

DIGITAL FORMS OF EDUCATION: DISTANCE MUSEUM EDUCATION IN EUGENIDES FOUNDATION

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Abstract: In this paper we present the development and deployment of an online museum created as an elearning course based on real-world science exhibits of the Eugenides Foundation. The purpose of the developed course was to blend the educational program of a cultural organization with the use of new technologies. This was achieved with the creation of an Asynchronous e-learning program, based on the exhibits of the Eugenides Foundation interactive exhibition. The Eugenides Foundation is a modern cultural institution, with a multifaceted action and long history in education and scientific knowledge. The program was created with the use of a Learning Management System which hosted two individual online courses. Each course includes three exhibits of the interactive exhibition. For the evaluation of the program a pilot application was implemented and the relevant questionnaire survey conducted, the answers and statistical outcome of which are presented in the paper. In addition, an interview with the organizers of the interactive exhibition was conducted, where the Foundation's policy regarding the management and promotion of such a service to its target audience was stated.

Keywords: educational program, new technologies, distance learning

1. CULTURAL INSTITUTIONS AND NEW TECHNOLOGIES

According to Silverstone cultural institutions are characterized as means of communication as they entertain, inform, tell stories, aim at educating the visitors and responding to their needs and wishes and above all, make culture approachable. Relevant studies have indicated that the use of new technologies could assist significantly in order for the above goals to be fulfilled [1]. Key points as interoperability, digital world, high-tech means and cooperative experience, comprise the new "refreshed" approach in culture matters and offer a better and more efficient understanding of knowledge [2].

New technological means are used and implemented by cultural institutions in order to preserve, reserve, educate, demonstrate and communicate their "treasures". Traditional practice and technology portray the ideal way of communicating knowledge, as there could be created mixed environments providing various interpretation perspectives, forming a cooperative and interrelated approach and thus, creating a vibrant experience for the user. A relevant case is the one of the Getty Museum (http://www.getty.edu/art/exhibitions/north_pavilion/art/index.html). Greece has implemented several online learning activities based on virtual museums with various degrees of success, including participation by adult students of the Second Chance schools situated in Korydallos prison [3].

Recently, a trend widely spread, is that of the **Digital Museum**. The idea of digital world expands the convectional existence of the cultural institutions, as it offers many advantages. The most important of those being the ability given to those interested, in browsing

its content regardless any time/space limitations, just using a computer, through Internet. Via virtual learning environments, visitors earn and assimilate knowledge to the most, as they get actively evolved in the learning procedure [4].

A new term has arisen lately in cultural world, which combines education and entertainment: **Edutainment**. Regarding their vast impact separately, it's no wonder how they can affect culture as a combination. With edutainment visitors remain satisfied, as they receive the pedagogic message and essence of culture, through entertainment. One of the most important activities of a cultural organization and core service towards the visitors is the Museum Education (ME), given the fact that it is the representation medium of cultural "products", in an interactive and experiential way [5]. Several museums have launched their educational programs by using effective digital technologies, as Milwaukee Museum of Natural History (<http://www.mpm.edu/education/distance/>), Carnegie Museum of Natural History (<http://www.carnegiemnh.org/programs/distance.html>), Fort Worth Museum of Science and History (<http://www.fwmuseum.org/distance-learning>), Philadelphia Museum of Art (<http://www.philamuseum.org/education/32-128-195.html>), Amon Carter Museum (<http://www.cartermuseum.org/teaching/distance-learning>) etc.

The following paper portrays the example of the educational program of Eugenides Foundation, implemented by Moodle.

It focuses on the combination of these two elements: educational programs-new technologies and suggests an innovative application which could be incorporated

in the services of Eunenides Foundation and differentiate it from other Greek cultural institutions.

2. DISTANCE LEARNING

A relatively new, alternative and rapidly expanded form of education, is distance learning, or e-learning, or distance education. Rumble (1986) refers to it as “education imparted where the learner is physically separated from the teacher”, Holmberg (1989) as “a planned and guided learning experience”, while Keegan (1988) specifies that it “consists of a two-way structure distinct from traditional classroom instruction” [6]. The main characteristic of distance learning is that during the whole educational procedure, student and teacher are not at the same space. Consequently, it uses a variety of means and tools in order to display the educational material, so as to be as effective as the conventional one. Distance learning education is delivered through platforms of distance-learning or Learning Management Systems (LMS). In the current case, it is used **Moodle** (Modular Object-Oriented Dynamic Learning Environment) which is an Open Source Course Management System (CMS), but it is also known as an LMS or a Virtual Learning Environment (VLE). It supports educational material and offers the ability to those using it, to manage themselves the flow and time schedule of learning (http://docs.moodle.org/el/Περί_Moodle)

3. THE PROPOSAL-DESIGN AND DELIVERY

The most popular aspect of the Foundation is the interactive-digital exhibition which covers three general topics: Matter & Materials, Communication: sound and image and Biotechnology (<http://www.eugenfound.edu.gr/frontoffice/portal.asp?page=NODE&cnode=96&clang=1>). All interactive exhibitions offer functions so as to enable visitors to enjoy a first person experience into the world of Science and Technology, as all exhibits refer to and represent current scientific and technological achievements. The basic and core principle of the exhibition relays on the following terms: listen-forget, see-remember, act-understand. All exhibits are designed with the use of high quality tools and interactive multimedia which promote the active role of the visitor. The main educational program of the Foundation is based on this exhibition.

