THE DIGITAL CATALOGUE OF CULTURAL MONUMENTS IN SERBIA
Usability in High School Education

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Abstract. The digital catalogue of cultural monuments in Serbia, (http://spomenicikulture.mi.sanu.ac.rs/), presents a digital repository, which contains the digital documentation on immovable cultural heritage of Serbia. It was developed in 2004 by a specially organized consortium of several official institutions in Serbia. In 2011, within the project of implementation of cultural heritage digitization in high school curricula, the catalogue was presented to the teachers and students. It turned out that the catalogue created by the experts did not meet their expectations, which led to the process of user experience evaluation. The short paper focuses on one of the phase of the user experience evaluation: 1) the results of the focus groups of high school teachers and students, 2) the analysis of the results and 3) the general key points for the improvement of the catalogue. The results showed that usability of the digital catalogue depends on content and its purpose, as well as visibility, trustworthiness, technical performances, interface design, accessibility, availability, etc. On these issues, teachers and students offered same concrete ideas and solutions, which would be partly presented in the paper. The paper emphasizes the need of the interaction between the experts and 'common' users in the development of any digital cultural heritage repository and encourages thinking 'outside the box'.

Keywords. Cultural Heritage Digitization, Usability, Focus Groups

Introduction

In 2011 the Mathematical Institute of the Serbian Academy of Sciences and Arts (MI SANU), in collaboration with the Center for the Promotion of Science in Belgrade (CPN) and School for Mechanical and Electrical Engineering 'Goša' in Smederevska Palanka, has started the project *Digitization of cultural and scientific heritage with applications in high school and university teaching of mathematics, computer science, astronomy, history, and Serbian language*[1]. The goal of the project was to promote the use of modern technologies and disciplines in regular school curricula through active involvement of the high school teachers and students in the process of digitization of cultural heritage. In accordance with the goal of the project, one of the project activities was to improve the existing digital catalog of *Cultural Monuments in Serbia* (http://spomenicikulture.mi.sanu.ac.rs/), which was developed by the group of national experts and institutions in 2004. The Cultural Monuments in Serbia presents an online 'collection of immovable cultural heritage of exceptional and great importance, such as monasteries, archaeological sites, fortresses, etc.' (Šegan et al, 2014, p.22), and in 2011 it was presented to the group of project participants – teachers and students – with the tasks to explore their expectations, as well as to determine the use value of the catalogue in the regular high school teaching. To answer to these tasks, MI SANU, in collaboration with the authors of the paper, has implemented a two-phase

[1] For more information please consult: http://www.mi.sanu.ac.rs/projects/projects.htm#Interdisciplinary (Date accessed: 08.08.2014)

examination of the user experience. The first phase of the examination was carried out in 2012 and consisted of the interviews and surveys of the project participants[2], and the second phase was carried out in 2013, which included the use of the focus groups.

This short paper focuses on the second phase of the research and its results.

Second Phase Research: Focus Groups

On October 11, 2013 the authors of the paper have conducted a two focus groups – a guided discussion group on a particular topic – consisting of teachers and students of the *School for Mechanical and Electrical Engineering 'Goša'* in Smederevska Palanka, with a task:

1. to identify the needs and expectations of specific groups of users of digital content and repositories, dedicated to the cultural heritage
2. to register the suggestions of specific groups of users and to improve the digital catalog of Cultural Monuments in Serbia.

The goal of the focus groups was data collection and analysis, which will help the experts and the creators of the digital content and repositories, dedicated to cultural heritage, in further developing for educational purposes.

For the second phase research, the technique of the focus group[3] was chosen because of the quantity and quality of the data, which could be obtained through the direct interaction of the group's participants. Although this technique is mainly used in Social Marketing[4], in recent years there has been increasing use in the field of digitization of cultural heritage[5], especially for the purpose of evaluation of the digital content and tools.

The selection of teachers and students of the *School for Mechanical and Electrical Engineering 'Goša'* in Smederevska Palanka was purposive. The school is located in economically underdeveloped area of the Danube District in Serbia, which has a rich, but not-digitized cultural heritage. Also, the school is involved in the project activities for more than three years. Finally, the principal, teachers, parents and students of the school were willing to cooperate.

