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The Use of New Media Technologies for theTransfer of Cultural Heritage in Museums

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Abstract

The museums are the first sources where the works that bear witness to the past are collected and preserved. Therefore, they are the institutions that play an active role in understanding the cultural processes. In the understanding of traditional museums, it is known that the functions of museums are to collect, protect, investigate and exhibit objects. With the development of new technologies in today's concept of museology, these functions are transformed and the policies of display and viewing are changing.

The transfer of cultural heritage to the new generation by traditional methods is seen as a subject to be questioned. Because this generation likes to use internet and mobile technologies, they prefer to socialize through the internet, do more than one job at the same time and get bored quickly. The new generation of digital media has become an indispensable part of daily life.

In this context, the aim of the research is to examine the aims of the new media technologies used in the transfer of cultural heritage in

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museums. It is explained by relating the transformation in museums to the digital culture, which is a necessity of the age.

Keywords: New Media, Cultural Heritage, Digital Culture

1. Introduction

Today, with the transformation of new media technologies, the understanding of traditional museology is changing and it is emphasized that "museum of traditional understanding, is not sustainable in fast thinking and moving in multi-faceted structure (Omar,2005:54). With the spread of new media technologies, new sources and new presentation opportunities are used in museums.

The museums, which have preserved their collections in historical buildings in the natural formation, are being restructured with the understanding of contemporary museology. The techniques of exhibiting and presentation which are suitable for the understanding of the generation of digital culture increase the impact of the works on the viewer, the meeting of the cultural and art treasures with the society is carried out without waiting for the visitors.

In the research, what the presentation and exhibition techniques are used in the understanding of museology evolving with new media technologies are examined, the characteristics of digital generation are determined, the necessity of futuristic approaches in the transfer of cultural heritage is emphasized.

Being a constructor of the past will be possible by educating individuals who do not lose their identity and values, can make predictions about the future, take his power from the past, protect his cultural heritage. In this context, researches should be carried out to reveal the necessity of updates in the transfer of cultural heritage in parallel with cultural transformations.

This research is composed of three sub-titles. First of all, the evaluations that have taken place from the past to the present under the title of "Changing Museology " will be made. With the second title "New Approaches in Museology ", the determinant of technology and its effects on life will be examined. Reflections in the understanding of museology will be evaluated. While used

technologies within and outside of the museum, museum examples found in Turkey will be discussed. Then, under the title of "Digital Culture", explanations will be made on the current cultural transformations. The characteristics of digital natives will be discussed.

Based on the obtained data, the necessity of using new media technologies in the transfer of cultural heritage will be explained in the conclusion and discussion part. The importance of developing appropriate strategies for the transfer of cultural heritage will be emphasized in museums which are common educational institutions.

While collecting data; domestic-foreign literature, online news, magazines, books and newspapers was used. The examples of new media technology used in museums were taken from the web page of museums.

2. Findings

2.1. Changing Museology

From the past to the present, there are so many definitions of the "Museum" Word. It is derived from Greek "Mouseion", the Latin word "Museum". It was first used as a temple of the Mousas (guardian of the gods of the art) and then as a temple of sciences (Erhat, 1983; Arkın, 1983; Keleş, 2003).

"Prior to the establishment of the museums, valuable objects and art works were collected and exhibited for religious and objective reasons in caves, graves, holy places, temples, palaces, villas and urban centers. During the Hellenistic period, the mouseions "became a cultural center" (Atagök, 1997: 1321). "After a while, when the mouseion became the meeting place of the intellectual people, many of these buildings were arranged with more care and many works of art began to be exhibited" (Yaraş, 1994: 19). "In ancient times, there was an effort to bring knowledge and art to the public; in the western world, in the Middle Ages such an approach was not seen" (Karabıyık, 2007:4). "There were only collections of religious objects

in the monasteries and churches, which grew more and more every day" (Yücel, 1999 : 20).

