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VIRTUAL EXHIBITION AS A MEDIUM FOR PRESENTING SCIENTIFIC AND CULTURAL HERITAGE TO INTERNATIONAL AUDIENCES: ĐORĐE STANOJEVIĆ – A RECTOR WHO LIT UP BELGRADE

Abstract: The paper presents the most recent and by many accounts the most successful virtual exhibition of University library Belgrade "Đorđe Stanojević – A Rector who lit up Belgrade". Prepared as an instigating exhibition of the virtual exhibition series "They built Serbia" that will once a year for Serbia National Day – February 15th portray prominent people, professors and researchers who achieved great results in the history of the university and Serbian society, the exhibition presents life and achievements of a University of Belgrade professor and rector Đorđe Stanojević, a pioneer of electrification and photography and a person of an almost renaissance mind and wide range of scientific and engineering interests. The exhibition consists of short informative texts about main areas of Stanojević activites, digitized collection of his books, a comprehensive bibliography and annotated list of web resources on Stanojević and was prepared by collaboration between University library Belgrade and leading experts from organizations such as Belgrade city library and Faculty of Philology of University of Belgrade. The paper advocates the need for innovative ways to present digital heritage materials and proposes a format of the thematic virtual exhibition as viable and achievable solution for cultural institutions in Serbia and other transitional and developing countries of the region.

Keywords: Virtual exhibition, heritage, culture, Đorđe Stanojevic, University library Belgrade, Serbia

1. Introduction

Modern times bring great technological advances and possibilities in almost every area of human life. Presentation of cultural and scientific heritage is blooming with possibilities enabled by technology and thus a huge range of materials available to users. In this area as in many others, such as e-book publishing, possibilities provided by digital technologies are usually used at first to simulate physical objects or processes that the creators and users have been used to and to make a linear transfer to a digital world. So we have e-books that look like printed ones with even page numbers being brought back on popular demand squeezing out one of rare novelties in this area – the position of the cited text. A missing part that we are still waiting for in this area is the innovative e-book reading device that will recreate the smell of the printed book. Very rarely the true possibilities of digital technologies have been unleashed to bring real revolution to reading and e-books so far. This may seem surprising in an era in which novelties are being brought forward almost on a daily basis, but if one thinks in retrospect and remembers that it took almost a century for the first page numbers to appear in printed books after the revolution of Gutenberg it seems less discomforting to detect such a slow progress in this area measured by our, modern metrics of progress.

Similar trend can be observed in broader area of presentation of cultural and scientific heritage. Institutions that provide these materials use the well known techniques and models

from physical world and try to copy them in the virtual one. Museums mostly still stick to exhibition paradigm of presenting and explaining objects, grouping them and providing the best possible viewing mechanism so that users can enjoy details of the objects in the virtual world. Libraries neatly arrange collections of books, journal papers or photographs while trying to make the best possible metadata so that each item can be easily found by users in the virtual world. Rarely and still as a pioneering effort do heritage institutions engage in more innovative presentations of their materials. These efforts are sometimes related to a technology show off and other times to a more coherent storytelling that provide complex and complete presentation of various materials, textual, graphic and audio-visual in an effort to tell engaging story and create immersive environment for users interested in a certain topic. Such efforts are often related to virtual exhibition concept.

2. Virtual exhibition concept

Both words in virtual exhibition concept name are complex and difficult to define even in their primary meaning. In order to provide the best effort in defining this concept we will have to look at a wider phenomenon of online. "Online exhibition is an event which can be viewed on computers and mobile phones using internet anywhere, any place and any time" (Ramaiah, 2014). One important aspect of virtual exhibition is that it is an online event, i.e. needs the internet as a supporting infrastructure and medium of transfer. One could debate existence of stand alone virtual exhibitions saved to USB memory sticks or DVD disks for offline consuming, but immediately such an exhibition would lose its spatial and temporal omnipresence and degrade into something of a historic relict of early days of digitization efforts when internet connections were limited and materials comparatively large in size.

One possible definition of a virtual exhibition notes that "virtual exhibition is the collection of digital replicas of real events or objects developed with the help of multimedia and virtual reality tools which produce a simulated environment in a computer, and delivered through web so that users will get the same satisfaction as they are seeing or using the physical objects in real life" (Ramaiah, 2014). Such approach emphasizes the use of virtual reality tools and puts focus on technical details of similarity of experience and use of real and virtual objects. One must notice that it is not the perfection of these tools that define the level of similarity needed. Virtual exhibitions have been defined and completed (Su, Yen, & Zhang, 1998) even when such tools have not been perfect, compared to contemporary standards. All along the time line of development of tools and methods for virtual reality virtual exhibitions have been contemplated as a perfect match of a real world exhibitions and perfect presentation of real world objects (Eckel, & Beckhaus, 2001), (Hui, Li, & Liu, 2005), (Lester, 2006), (Casal, 2013), (Barnes, & Braun, 2014).

