The new communication technologies for sharing and participatory Italian university museums

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Abstract

Thanks to their peculiar identities linked to the specific disciplines which determined their creation, university museums offer an interesting experience to reflect on the role that the community of museum professionals and experts can engage within the production of cultural content - in particular through the use of databases of their collections - to activate social tools, and to design interfaces for contents typical of applications offered by the perspectives of Web 2.0 for the passage from information to knowledge, which is fundamental for the institutional goals of museums, that is to say ‘education and study’.

The creation of an observatory on the use of Web 2.0 tools by university museums could be useful to monitor the existence and the use by university museums of social networks through an official channel.

Introduction

The approach of this project started from a research carried out on the web or the Italian university museums, that is to say an analysis of the so-called ‘Italian university museums web galaxy’, according to what is stated by the Recommendation Rec (2005) of the Committee of Ministers to member states on the governance and management of university heritage of the Council of Europe, which in article 33 promotes programs and research projects that can involve professionals of many different disciplines connected with university museums, not only for conservation, restoration, inventories, but also in particular for computer systems to process data and advanced technologies.

This research showed a very diverse situation: most university museums online adopt a typical web 1.0 ‘broadcast model’ to disseminate information, which means that content is created and distributed by the cultural institution to users through the web. Most of the investigated web sites had a low level of interaction, even if there is a significant presence of content, in response to which visitors tend to have the same passive attitude which is very common while visiting museums (KENNEDY ET AL. 2007).

A first result of this research was presented at the conference of the UNIVERSEUM European Academic Heritage Network, held at the University of Uppsala, Gustavianum Museum, in June 2010. The research continued with a careful examination of the web sites of university museums through the tools of investigation provided by the ‘museum and the web kit’ realized within the European project Minerva for the creation of quality cultural web sites. This research allowed us to implement the project of the Italian university museums web portals, presented at the Congress of UMAC - University Museums and Collections Committee (CORRADINI 2012), within the world congress of the International Council of Museums (ICOM) in Shanghai 2010.

The issue of the contents of the web portal, with particular reference to their accessibility, has been presented in a poster at the Congress of the CIDOC – International Committee for Documentation that took place in Shanghai 2010. Finally a specific proposal for a project about the new communication

technologies for sharing and participatory Italian university museums has been presented at the Congress of CIDOC held in Sibiu 2011.5

University museums as participatory cultural institutions and the use of web 2.0

University museums are real and virtual places where institutions serve as 'platforms' to connect different visitors/users that act as creators of contents, distributors, consumers, critics and collaborators; visitors/users can connect, create, share, learn in a reciprocal way but also around the content; science is born from citizens, both individuals and networks of individuals who are not necessarily being scientifically trained, but interested or curious in performing or managing research-related tasks on cultural contents such as observation, measurement, or computation (LIN 2007; MCLoughlin & Lee 2007; Murugesan 2007; Prati 2007).

Thanks to their peculiar identities linked to the specific disciplines which determined their creation, university museums offer an interesting experience to reflect on the role that the community of museum professionals and experts can engage within the production of cultural content - in particular through the use of databases of their collections - to activate social tools, and to design interfaces for contents typical of applications offered by the web 2.0. (Barsky & Purdon 2007; Schneideman 2008; Ulrrich et al. 2008; Mettiteri 2009). It is necessary to take into consideration also the perspectives of Web 2.0 for the passage from information to knowledge, which is fundamental for the institutional goals of museums, that is to say ‘education and study’.

This new set of standards and services - which is very easy and intuitive as well as free to produce – can be a useful tool to provide and share online text content, photographs, audio-visual material, constructed and manipulated by museum professionals also in collaboration with the users, in order to give a wider visibility and diffusion to university museums heritage (Gibson 2007; O'Reilly 2007; Shuen 2008).