> The emergence of the museum in the present sense coincides with the 15th century. At the end of the efforts of the renaissance philosophers to reach pre-medieval knowledge, the valorization of the works that witnessed the history has allowed them to collect and accumulate systematically. The collection, archiving and presentation of collections started in the 18th century. The transformation of the 1789 French Revolution in society has also been reflected in the museum and the nationalism that emerged with the French Revolution revealed the concept of a national museum (Karabıyık,2007:37)

According to Karabıyık's (2007) claim, "various factors, such as increasing industrialization, increasing the rate of urbanization, progressive speed of science and technology, have raised concerns about protection of heritage and values".

"The museums, which were originally intended to collect and display ancient artifacts, were reconstructed with the understanding of contemporary museology. Nowadays, they have become pedagogical, sociological and psychological contents and have become non-formal educational institutions" (Atasoy, 1994).

The International Council of Museums (ICOM) Turkey National Committee Article 4 of the Regulation, the definition of the museum are as follows. "Museums are institutions that protect cultural works, exhibit this works collectively in order to improve the study, education and pleasure, work for the public good with art collections belonging to health, technology and health". In Article 5, the boundaries of the definition of the museum are expanded as follows." Libraries and archival centers with permanent display sections, historical monuments open to public visit, part or premises of historical monuments, historical and archaeological places and parks,

plants and zoos, aquariums and similar organizations are included in this specification (İCOM, 1970).

The museum definition in the regulations of the Ministry of Culture in 1989 is as follows: "Museums are organizations that identify cultural assets, reveal them with scientific methods, examine, evaluate, protect, promote, continuously and temporarily exhibit public raising the educational level of the people, and are permanently active in developing the world view" (Gerçek, 1999: 11). In the last two decades, museums have begun to use new technologies and new themes to expand the visiters.(Bruce, 2006:130).

2.2. New Approaches in Museology

New technologies used in the transfer of cultural heritage in museums can be examined in two groups according to their purpose and function. These are new media Technologies that used "inside the museum" and "outside the museum".

The new media technologies used within the museum are used for the purpose of informing the visitors about the works. These are screens, holograms that enable the study of 3D works, animations produced with a multidisciplinary approach, interactive simulations and entertaining practices.

Interactive kiosks, digital museum guide tablets, camera recognition technologies, virtual tour applications, holograms can be evaluated within the scope of the technologies that are used for the purpose of obtaining information about collections. In museums, a variety of simulations are used for transfering cultural heritage. These can be listed as simulations that make applications to visitors, historical trip simulations, game simulations. The new media technologies used outside the museum are street museum applications and virtual museum tours.

2.2.1 Interactive kiosks

Interactive kiosks (Visual 1) are widely used in museums to provide information about the works. While the works that have been preserved in the traditional museum concept are displayed with short informations, thanks to the new media technologies. the visualization of the image into the digital environment, detailed and different aspects can be examined. Details can be expanded and explanations associated with the cultural structure of the period can be read. There is no need for large areas to cover the detailed information used in traditional display methods. This is provided interactively with a kiosk.



Visual 1: Interactive kiosks that examined the vase Hussein's grandfather in Corum Archeology Museum

2.2.2. Digital Museum Guide Tablets

Visitors are assisted by tablets (Visual 2) where the works are described and detailed information (image, sound, text) about the collections. When the visitor visiting the museum reads the QR code of the collection, detailed explanations and visuals are displayed and voice explanations can be listened too. People can visit the museum with a guide and make detailed reviews.



Visual 2: The digital museum guide tablet that provides information about the artifacts in the Kalehoyuk Archaeological Museum

2.2.3. Camera Recognition Technologies

With the camera recognition technology and compatible software, when visitors point their phone cameras at a work, the content is displayed. Thus, detailed information about the work is available in written, audible and visual form (Visual 3).



