

## Virtual Reality Development and the Socialization of Bulgarian Cultural Heritage

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### Abstract

*The aim of the paper is to show to what extent so far the virtual reality has entered the exhibition concepts of museums in Bulgaria. Two aspects have been emphasized: the integration of information technologies in education in the sphere of cultural heritage and the digital presentation of museum displays. This article presents part of the activities and results on research Project Models of Socialization of Cultural Heritage in a 'smart city' ДН05/3, 14.12.2016, supported by the National Science Fund at the Bulgarian Ministry of Education and Science. Descriptive qualitative method was employed in this study. The data were obtained through direct observations of museum institutions in Bulgaria in terms of the degree of online access to museum expositions, the degree of digitization of museum collections and the degree of digital representation of museum expositions. Some of the basic problems of museums in Bulgaria have been systematized. Results are used to improve the quality of education in the field of cultural heritage, to promote the exchange of scientific and practical experience among university tutors, museum specialists and experts. It is expected that the results find application in the programs for informing and training for raising the capacity of local communities in the sphere of cultural tourism.*

**Keywords:** Cultural Heritage, Information Technologies, Education, Museum expositions

### 1. Introduction

Bulgaria has been known in Europe and all over the world as a country with unique diversity of cultural and natural heritage. Bulgarian museums have rich collections and display unique findings from ancient historical periods, treasures of the antique and medieval art – for example the ancient Thracian Treasures (from Panagiurishte, Rogozen and Vulchy Trun), many of which are of great significance to archaeology in Europe and in the world.

In the 21<sup>st</sup> Century, on a global scale can be seen how the traditional concept of museum and museum expositions have changed under the influence of the Information Technologies /IT/. Successful, Good, Smart 21<sup>st</sup>-century museums do not only rely on

unique and authentic exhibits to make their expositions attractive to visitors. They pay close attention to how to display exhibits and communicate with the audience. These museums are the focus of science, education and entertainment. Therefore, museum expositions and exhibitions increasingly include 'non-objects': replicas, audiovisual technologies, interactive computer platforms. In 21<sup>st</sup>-century museums, digital technologies offer new forms of cultural experience, especially for young audiences. Expositions with interactive elements have witnessed a significantly higher interest than the traditional ones and have had a higher educational effect.

The aim of the paper is to show how far the virtual reality has entered the exhibition concepts of the museums in Bulgaria. An important focus is placed on two main areas: integrating information technologies into education in the field of cultural heritage and the digital representation of museum expositions and the inclusion of digital components in the exhibition activity.

## 2. Methodology

These important challenges have been part of the research activity done within the project Models of Socialization of Cultural Heritage in a 'smart city', realized with the support of the National Science Fund of the Ministry of Education and Science of the Republic of Bulgaria and carried out by the University of Library Studies and Information Technologies. The project has been realized by an interdisciplinary scientific team on IT and scientists-experts on cultural heritage. Assistance has been provided by the National Military History Museum, the National Library St. St. Cyril and Methodius, the National History Museum, the Regional History Museum in Shumen city and the Ethnographic Open-air Museum Etara in Gabrovo city. Students and PhD students are actively involved in the project. The achieved results have been applied in the process of learning in BA programs of the specialty Information Collections of Cultural and Historical Heritage.

Contemporary information technologies are developing very rapidly and provide immense opportunities in the socialization of cultural heritage. Before we begin our specific discourse, however, we can't ignore two key issues:

What are we looking for with the use of technology in museum expositions?

And what do we achieve?

Is the pull of authenticity disappearing? Until recently, the most frequently asked question from museum visitors has been – Is this the original? These questions lead to others like: What is the impact of the 3D figure, especially on children and young generation? They no longer seek the physical exhibit. With the development of virtual technological effects, especially of the augmented reality, 3D and 4D holographic visualizations, the museum audience, especially younger generations are facing a

crossroads – Which tickles the interest of the visitor – the physical exhibit or its 3D image?

Currently, the Bulgarian museums have a strong focus on the exhibition activity. The introduction of multimedia technologies at museum exhibitions and expositions is increasing rapidly. However, it can be said that this process is developing rather randomly, there are no clearly defined and specifically determined characteristics and no methods have been created for the informatization of the Bulgarian cultural heritage.

