

The Polo Museale of Sapienza University of Rome: an opportunity for culture, education and tourism

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Abstract

Over the years museums used new technologies to catalogue their collections both for internal management and to make them available to citizens, scholars and tourists. New technologies meet their needs by disseminating knowledge about cultural heritage.

The "Polo Museale" of Sapienza University of Rome, encompassing 20 museums, aims to promote cultural heritage and knowledge dissemination as well as develop a museums network for sharing information and experiences. In this paper, we discuss new frontiers of communication and new perspectives on museum visits. In particular, we present a Polo Museale project aimed at connecting its 20 museums for increased openness to society and integrated public service.

Introduction

Computer science applied to cultural heritage has become an important instrument for management, analysis, study, research and dissemination of heritage. Different applications represent innovative ways to use technologies and communication reshaping new roles for museums in education, study and leisure.

Museums, particularly university museums, were created as educational and research institutions. In recent years, they have developed programs for increasing access to their information from citizen through diverse communication channels and different languages, adapted to the learning and leisure preferences and expectations of individuals and communities. Many ongoing projects aim to create itineraries and laboratories to encourage, advice and stimulate the youth and seniors and tourists to visit museums.

In this paper we discuss new frontiers of communication and new perspectives of museum visits. In particular we present and discuss a project at the *Polo Museale of Sapienza University of Rome* for connecting its 20 museums and increase their access to society, especially to school groups. We will focus on to tools for the dissemination and promotion of cultural heritage for children as well as new research about adult learning and the accessibility to cultural heritage from tourists and particular communities such as disabled users.

Museum role

Traditionally university museums concerns research and university didactic role but the cultural dissemination and education for university and school students and for citizens has more recently become a general cultural concern too (FALK 2000).

Different experimental learning theories were applied to build a system to develop the students' activity, such as for instance the Kolb theory (KOLB 1984). By applying such theories to museum objects (MARIE 2010), the potentialities of learning from university museums and collections in higher education is pointed out (DHUS 2009). Moreover, tourism is also changing with increasingly short-term stays and interest concentrated on cities and cultural locations. In order to provide new visit opportunities, many museums are reviewing their cultural offer and content as well as tailoring communication types and channels to different users.

The didactic online can be an useful instrument to engage teachers and students to visit museums as we can see on the website of Museo Galileo in Florence, Italy, with the *Science in Play* which is an

educational game which offers a first approach to science and to Galileo Galilei. The game is adapted to all ages, but is especially designed for the young and school groups.¹

Database for cataloguing and information systems, also through web, have been recently developed for the needs of different subjects who work in the cultural heritage field. For many years the museums have developed online catalogues, but there are critical issues for this way. In fact, often, the information of museum heritage have been written with scientific and high level language, so not available to the general public or school teachers and students. To solve this problem while new technologies of digitalization and 'access' can give opportunities to re-think the ways by which institutions represent, classify and describe their contents. By providing different access to information and services according to the user's profile, personalization helps to respond to museums educational and curiosity needs.

Studies on visitors seem to confirm that learning is stimulated when the information is described in terms that the visitor can understand and is referred to their interests of visitors as well as concepts the visitor already encountered during the navigation/visit. Personalization is therefore a new communication strategy based on a continuous process of collaboration, learning and adaptation between museum and visitors.

A first important distinction concerning the amount of control the user has on the personalization process can be made between customization and personalization (BOWEN 2005).

There are different ways to use these methods of communication: to create a personal way to access to museum information from different types of user or themes.

The system gives information related to particular profiles or thematic²; another approach is to create a customized web gallery selecting images from digitized collections, accompanied by personal comments or descriptions.³