Visual 3: Smartphone application used as guide in Erimtan Archeology and Art Museum

2.2.4. Virtual Tour Applications within the Museum

With the help of three-dimensional programs, virtual tour applications (Visual 4) can be carried out in historical structures / settlements, which are transferred to the digital environment, based on historical data. Structures in the ancient cities can be examined in 3 dimensions closely by means of new technologies and can be informed about them.

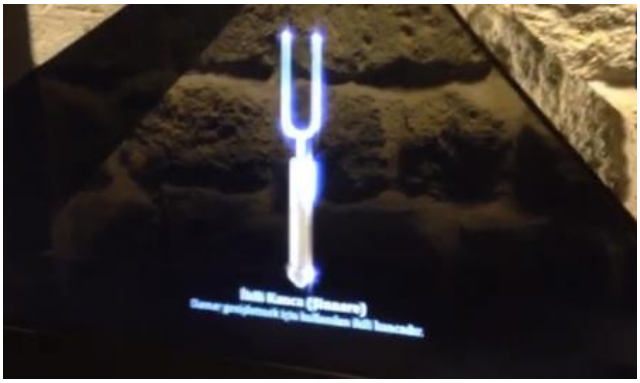




Visual 4: Aphrodisias Museum, Aphrodisias Antique City, virtual tour application

2.2.5. Hologram Usage

The holograms (Visual 5), which allow the three-dimensional examination of the works from every angle, take their place in the museums.



Visual 5: Museum of Kayseri Seljuk Civilization , hologram of art work

2.2.6. Animations that Produced with Multi-Disciplinary Understanding,

In order to make a more effective and realistic presentation and to give visitors a moment in history, museums that use new technologies effectively increase with technological developments. It has been established with the aim of not forgetting the Dardanelles Wars, which has experienced unprecedented heroism, and transfering the spirit of Dardanelles to the new generations at Çanakkale Epic Presentation Center. There are 11 animation rooms designed with multidispliner understanding.



Visual 6: Second hall of Çanakkale Epic Presentation Center

In the second hall (Visual 6) of the Çanakkale Epic Presentation Center, on the night of 7-8 March, the Erenköy Port in the Bosphorus is explained the activities of laying mine lines. Nusrat Mine Ship in the hall is affected by the wave movement is made through the special system called Spiratif. This system is designed to create a feeling of a ship with the support of sound and light effects on the wave for the visitors on the ship's platform. The film, which includes the images of the Dardanelles, is shown by 4 projections on a 22x4.5 m screen. While visitors are on the movable deck of Nusrat Mine Ship, they live the atmosphere with a 3D embossed map system beyond the sea (Kaşdemir, 2012).



Visual 7: Canakkale Epic Presentation Center third hall

In the third hall (Visual 7), the Allied Forces are attacked with superior forces and technologies to cross the Bosphorus are shown. Ocean deck are shown to visitors how the first attack of the Allied navy performed. In this application, the image is projected with three 3D projectors on the 17x4.3 m curtain and the 3D glasses are used for the viewers. Special mechanical systems are used in order to make the visitors feel Ocean Ship's ball shoot's shake and the horror experienced on the ship (Kaşdemir, 2012).

2.2.7. Simulated Applications for Visitors

Educational practices make the museum trip more effective by activate the visitor. Museums prefer virtual applications to provide a better service for visitors. The reasons why real applications are not possible to perform. They can be listed as follows.

- In order to make real applications in museums, it is a required field expert who are constantly on duty at the museum.
- It is necessary to take care of each visitor individually.
- It is necessary to create a team that cleaning used materials and gathering the environment.

- In order to supply continuous material, budget should be established.

For example, in the museums, virtual marbling applications (Visual 8) are carried out in order to introduce people who have never done marbling to ebru, one of the rare arts of the Ottoman Empire and to make them love this art. In the touch kiosks prepared for the visitors, all the processes of making pottery are experienced and any virtual application examples (Visual 9) are available, such as shaping clay.