A detailed bibliographic study was carried out on the project, showing that at the national level the largest part of the researches includes topics related to the conservation of archaeological and architectural heritage, the problems of cultural heritage protection and management, museum activities, intangible heritage. Regarding the socialization of the heritage, publications focusing on integrated management of cultural and natural heritage, cultural tourism, architectural heritage problems at risk, and preservation of central urban areas dominate (Denchev, Vasileva, 2017). Another, much less part of the researches, are focused on technological issues of digitization of the heritage, but to date at national level are a few interdisciplinary studies related to new models of cultural heritage socialization (Atanasov, 2016; Boyadzhiev, 2013). That is why the project initiated the collection of a bibliographic database for publications - books, articles and documents of international organizations (UNESCO, Council of Europe), printed in English and other European languages. The results of the study have shown that the socialization of cultural heritage in the context of globalization and the development of IT needs detailed interdisciplinary research. This has been confirmed by the research priorities in the sphere of cultural heritage at a European and world levels. This issue has found its place in the priorities of the program Horizon 2020 *Europe in a changing world – inclusive, innovative and reflective societies*, приоритет *Reflective societies: transmission of European cultural heritage, uses of the past, 3D modelling for accessing EU cultural assets* (Horizon 2020). The great significance of the research on the matter has been reflected in the priorities of the Program on Strategic Research of the EU Joint Programming Initiatives: Cultural Heritage and the Global Change: *a new challenge for Europe* (Declaration, 2011).

### 3. Results

In this regard, within the project, several large-scale studies were done: Current issues on the application of information and communication technologies (ICT) in cultural heritage education and training (Denchev, 2017); The role of UNESCO and the Council of Europe and also of international non-governmental organizations on the use of ICT in cultural heritage education and its socialization (Vasileva, 2018); Preservation of archives in 21<sup>st</sup> century. The role of the new information technologies (Petrova, 2019).

The project developed a holographic virtual reality system (HVR). The innovative product makes it possible to present in an attractive way valuable exhibits and collections of the Bulgarian cultural heritage. The hologram system is successfully used for the scientific tasks of the project. Three of the young scientists – members of the project team have been trained to work with the system and with the necessary programs to make holographic projections. The hologram system is placed in the ULSIT Library and Information Center and has free access to students and lecturers. The system is already being used in the students learning process and enhances the quality of teaching methods in the field of cultural heritage and information technology.

Within the project, studies were carried out to outline the real state of museum institutions in Bulgaria in terms of the degree of online access to museum expositions, the degree of digitization of museum collections and the degree of digital representation of museum expositions. The main object of the study was the regional historical museums (Boneva, Rusev, 2017).

In this regard, we will consider in more detail the good practices applied in our country to create interactivity in the expositions of Bulgarian museums. Good examples in the digital presentation of exhibitions and expositions are the Archeological Museum in Varna, the Regional Historical Museums in Shumen, Russe and Plovdiv (Museum expositions, 2018), the National Military History Museum in Sofia (Penkova, 2018), the Interactive Museum of Industry in Gabrovo (Interactive museum, 2014) funded by the European Regional Development Fund, the Archaeological Museum in Veliki Preslav.

In 2018 in Prague, Czech Republic the Regional Museum of History in Shumen was awarded the International Prize 'Zhiva' for the Best Slavonic Museum (Shumen Museum, 2018). One of the criteria for the nomination and awarding of this accolade is the innovative use of new technologies in the presentation of museum expositions. Since the beginning of 2018, virtual reality platforms have been functioning in the medieval Bulgarian capital Pliska (Pliska, 2018) /capital of the First Bulgarian Kingdom VII – IX Centuries/ and Veliki Preslav /capital of the First Bulgarian Kingdom IX – X Centuries/. In 2013, a Multimedia visitor center was opened in Veliko Tarnovo (Multimedia, 2018) /capital of the Second Bulgarian Kingdom XII – XIV Centuries/, and in 2018 such a center was opened in the National Archaeological Reserve 'Madara', which is included on the UNESCO World Heritage List.

#### 4. Conclusion

There are many examples of good practices of creating interactivity with application of information technology in museum exhibition activities. Overall, however, against the backdrop of the general framework of museum institutions in our country, these processes are relatively slow to develop and are not subject to a unified concept. One of

the serious reasons for this is the limited funding by the state and the municipalities. For the most of its part, the funding for these activities is provided by projects.

Undoubtedly, the development of the IT application process for cultural heritage socialization will lead to a growing number of younger generations being interested in cultural heritage. For them, the use of modern IT is leading in the search for information. We hope that the activities of our project and the results achieved will contribute to the improvement of the quality of the students' education and to the broader application of the information technologies in the research and teaching activities in the field of cultural heritage. Heritage increasingly stands out as a value and a cultural memory, through which we identify ourselves and interact in the global world and the information environment.

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