Towards a unified cultural and educational portal prototype for museums and exhibitions

Georgia Petsa*, Chairi Kiourt, Anestis Koutsoudis, Fotis Arnaoutoglou, Stella Markantonatou, George Pavlidis

Athena Research Centre
*corresponding author: georpetsa@gmail.com

Extended Abstract

Technological innovations have rapidly increased over the recent years as well as e-learning usage and thus museums have increased e-learning investment in order to adapt their services in a better and more efficient way for their visitors. While museums offer a diverse range of personal digital collections systems on their websites it seems likely that a small but important core of visitors find such facilities extremely worthwhile [1]. The majority of online museum visitors understand the role of the website in encouraging this relationship, and are interested in developing a complementary relationship with the museums and museum websites they visit [2]. The purpose of this paper is to present a portal prototype, which combines educational applications, blog, advanced search options, a forum and social integration and can be adapted to various museums as an integrated solution in favor of online visitors.

Most Greek Museum web sites, such as the *National Archaeological Museum*[1] and the *Archaeological Museum of Thessaloniki*[2], offer limited functionalities to their online visitors, as there is an obvious lack of online applications and interoperability. Museums choose to create activities for visitors with physical presence and especially for children, though few museums offer online applications with interaction, like the *Acropolis Museum*[3]. Another point that should be mentioned is that museums do not empower online visitors to search in their databases for exhibits, which do not appear in their web site. Finally, the interoperability with Europeana is available in a limited number of Greek museums [3]. Europeana is an EU funded database, which provides access to authenticated, reliable metadata records from more than two thousand cultural heritage institutions across Europe, made available through the mediation of a large number of national and thematic aggregators [4]. As can be perceived, there is a need for the creation of a universal system that would combine knowledge, creativity, education and socialization, and also support interoperability with the Europeana database.

Seeking the components that satisfy the requirements of the specialized portal and allow functionalities to meet the design criteria, we propose a general portal structure as shown in Fig. 1. In particular, the overall schema consists of the representative attributes of *"Portal Core"*, which includes *general information*, *user management*, *forum*, *applications*, *social integration*, *search tools* and the *blog*. "General information" includes all necessary information for the purpose of the portal along with basic information about the project partners or the museum. The "Blog" hosts published articles of general or special interest that are written by the administrators and authorised users of the portal. "User Management" includes the user support functionalities, providing opportunities for registration and editing of user profile information; in addition, here, one registered user may find the scores and achievements in the educational games. The "Forum" is a typical place for exchanging views

that supports group discussions among members of the portal, providing opportunities for team building discussions and general social engagement. The basic structure of the portal includes the "Social Integration" functionality, which connects the portal with Social Media Networks, including a Facebook page, a Twitter account and a channel on YouTube and also a set of sharing options for pages, articles or applications in social media. An advanced feature offered by the portal is the search functionality in articles and museum data, which is divided into *"Search in Portal"* and *"Advanced Search"*. "Search in Portal" searches within the data of the portal, while the "Advanced Search" returns search results by querying the central system database (which is a prototype CIDOC+LOM composition including educational and cultural data), the web (through Google) and Europeana. This functionality is supported in a standardized manner, offered through a web service that sends and returns data in the form of JSON (or JavaScript Object Notation) and runs continuously in the background. JSON is a programming language model data interchange format and as a minimal, textual, and a subset of JavaScript [5] so it could be used in every database. The last component is "Applications", which includes web-based educational games, a virtual museum and other experimental educational activities, which may vary depending on the purpose of the portal.