The Polo Museale Project

Sapienza University of Rome has a rich scientific and cultural heritage preserved in 20 museums. For promoting and enhancing the value of these museums, Sapienza University has created in 2010 the *Polo Museale (PMS)*, the system of museums as a center for coordinating activities. In Sapienza one can find museums relating to different disciplines as botanical science with the botanic garden and herbarium, archaeological science, with the Classical Art Museum which collects plaster casts of Greek statues; the Etruscan Italic Antiquities Museum; the Near East Museum and the Origin Museum. These museums have collections from excavations in different locations inside and outside of Italy. The Physic and Chemistry Museums house scientific instruments collections. Another important scientific field is earth science, which is represented by geology, mineralogy and paleontology museums. In the anthropology, comparative anatomy and zoology museums, we can see objects relating to natural history of homo sapiens and other primates, a collection of skeletons from large vertebrates and insects collections from all over the world. Historical medical exhibits, that help visitors trace the development in medical knowledge, are available in the museums of history of medicine and pathological anatomy. There are also other particular museums as hydraulics, mineral deposits, laboratory of contemporary art and commodity.

Most museums are open to the public, many primary and secondary school classes visit them every year and tourist groups became to organize visits to Sapienza museums.

¹ www.museogalileo.it/en/explore/onlinedidactic/scienceplay.html (accessed May 19, 2012).

² www.louvre.fr/llv/enseignants/enseignants.jsp?bmLocale=en (accessed May 19, 2012).

³ www.europeana.com/portal/ (accessed May 19, 2012).

PMS aims to provide public more opportunities and occasions of access to its heritage for becoming meeting point for teachers, students and citizens.

Different projects are ongoing, using multimedia and network technologies, to promote scientific culture for a wide public.

PMS has rethought its website, which now allows to access information on: PMS organization, multilanguage section to promote museums in the culture international context, useful information of each museum, by different users.⁴

Different initiatives are being tried to help young people increase their knowledge through the use of museum objects. Experiments, games, videos and the like installed in museums help to reveal knowledge related to museum objects in easily understood terms. Particularly illustrative of the initiatives are the movies of the *Night of the Museums*.⁵

Another project regards the opportunity to reshape the ways to communicate and describe museum contents. Didactic laboratories in museums and via web have been built for encourage children to learn by museum objects as experimental activity of *DNA extraction from banana* in Chemistry Museum.⁶ It is becoming more important to increase museum visits from schools and tourists so it is important to increase the ways to present didactic itineraries to students and to make multimedia for the public. For example, the Chemistry Museum of Sapienza has made a video of school visit and put it on its website.⁷

Polo Museale with primary school Anna Magnani started in 2011 a project for using museums objects as learning instruments for children. The project aim was to redefine the relationship between school and museum. The museum is a privileged means of education, a real learning environment where children can go at the end of education program started and developed in class. The people, the events of the past, tools, discoveries become concrete through museum collections and objects. The student, through thematic itineraries and the guided visit, is actively engaged in the discovery of ancient history, science, art and technology in a context certainly more appealing than the classroom. The teacher during museum visit has a vantage point of its students, will validate the development in cognitive, emotional and identity. The child at the museum will have to respect rules and relate to others properly (area identity), will gather information, prepare any questions to the expert, selecting more interesting museum objects (cognitive area). PMS project aims to put museum information in the classroom as learning content. Multimedia technologies and products with the ability to integrate different type of content can help to overcome a teaching based on the transmission / reception of content that is often fragmentary and superficial in support of creating exciting learning environment. The museum object can be analyzed by several points of view: in different contexts such as related discipline, historical period, material, as a relation with other disciplines or experiments. In addition, the museum object can be used as image related to concept within a lesson. In this case, the visit to the museum, after classroom lesson, can enhance student level learning through 'experience' of object (PARIS 2002).

Personalized itineraries via web and hypertext tools were developed according to a new communication strategy based on a continuous process of collaboration, learning and adaptation between museums and visitors (WANG 2007). Teachers can connect to objects in the museum catalogue and choose the right objects for explaining a discipline in their classes. Currently the system allows this for the Chemistry Museum. Teachers can search museum objects useful for their teaching

⁴ www.musei.uniroma1.it (accessed May 19, 2012).

⁵ www.musei.uniroma1.it/notteen10.asp (accessed May 19, 2012).

⁶ www.youtube.com/watch?v=3Ta7jmE0Ayc (accessed May 19, 2012).

