Chapter 10
Digital Cultural Heritage

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ABSTRACT

This chapter aims to give information about how the digitalization process is using technologies suitable for today's conditions in the transmission of cultural heritage to future generations and its preservation, what methods are being employed, the concept of digital heritage, the developments that took place and the projects that were carried out in the digitization of cultural heritage. In addition, it is also aimed in this chapter to evaluate the cultural heritage sites within the framework of this new understanding and to examine how these areas can be redefined with new technical possibilities. At this point, after reviewing the literature about the cultural and digital heritage, the importance of cultural heritage is referred to in detail. Finally, a case study is conducted by the authors via compiling the V-must.net website established to develop virtual museums, blog comments, and academic studies carried out in respect to this project.

INTRODUCTION

Heritage embodies values that remind the past and give clues about the future. Cultural heritage is a set of values that encompass the cuisines, beliefs, lifestyles, religious traditions, customs, and sense of art of the communities. The concept of cultural heritage that has been passed down from generation to generation, such as the traditions, customs, values, etc. of a society, is divided into two as tangible and intangible. Tangible heritage includes monuments, pictures, prints, archaeological sites, temples, mosaics, sculptures, landscapes, etc. and intangible elements include dance, beliefs, festivals, customs, and intangible elements include oral traditions, dance, beliefs, festivals, customs, ceremonies, rituals, traditional handicrafts and folklore, ceremonies, rituals, traditional handicrafts and folklore (Franchi, 2017). According to Silverman and Ruggles (2007), intangible cultural heritage values such as architecture, landscape forms, works of art, oral traditions, dance, theater, rituals, memories and languages

are values that must be preserved for next generations. The characteristics of individuals and the whole society are shaped by cultural heritage.

In order for cultural heritage to be preserved, passed on to the next generations and kept alive, values must be transformed by using contemporary technologies. From this point on, the concept of digital cultural heritage has emerged. According to Rahaman and Tan (2009), digital cultural heritage; is the reflections of archaeological, historical and attractive values in virtual environments. While cultural heritage can be defined as assets and areas of archaeological, aesthetic and historical value, digital heritage refers to examples of these assets and areas in a virtual environment (Roussou, 2002: 99). The cultural heritage found in digital environments can be easily accessed from all over the world and diversified through digital channels (Hancock, 2018: 10).

There are various cultural memory institutions (such as museums, libraries, archives, sculptures, botanical gardens) that take an active rolewalues in virtual environments, in the transmission and preservation of cultural heritage to next generations and carry out investment activities (Manžuch, 2009). In these institutions, artifacts, monuments, historical places and various values are digitized and digitally preserved. Digital storytelling, virtual reality (VR), augmented reality (AR), three-dimensional 3D reconstructions, mobile devices and virtual guidance, interactive computer games and simulations are among the methods used by institutions during the digitization phase to preserve cultural heritage and pass it to the next generations.

Digitalized cultural heritage elements are conveyed to visitors by using virtual technologies through various programs and by storytelling these experiences. Digital storytelling, which started to be used in the 90's and has become widespread with social media and smart phones today; is a narrative technique performed by using digital tools (Caffo and Canale, 2014: 5-14). The storytelling method created through digital technologies contributes to the conservation of cultural heritage directly and indirectly (Selmanovic et al., 2018: 57).

In the digitalization of cultural heritage, the use of 3D technologies has become widespread in recent years. With these technologies, the collection, storage, protection and reconstruction of data such as monuments, sites and works of art can be carried out more effectively and efficiently (Portales et al., 2018; Merchan et al., 2019). In addition, through these technologies, it is possible to produce and store copies of the original works (Katz and Tokovinine, 2017). Among the reasons for the 3D reconstruction of cultural heritage values in virtual environment are education, documentation in case of disaster, examination of the works in different dimensions, restoration of damaged or destroyed buildings (Noh et al., 2009). 3D digital tools provide various advantages in the areas of education, presentation, preservation, documentation and visualization (Addison, 2000). These tools provide accessibility for those both visiting museums and historical sites and researchers (Zarnowski et al., 2015).

In the documentation of the tangible heritage, 3D data is scanned by laser and the scanned objects are presented to public by virtual reality (VR), augmented reality (AR), exhibitions, etc (Bautista, 2013). Intangible heritage, on the other hand, is not easy to document. However, for a culture an object can be used as a tool to document where it takes place, oral traditions (Thwaites et al. 2019). Since it is now important not only to document the heritage, but also to convey the intangible part, which may include emotions, perceptions and motives, for conservation, successful integration of virtual and physical environments is required for the continuity of reality and for individuals to feel as if they are living the moment (Selmanovic, 2018: 65). Virtual heritage areas can be accessed both from applications that can be downloaded to smart devices and through related websites (Basaraba, 2018: 72). Virtual heritage

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