

# INTERACTION WITH ART MUSEUMS ON THE WEB

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## ABSTRACT

In this paper, we discuss various features of art museum websites including community-oriented Web 2.0 services that are getting increasingly important for the communication between museums and their potential visitors. We concentrate on approaches to explore the museums' artefacts, on educational and community building services. We looked at 69 art museum websites all over the world, including the 20 most visited art museums, and analyzed them according to their use of collaborative and interactive concepts. We highlight unique solutions and point to interesting developments suitable for extended research.

## KEYWORDS

User interaction, Web 2.0, Museum Informatics, Web Communication, User Generated Content

## 1. INTRODUCTION

As museums are places where art is presented in a physical environment, they are located all over the world and underlie certain restrictions like opening times. Therefore the website of a museum is a very important tool to inform visitors about its art collection, special exhibitions, work that is done behind the scenes, etc. As more visitors use the website, the museum itself gets lot of attention and therefore may attract real visitors. With the use of Web 2.0 features like YouTube, social networking, tagging, etc. museums are able to have a bidirectional interaction with potential visitors.

In our analysis we looked at 69 web-pages, where we selected the 20 most visited art museums according to visitor numbers [8] and added other famous art museums all over the world, trying to get a good sample of geographical locations. The complete list of the compared museum websites may be found at the address <http://vsem.ec.tuwien.ac.at/iadis09/museums.html>.

Until now relatively little work has been done on comparing museums' web presences with regard to Web 2.0 features. [6] for example deals with discussing the differences between 15 museums in the US and in France, while [15] compares Web 2.0 features of 64 museums in German speaking countries. Both studies conclude that with regard to the adoption of Web 2.0 features, especially regarding the "Web 2.0 philosophy", European museums lag behind those in the English-speaking countries. Another study by [9] focuses on the visibility of museum websites in popular Web 2.0 based Web services like Facebook, Youtube, Social Bookmarking etc., thus providing a rather quantitative ranking of museum websites. In contrast to this, we focus on a qualitative discussion of the encountered web features in order to present highlights and interesting developments.

This paper is structured in three main sections: "Explore", "Educate", and "Announce and Discuss". In the first section "Explore" we show how museums allow users to get more information about the museum context by browsing and searching and highlight new possibilities for users to exchange interests and preferences about museum artefacts. In the next section "Educate" we show how museums use special interfaces or games to introduce the art-historical background to the visitor. In the last section "Announce and Discuss" we show how museums make use of Web 2.0 services to enable further discussion in other media than the website itself and therefore build a larger community.

## 2. EXPLORE

Besides general information about opening hours, upcoming exhibitions, etc., a museum's Web presence enables the institution to go one step further and provide additional content about its building(s), artefacts currently on display or from the permanent collection. We have encountered a huge variety of dedicated approaches for online museum visits, ranging from simple object browsing to virtual tours through the museum's premises with sophisticated interfaces for exploring contextual relations between artists, epochs and art forms. In this context, the ability to search the collection is a closely related feature and is therefore also discussed in this section.

### 2.1 Browse

Slightly more than two thirds of the visited museum websites offer some form of "web gallery", which means features dedicated to browsing through the museum's objects. For those currently on display, this form of presentation is often linked to a floor plan of the museum, where the visitor can click on a room of the map to see the objects located there. Some of these displays simply show the floor plan and a list of images for each room [22], while others include QuickTime VR based 3D panoramas for a more realistic experience [35]. [1] offers a sophisticated virtual gallery visit where multiple view points can be selected from a detailed floor map, updating a separate browser window containing the 3D panorama view and an audio commentary. The artworks visible in the 3D view can in turn be selected as well, leading to an according update of a detailed object description on the main view (see Figure 1).

As an additional "pre-visit" service, some museums allow visitors to simultaneously create virtual tours including exact room numbers and locations, which can be sent to friends and used as a guide during the "real" museum visit [22]. Others feature personal virtual galleries, which consist of either simple "thumbnail" lists of artworks or more sophisticated "canvases" in which web visitors can freely place artworks and annotations [2]. [31] allows each user to share his or her gallery with comments about the included artworks with the user community, thus enabling an interesting exchange of preferences and opinions about the museum's artefacts.