Nowadays we see that this kind of perfection is not strictly defined and is instead progressively changing with the advent of technology. Thus we propose a different definition of a virtual exhibition that is more in line with definition of the concept virtual than previously mentioned definitions that put emphasis on the word exhibition and the perfection of translation of real world objects to virtual or digital world. Merriam – Webster online dictionary defines virtual as "being such in essence or effect" (http://www.merriam-webster.com/dictionary/virtual). If one follows the natural course set by the language itself virtual would encompass only those elements of the real physical object that are essential to its function or being. One could argue that in a printed book, text is this kind of essence. But perhaps that is not so. Maybe the weight of the printed book that the reader feels in his or her hands also makes an essential feature of the book. Such deliberations are bordering

philosophy, arts and science, but are necessary if one is to grasp the essence of a virtual exhibition as defined by our proposition.

Virtual exhibition translates the essence of the physical objects presented into the digital world and makes this essence available to users anywhere, anytime effectively and efficiently. Additional explanation is needed regarding the effectives of the virtual exhibitions. If the audience of such exhibition is researchers interested in a particular subject and searching for particular data then effective virtual exhibition shrinks back to a neat library or archive in order to accommodate this simple need of a user. However, if the audience of the exhibition is looking for entertainment and consists of hobbyist and people interested in a particular historic subject, but with intention to get entertained by consuming materials regarding this subject then for the exhibition to be effective storytelling is needed along other characteristics that are more simple and thus do not require our attention at this point. Having in mind this analysis our proposition of a definition of a virtual exhibition focuses on two points: finding the essence of the materials exhibited and presenting them through storytelling. We find such approach appealing having in mind that every history is a story that needs to be told and the facts presented need to be selected by the storyteller, i.e. historian, or we would say the essence of the story needs to be selected.

Virtual exhibition is a format already used by some heritage related organizations in such a way that our proposed definition is more appropriate when compared to definitions of a virtual exhibition that emphasize involvement of virtual reality technologies. Europeana portal (http://exhibitions.europeana.eu/) is certainly one such institution: "Virtual exhibitions are a recent innovation in which Europeana sets much store. Clearly these exhibitions provide a lot of added value for a site which essentially functions as a search engine" (Nicholas, & Clark, 2014). Digital Public Library of America (http://dp.la/exhibitions) is another (Clink, 2014) and both grasping the importance of economies of scale and scope value collaboration and joint virtual exhibitions (Innocenti, 2013). Wide availability of software (Hardesty, 2014) that allows even smaller heritage institutions to present parts of their collections by defining its essence and providing appropriate context will probably lead to more virtual exhibitions in the future and bring this format of presenting cultural and scientific heritage to the fore of public attention and use. Also, applications in other contexts are widely open (Dumitrescu, Lepadatu, & Ciurea, 2014) and it is up to heritage institutions to define their strategies in presenting their collections.

3. Virtual exhibitions at University library Belgrade

University Library Belgrade started presenting heritage materials to international audiences by means of virtual exhibitions in 2004 when it created its first online multilingual exhibition about Milutin Milanković that is presented in both Serbian and English (http://arhiva.unilib.rs/unilib/o_nama/izlozbe/milankovic_virtuelna/index.php). The success of this virtual exhibition and especially its appeal to the international audiences is illustrated by the interest of various media, mostly TV outlets in acquiring permissions to use presented materials. This exhibition has been followed by ten more (http://www.unilib.rs/sadrzaji/virtuelne-izlozbe/) varying in scope and size of materials presented:

- Isidora Sekulić
- 20th October in periodicals
- Mihajlo Pupin
- Legacy collections