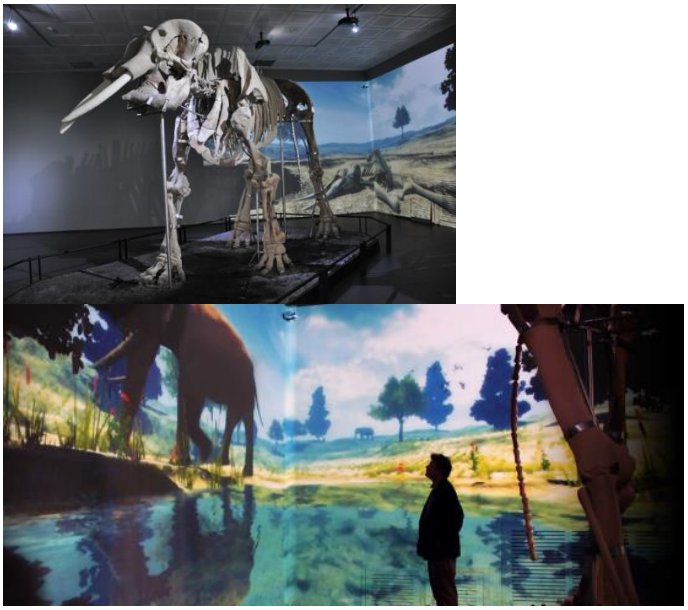
Visual 8: The application of virtual marbling art workshop in Ottoman Archives Museum.



Visual 9: Virtual Ceramic and Glass Workshop in Ankara Ethnography Museum

2.2.8. Historical Trip Simulations

The aim of historical tour simulations is to provide learning by experiencing historical periods in the animation rooms, which are designed with a multi-disciplinary approach. The visitor is removed from the location following the works of the museum and they are made part of the time and place of history. For example, in the Archaeological Museum of Marash (Visual 10), the visitor sees the bones and dry lake floor when he first enters the hall. When it proceeds, a light burst goes back to the time of the elephants 3000 years ago. Apart from elephants, deer, birds and fish move in interaction with each other. The virtual lake view is a 3D life simulation.



Visual 10: Maras Archaeological Museum

In the Çorum Archaeological Museum, visitors are expected to explore the history by taking a journey through a Hittite chariot (Visual 11) in Hattusha, the capital of the Hittite Empire. When the visitors get on the cart and take the reins in their hands, they go on a time travel.



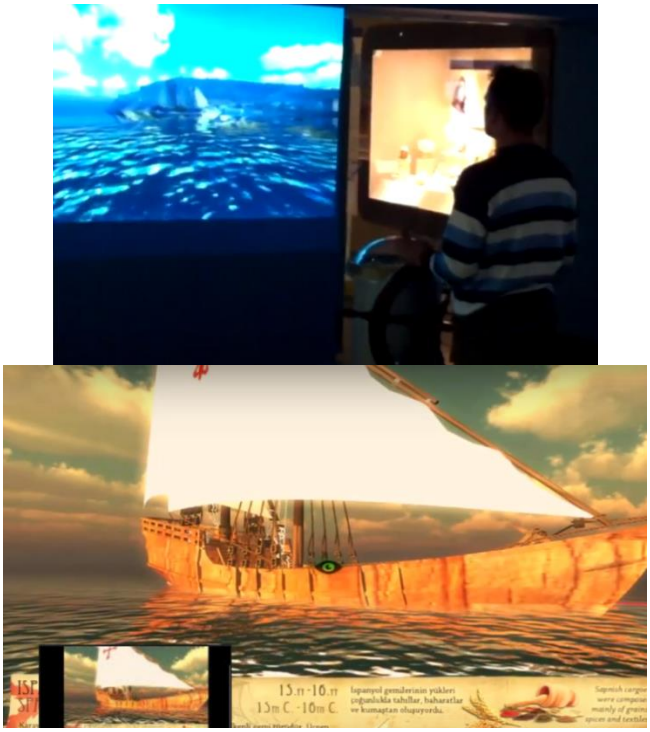
Visual 11: Çorum Arkeoloji Müzesi tarihi gezi simülasyonu

In the Zeugma Museum, the Interactive Mosaic Pool (Visual 12) was made. When visitors enter the mosaic pool, they encounter a fluctuating effect of water. A visual show was prepared with fishes fleeing visitors, spilled leaves, candles floating in water. In the middle of the Roman houses in the area, there were pools where rainwater was accumulated.