Since the online presence is not bound to the physical space, many museums also offer ways to explore their content sorted according to various categories like artist, region, art form or epoch. This is especially the case with objects from the permanent collection, which are not necessarily always on display. [19] and [24] provide interesting Flash based interactive tools for chronological browsing, [32] includes so called artist-rooms and theme based compilations, while [3] offers region based browsing. In [16] a remarkable "Timeline of Art History" which combines chronological and geographical browsing in form of an interactive map is provided (see Figure 2).

By browsing the museum's content, the web visitor can on the one hand get a quick overview of what "the museum has to offer" and on the other hand, possibly even more important, see parts of the collection which are currently not on display. Browsing by categories can additionally help to focus on special interests, which could otherwise be difficult because of the huge variety of artefacts.

### 2.2 Search, Tag & Rate

Search facilities allow visitors and researchers to search the museums' content through keywords. Out of the 69 visited museum websites, 49 provide database search facilities, 33 of these containing advanced features. Simple search features include the possibility to perform database searches by various single categories like artist name, historical time period, theme or title keywords. Advanced search features provide the option to connect multiple keywords from different categories with Boolean operators, sometimes including various word matching options like exact, fuzzy, soundex or synonyms. In order to overcome problems related to terminological discrepancies, some museums offer thesauri with "controlled keywords" for different categories. Although the ability to refine the search by connecting multiple keywords can improve the quality of the search results, this form of retrieval can sometimes be rather exhausting since especially AND-connected mutually exclusive keywords lead to empty result sets. As a solution to that problem, some websites provide features to construct search queries in a "step by step" fashion by continuously updating the number of "hits" the search would return for each added keyword. While most of the search forms adopt the

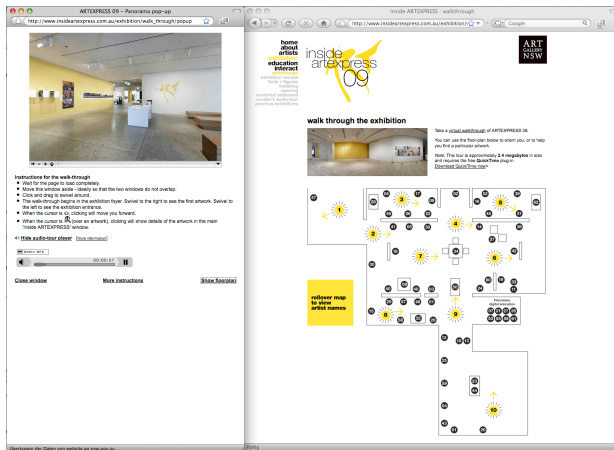


Figure 1: Virtual Walkthrough from [1]

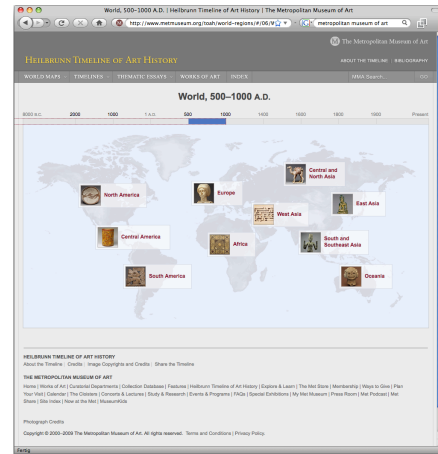


Figure 2: Timeline of Art History from [16]

widely used “text- and selection box” appearance, some websites explore interesting search interface designs like providing a tree structure for refining single category searches [5].