Focusing on new ways to satisfy visitors to the maximum extent, it was proposed the creation of a service which would allow an alternative form of visit to the digital exhibition, via technology.



Image 1: Front page of the e-learning program

For that purpose, there were designed two digital courses, based on several exhibits from the above mentioned digital exhibition, according to their subject category.

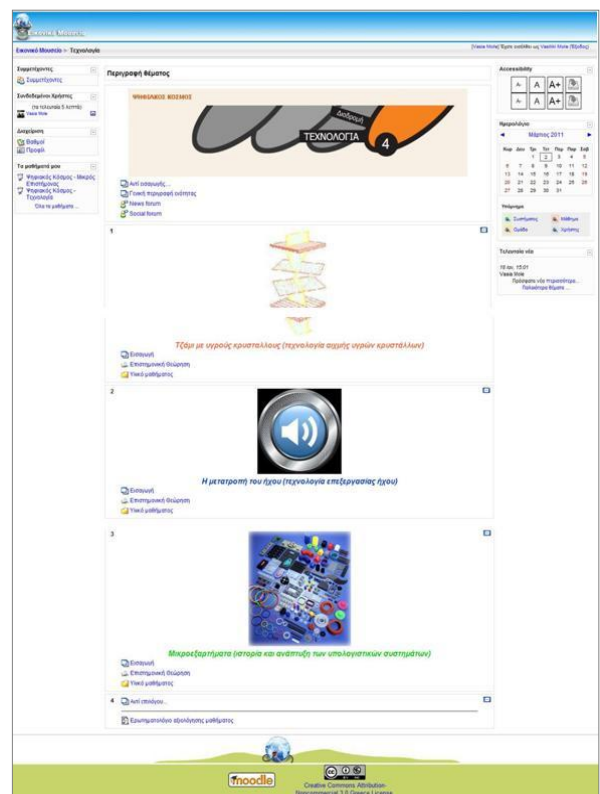


Image 2: Front page: e-lesson named “Technology”

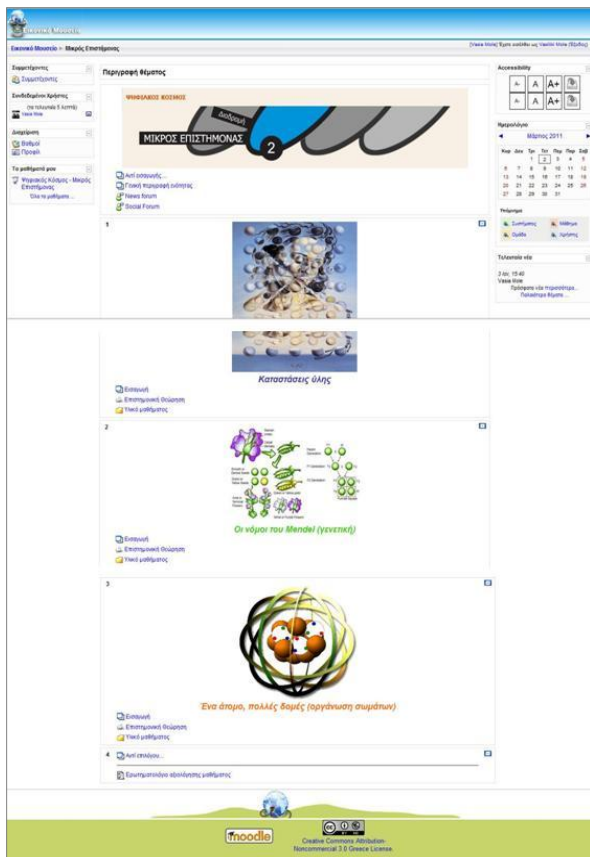


Image 3: Front page: e-lesson named “Little Scientist”

The courses were created under two different perspectives:

1. to run as autonomous, complete distance-education courses, for those interested in visiting the exhibition but not being able. Therefore, each course includes pictures from the exhibits and educational material (theory, explanation, quizzes, questions)
2. to run as a supplement to the actual visit. Those interested, could study the educational material before visiting the exhibition, so as to get a little acquainted with the exhibits. In addition, those who have already visited the exhibition could run back to the educational material in order to freshen up their knowledge, clarify possible questions and doubts and further empower their knowledge.