- National book day
- Emilijan Josimović
- Jovan Jovanović Zmaj
- Đorđe Stanojević
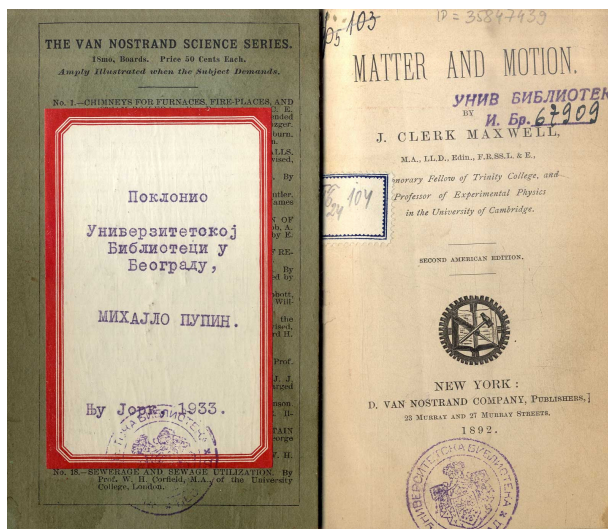- Anica Savić Rebac
- Old textbooks

Figure 1: Donation to the University Library in Belgrade from Mihajlo Pupin
(part of the Virtual exhibition gallery)

Covering different topics, ranging in topics from newspapers printed in Belgrade in 1944 before and after the liberation from the Nazis to private library collection of Mihajlo Pupin, the one constant was always presentation of the essence of the physical materials in an appropriate context. For the newspaper exhibition the content of the newspaper pages were certainly their essence and the context has been provided by the timeframe of their publishing, during the Nazi occupation or after it. For the collection of private books of Pupin their essence was certainly the bibliographic records of the books and the annotations by the famous scientist himself on margins and elsewhere in the books and the framework was the time period of his life and career when the books were used and annotations made. Most important experience in preparing these virtual exhibitions has been the importance of relation between the resources put into the exhibition and its scope and range of audience reached. Therefore in 2014 a decision was made to go forth with a major resource focusing on one such exhibition regarding important heritage materials. In order to foster accumulation of available resources, mostly those intangible, collaboration with different prominent professionals coming from other intuitions has been set up, along with participation of volunteers and colleagues who had not participated before in virtual exhibition preparation. Thus a critical mass of intangible resources has been reached for the preparation of virtual exhibition "Đorđe Stanojević – A Rector who lit up Belgrade".

4. "Đorđe Stanojević – A Rector who lit up Belgrade"

Virtual exhibition "Đorđe Stanojević – Rector who lit up Belgrade" was prepared (http://www.unilib.rs/oni-su-gradili-srbiju/djordje-stanojevic/) as an instigating exhibition of the virtual exhibition series "They built Serbia" that will once a year, on the occasion of Serbia National Day – February 15th portray prominent people, professors and researchers who achieved great and memorable results in the history of the university and Serbian society. The exhibition presents life and achievements of a University of Belgrade professor and Rector Đorđe Stanojević, a pioneer of electrification and photography and a person of an almost renaissance mind and wide range of scientific and engineering interests.

The exhibition consists of the following:

- Chronology of Stanojević's life and work
- Brief informative texts about main areas of Stanojević activities such as electrification of Serbia, astronomy, photography, and University of Belgrade,
- Digitized collection of his books that can be found in the University Library digital collection (http://arhiva.unilib.rs/cirilica/zbirka/knjiga/knjige-djordja-m-stanojevica),
- Comprehensive bibliography, and
- Annotated list of web resources on Stanojević.

The entire exhibition was prepared by a team of 21 experts of different background which was formed through collaboration between University library Belgrade, Belgrade City Library and Faculty of Philology of the University of Belgrade.

Figure 2: Virtual Exhibition "Đorđe Stanojević – A Rector who lit up Belgrade" homepage in Serbian

This virtual exhibition presents the essence of materials regarding Stanojević's life and achievements. This essence has been hard to grasp, and it encompasses sometimes the texts, sometimes the pictures and mostly combination of both. Also the context of the presentation of the materials has been very difficult to define properly against the contemporary social currents, especially when challenging historical background has been in place such as the one of a world war for Stanojević book "Bombardment of University of Belgrade". One may even define the context of this exhibition as its essence and the materials presented just as an illustration if the context of the exhibition is grasped as a process of modernization of Serbia against its historical and cultural background of the era in which Stanojević was active. One illustration of such a possibility is presented in the words of Stanojević himself on the

occasion of his inauguration as a professor of University of Belgrade: "Scientific game is open to all, without any exceptions. It is open to Serbs as well. But we have to admit that we have not participated much. I don't want to say that we haven't participated at all. It is not the people who are to blame. We do have many skillful people, but scientific research is very expensive and we don't have the money. It is not that we lack money because we are poor and we live in misery, no, that's not the case. The fact is that we spend our people's money on futile, useless, and not only that, but also evidently harmful political fights and agitations."