In the first focus group, consisted of students, there were 10 participants: 9 male and 1 female, with the average age of 16. In the focus group of teachers, there were 4 participants: 1 male and 3 females, with the average age of 37,5. They had a different academic background in History, Psychology, Physics and Mathematics/Informatics. The number of the participants per group was not entirely adequate. The focus group of the students was over numbered, and the focus group of the teachers was scarce[6]. Also, the gender balance was not achieved, and there was not equality in previous involvement in the project activities (some of the participants were involved more than a year, other less). Despite these, the good interaction within groups was achieved and personal attitudes, expectations, opinions and suggestions of the participants were recorded. Also, it was the

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[2] The results of the first phase examination were presented in paper: Lajbenšperger M., Šegan M., & Rajić S. (2013). The Use of Modern Technology in Education: A User Study on the Digitization of Cultural Heritage. Journal of Education Culture and Society, 2013/2, 71 – 76.

[3] There is a numerous literature referring to the technique of focus group, the authors of the papers suggest: Morgan D.L. (1988). *Focus groups as qualitative research*. London: Sage.

[4] For more information please consult: Dichter E. (1947). Psychology in Market Research. *Harvard Business Review*, Vol. 25, 432 – 443; Weinreich N.K. (2010). *Hands-On Social Marketing: A Step-by-Step Guide to Designing Change for Good*. SAGE Publications, Inc.

[5] For more information please consult: Dobreva M., O'Dwyer A., Feliciati P. (2012): User Studies for Digital Library Development, London: Facet Publishing; M. Dobreva et al. (2010). *EUROPENA v0.1. User and Functional Testing. Final Report*. Retrieved from: http://goo.gl/8j4vuI (Date accessed: 12.08.2014); Šola, T. (2002): Marketing in museums, Belgrade: Clio (on Serbian language)

[6] The ideal number of participants per group is 6 – 8

very first time that the users of the digital content and repositories, dedicated to national cultural heritage, were asked for their opinions, which contributed to thinking ‘outside the box’.

Results of the Second Phase Research

The results of the second phase research are presented according to methodology suggested by the Center for Community College Student Engagement in Austin (FG Toolkit, 2010), but due to a limitation of a short paper, the following chapter includes only the first task, which was identified previously. The authors of the paper have decided to present the task which is crucial for further development of the digital content and repositories, dedicated to the cultural heritage in general. The presented task includes a few important research questions, the analysis of the participants' answers and the concluding remarks.

Task 1. Identification of the needs and expectations of specific groups of users of digital content and repositories, dedicated to the cultural heritage

What are the Internet habits?
Research has shown that the access to the Internet is mostly from the home computers, as well as from the smart phones. The lack of the use of school computers for Internet access is due to the fact that schools have a small number of available computers, which have not an open access.
All the participants access the Internet because of communication, as well as for getting the information for personal use, business or school work.
The Internet as the information tool is widely used for the purposes of school work, since the participants find the existing school textbooks outdated. Furthermore, for the search of information, they mostly use the *Google Search* engine, the free encyclopedia *Wikipedia*, and, even if it is not designed with primary purpose of providing the general information, the service for social networking *Facebook*. They are accustomed to using one keyword during the search.

What are the habits of using digital content and repositories of cultural heritage?
All the participants are familiar with the existence of digital content and repositories dedicated to the cultural heritage. As an example of the national digital content of cultural heritage, the students-participants are only familiar with the digital catalogue of *Cultural Monuments in Serbia*, due to their participation in project activities, and the teachers-participants are familiar with at least five different national digital cultural heritage repositories. All the participants, however, give the priority to the international cultural heritage presentations, such as the presentations within the free encyclopedia *Wikipedia,* and, surprisingly, within the service for the exchange of video content *YouTube*.
The participants access the digital content dedicated to the cultural heritage because of the work or because of the school assignments. The students-participants access the content following the advice of their teachers or by the random search. While teachers-participants are looking forward to every initiative for digital presentation of the cultural heritage, the students-participants are not particularly pleased. The students-participants believe that 'something unexpected' and 'especially interesting' can not be found in the presentations with 'cultural topics'. Even if they are not very pleased, they don't feel the resistance or fear to examine the content, because they believe that presentations of cultural heritage do not offer aggressive and inappropriate content, and also, are not infected with viruses.
The students-participants mostly use the articles of *Wikipedia* as the source of information on cultural heritage. They choose the *Wikipedia* over the other presentations for several reasons: visibility (the *Google Search* engine offers the articles of *Wikipedi*a among the first results of a search), accessibility and availability (open access to content) and comprehensiveness (the collection of information in one place). The teachers-participants prefer the presentations of official