Visual 12: Zeugma Museum, water pool simulation

In Alanya Archeology Museum, ship simulator (Visual 13) which can do virtual tour of the historical Alanya peninsula by ship, was produced in order to inform the visitors about the types of ships coming to Alanya throughout history. In order to increase realism and create a realistic experience, rudder and speed control are produced using real ship parts.

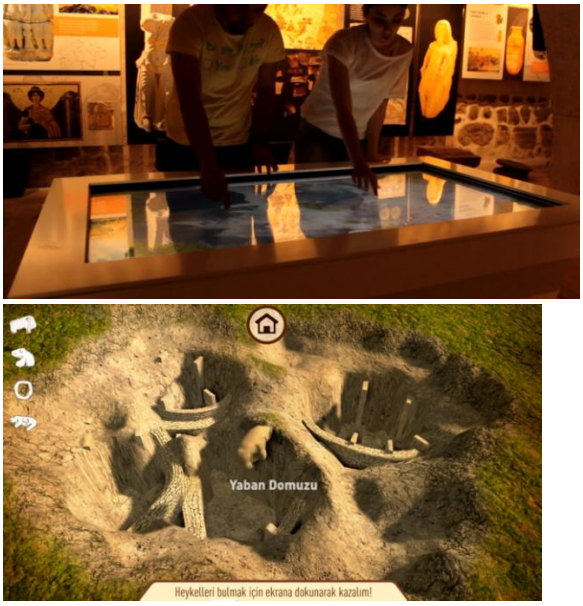


Visual 13: Alanya Archeology Museum, Simulation of historical tour

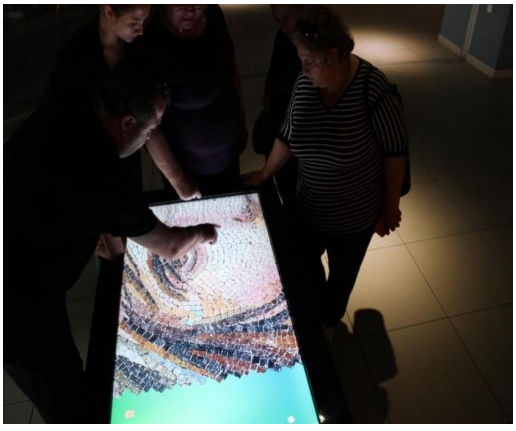
2.2.9. Game simulations

According to Perry (1992), for a successful museum experience to lead learning, there are some factors such as create a curiosity, provide a pleasant time with educational games, ensure that visitors are surprised (George, 1998). In the Archaeological Excavation Game where the simulation of excavation and artifacts (Visual 14) is displayed in the Urfa City Museum, Göbekli Tepe excavation site and

in the simulation of the mosaics completion (Visual 15) on the puzzle game table in the Zeugma History Museum, visitors can enjoy and observe works that shed light on history. It is the main purpose of these projects to love the history of small visitors and to raise awareness of cultural heritage.



Visual 14. Archaeological excavation at the City Museum of Urfa



Visual 15. Puzzle game in Zeugma History Museum

2.2.10. Street Museum Applications

Street museum application (Visual 16) is an augmented reality application running through GPS (Global Positioning System) data by allowing people to see what historical places look like in the past(Bilici,2016).

Thanks to the software created, the current state and its history of the streets can be seen together on the smartphone screen. In this way, information about the past is presented to the users in a wide range.



