

# Educational use of Interactive Multimedia based on Museum Collection

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**Abstract**—This research investigates the use of digital technology namely interactive multimedia in effective art education provided by museum. Several multimedia experience examples created for art education are study case subjected to assistance audiences' learning within the context of existing theory in the field of interactive multimedia.

**Keywords**—E-learning, Fine Arts, Interactivity, Multimedia

## I. INTRODUCTION

MORE recently, the museum has offered us magnificence of artistic masterpieces, educational environment has adopted digital technology to expand its educational role for the general public. Considering that fine art is still through regarded as being difficult to understand fully to wider audiences, today there are several attempts by museum to attract people to the fine art realm emerged with digital media. This research will illustrate several main online art education projects, produced in digital language, which juxtapose education and enlightenment in arts simultaneously.

## II. THE EDUCATIONAL ROLE OF THE MUSEUM AND THE NEW TECHNOLOGY

The museum has played an educational role strongly in the society for the general public through the fine art and design exhibitions. The museum organizes visualized communication for the general public to obtain access easily to the realm of art and art lets audiences have new experiences through aesthetic inspiration in the museum environment. In this sense, the virtual space, especially web environment where audiences easily and frequently have access in their daily lives, is regarded as useful tool for the museum which always has to consider the general public's simple approaches beyond the geographical limitation or physical disability. With new technologies, the museum has attempted to integrate the online environment into learning and teaching processes of traditional materials like fine art works created several hundred years ago.

## III. THE CHARACTERISTICS OF THE ONLINE EDUCATION

According to Jon Lanestedt, there are three main areas of methods, which constitute online learning environments:

- (1) learning and teaching

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- (2) creating and managing content and learning resources
- (3) coordination on an institutional level

(Lanestedt 2003:71)

These environments offer methods for audiences as the receiver and museum as sender of the information and entertainment in the web environment to collaborate and communicate reciprocally. In the exchanges, 'interactivity' is centered for its effective collaboration and communication. In the online learning environment, the 'digital' connotes 'interactive'. The use of digital technology in the realm of museum represents communication with the public in interactive ways, rather sending information unilaterally, and this tendency is significant in education of the museum. Regarding the definition of interactivity, there are three categories:

1. A phenomenon involving the exchange of information between two equal partners
2. A situation involving a feedback loop and response
3. Composite definitions that talk of either degrees or components of interactivity

(Espen Aarseth 2003:425)

Concepts of (2) and (3) can be mentioned to the interactive online educational area of the museum. As in both cases, the online education of the museum can be integrated and completed superfluously by the use and modification of the general public. For effective interactivity in the education of the museum, user-friendly interface is important to attract the general public. Original fine artwork tends to connote philosophical concepts behind its visual representation. This museum's education has focused on the description and explanation of these many hidden meanings to the general public. In the online education, however this attempt of explanation of explanation about artworks, consists of user-friendly works such as visual interfaces organized newly so as to attract the general public to reinvent hidden meaning with each individual's interpretation. Paul Brown said on this, "your existing knowledge and skill can be applied applied to these new systems"(Wilson 2003:656). Therefore, the result which each individual obtains from online education of the museum would be diverse, so this approach should be produced with target segmentation, considering different tastes based on different generations and occupations to obtain its effective results.

#### IV. SEGMENTATION OF THE AUDIENCE

Regarding the Tate's online education, the general public is categorized into kids, families, schools, teachers, adults, young people (ages 13-25) and lifelong learners. Especially, the museum tends to focus on kids, because websites with visual fun for children attract not only young people, but also the groups and institutions associated with children, such as families, schools, teachers and adult audiences. In the next sections, representative online educational website of the Tate will be argued with its strength and weakness in comparison with that produced by MoMA.

#### V. CHARACTERISTICS OF ONLINE LEARNING BY MUSEUMS

##### A. Online learning which shows visual and sound fun

The Museum of Modern Art, New York has magnificent art collections. In addition, the museum is one of the most must-visited places not only for its national people, but also for international visitors. Thus, museum's attempts for interacting with global audiences seem obvious also in the educational websites, which attract kids regardless of their national background. The website for children was created with visual and sound fun of animation to enable easy access for understanding to modern art on the web environment. MoMA's <Destination | Modern Art> has been developed by its Digital Media department for young children, especially ages five to eight. It features a visitor from outer space with a mission to explore modern art of the earth. In this animated space, following a brilliant cartoon character from outer space, we can investigate several masterpieces like Vincent van Gogh's <The Starry Night> created in 19th century and contemporary art works together.

##### B. Online learning, which inspires kids' creativity

Tate has several specific sites created for kids: MEMENTO MORI, My Imaginary City, and Art Detective. Instead of using vivid graphical animation like MoMA's, Tate has used Flash programming to let kids to organize and replace art contents by themselves. Most of Tate's online education is based on works in the Tate collection. Tate has categorized its audiences and developed activities depending on each different audience illustrated in TABLE 1.

#### VI. CHARACTERISTICS COMPARISON OF PROGRAMS

Comparing the characteristic of Tate's online education with MoMA's, it is found that the Tate asks questions to audiences and gives chances for them to make choices of next path answering questions. Tate's online education was created to lead audiences to think independently with their own interpretation about artworks. The sections below describe websites of Tate's online education.