institutions, since they believe that the content within the presentation of an official institution is trustworthy (unlike the information provided by *Wikipedia*).

What are the expectations and needs of the users of digital content and repositories dedicated to the cultural heritage?

The participants expect greater visibility of the presentations dedicated to the cultural heritage. Their experience so far is that the information regarding the cultural heritage is not easily searchable, and it takes a lot of time to find appropriate presentation. They also expect an open access to the digital content, without the obligation to register, make an account or ask for the permission for viewing or downloading the content.

The participants look for the picture and a textual description of a cultural object first, and then for the other multimedia material. The students-participants give the priority to a picture, which is 'the most important part of the presentation of a cultural object', and textual description is viewed only as accompanying part of the picture. They expect to see a color picture of good quality, which attracts attention. There should be adequate support for handling the picture, e.g. possibility of magnification, downloading or storage. Also, it is preferable that there is more than one picture of a cultural object. Regarding the textual description, the students-participants look for a concise text with basic information (answers to the WH questions: who, what, when, where, why, how?). They presume the existence of a hypertext, through which they can reach further information. Also, they look for the description written in common, understandable language, without the technical terms. The teachers-participants, unlike the students-participants, give the priority to the textual description rather than a picture.

The students-participants connect the graphical design of a presentation of cultural heritage with the selection of colors. They do not expect to see black and white presentation, or a lot of white and empty space within the presentation ('white and empty space is unpleasant to look at'). The teachers-participants on the other hand, do not pay so much attention to the color, font or design ('the beauty of the presentation does not matter') as to the quality of information.

The teachers-participants consider that the information within the presentation of cultural heritage is trustworthy. They expect to find the source of information. The students-participants do not worry themselves with the question regarding the credibility of presentation, but they expect to find some kind of forum, where they can leave their comments or note. All the participants expect to find the contact information of the creators of content.

Concluding Remarks. The analysis of the answers of focus group's participants pointed out that the main problems of using the digital content and repositories, dedicated to the cultural heritage, are related to:

1. Availability – in economically underdeveloped areas there is a shortage of available technology (computers) to access the digital content and repositories of cultural heritage; The idea is to use a low-cost and affordable alternative, such as smartphones and tablets.
2. Accessibility – open access and open data, as the European Library has already demonstrated[7], will provide a greater use and re-use of a digital content;
3. Visibility – the proposal is to increase the visibility of the digital content and repositories through the appropriate promotion, for example through connection with social networking sites, online encyclopedias and applications for the smartphones;
4. Trustworthiness – the digital content should have some kind of proof that is reliable, for example the visible license, such is the Data Seal of Approval;
5. Crowdsourcing (People Science) – in creating the digital content the suggestion is to include not only the experts, but common people also. The idea is to achieve a dialogue between the two sides, which will result in creating the trustworthy content to mutual satisfaction;

[7] For further information please consult: *The European Library* <http://www.theeuropeanlibrary.org/tel4/access> (Date accessed: 15.08.2014)

6. Visualization – the new generation is looking for the visualization of information, and digital data of an cultural object should include, among others, pictures, maps, diagrams and animations;
7. Design – the proposal is to avoid the white/empty background, and to enrich the presentation of cultural heritage with content.
8. Target Group – creators of the digital content and repositories should always think of the end users of their products, and the thinking 'outside the box' will help in predicting and responding to their expectations.

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