Moodle offers a wide range of tools which make the course creation an easy and creative procedure, as well as the course delivery sufficient and effective. However, the course design and the general layout, followed a simply structure and order, so as to be approachable and easily browsed by the participants. The same simple approach was also used in the material display. All information was divided into subject sections using basic, yet satisfactory tools.

In general, the whole idea of the course focused on the encouragement of personal participation and personal management of the individual's pace of learning.

Participants had also the ability to download the course material in PDF files and store it to their computers for further studying even after they completed the e-lesson. Even though there weren't added any activities in the course (eg. Quizzes, tests, essays) as it was created experimentally, there were created forum groups, that indicate the ability of direct and quick communication among the participants (and the potential teacher – if any) regardless the distant character of the course.

4. FEEDBACK AND EVALUATION

The program was piloted among 37 random participants covering various fields of personal interest, occupation, age and place of residence for a period of one month. Survey which is conducted mainly using a sample, aims at collecting various perspectives on the surveying subject, which will eventually determine the concluding result. The purpose of this particular survey was to indicate if this form of education and “visit” to the exhibition could be applied effectively and meet up to the demands of the participants. On that frame, a small-scale evaluation study was carried out to determine the success of the program. This evaluation took the form of online survey, which was administered at the end of the course, through an online questionnaire. The questionnaire was designed with the equivalent tool which is supported by Moodle, “Questionnaire” and contained 31 questions which covered all aspects of the program and met the goal of the survey: technical characteristics, content, presentation, general implementation of the program, suggestions, and proposals. The type of the questions varied, so as to maintain the interest of the surveyed and the responses were automatically processed through the system, generating statistical results.

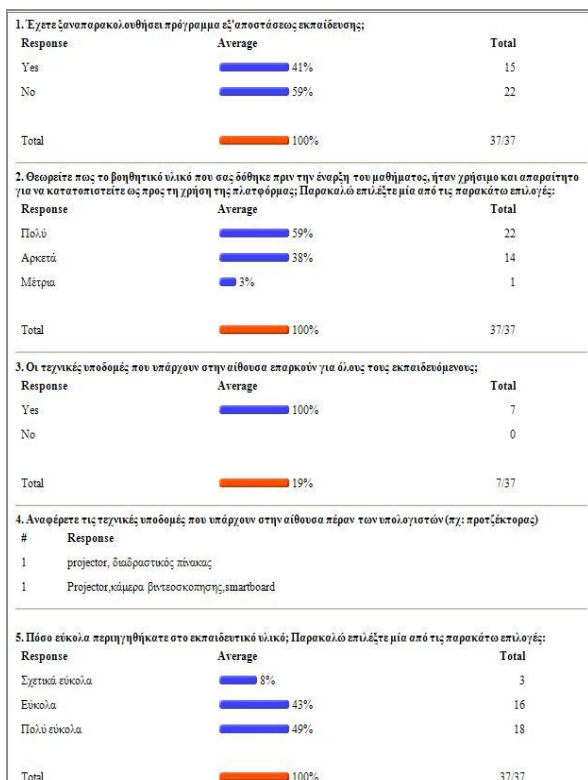


Image 4: Questionnaire – Closed format questions

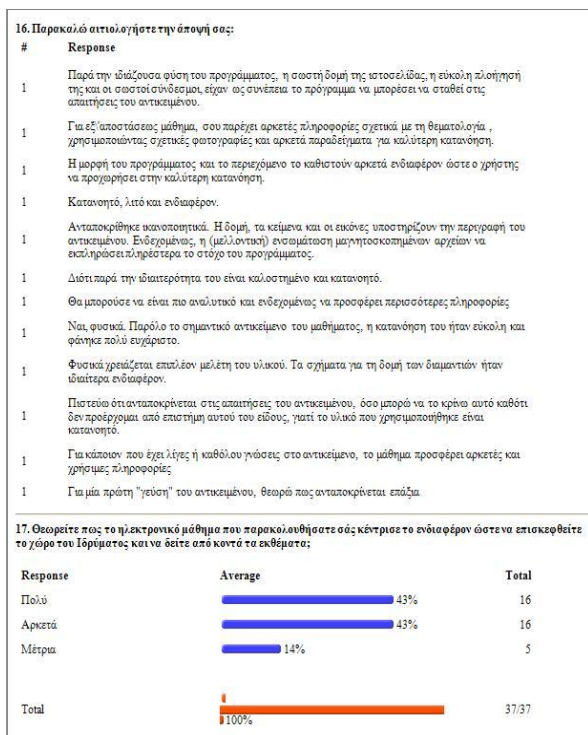


Image 5: Questionnaire – Open format questions / Rating scale questions

Even though for the majority of the participants were the first time that participated in an e-learning course, they didn't face any particular difficulty and managed to complete it within the estimated time.