⁷ www.musei.uniroma1.it/sitistage/museodichimica/VisitaDidattica.html (accessed May 19, 2012).

and can download information and images into their computer to build a hypertext lesson. This tool has been integrated with another one developed by Sapienza University, ASD (Accessible Site Developer), which allows to build automatically a hypertext from contents, accessible via web. To manage contents, ASD is based on a couple of technologies: Java and XML. Web pages are in XHTML language. ASD does not require any particular hardware and software, it's a portable system.⁸ The user can choose a customized itinerary downloaded previously in the editor of ASD tool and he can put the images and information related to the content of the lesson, so that the teachers will be able to explain the lesson with museum objects images and information. Following the teachers can take the students to the museum where they will find the objects previously observed in the context lesson. The students can build up reports by associating theoretical knowledge with museum objects, after visiting the museum (fig. 1). Results and hypertext made by teachers are available via website project.⁹

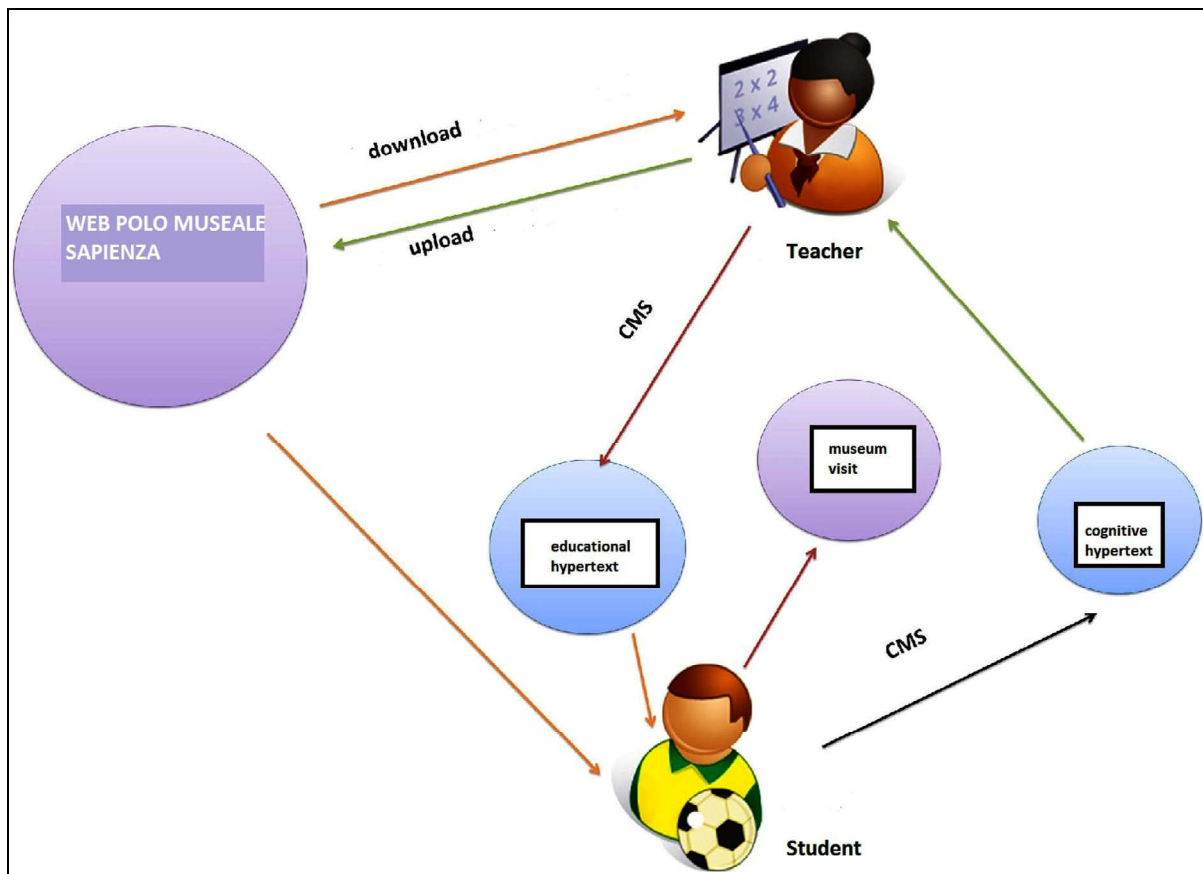


Fig. 1 - Scheme Project *Museums and School*

New perspectives

For improving access to museum by school and cultural tourism it is needed to rethink the offer of the contents, to use web or new instruments communications, to make multimedia materials and build museums network and integration to school and tourist networks. Only some of the 20 museums of Polo Museale Sapienza have their heritage online. The next step of project will be to put online all objects in all museums with the Europeana project.