In contrast to the “traditional” search based on authored keywords, thesauri and full-text-search, tag based search is based on a collective vocabulary, the “folksonomy” [34], which is created by the website visitors through applying freely chosen tags to each collection object. This process is also called “tagging”. The tags are usually displayed in a so-called “tag cloud”, where the size of each tag represents its frequency of occurrence. While this feature is still only present in rather few museums’ Web presences, we believe that more museums will follow that trend in the near future. Accordingly, only two of the visited museum websites [14] and [26] currently offer user based tagging features, while few others just provide “tag clouds” of authored keywords. Comparing the two existing user based tagging features, a noteworthy difference lies in the fact that [26] allows the visitors to remove other visitor’s tags, while [14] provides no visible means to do so. A deeper comparison of these two approaches could be a good starting point for an assessment of the quality of user-generated tags. Another community-oriented feature is the ability to rate objects by personal liking. If a larger number of visitors rate one and the same object, its average rating reflects the community’s preferences, which can also provide a base for searching. [31] for example enables visitors to browse a “top rated by the community” list of artworks.

Compared with browsing, searching enables the web visitor to find single objects of interest without the need to go through huge quantities of information. Besides searching for “famous” objects, this usually requires, however, deeper contextual knowledge of the field in order to receive satisfying results.

## 2.3 Display

The artefacts in a museum room, those sorted by category or being part of the result set of a successful search, are usually displayed in form of a list or a “lightbox like” display. While some of the single datasets only contain text information with metadata, others also include scanned images or media files. Currently, many museums seem to be in the process of updating their collection databases to include more information or imagery. This is often visible with result lists in which each hit is represented by some thumbnail image while for objects without image data some kind of dummy image is shown. The reason for this, however, could also originate in copyright issues. Usually, the search forms provide some form of choice whether results without image data should be included. Each item of the list can usually be selected in order to display detailed information about the artefact.

Some websites do not only offer to view detailed object information but also try to provide additional information related to the artifact currently on display. These cross-references can link to additional objects of the same creator, epoch or art form, thus providing alternative ways of browsing the online collection. The cross references appear as hyperlinks next to the detailed object description and/or directly embedded in the

descriptive text. Following the cross-reference, the Web visitor is either directed to other collection objects or to some form of glossary [32].

A small number of websites also provide recommendations for related items available in the museum store. The object detail view of [25] is a nice example for the combination of the different features, including cross references embedded in the descriptive text, links to related pages, shop items and additional services on the side. As an advanced feature regarding embedded references, [29] offers the ability to selectively highlight these links in different colors according to the categories “work title”, “person” or “artist group/organization/corporation”.

### 3. EDUCATE

The main tasks of the museum are to collect, conserve, research, and educate. A museum website can therefore also be used for educational purposes, motivating users to acquire deeper understanding of the field. The community features of Web 2.0 services can have an additional effect in this regard.

#### 3.1 User Upload

There are several museums that offer visitors the opportunity to publish their own creative work on the Internet. The Centre for Art and Media Karlsruhe [36] operates the project *FLICK\_KA* since 2007. Visitors can have their portrait photos taken and add them to the collection of the museum. They can either use the photo booth in the museum or upload the image via a Web interface from home (see Figure 3). This portrait gallery is also part of the exhibition *YOU\_ser: The Century of the Consumer*.

The British Tate operates an interactive website for young people. By creating a new account the user must be between the ages of 12 and 25 years old. Users are able to upload images, videos and texts. They may also join debates, make comments and vote for creative ideas [4]. The Creative Manifesto for Britain is the result of a discussion about creativity in Britain in the twenty-first century. This manifesto was presented to the British government in November 2008 at a conference at Tate Modern [4].

The National Museums Online Learning Project (NMOLP) is a partnership of nine UK museums and galleries. Creative Spaces is an application produced by NMLP, which provides access to these nine collections. Users are able to explore and comment the collections, upload their own content and build and share collections with others [7].

With the ability to create art, users are prompted to think about what art actually is and who makes art and for whom. The ability to make artwork, which can be viewed and recommended by others, online should lead to more loyalty to the museum website.

