portal design was also provided, cf. (Wood, 2004; MIT, 2004).

Experts had (i) to specify a level of their conformity with a principle/guideline and related set of auxiliary guidelines on a seven-point Likert scale and (ii) to provide a comment to justify assigned mark since they were encouraged to offer additional notes related to advantages and disadvantages of assessed portals. Furthermore, observations and remarks concerning the overall guideline assessment procedure were more than welcome.

2.3 Results

Experimental results and findings acquired through guideline inspection are addressed in what follows. Arithmetic means of marks from a seven-point Likert scale provided by ten "instant experts" according to ten usability guidelines show that highest mark was given to Vip portal (mean = 5.38), followed by Net portal (mean = 4.85), T-Portal portal (mean = 4.64) and Index portal (mean = 4.01).

Overall achieved results could be further related to the key experts' comments from the form. For Vip portal experts emphasized well-adjusted, consistent layout, simple navigation and feeling of control. Specialists criticized portal's slow respond, errors while loading and awkward forum. Net portal is characterized as coherent with good quality of information structure, but with poor and old fashion visual appearance. According to experts, its main limitations are too long initial page, unclear names of categories, shallow navigation structure and absence of contact information. Identified problems in T-Portal portal are related to employed diverse types of navigation, too long initial page, absence of contact information, help and FAQ. Lack of consistency and aggressive "visual noise" were the main reasons why Index portal got severely bad marks. Recognized problems include ambiguous home page, lack of consistency concerning names, categories and navigational graphics, navigation overload, absence of help and FAQ.

The evaluation form analysis included the assessment of adapted guidelines themselves and judgment of the quality of experts' evaluation. Qualitative analysis criteria were expressed in terms of the mark span along with the significance and usefulness of comments (see columns *Mark Span* and *Info* in Table 1). The guidelines were examined through expert's comments and observations,

assigning low (L), medium (M) and high (H) values according to quantity and level of details of provided comments (*Info* column). The range of marks expresses the lowest and highest ones (*Mark span* column). Quality of experts' evaluation was assessed too. It comprised inspection of specialist's answers to the guideline compliance related to the four assessed portals. Similar information quality criteria were used while analyzing experts' work: number, percentage and quality of provided comments as well as number of additional observations.

3 DISCUSSION

In the following the comprehensive analysis of data obtained through ten evaluation forms is presented.

3.1 Guidelines Issues

The quality of information achieved through individual expert's comments was categorized as *low*, *medium* and *high*. E.g. remarks like "there is no mistake" or "not good at all" represent comments of low information quality. Conversely, detailed ones which list specific observations related to page

layout, fonts, navigation/links and graphics, are classified in medium and high information quality category.

Analyses of the marks and comments indicate that some provide extremely poor information. Those guidelines have wide mark span, which could imply limitations in their understanding and/or their vague formulation. Besides, those guidelines also offer minimal amount of comments because they do not stir/provoke experts in sufficient portal analysis. Moreover, any additional information regarding problems and possible solutions in portal design is not offered. Examples of such guidelines are no. 1, no. 5 and no. 9. Conversely, narrow mark span for guidelines no. 2, no. 3 and no. 7 points toward their clarity and unambiguity, also indicating high degree of experts' accordance in their valuation. Moreover, acquired comments provided new and detailed information about particular design problems. Our results suggest that a good guideline is the one (i) characterized with a narrow mark span and (ii) "provoking" good quality comments and criticism which detects interface design problems offering solutions at the same time. We assume that obtained quite low span of some guidelines implies their good quality, despite the non-uniform group of specialists.

Table 1: Guideline analysis.

Portals	Index portal		Vip portal		Net portal		T-portal portal	
	Mark span	Info	Mark span	Info	Mark span	Info	Mark span	Info
Guidelines								
1. Portal is actively informing user about its' processes (information about what is going on is always present).	4 – 6	L	2 – 6	L	3 – 6	L	2 – 6	L
2. Concept of portal is well adjusted to the user context.	5 – 6	M	5 – 7	M	5 – 6	L	2 – 6	M
3. While working with portal users have feeling of control, safety and navigation freedom.	3 – 6	H	4 – 7	M	2 – 6	H	2 – 6	H
4. Portal respects media standards and usual practice/usage/routine.	1 – 4	H	5 – 7	M	4 – 6	M	2 – 7	M
5. Portal prevents possible user errors.	2 – 6	L	3 – 7	L	3 – 7	L	2 – 7	L
6. User is intuitively getting information on portal, i.e. user doesn't have to remember information path but recognize it.	4 – 5	M	4 – 7	L	3 – 6	M	2 – 6	L
7. Portal is adjusted for efficient use by novice users as well as by experts.	3 – 5	H	4 – 6	M	3 – 6	H	2 – 6	M
8. Portals' design is clear, understandable and transparent, i.e. most needed information are at the same time most visible.	2 – 5	M	5 – 7	M	4 – 6	M	2 – 6	L
9. Portal enables user recognize and help recover from errors.	2 – 6	L	3 – 7	L	2 – 7	L	3 – 7	L
10. Portal offers help while working on it.	2 – 5	M	3 – 6	M	3 – 6	M	2 – 7	M

3.2 Instant Expert Issues

Further analysis of evaluation forms provides insight into instant experts sample selection. Apart from marks, three specialists did not provide any supplementary comment or observation concerning the overall assessment procedure. Two experts supported their marks with very poor explanations and quality of acquired information didn't help to get insight into design strengths and weaknesses.

On the other hand, five experts provided evaluation forms with marks and detailed comments of every guideline for each portal. Additionally they offered remarks and suggestions for an improvement of the evaluation process in general and individual guidelines in particular. Such considerable distinction in acquired information quantity and quality suggests quite heterogeneous group of experts in their HCI knowledge and usability expertise. This problem was very difficult to avoid due to limited number of HCI experts in Croatia on the one hand and high costs of foreign experts' engagement on the other.

4 CONCLUSIONS

The objective of the research is the design of "discount evaluation approach" to web portal assessment. Aiming to achieve this goal, design of most visited Croatian broad-reach portals was assessed both through usability inspection method and a number of usability test methods.

We found that designed evaluation form used in guideline inspection needs significant revision. Some of adapted Nielsen's principles showed poor applicability in web portal context. The derived guidelines did not provide any information which is useful for improving portals' usability. For that reason, a number of guidelines should be more comprehensible, auxiliary guidelines revised and redundant ones excluded. A new set of guidelines is needed, the one which is not so strictly based on Nielsen's heuristics.

Significant difference in acquired experts' information suggests the non-homogeneity of "instant experts" group concerning their HCI expertise. Such problem was hard to prevent due to inadequate number of resident HCI experts as well as high costs of possible foreign specialists' engagement.

The guideline-based evaluation, even though showing respectable potential, raised a couple of concerns. In order to upgrade the applied usability inspection method (i) the "instant experts" selection

and the evaluation form issues should be revised according to the quantitative and qualitative analysis of the obtained results and (ii) the redesigned method should be applied in an assessment of more specialized Croatian web portals.

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