Visual 16: Street Museum augmented reality application

2.2.11. Virtual Museum Applications

The Virtual Museum is defined by Schweibens as museums that contain dijital objects and their information prepared by using different media facilities, going beyond the usual communication methods for the visitor and no need for a physical space to enable access worldwide (Aladağ vd, 2014: 201-202). Hoptman (1992) states

that virtual museums show us how the constraints imposed by traditional methods of regulation and presentation can be overcome in the context of museum visits,.

According to Yenişehirlioğlu, the process of abstracting from the time and space in the virtual museum actually causes the identity of the work to be blurred. Therefore, they affect the formation of our physical world because of a superficial shallowness although virtual museums offer us a wealth that we are not accustomed to (Yenişehirlioğlu, 2007: 250). This virtual reality is not a great wealth for visitors; they are not able to touch the object and do not to walk in the aisles at the same time. This is not actually to fall into the depth of art and history.

Mannoni emphasizes the share of museums in terms of providing the transfer of cultural heritage to large masses: "Digitalization is to create databases that contain images, reference documents, data based on events, sounds. Digitalization is to define as much as possible the parts that make up the cultural heritage. Paintings, sculptures, monuments, ancient manuscripts, musical instruments, historic furniture and photographs can be identified with digital information. In this way, a wide range of users is given the chance to reach easly cultural heritage" (Özer, 2007:22). Virtual museology practices make possible virtual museums. With this practice, it is aimed to open museums to millions of people, to promote and transfer the cultural assets, to contribute to the accumulation of knowledge and culture of humanity, and to provide awareness for the preservation of cultural assets on the society. There is an increasing trend towards the applications that everyone can reach cultural heritage.

2.3. Digital Cultura

In glossary of terms, TDK, "generations" is defined as, "a group of people who were born in the same years, lived in the same age

conditions thus have experienced similar problems, fates and who were responsible for similar duties. Generations can be defined as the groups with common features, value judgments, life views and expectations, formed by individuals living in the same periods".

The most important feature of the Z generation distinguishes from the other generations, is that they were born in a period of time when digital high technology is widely used. Z generation, wearable, portable etc. technology makes it an indispensable part of daily life. They like to use internet and mobile technologies, play with ipads instead of toys and grow with technology. They prefer to socialize especially through internet (Taş vd, 2017: 1033- 1035). According to Chatfield (2013), described the generation as "congenital digital" ,the first touch ing thing when he wakes up in the morning, the last touching thing when he enters the bed is the mobile phone.

As a result of the digitalization of the old media forms, the media becomes programmable, enabling interactive communication in the virtual platform. This causes the digital cultural formations and digital processes whose people communicate without eye contact, side by side and the need for a physical environment. "With the growing generation of new media technologies, a real virtual culture is formed in the words of Manuel Castells. All the traditional hierarchies and reference frameworks related to the culture are lost. The cultural content is uniformed, surfaceized and constricted" (Alioğlu, 2011: 57). This transformation is a highly functional reconstruction for a new world order and a proper universal ideological build (Şaylan, 2009: 188).

A media usage report published in the UK in 2010 reveals that the majority of young people in developed countries are no longer free of internet access with new media opportunities (Chatfield, 2013: 35). In particular, since the younger generation is in uninterrupted communication with the network, Castels says that this generation is called a "network society" (Altunay, 2012: 26). These expressions

show how digital culture is becoming more and more subtle in everyday life.

The new generation, dominated by virtual technologies, knows more about the world than their parents and of course their parents know. The new generation, dominated by virtual technologies, knows more about the world than their parents know. However, if there is one thing that is certain, they are evaluating the world with a superficial judgment. To worry about simple subjects, to walk fast, to listen to brisk music, to get bored quickly, to choose between many options, to think superficially, not to question is one of the features that can be seen in today's digital natives. In this context, the transfer of cultural heritage to the digital belt does not seem possible by conventional methods.