#### 3.2 Games

Museums are using games to bring a younger audience closer to art and spark interest to the museum. There are games where a journey is used to tell a story and explain art knowledge. In the project *Destination: Modern Art* children of age five to eight years are invited to travel with an alien creature to the Museum of Modern Art and the P.S.1 Contemporary Art Center in New York City. In this virtual journey travelers have to solve several tasks, for example they have to solve a puzzle, the motives of which are from the painting *Three Musicians* from Pablo Picasso [18]. The goal of this journey is to get familiar with the museum itself.

Games can be used to explain artwork in detail. The National Gallery of Canada has an art education and research site called CyberMuseum. On this site there are a lot of interpretive and interactive online games [22]. In *Stories in Art* users learn a lot about stories in a selected picture. If they move over the picture they are able to find different details and stories in the picture [22]. These types of games may be used to educate the different views and labels of the artwork.

The kids' website of the National Gallery of Art offers different games for creating online art [20]. The Interactive Dollhouse is inspired by the 17<sup>th</sup>-century Dutch paintings. Users are able to change the color, the light and arrange a predefined scene in different ways. After finishing the collage users may save their work by taking a screenshot or save as PDF after using the print button [21] (see Figure 4).

The National Palace Museum in Taipei has an extensive e-Learning environment. Every module has defined course goals, and defined accompanying characters [23]. In the module *Chinese Paintings* users shall develop an understanding of the fundamental components of Chinese paintings. The dialogues of an apprentice and master Cho Meng-fu accompany the lesson. For instance, the users have to create a greeting card based on Autumn Colors in the Ch'iao and Hua Mountains, which can be annotated and then sent to a friend [23].

The user's benefit is that playing games is fun and the learning aspect only secondary. The benefits for the museums is that they are to reach a larger audience, and tying users to the museums website.



Figure 3: FLICK\_KA [36]

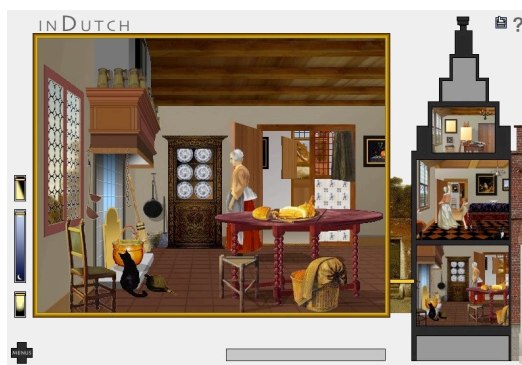


Figure 4: The Interactive Dollhouse [21]

### 3.3 Maps

As annotation map platforms like *Google Maps* become more popular, they offer a lot of possibilities for museums. Maps can be used to a lot more than just to show the physical location of a museum. For example, Google maps are very well used by the Museo Thyssen-Bornemisza in Madrid [13], to show important life stations of artists like „El Greco“, „Dürer“, „van Gogh“ and others. By providing geographical context, the presentation of artists and their work is less abstract and more linked to the real world.

## 4. ANNOUNCE AND DISCUSS

The goals of museums are not only to educate and inform the visitor, but also to install a bidirectional interaction where the museum can announce special events and have a discussion with the visitor. The museum website itself is not the perfect tool to communicate, as it demands visitors to check the website frequently. Therefore museums have started to use external Web 2.0 tools like Facebook, Flickr, Twitter, etc. With the help of these tools, museums aim to gain a larger audience and get feedback and ideas from the community. Moreover, they are present on sites where potential visitors spend their online time and thus can get in contact with potential visitors.

### 4.1 Picture Services – Flickr

Flickr is one of the most used Internet picture galleries on the Web. Museums, like the Art Gallery of New South Wales, Australia make use of Flickr to publish pictures of special events like exhibition-openings or special tours as well as showing behind-the-scenes pictures of restoration and installation of artworks in order to give the potential visitor an impression of how much work is done without the knowledge of the visitor.

The picture collection of the Art Gallery of New South Wales is published under the Creative Commons license-modules „Attribution“, „Noncommercial“ and „Non Derivative Work“ [10].

