Workshop on Virtual Museums and Their Educational Applications

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Abstract. The workshop on *Virtual Museums and their Educational Applications* presents outcomes of the National Scientific Program "*Cultural and Historical Heritage, National Memory and Social Developmen*t", funded by the Ministry of Education and Science (approved by DCM No 577 of 17 August 2018), achieved during the second year under the Work Package No. 4 "Activities for the Development of Scientific and Applied Products" (Activity "Digitization and virtualization of cultural heritage"). The workshop outlines also some future trends for educational applications of virtual museums.

Keywords: Virtual Museums, Educational Application, Cultural Heritage.

1   Introduction

Digital technologies, developed in recent years, are introducing new solutions for the documentation, maintenance and distribution of vast quantities of collected cultural heritage assets. Stored in attractive digital environments such as virtual museums these objects could be used in training in more intuitive and entertaining way. They could respond to the challenges that the new generation of students placed in front of the educational process.

2   Virtual Museums Applications

The workshop on *Virtual Museums and Their Educational Applications* presents outcomes of the National Scientific Program "Cultural and Historical Heritage, National Memory and Social Development", funded by the Ministry of Education and Science (approved by DCM No 577 of 17 August 2018), achieved during the second year under the Work Package No. 4 "Activities for the Development of Scientific and Applied Products" (Activity "Digitization and virtualization of cultural heritage", Task "Virtual museums and galleries"). The focus is on research on new technologies to contemporary virtual museums (VM) and on modeling of services that transform VM's static multicomponent structures into an environment with a dynamic federation of functional

units. The attention is given to the problems how to present the resources in a given learning context, determining proper use cases, cognitive or clear educational goals and creative use; how to help the user not only to explore the content, but also to gain valuable knowledge; how to adapt the information content for each individual user or group in order to achieve their learning goals, tasks and interests; how to provide knowledge in the most suitable way and form, *etc.*

Some solutions for effective use of virtual museum content for learning purposes through services for improved content observation and enhanced learning experience are demonstrated. Services for improved content observation and enhanced learning experience, which could be applied in a virtual museum, are also of the main points of the discussions on the workshop. Special attention is paid on the personalized content usage in the VM environment. The users' cognitive needs, goals, preferences, and interests have been carefully studied and become the starting point for the new functionality.

Some results from research conducted within the scope of the international project DigiCult in four European countries, are also in the focus of the workshop. The use of new technologies in the preservation and transmission of intangible heritage imposes urgent and significant changes in the museum specialists' competency matrix.

The database "Bulgarian cultural and historical heritage under the protection of UNESCO" and its realization through web based application, following the approach Understanding by Design as a modern pedagogical strategy for presentation of additional learning content, is presented. The web-based application provides additional content in a multimedia environment that encourages the learners to manipulate information and learn through specific experiences upon research.

In the frame of discussion of virtual reconstructions and interactive multimedia solutions for performance arts in the digital era and the newly opened possibilities and challenges in the pandemic time, examples from the world and Bulgarian practices for the emergence of different new hybrids of digimodern art are analyzed and presented. The problem how new technologies might help people to become more perfect, more healthy, overcoming pandemic diseases (here including COVID-19), is also put in consideration.

A discussion on descriptive scheme for the digitization of intangible heritage in Bulgarian museums, is planned.