⁸ w3.uniroma1.it/ciabc/asdeng.html (accessed May 19, 2012).

⁹ www.musei.uniroma1.it/progettomiur/index.html (accessed May 19, 2012).

Personalized itineraries via web will be developed to access to all museum objects related to particular user profiles (citizen, tourist group, school) as well as thematic links between museum disciplines.

Today most museums have an online presence and are planning to experiment with the forms of interactivity that we characterize as 'Web 2.0' interactions. The push for experimentation comes from museum staff as well as museum visitors who "no longer accept being solely consumers of information" but want to contribute their own experiences and interpretations. The new arrangements for Web 2.0 allow different users to collaboratively enrich content by using web tools.¹⁰

It aims create a collaborative platform to include information of museum objects from teachers as well as scientific information. Technologies can help disabled people to access museum information. While the application of international standards can provide accessible web museums by visual impairments because the screen reader tool translates from textual information to audio, for the deaf people it is necessary to rethink the language used to explain museum contents. Better to use the sign language which can be recorded on video and made available on digital support or via web. The British Museum, an example, asked three groups of Frank Barnes' students to use BSL to describe some of the key objects in the museum.¹¹ PMS aims to connect to deaf association to build virtual itineraries making video in sign language.

Conclusion

The new technologies and the new communication channel can help museums to increase cultural dissemination and visit of public. For many years museums have developed programs to rethink their contents and communicate within and out of their location. New lines of research look at the development of technologies and their application open new frontiers in this field. Building museum networks, in particular of university museums, can become useful tools for sharing content and also the experience to improve their position in the realization of the knowledge society. In this context PMS has an aim to reshape promotion and communication of its cultural heritage.

Literature cited

- BOWEN, J. and S. FILIPPINI-FANTONI 2005. Personalization issues for science museum websites and e-learning. In: *E-learning and Virtual Science Centers*, ed. R. SUBRAMANIAM (Hershey, PA: Idea Group Publishing).
- DUHS, R. 2009, Learning from university museums and collections in higher education: University College London (UCL). *University Museums and Collections Journal* 3, 183–186. edoc.hu-berlin.de/umacj/2010/duhs-183/PDF/duhs.pdf (accessed June 14, 2012).
- FALK, JOHN H. & LYNN D. DIERKING 2000. *Learning from Museums: Visitor Experiences and the Making of Meaning*. Walnut Creek, CA: Alta Mira.
- KOLB, D. A. 1984. *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, N. J.: Prentice-Hall, Inc.
- MARIE, J. 2010. The role of object-based learning in transferable skills development. *University Museums and Collections Journal* 3, 187–190. edoc.hu-berlin.de/umacj/2010/marie-187/PDF/marie.pdf (accessed June 14, 2012).
- PARIS, S. G. 2002. *Perspectives on object-centered learning in museums*. Mahwah NJ: Lawrence Erlbaum Associates.
- WANG, Y., L. M. AROYO, N. STASH & L. RUTLEDGE 2007. Interactive User Modeling for Personalized Access to Museum Collections: The Rijksmuseum Case Study. In: *Proceedings of the 11th*

¹⁰ commons.wikimedia.org/wiki/Commons:WikiProject_Museums; www.museogalileo.it/partecipa/progettiviki.html (accessed May 19, 2012).

¹¹ www.britishmuseum.org/learning/schools_and_teachers/school_projects/bsl_project.aspx#African_Masks (accessed May 19, 2012).

international conference on User Modeling, ed. C. CONATI, K. MACCOY & G. PALIOURAS (Berlin, Heidelberg: Springer), 385–389. alexandria.tue.nl/openaccess/Metis208785.pdf (accessed June 14, 2012).

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