The use of web 2.0 tools, which allow the direct intervention of users in creating and sharing content, promotes the participation of publics and a fluid approach to university museum information, which means a greater openness and sharing in order to spread the knowledge (D'Ottavio 2006; Chui et al. 2009; Ferrini et al. 2009). Moreover, web 2.0 tools activate pathways of social learning, where the flow of knowledge is not unidirectional but in all possible direction, according to a knowledge conception which is not hierarchical but rather democratic (Gallino 2007; Chadwick 2009).

The role that the museum traditionally acts is not only as a repository for unique and fascinating objects but also as the location of the situated knowledge that these objects imbue.

By reflecting on the dynamics related to a possible change of the way in which we use internet to access cultural content of university museums on the web, it is possible to state that internet and new communication technologies – unlike traditional media that have a recognized authority but also are somehow closed – promote a liquid approach to information, that is to say a greater openness and sharing in spreading knowledge. In the last years, the development of web 2.0 has allowed to activate participative attitudes among users in the creation and sharing of contents (Fu et al. 2008).

The services of social web are changing our way of communicating of creating social and individual spaces, of taking part, of learning, of being creative and can change our way to use and experience cultural heritage of university museums (Rollett et al. 2007; Ankolekar et al. 2008; Bojars et al. 2008; Spinazzè et al. 2009; Ahrens 2011).

As Simon (2010, preface) stated, “rather than delivering the same content to everyone, a participatory museum collects and shares diverse, personalized, and changing content co-produced with visitors. It invites visitors to respond and add to cultural artifacts, scientific evidence, and historical records on display. It showcases the diverse creations and opinions of non-experts”.

Web 2.0 presents itself as a multichannel model that crosses distributed networks and connects people among them and museums with their users. In a web 2.0 world end users not only expect to take on an active role during their online browsing but also a pro-active role in the production of their own micro-content (ALJAN & HARTSHORNE 2008).

Web 2.0 approach aims at modifying the communication model based on a lack of symmetry between sender and receiver: the web, therefore, makes society become more horizontal. This feature influences also the way in which cultural contents are produced by university museums, like any other cultural institution, since anyone can become author increasing the amount of knowledge potentially available on the web and its quality.

Multilateral communication tools characterize the web 2.0: they support an open and fluid approach to information in order to spread the community of university museums, to promote the participation of audiences and social inclusion, to involve audiences in the interest for cultural heritage which becomes relational, experiential, emotional. In fact, anybody can be author and increase the amount of knowledge potentially available on the web (SCOTTI & SICA 2007).

The growing importance of sharing information and knowledge and the approach to user-generated content represent a great opportunity but at the same time a challenge for the renewal process that involves not only promotion and communication but the entire organization of university museums, in order to be actually participatory and able to activate a dialogue between the scientific community, the museum professionals and a wider audience (CRAIG 2007; EBNER 2007).

The users generated contents have a great potential, like the use of tagging as a form of communication. Users can associate keywords to objects, texts, pictures, videos, audios to create folksonomies. The phenomenon of folksonomies, that is to say the taxonomies designed in a participated way by the Internet communities, can therefore add some important elements to the structure of museum catalogue databases, contributing to the education with brand new functions for cultural heritage. They can provide useful data for classification/documentation of the objects to join to the traditional cataloguing but also to explore the use of social software in digital narrative research in which tagging is a form of communication for a narrative common ground.
An innovative form of cooperation among colleagues, users, friends, and potential partners is crowdsourcing, that is to say the opportunity to outsource certain activities to a community through an open call. It represents a challenge to carry on traditional activities in a different way, since it faces traditional methods of scientific authority by exploiting internal and external creativity of users, stimulating their motivational factors like enthusiasm, being part of a group, generosity, willingness of sharing knowledge and by increasing their sense of responsibility and public domain and therefore reaching goals that we would have never thought to gain with limited resources: accuracy and quality are guaranteed thanks to the caring for reviewing procedures.