Figure 3 From Stojanovic's album Le bombardement de l'Université de Belgrade, published in 1915

Technology used to set up the virtual exhibition includes a platform created by the University Library that implies well designed concept using user-friendly interface based on HTML5 and CSS3, as well as latest trends in back-end programming. It contains 9 pages presenting short papers and digitized illustrations, as well as 26 digitized books that are now part of the University Library digital collection. The exhibition is hosted on an Academic network of Serbia (AMRES) which provides fast and stable connection and excellent security of data. The only technical problem that occurred for a brief period of time was during the migration of data from an old website to a new one at the end of 2014, but it was quickly resolved. The website is accessible in Serbian, both Cyrillic and Latin, as well as in the English language.
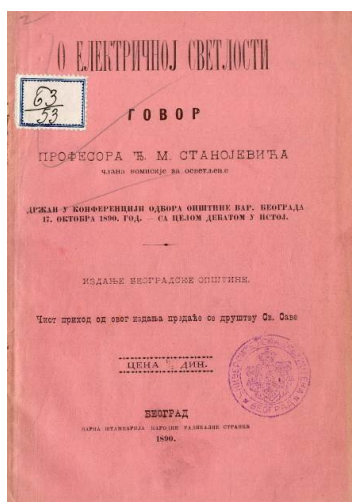

Figure 4: Cover from University Library digital collection:
About Electric Light, speech by Stanojević (available in full text)

In order to track data about website usage, we implemented Google Analytics tool which provides data on visitors, clicks, countries, most visited pages, etc. When it comes to design, the idea behind the offered solution is to have the entire "They Built Serbia" series branded in the same way. As this is the first exhibition within the series, it offers a template for all future exhibitions to be easily uploaded and launched. This way, the visual identity of University Library virtual exhibition portal will become a true brand in the upcoming period.

4. Audience feedback and evaluation

The promotion of a virtual exhibition is a very important subject in our contemporary society flooded with information and offerings in every area of human interest. The experience of University library Belgrade and the virtual exhibition team may be useful for future similar efforts in other heritage institutions. Traditional Web 2.0 tools such as library Facebook page and Twitter account have been used to moderate effect related to the previous networking capacity of these distribution channels. Digital mass media such as news portals provided much more reach again in line with their usual audiences (http://www.b92.net/kultura/vesti.php?nav_category=1087&yyyy=2014&mm=02&dd=14&nav_id=812230). Some of the comments were truly valuable: "Bravo!", "Great exhibition, well done!", "There are people in our history like Stanojevic who see the essence of the problems around us", "Congrats! People should learn about those who built Serbia and Belgrade. Look at this photo with Roma kid with a violin, it shows that Roma people carried part of the spirit of Belgrade throughout many years", etc. It was difficult to asses the effects of printed mass media and traditional TV media since there were no evaluation tools available. The more innovative methods were found in using personal Linkedin pages of virtual exhibition team members. Spreading the word about the exhibition in this semi formal way, but still in a professional context, resulted in positive feedback and comments from colleagues coming from the international networks.

The role of traditional radio broadcasting service has been very prominent in promoting this virtual exhibition in Serbian national context (http://www.rts.rs/page/radio/sr/story/23/Radio+Beograd+1/1525331/Talasanje+-+%C5%A0etnja.html), confirming the crucial role of previously developed audiences of a certain media in relation to exhibition theme. The role of multilingual facets of the exhibition is strongly suggested through positive feedback from foreign users reached through Linekdin. Also feedback from Serbian Diasporas reached through certain general purpose forums and by TV program has been encouraging when contemplating return on investment for future multilingual virtual exhibitions. Last but not least, Google Analytics tool provided the number of sessions, users, page views, and many other metrics that showed popularity of virtual exhibition about Đorđe Stanojević. Throughout the first six months we had over 40.000 visitors and almost 100.000 page views. We expect more outreach as next year approaches, especially in February 2015 with the new virtual exhibition on Ivan Đaja's Life and Works.