On the lines connecting the Portal components there are parts that are labeled by *"User"*, as shown in Fig.1. This label indicates that the corresponding components are available only to authenticated users. This is necessary, as the corresponding functionalities should either identify the user, such as the forum, the scores, the educational games.
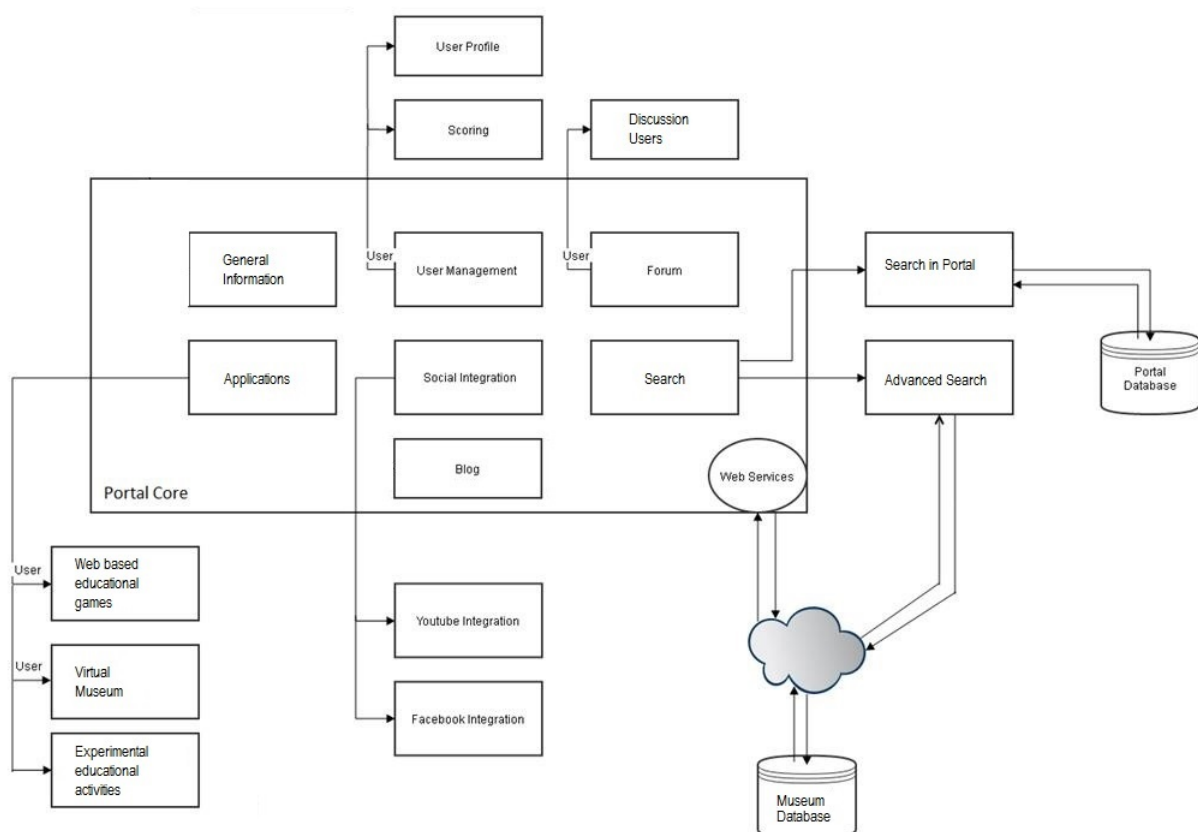

Fig. 1 Portal structure

A case study of this prototype was utilised in *Synthesis Project Portal*[4], which is a comprehensive portal that was designed and developed to meet the needs of digital visitors of the *Theocharakis Foundation*[5] in a way that *game meets education*. In particular, the *Applications* in Synthesis Portal consist of a virtual museum of the Theocharakis Foundation, educational web based games such as "Tour in the works of Papaloukas", mobile 3D educational game and on line courses in Geometry, Geography, Physics, Chemistry, and foreign language (French), based purely on museum material. The project includes a complete *social integration* with presence in Google+, YouTube, Facebook and Twitter. The portal is multi-language and supports Greek, English and French.

Acknowledgements

References

[1]   Filippini Fantoni, S., Bowen J.P. Bookmarking in museums: Extending the museum experience beyond the visit?, Museums and the Web 2007, Archives & Museum Informatics, Toronto, CA (2007)
[2]   Marty, P. F. (2007).Museum websites and museum visitors: Before and after the museum visit. Museum Management and Curatorship, 22(4),p. 337–360.
[3]   Hellenic Ministry of Culture, Education and Religious Affairs
        http://www.yppo.gr/0/anakoinwsi2012_europeana.jsp
[4]   Charles, V., Isaac, A., Fernie, K., Dallas, C., Gavrilis, D., Angelis, S., "Achieving interoperability between the CARARE schema for monuments and sites and the Europeana Data Model", Dublin Core 2013 and Metadata Applications 2, Lisbon, Portugal.
[5]   Crockford, Douglas, "JSON: The Fat-Free Alternative to XML". XML December 2006, Boston.

---

[4] *'Synthesis' project homepage at http://synthesis.ceti.gr*
[5] *Theocharakis Foundation for Fine Arts and Music at http://www.thf.gr/default.aspx?lang=en-US&page=1*