Crowdsourcing can be a useful resource for the collections: for their classification, by gathering descriptive metadata related to objects - social tagging is a well-known example; for their contextualization, by adding contextual knowledge to objects, e.g. by telling stories or writing articles/wiki pages with contextual data (Alexander & Levine 2008); for their completion by actively pursuing additional objects to be included in a (web) exhibit or collection; for corrections and transcription tasks, by inviting users to correct and/or transcribe outputs of digitization processes. Moreover, crowdsourcing can be applied to exhibitions: for co-curation, by using inspiration/expertise of non-professional curators to create (web) exhibits; for financial support – crowdfunding – that is to say collective cooperation of people who pool resources to support initiatives promoted by others.

In this scenario, the hierarchic structure of knowledge gives way to a democracy of knowledge. The thing that distinguishes new platforms or social networks like Facebook, Twitter, YouTube, Flickr or MySpace and states their success on the web is the level of sharing while creating contents, which are immediately available to other users that share their interest or competence fields.

The use of web 2.0 tools can promote different multimedia communication strategies to valorize the activities of museums for the discussion and diffusion of new contents linked to specific or temporary projects like the applications for iPhone, iPod Touch, iPad which can be used also as town guides for museums or as GPS navigator in cultural visiting paths. Moreover, they can help in interpreting the online audience of university museums, which is quite difficult to measure and to foresee but fundamental to design the strategic plan of a university museum.

**An observatory on the use of Web 2.0 tools by university museums**

The creation of an observatory on the use of Web 2.0 tools by university museums could be useful to monitor the existence and the use by university museums of social networks through an official channel; to verify the presence of user-created contents on university museums published on the web through Web 2.0 tools; to collect, study and evaluate university museums specific needs for the use of Web 2.0 tools but also to share information and good practices for the use of Web 2.0 tools; to publish reports about the presence and the use of web 2.0 tools by university museums.

As first phase of this project, we thought it could be useful to create an online survey (see appendix) addressed to the Italian university museums recorded in the POMUI database. In the second phase of the project, the survey will be addressed to European and international university museums recorded in the international UMAC Worldwide Database of University Museums & Collections.

The self-evaluation survey is based on the Minerva project questionnaire to design a user-centered web application referring in part to the check-point of the *Handbook for quality principles* published in the *Handbook on cultural web user interaction*.

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7 publicus.culture.hu-berlin.de/collections (accessed June 28, 2012).
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The main purpose was to evaluate the relationship between university museums visitors and their web applications. Moreover, we added a specific section to evaluate the use by university museums of tools and of collaborative and sharing potential that characterize Web 2.0. It has been submitted to twenty university museums of thirty Italian universities, in order to evaluate their level of interaction with users and the possibility to find out advanced interaction opportunities.

The questionnaire is structured of six sections. The first one aims at verifying the different cultural subjects, their management and the type of their web application: the results show that one third of them is managed by a department and a university museums system, not all of them are cited in the statutes of the universities, not all of them have a regulation, most of them have a static web site with a few interaction with their audience.

The second set of questions aims at evaluating the usability of the web application according to four different aspects: effectiveness, accessibility, multilingualism, privacy. The data show that one third reflects the target audience of the museum; concerning effectiveness, few of them have paid attention to the users' need in terms of category of contents; most pay a lot of attention to the principles of accessibility, while less attention is given to multilingualism. Much attention is dedicated to the data protection policy.

The third section aims at verifying the parameters to profile users and the customization opportunities of web applications. The results show that museums don’t provide a particular user’s profile and that the contents are mainly thought to be used to plan a visit, search in the catalogues and look for educational materials; all the thematic areas are taken into consideration without any specific difference.

Concerning the fourth section which evaluates advanced interaction and interactive services, data collected state that the most popular is the mailing list (fig. 2) and that users side services are not very much used.

Fig. 2 - Interactive communication services

Concerning the share of contents with other web sites, the most popular is Facebook followed by YouTube and Google Maps (fig. 3).
The fifth section studies users to evaluate the audience and its satisfaction. Data show that museums prefer the online distribution of reports to spread the results of their activity to their audience.