Figure 5: First color photograph in Serbia made by Đorđe Stanojević:
A Boy with the Violin

5. Conclusions

Virtual exhibition, in the context of the definition proposed in this paper is a novel format of presenting heritage materials that offer significant advantages for heritage institutions with quality materials and innovative employees. By presenting the essence of physical materials in a context relevant to intended audiences these institutions can reach even international audiences and make their collections visible in the noisy contemporary environment. University Library Belgrade has been preparing virtual exhibitions for almost a decade and reached the peak of success with the exhibition "Đorđe Stanojević – A Rector who lit up Belgrade" by accumulating intangible resources through collaborations with other institutions and individuals. Important experience is that if a high-quality virtual exhibition is to be widely disseminated novel methods of promotion needs to be implemented, either by employing new technologies or by employing the knowledge of which technology is appropriate for targeting certain user groups. Presenting heritage materials in a virtual exhibition format should be a worthwhile effort in the contemporary context of information flood and fragmented attention and information and media literacy levels of different user groups

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References

[1] B92 portal, *Meet the people who built Serbia*,
http://www.b92.net/kultura/vesti.php?nav_category=1087&yyyy=2014&mm=02&dd=14&nav_id=812230, accessed on February 14, 2014
[2] Barnes, M., Braun Marks, A. *Giving Your Exhibits Virtual Life: Implementation of Gaming Technology in Exhibition Development*, 2014
[3] Casal, J. D. *Turning Visitors into Users: Challenge for Virtual Exhibition on Genetics-'Reading the book of life*, DESIDOC Journal of Library & Information Technology 33:3(2013)

[4] Clink, K. *DPLA: Digital Public Library of America*, Reference Reviews 28:3(2014), 54–55

[5] *Digital Public Library of America Exhibitions*, http://dp.la/exhibitions, accessed on February 27, 2014

[6] Dumitrescu, G., Lepadatu, C., Ciurea, C. *Creating Virtual Exhibitions for Educational and Cultural Development*, *Informatica Economica* 18:1(2014), 102–110

[7] Eckel, G., Beckhaus, S. *ExViz: A virtual exhibition design environment*, In Virtual and Augmented Architecture (VAA'01), 171–182, Springer London, 2001

[8] *Europeana Exhibitions*, http://exhibitions.europeana.eu, accessed on March 14, 2014

[9] Hardesty, J. L. *Exhibiting library collections online: Omeka in context*, New Library World 115:3/4(2014), 75-86

[10] Hui, Z., Li, C. F., Liu, X. X. *A Virtual Exhibition Scheme Based on 3D Game Engine*. Microcomputer Development 15(2005), 93–95

[11] Innocenti, P. *Migrating heritage, digital cultural networks and social inclusion in Europe*, Digital Heritage International Congress, 2013, 7–14.

[12] Lester, P. *Is the virtual exhibition the natural successor to the physical?* Journal of the Society of Archivists, 27:1(2006), 85–101

[13] *Merriam-Webster*, http://www.merriam-webster.com/dictionary/virtual, accessed on March 19, 2014

[14] Nicholas, D., Clark, D. *Information Seeking Behaviour and Usage on a Multi-media Platform: Case Study Europeana*. Library and Information Sciences, 57–78, Springer Berlin Heidelberg, 2014

[15] Radio Television of Serbia, Talasanje – Šetnja radio show, *They Built Serbia*, http://www.rts.rs/page/radio/sr/story/23/Radio+Beograd+1/1525331/Talasanje+-+%C5%A0etnja.html, accessed on February 20, 2014

[16] Ramaiah, C. K. *Guest Editorial: Trends in Online Exhibitions*, DESIDOC Journal of Library & Information Technology, 34:2(2014)

[17] Su, C. J., Yen, B. P. C., Zhang, X. *An internet based virtual exhibition system: Conceptual design and infrastructure*, Computers & industrial engineering 35:3(1998), 615–618.

[18] University Library Svetozar Markovic, Digital Library, *Djordje Stanojevic books*, http://arhiva.unilib.rs/cirilica/zbirka/knjiga/knjige-djordja-m-stanojevica, accessed on February 19, 2014

[19] University Library Svetozar Markovic, *They Built Serbia: Rector who Lit up Belgrade*, http://www.unilib.rs//oni-su-gradili-srbiju/djordje-stanojevic/index.php?lang=en, accessed on April 2, 2014

[20] University Library Svetozar Markovic, *Virtual Exhibitions*, http://www.unilib.rs/sadrzaji/virtuelne-izlozbe, accessed on November 12, 2014

[21] University Library Svetozar Markovic, *Virtual Exhibition on Milutin Milankovic*, http://arhiva.unilib.rs/unilib/o_nama/izlozbe/milankovic_virtuelna/index.php, accessed on April 1, 2014

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