In museums, there are much more effective and identified practices rather than traditional methods to understand and revive the life of the period in which the works belong. The recreation of an environment that exists in the past with virtual reality systems makes visitors feel that they are in that environment. In this context, it can be said that museums have lost their importance of transfering cultural heritage methods with passive listener and audience. The development of the museums in parallel with contemporary approach shows us the point where understanding of museology comes from such as making them a position that includes learning methods by doing / experiencing / experimenting, reaching more visitors than expecting visitors

3. Conclusion and Discussion

Various factors that we can list as the increase in the rate of industrialization and urbanization, the progressive speed of science and technology has raised the concern of having cultural heritage and values. In parallel with cultural transformations and technological developments, there have been changes in the exhibition strategies, presentation methods and functions of the museums that were originally intended to collect and display ancient artifacts. Today, the

screens used in the museum to obtain information about the works, allows the study of the 3-dimensional examination. It has become a visitor-oriented non-formal education institution with holograms, animations produced with multidisciplinary understanding, interactive simulations and entertaining practices. In addition, museums have also emerged from the waiting position.

With new technologies, museums can be said to have a dynamic structure that influences visitors, takes them on time travel, stimulates all their senses and meets them with effective presentations. Considering the easily observable features of the digital generation, it is concluded that the use of conscious uses in museums is a necessity of the era.

The benefits of the use of new media technologies within and outside the museum are quite high. When a work, can not be touched and conserved, is requested, these technologies enable us to translate and display an image transferred to the screen in a virtual way and to have an idea about its details and to associate it with the culture of the time.

The virtual tour can be realized in the digital environment of the historical places that have not been reached until today. These constructs are formed on the basis of the recipes, scientific data and remnants contained in the historical sources. The virtual tours that can be realized in museums that cannot be visited, are the sources for having an idea about the collections for transferring the cultural heritage. The animations, which are designed with a multidisciplinary approach and addressing the senses, frees the visitor from the position of passive audience. Digital revelations carry out events in the past with a much more effective presentation and they are effective in the experience of transferring cultural heritage. Creating the curiosity, ensuring the suprise of visitors, educating the visitors with a game are important factors for a successful museum experience to lead to learning. It was found that game simulations, simulated applications and augmented reality applications were useful in many aspects. Simulations with new media technologies enable the active

participation of the visitor and contribute to the learning by doing-living. Simulations used in many areas other than museums play an important role in the human development even though augmented reality practices cannot replace reality and enables to arouse curiosity, have ideas and learn processes. For example, aircraft simulators used for pilot training eliminate the risk factor and reduce costs. Candidates who have reached a certain level of competence in the simulator then pass to real flight training. In the museums, the implementation of costly applications that can be realized with the teams formed by 4-5 people is overcome with virtual applications. The aim in interactive applications is simulating the reality as realistically as possible, addressing the senses of the human being and to ensuring that the time-space-event is effectively perceived.

The transfer of cultural heritage takes place by transferring the information accumulated by the individual or society to the next generation. New technologies, which play a major role in cultural transformations, which cause many changes until we perceive the events from our relations with our environment, constitute the basis for the formation of global culture, but are also used as an effective tool for the transfer of cultural heritage to future generations.

Due to its strategic location, our country has an important cultural background, has the legacy of many events which should not be forgotten and should be taken as an example, Istanbul's Conquest, Çanakkale Epic, etc. Great efforts are needed to protect and transfer to future generations this heritage. Strategies and policies should be produced for new generations.

All of the technologies used in museums are examples of consciously using technology. The aim of the technologies used here is not to refer people to digital cultural formations, to make a dependency, to break away from real life with virtual incarceration, to contribute to the formation of virtual self. All of these are negative effects on human beings due to unconscious use of new media technologies. With the technologies used in museums, it is aimed to educate individuals who

take their power from the past, protect cultural heritage, do not lose their identity and values. In this context, in the transfer of cultural heritage, cultural transformations should be updated continuously.

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