The Smithsonian Institution really makes extensive use of Flickr. The Smithsonian Institution has released 1624 photographs in 17 different categories on Flickr as of 16.09.09. These pictures may be photographs of Inaugurations, American Celebrations, as well as portraits of scientists and inventors, etc. In order to measure the reception of the picture galleries on Flickr, the Smithsonian Institution links every picture to a survey about the appreciation of the Flickr gallery [11].

But not only the museums themselves publish reproductions of their exhibits on Flickr. In 2007, public.resource.org, a nonprofit-organization published 6,288 pictures, which were previously available on the website of the Smithsonian Institution with copyright restrictions, on Flickr under public domain [27]. The outcome, as whether the Smithsonian Institution owns copyright in works prepared by Smithsonian employees paid from federal funds is pretty interesting itself and not yet determined.

The Museum Thyssen-Bornemisza Madrid publishes photos of their art collection on Flickr, but with full copyright restrictions. The Museum also offers a map like view where the location of the paintings' subject is mapped to its geographical position [12].

## 4.2 Blogs

Museums use the increasingly popular web logs, publicly known as blogs, to keep visitors updated, inform the user about special events and thereby build a community. As regular websites are perfect to inform users about facts of a museum, blogs are able to inform users about special events and behind the scenes information. Blogs usually also offer the possibility for users to comment on a certain article and to get more involved. Out of the 69 museums in our survey, 18 offer blog services.

Of course each museum follows a different blogging-strategy. While the Smithsonian Institution has several different authors for their blogs, weblogs about different topics have a strong focus on digital meta-media of the website itself [30]. Museums like the TePapa Museum in New Zealand are using their blog to give the user additional information about behind-the-scenes work and a tour on significant objects of the collection [33]. This is a similar area of application as The Metropolitan Museum of Art, New York used their blogging project *blog.mode*. In 2008 the MET used their blog to introduce an artefact every 2 or 3 days from their special exhibition about fashion [17].

As blogs demand a user to visit the museum's website, the microblogging service Twitter offers the possibility to spread news to a large amount of users, using less than 140 characters. From the 69 checked museum websites, 22 museums are using twitter. According to the Website *Museum Marketing*, 415 museums were using twitter in July 2009, the largest being the Museum of Modern Art, New York with 29,809 followers [28]. Reasons for using twitter are to inform a large community about updates, news, upcoming events, specials, etc, by saving the user the time to go and check the website himself or read through a long newsletter.

## 4.3 Youtube & Online Video Portals

During the last years, online video portals like Youtube have gained huge popularity among Internet users. Therefore, a number of museums either provide their own Youtube channels or custom developments. [36] for example, the Youtube channel of the ZKM Karlsruhe, offers 258 uploaded video clips as of Sept. 18, 2009. The idea behind ZKMtube is that each day of the year 2009 another museum employee should upload some freely chosen video to the online platform [36]. The Indianapolis Museum of Art has chosen another approach by developing its own online video platform ArtBabble [14] with the goal to “showcase video art content in high quality format from a variety of sources and perspectives”. The content of the platform is not only provided by the founding institution itself but from other museums and galleries as well, being actively invited to become partners of the project.

## 5. CONCLUSION

We have analyzed 69 art museum websites and its features, presented them in three different sections: “Explore”, “Educate” and “Announce and Discuss” and pointed out the most exciting features. While museums increasingly use external Web 2.0 services like Facebook, Twitter, Youtube, etc. to publish information about artefacts and museum news, only few institutions directly embed Web 2.0 features like tagging, rating and comments within their own web appearance. Since we believe that social tagging for example can greatly extend the usability and effectiveness of searchable artefact collections, future developments and also the publication of respective usage statistics might be very interesting to follow.

On the other hand, external web services like Google Maps offer easy-to-implement functionalities to further inform web visitors about historical developments and geographical relations of artworks through exciting interactive visual presentations. In that respect, an interesting point for future research is as how the presented content differs between internal and external Web 2.0 features. The issue of who owns the copyright on published photographs and how much information is transferred to external Web 2.0 Websites may also be interesting to look at. By giving an overview on the most interesting features and unique solutions, we have gathered a lot of information and questions that are suitable for further research.

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