

How can Digital Technologies Inform or Disrupt Traditional Engagements with Heritage Sites?

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Abstract: The use of digital technology in traditional museums and heritage sites has changed the way people experience and understand culture over the past decade ^[1]. Some scholars asserted that digital technologies could facilitate more individuals' engagement with cultural heritage ^[2,3]. However, others expressed concern that digital heritage could misrepresent and distort the truth of real heritage ^[1,4]. This essay uses three case studies to discuss how digital technologies can both help and undermine the participation of locals and tourists in learning about cultural heritage.

Keywords: Digital technology; Cultural heritage

Online publication: January 21, 2022

1. Introduction

Specifically, digital storytelling provides opportunities for locals to create heritage and increases their sense of regional identity. In addition, virtual reality allows tourists to visit heritage sites without the constraints of time and space. However, some believe these technologies represent inaccurate and inauthentic information to visitors, thus undermining the authority of traditional heritage. However, the underlying cause of this concern does not rest with technology itself since digital technology is only a tool. Two real issues need to be addressed: how to define more clearly the value of digital heritage and how to mediate the tension between digital and traditional heritage, intersecting the two to present a more complete picture of human heritage.

2. Digital storytelling and local people

Creating digital storytelling about people's past lives as part of digital heritage facilitates the engagement of local people and enhance their sense of identity ^[5]. Specifically, digital storytelling is a narrative manifestation that integrates multi-media and the internet, primarily using modern audio-visual technologies to record people's life stories or oral histories and present them on the internet through websites or applications ^[6]. As suggested by Blackburn ^[7], digital storytelling promotes the democratization of heritage. In other words, traditional heritage conservation relies heavily on management by the national authorities, and local people rarely have the opportunity to participate ^[8]. In addition, in more traditional approaches, historical sources from minorities and marginalized communities are often excluded from mainstream history ^[9]. Therefore, the development of digital technology has empowered community members to become more actively involved in both the creation and the management of heritage through the organization of digital archives within the community and the creation of digital stories about local heritage.

The exhibition named *Local People*, clearly illustrates the benefits of digital storytelling. It showcases over 40 oral history videos of people from Derry and Donegal on the internet ^[10]. The two cities in the project are bordering towns in Northern Ireland that have experienced intense political conflict and religious problems, historically ^[11]. To challenge the stereotypes about the area, the *Local People* team used social media platforms such as Facebook to invite forty local people to tell their own stories about life in these two regions during the turbulent war years. Afterwards, *Local People* used the visual materials that they had collected, along with some explanatory text, to present a community-based, digital storytelling exhibition on the internet. The digital stories in this exhibition illustrate how the history of a region can be viewed differently from the perspective of individual community members. Because those telling their stories did not have to limit their content to the official themes of war and conflict, they were freer to express their identities and their own historical memories of the period ^[5]. Therefore, most of the stories contain anecdotes of everyday life, which also combat the stereotype of constant tension between local Catholics and Protestants. For example, in one story, a Catholic boy who joins a Protestant flute band in order to learn the flute. Similarly, a youthful Protestant woman details her work within the Catholic community, tackling child abuse ^[5]. As a result, these digital narratives provide both locals and visitors with a multi-dimensional perspective of local history. However, the project's initiators also acknowledge that some of the life stories present a challenge to the official texts because the content of the stories contradicts the description of the official narrative ^[5]. Consequently, creators of heritage still struggle finding ways in which digital stories can merge this unofficial cultural heritage with the official one to piece together a more authentic historical heritage.

3. Virtual reality and tourists

Virtual reality technology has allowed much more accessible and convenient avenues of tourism to heritage sites. With the support of virtual reality technology, tourists can visit heritage sites at any time and from any place ^[12]. Though there are many definitions of virtual reality technologies, this essay draws upon ^[13] to define VR technologies as the use of computer-generated 3D environments in which people can immerse themselves and interact with virtual surroundings, thereby simulating an environment in real time that is independent of physical space. Museums and heritage sites can use this technology to help visitors better understand the exhibits. They can also create virtual tours that provide opportunities for visitors who are unable to reach heritage sites for a number of reasons. For example, some heritage sites are too remote, dangerous, or fragile to be developed as tourist destinations ^[13]. In addition, the impact of sudden natural disasters and epidemics prevents tourists from visiting many sites ^[14]. People with disabilities or mobility impairments also may have limited opportunities to visit distant heritage sites ^[15]. Thus, many heritage sites and institutions are using this technology to create online virtual tourism for visitors from around the world. For instance, the VR online tours offered by China's Dunhuang Caves ^[16].