Finally, the sixth section is dedicated to the use of social network by university museums. In particular: how long the museum has had its profile on social networks; how difficult it is to get to know the museum through social networks; the different uses of the social networks; how many friends/links/followers the museum has on the social networks.

Concerning the museum official profile on social networks, very few are using Facebook and YouTube; most of them still don’t use a dedicated profile on social networks even if the majority of them thinks that getting to know the museums through social networks is quite simple for users (fig. 4).
In general, the majority of them thinks that Facebook and YouTube are useful to keep in contact with regular visitors, but at the same time to look for new contacts. The ones which activated an official profile already have a good number of contacts and followers.

**Literature cited**


Contact

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APPENDIX – The online survey

SECTION I – The cultural subjects, their management and the type of web application

1. Type of cultural subject
   - Museum
   - Collection
   - Library
   - Archive
   - Training and research centre
   - Cultural project, portal, digital library, cultural-touristic portal
   - Temporary exhibition
   - Other (specify)

2. Management
   - University center
   - Interdepartmental center
   - Coordinating authority
   - Department
   - Department/interdepartmental center
   - Department/coordinating authority
   - Department/University museum system
   - Faculty
   - Institute
   - Museum/University
   - Museum pole
   - University museum system
   - University museum system/Foundation
   - University museum system/pole
   - University
   - University/Board
   - Other (specify)

3. Presence in university statutes
   - Yes
   - No
   - Other (specify)

4. Has the museum a statute/regulation?
   - Yes, a statute
   - Yes, a regulation
   - Yes, both
   - None
   - Other (specify)

5. Type of web application (to be) developed
   - Static web site
   - Dynamic web site (using CMS)
   - Web application
   - Forum
   - Blog
   - Wiki
   - Web portal
- Database management system
- Informative system
- Web service
- Online social network
- Web game
- Other (specify)

SECTION II – Evaluation of the quality of the web application in relationship with the user experience

6. Users evaluation strategy
- Dedicated user/panel group
- Group of users = target audience
- Presence in users group of all the target audience
- Analysis by the users of the web prototype
- Communication of the concept and objective to users group
- Satisfaction analysis
- Documentation and inclusion of the analysis in the design process of the application
- Analysis confirmation in the prototypes
- Other (specify)

7. Effectiveness
- Have group of users or other categories of users been asked about the category of contents which could make the web application more effective for them?
- Were there formal criteria for content to be taken into account and to follow, in order to reflect the requirements of the target audience?
- Other (please specify)

8. Accessibility
- Design to support universal access
- Respect of national regulation on ICT
- Respect of W3C WAI guidelines
- Automatic or semi-automatic tools evaluation
- Access through a wide variety of content distribution channels
- Sense and value without images
- Use of proprietary applications or plug-ins
- Support of different types of browsers
- Support of portable and mobile devices
- Support slow internet connections
- Other (specify)

9. Multilingualism
- Multilingual design
- Declared policy on multilingualism
- Analysis by experts and groups of users against this policy
- Mission, identity and profile of contents available in several languages
- Contents in the language of signs
- Contents in non-EU languages
- Dynamic contents available in more than one language
- Static contents available in more than one language
- Web site structure separated from the language
- Other (specify)
10. Privacy
   - User behavior code
   - Do users have to subscribe to it?
   - Protection of the overall database and of its contents
   - Preventive measures to limit non-authorized exploitation of contents
   - User data protection policy
   - Clearly expressed to final users
   - Are registrations of access and users data kept?
   - Are these registrations necessary?
   - Respect of laws and regulations on personal data protection
   - Are contents available with Creative Commons licenses?
   - Other (specify)

SECTION III – Verifying the parameters to profile users and the customization opportunities of web applications

11. Organizing contents according to users profiles
   - Generic public
   - Students
   - Teachers and personnel
   - University students
   - University professors and personnel
   - Researchers
   - Professionals
   - Librarians
   - Journalists
   - Tourism operators
   - Public administration employees
   - ICT professionals
   - Children
   - Teenagers or young adults
   - Parents
   - Providers
   - No, I don't want to organize contents according to users profiles
   - Other (specify)