In addition, regarding the content and the overall presentation, most of the participants answered that it was rather understandable, clear and precise, whilst the accompanying photos and additional text encased the whole meaning and were very informative.

64% answered that the program improved their knowledge on the subject, as it covered all basic aspects of the exhibits, combining the theoretical basis with interactive additional material, which made the content even more approachable and easy to perceive.

Those who couldn't visit the exhibition stated that the program alone covered their educational needs, as it described satisfactory the scientific essence of the exhibits. On the other hand, those who had already visited the exhibition agreed that the course empowered and refreshed their knowledge so far and reminded them of some aspects they had forgotten.

Among the improving proposals, was the addition of more interactive material (eg. videos) to accompany the educational material and make the course's character more vibrant and realistic. Also, it would be preferable to contain several evaluating activities (quizzes, essays, tests, etc) in order for the participants to be able to check their knowledge throughout the program.

This indicative survey concluded in some important statements regarding the creation and launching of such a service among the other services of the Eugenides Foundation towards its visitors and those interested in scientific matters.

Judging from the positive outcome, it seems that people are open and receptive to new educational methods, as they offer many and diverse pedagogical tools which make it easy to follow and understand. Participants found the idea of distant museum education rather innovative and appropriate for those who can't visit the exhibition.

Even in such a particular field (as the one of the interactive exhibition), distance education is able to successfully implement the equivalent, traditional form, without losing any of the core meaning or important aspects. As it was stated, all important information was perceived easily and didn't lack any meaning or understanding, even though there wasn't a direct conduct with the exhibits.

In general, a distance learning program could be launched as completely autonomous and independently to the physical object, offering integrated knowledge and most importantly, the ability to the participant to personally manage the pace of the studying. Even in the case of the program as a supplement, it manages to stir the interest of those wanting to visit the exhibition in the future and cover/answer any doubts or queries that might occurred to those who have visited the exhibition in the past.

Apart from the questionnaire survey, there was conducted an interview with those responsible for the exhibition. First, they were presented with the e-

learning program and were given some time to examine it and study the educational material as participants. Then, during the interview, they were asked about their learning experience and the possibility the program to be included in the rest of the Foundation's services and under which circumstances. Regarding the design and material delivery, their answers were similar to the ones given by the participants. They recommended more interactive tools and activities to be added, so as to better represent the character of the exhibition. Concerning the future addition as a complete service to the Foundation's target group, they noted that it should follow the general principles of the Foundation's function and be of high standard as the rest of the services. In addition, it should be communicated properly to the potential visitors via a strong marketing plan so as to attract even more, since it would be an original concept for the Greek standards.

Overall, the Foundation would embrace such an idea, under a specific perspective which would match its core values, essence and purpose.

5. CONCLUSION

Undoubtedly, a literature review is essential in any case, when getting engaged in an innovative project. Best practices, similar implementations, indicative examples, potential weaknesses, strengths, advantages and disadvantages are useful and of core value to the success. When developing on line content for virtual museums, it is important to take into account the implications and prospects of using Web 2.0 tools. This enhanced version of the World Wide Web allows the virtual visitor to have a broader experience of the virtual exhibits and allow museums to suit different users' interests and needs [7]. Content can be created so that the virtual museum can be used on its own, by the user, in his/her leisure time (i.e. Google Art Project <http://www.googleartproject.com/>), or be part of a structured approach that enables teachers and students to learn about the exhibits prior to the visit, thus enhancing the actual museum-visit experience. On line material can be used to support learning and foster discussion in the classroom (in case of an organized school visit) post-museum visit. Such programs have been launched under EU funding, and include the Natural Europe Project (<http://www.natural-europe.eu/>) funded under the European Commission ICT Program (2009).

Content need not be developed by educational or cultural institutions from scratch - that would require significantly large funding, that might make the development of such content prohibitive. However, there is a growing abundance of on-line open educational resources in various fields such as Science Education that can be implemented by virtual museums with little or even no cost to create a more enhanced, interactive on line presence [8].

Additionally, the prospects of on line learning and virtual museums, along with the possibilities opened by

Web 2.0 social technologies, demand that institutions themselves open up to new collaborations between their own resources and other stakeholders, such as experts on the fields (especially in the areas of Science Education). This collaboration can bring to the visitors a more engaging on line experience fusing together the actual exhibits with a set of data that can be manipulated by the interested parties (visitors, students, teachers) as well as meta-data that can be used to further integrate content into learning or content management systems. [9]

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Note: The case presented at the paper was conducted for educational purpose only, as a Master Thesis for the Msc “Cultural Organisations Management” - Hellenic Open University, under the supervision of Dr. Nicholas Karachalis, Adjunct Lecturer, University of Thessaly, Planning and Regional Development, Greece.