The virtual reality system developed by Han et al. for tourists visiting Dunhuang Cave 61 offers a prime example for how this technology can impact the visitor experience. The Caves at Dunhuang is the largest Buddhist art site in the world; its cave spaces, wall paintings, and Buddhist stories were listed as a UNESCO World Heritage Site in 1987 ^[16]. However, because of the site's unique physical features, it is vulnerable to the effects of climate change and human-induced threats ^[17]. Local conservation organizations, therefore, have proposed some temporary solutions such as limiting the number of caves open to visitors or only allowing tourists to visit for a limited time ^[17]. Nevertheless, cave erosion has continued; therefore, in order to resolve the conflict between preserving a site of heritage and introducing it to a wider audience, some researchers have used digital technology to create virtual tourism ^[18,17]. One form of virtual tourism technology is the immersive head-mounted display developed by Han et al ^[16]. This project developed through a collection of information about Cave 61 from the Dunhuang Research Institute. This research

included complete mural images, the stories embedded in the murals, and damaged or missing sections of the murals. Following this initial research, developers used computer technology to create animations and restore damaged mural content. Finally, they created a virtual tour system with an interactive design allowing users to explore the caves using a virtual torch and teleportation technology^[16]. Most of the users who experienced the system said that they were able to familiarize themselves with the system quickly and that the virtual torch gave them a real sense of immersion. Despite this feedback, a small number of users claimed that some parts of the experience were so short that they missed certain details^[16]. Thus, while virtual reality does offer visitors more opportunities to visit heritage sites, there is still room for technological and logistical improvements to ensure that visitors have a good experience.

4. The authenticity of heritage

Although, the use of digital technology does bring benefits to locals and visitors, allowing them the opportunity to engage meaningfully with cultural heritage, some argue that the use of digital technology can undermine the authenticity of heritage^[4]. Evrard and Krebs^[4] for example, argued that allowing more users to be involved in the direct creation of heritage on the internet, just as the Local People did, may create problems for heritage institutions in controlling the quality of heritage content. Traditional heritage recording and management usually involves professionals selecting what should be included; in order to make knowledge appear as objective and neutral as possible, most digital archives also endorse a single, expert interpretation of a cultural artifact or event or at least accept a common explanation by a wider range of stakeholders^[19]. However, when non-professional people post their own stories and comments on the web, anything that contradicts the official history may cause viewers to question the credibility and authenticity of the expert heritage information. In addition, some studies revealed that the use of virtual reality technology can distort the objectivity and authenticity of heritage sites, particularly in museums^[4, 20]. As Evrard and Krebs^[4] argued, the issue of authenticity remains at the core of museum identity. The economic value of an artwork still depends on its authenticity, and replicas created by digital technology lack this “aura.”

For example, a study by the project group named Archaeological Community Co-Production of Research Reso worked with 10 community heritage groups in Scotland, using digital technology to create 3D models of heritage artifacts that were important to local people^[21]. The team wanted to explore whether and how digital visualization techniques can gain authenticity. They found that although high quality photographs and 3D models can make the virtual experience visually accessible, many participants said that the virtual reality experience did not inspire them to engage kinesthetically with authentic heritage artifacts the way they might have if they were visiting in the field. In addition to this, the participants also identified other features that virtual reality lacks, such as geographical realism, immediate weather conditions, and authentic sounds and smells^[21]. Thus, digital technology cannot replicate the real experience people have when they engage with heritage during an actual visit. Nevertheless, the team also suggested that because the process of modelling and programming virtual experiences is creative, the heritage content created by virtual reality can be viewed as a new form of authenticity rather than as a substitute for real heritage^[21]. From this perspective, the digital stories, virtual reality experiences, and other heritage content created through digital technologies can complement rather than threaten traditional heritage.

5. Conclusion

In summary, digital storytelling and virtual reality technologies supported by new media technologies allow people to interact more actively with heritage, but these options for engaging heritage possess certain weaknesses. While digital storytelling can encourage local people to tell their own stories, these personal

stories sometimes contradict the official history causing confusion about historical reality. In addition, virtual reality technologies offer inventive solutions for visitors who may experience barriers to visiting real heritage sites, but people rarely have the same immersive experience as they would on a real visit. In both digital solutions, the use of digital heritage is believed to undermine the authenticity of traditional heritage. People remain skeptical because the value of virtual heritage has not yet been clearly delineated. Overall, a clearer understanding of the unique role digital heritage plays is needed in order to reconcile it more effectively with traditional heritage and to integrate the two positively in order to present a more complete cultural heritage.

Disclosure statement

The author declares no conflict of interest.

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