12. Organizing contents for different activities
   - Plan a visit
   - Catalogue search
   - Research of educational materials
   - Buy
   - Games
   - No, I don't want to organize my contents according to roles
   - Other (specify)

13. Organizing contents on thematic areas
   - Botany
   - Mineralogy
   - Petrology
   - Planetology
   - Paleontology
- Zoology
- Anatomy
- Anthropology
- Medicine
- Photography
- Archeology
- Arts
- Physics
- Technological and scientific heritage
- No, I don't want to organize my contents according to thematic areas
- Other (specify)

SECTION IV – Evaluation of advanced interaction and interactive services

14. Interactive communication services
- Mailing list
- Newsletter
- Forum
- Virtual reference services (ask the librarian)
- SMS/MMS
- Blog
- Wiki
- Instant messaging
- Videoconference
- Streaming
- Other (specify)

15. Learning interactive services
- Tutorial on-line
- Help online
- Interactive virtual visits
- Other (specify)

16. Commercial interactive services
- E-commerce
- Ticket office
- Reproductions
- Other (specify)

17. Interactive forms
- Subscriptions
- Reservations
- Other (specify)

18. User-side services
- Feed RSS
- Podcasting
- Social bookmarking
- Social tagging/folksonomy
- File sharing (texts, images, videos)
- Mash-up
- Storytelling
- Interactive games
- Masterpieces on your desktop
- Add a comment
- Send a friend
- Vote and surveys
- Save the research
- Travelogue service
- Agenda or personalized calendar
- Personalized map
- Personalized visiting plans
- Personalized web gallery/ Virtual curator
- Virtual postcards
- Learning environments
- Other (specify)

19. Sharing resources with other web sites
- Facebook
- YouTube
- Google Maps
- Flickr
- Twitter
- Delicious
- Other (specify)

SECTION V – Measuring users to evaluate the audience and its satisfaction

20. Evaluate needs and satisfaction of users
- Web analytics
- Meter
- Standardized questionnaire
- No, I'm not interested in measuring the audience
- Other (specify)

21. Choosing the persons for the interview
- By chance
- Raising a panel of volunteers
- Choosing an a-priori panel of volunteers
- Other (specify)

22. Interview methods
- By phone
- Personally
- Leaving a form at the desk, during conferences, etc.
- Via e-mail
- Through an on-line interactive form
- No, I'm not interested in interviews
- Other (specify)

23. Reward for those who will answer
- Giving the opportunity to enjoy a service
- Giving a free gadget
- Inviting people to take part to an initiative
- No, I'm not interested in rewarding those who respond
- Other (specify)
24. Disseminating the results of the interviews
   - Distributing a printed report
   - Distributing an online report
   - Publishing FAQ online
   - No, I’m not interested in publishing the results
   - Other (specify)

SECTION VI – The use of social networks by university museums

25. How long has the museum had its profile on social networks?
   (2 months; 6 months; 1 year; 2 years; 3-5 years; > 5 years)
   - Linkedin
   - Facebook
   - YouTube
   - MySpace
   - Flickr
   - Windows Live Space
   - Twitter
   - No profile on S.N.
   - Other (specify)

26. How difficult is it to get to know the museum through social networks?
   - Quite simple
   - They should work on it, because there is not so much information
   - Very difficult
   - No idea
   - Other (specify)

27. Different uses of the social networks?
   - Keep in contact with regular visitors
   - Keep in contact with visitors that attend the museum occasionally
   - Looking for new contacts
   - Organizing activities with the contacted persons
   - Promoting initiatives and spreading information
   - Other (specify)

28. How many friends/links/followers has the museum on the social networks?
   (0; 1-10; 11-50; 51-100; 101-150; 151-200; 201-250; 251-300; 301-400; > 400)
   - Linkedin
   - Facebook
   - YouTube
   - MySpace
   - Flickr
   - Windows Live Space
   - Twitter
   - Other S.N.
   - Other (specify)