TABLE I  
PROGRAM CLASSIFICATION BY USER IN MULTIMEDIA ENVIRONMENT

User	Name	Content
Kids	Art Detective	Based on one single work of art is illustrated in linear story
Schools	Tate Tools	Based around several works in the collection
Teacher	the School Online	Available to download to use in paper-format for class room
Adults	ITA	An online introductory course to modern and contemporary art

##### A. MEMENTO MORI

The game consists of 3 stages: (1) matching symbols with artworks, (2) solving riddles, and (3) racing each other around the room.

##### B. My Imaginary City

In this website, kids are offered an environment to create putting any materials on the scene with their own imagination. The materials of the website are not based on original artworks of the collection, yet this project helps children to develop their own creative senses and feel familiar with abstract or surreal artworks, which express scenes or places that are not real and that might never exist. Like My Imaginary City, creating and managing contents by audiences' interpretations are used significantly for kids to develop their imagination and creativity. This practice is not based on original fine art works, but as seen on the website of Cooper-Hewitt National Design Museum, it also helps kids to make progress not only in the aesthetical aspect, but also in the historical context collaborated with art. Tate's website has organized websites focusing on each artist and artworks, otherwise the Cooper-Hewitt's virtual space is divided into two historical categories: Arts&Crafts period (1865-1920) and Modern period (1945-1970). In the virtual museum of Cooper-Hewitt, kids can enjoy managing of historical design stuffs and simulating them in the virtual space, even though more various materials and dimensions seem to be needed in advance and text explanations to help understanding. I have attempted to create my own Design-a-room in this virtual space.

##### C. Cooper-Hewitt

The Cooper-Hewitt's virtual space teaches children to think of the story behind everyday design objects. Furthermore, his website can attract not only young people with specific interests in design, but also professional designers or adults. As the museum has specialized in collections of interior design materials like wall-covering, fabric, chairs, telephones, ceramics, and furniture, it is easy to imagine that the museum could made an on-line space to ornament a virtual room with these materials. Audiences create their own virtual space choosing whatever they prefer, and understand how these historical and aesthetical materials could be adopted into our daily lives, as stuffs coming out from the museum's glass wall existed for product's preservation. This project may help audiences to think like a creative designer.

*D. Online learning website which has a weakness for kids' attention: Art Detective of Tate kids*

Comparing this to previous websites of Tate e-learning for kids, it seems quite difficult for kids to understand. In this website, audiences cannot be kids, but at least should be young people aged over 15. This website lets audiences investigate a work in various ways, for instance, Henry Moore's sculpture shown in 3-dimensional sides in virtual space with explanation of its historical and cultural context. The interface consists of questions and change depending on answers. Questions require slightly deep art historical knowledge. After exploring website, kids may have deep knowledge and familiarity with an artist, yet to be an attractive learning website, it seems to need more visual and sound fun on the user-friendly interface specified for kids.

An illustrated and compared to other museum's online learning websites above, Tate has offered more various interactive learning projects and being based on the fine artworks collections, the museum has played a role in the education and entertainment simultaneously. More recently, a tendency of combination of education and entertainment has been flourished. For instance, simple computer game created from traditional fine artworks.

*E. The Interactive Game based on the Artworks*

This project might have created in a same sense with previous projects of Tate, illustrated above, yet this website lets audience approach more directly to the artwork. As mentioned above, Tate has produced its online education activities based on Tate's collection. When we visit a museum, there is a big difference to appreciate artworks with background knowledge and without it. Yet, for the general public, it is not easy to get knowledge about artworks in historical and cultural context. Amongst Tate's great collections, we can observe <Millais' Ophelia> in a form of puzzle quiz game. The more we make correct answers, the more we can observe the artwork.

Most people possibly know that Ophelia is related to Hamlet written by Shakespeare, but might have not known the model of Ophelia drawn by Millais in this picture was Elizabeth Siddall, or be able to identify the birds and flowers, described in this picture. In this puzzle game of <Ophelia>, whenever I made mistakes in the choice of a correct answer, the game turned back to the beginning. Through this practice, audiences may acquire knowledge about the masterpiece, while enjoying a puzzle game. Furthermore, this experience will assist audiences, when they can gaze at this artwork in real to have more enjoyable appreciations. In advance, if this kind of practice can have more active interactivity which reflects audience's impression on the artwork, it may be possible to produce new images to approach and to express emotions that we can feel from the original artwork.

can be "interactivity, hypertext, and virtuality" (Espen Aarseth 2003: 415). The effective adoption of these concepts has been experimented in the online media in the museum as artists with innovative minds always opened the door of a new concept before others. The developments of digitization have been welcomed by educational institutions, like museum, which has social responsibility to present pioneering ideas of artists and at the same time educate the general public. More significantly in recent years, user-friendly interfaces created by museums have attracted the general public.

Nowadays, digital technology is regarded as critical resource for creativity, yet considering original artworks, technology is only a tool, not ultimate goal, which we have to achieve. The ultimate thing is reinventing our senses toward the world, through an art, which not only represents aesthetical aspect, but also includes historical and cultural contexts of the time. Between the conventions of traditional artistic forms and the computer interfaces, there are numerous possibilities to reinvent the self. And these attempts have been tried most significantly by the museum further in newer medium such as mobile phone application.

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#### VII. FUTURE USE OF DIGITAL MEDIA FOR ART AUDIENCES

According to Aarseth, recent phenomena in digital media