Transnational
Island Museologies

Materials for discussion

Edited by
Karen Brown, Jamie Allan Brown
and Ana S. González Rueda

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ICOFOM MATERIALS FOR DISCUSSION

This publication brings together papers submitted for the 47th symposium organised by ICOFOM under the theme Transnational Island Museologies, to be held at the University of St Andrews, Scotland, 5-7 June, 2024.

The Materials for Discussion collection brings together, in an inclusive spirit, contributions selected for the symposium in the form of short articles, to prepare the ICOFOM Symposium. This publication has been made available before the symposium, in a very short time frame. In spite of the care given to the publication, some mistakes may remain.

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Preserving Mediterranean Heritage in a Changing Climate through Digital Cultural Landscapes

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Mediterranean islands face continuing transformation aggravated by the effects of climate change, such as sea-level rise and extreme weather events. These impact the tangible and intangible heritage of island communities and their wellbeing. This article demonstrates how digital cultural landscapes (DCL) can be used in virtual reality to preserve heritage, inform people of endangered heritage, and record local knowledge. An exhibit design of the elements that make up DCL is provided as well as a discussion of DCL use. A tool such as DCL can be used to foster a deeper understanding of the intricate relationship between culture and environment, ensuring the continuity of Mediterranean heritage in the face of evolving climatic conditions.

Mediterranean heritage and climate change

The Mediterranean region, known for its historical significance, has a unique blend of socioeconomic and cultural influences from the 23 European, Middle Eastern, and African states that enclose it. The sea and its 46,000 km coastline are an important factor for its communities. Developments in the region present a growing number of challenges, jeopardising its heritage and the cultural identity of its people.

The Middle Eastern and African population is rapidly growing and related urbanisation results in growing demand for water, energy, and food. Carbon dioxide emissions are expected to increase by 45% across the region by 2040 (Lange, 2020). Apart from the impacts arising from over-development, the Mediterranean is a "climate change hotspot" due to increased temperature and decreased precipitation (Giorgi, 2006). The growing population and drier conditions are leading to over-exploitation of existing water reservoirs and aquifers.

The region is anticipating a rising mean temperature of 2°C to 7°C by the century's end (European Environment Agency, 2023), with water availability reduced by 2-15% for a 2°C warming (Lange, 2020). Climate change results in increasingly extreme events, such as heatwaves (Christidis et al., 2023), droughts, and extreme precipitation and flooding (Lange, 2020), exacerbated by non-climatic factors like urbanisation and poor water management systems. Flash floods and droughts are the most dangerous meteorological hazard with an increasing number of mortalities (Diakakis et al., 2023). Rising Mediterranean Sea levels considerably affect the island and coastline communities, while higher water temperatures increase sea acidification, leading to faster deterioration of underwater heritage (Perez-Alvaro, 2016).

Climate change impacts society and its heritage. Impacts range from damage to buildings and monuments to biodiversity loss and changing practices.

The Mediterranean identity is shaped by multiple languages and cultures, with 13 official languages and numerous regional or minority languages and dialects. Languages like Maltese, Sardinian, and Corsican are already at risk, aggravated by increased migration forcing regional languages to be replaced by more universal ones. Consequently, vulnerable cultures and identities disappear while others are homogenised (Kounani et al., 2021). This means that beyond physical heritage damage, intangible heritage is also at risk, from lost languages to forgotten practices.

Response to the climate crisis

The museum's role suggests that it has increasingly become "a means for raising awareness of political-social realities and as a potential container to awaken creativity to action" (Rojas, 2020)[1]. Museums are using exhibitions and programmes to raise awareness of issues like climate change with the goal to inspire behavioural change and encourage people to create their own agency by reflecting on their position.

Cultural institutions are committing to becoming carbon neutral, safeguarding and preserving heritage from damage, and innovative communication strategies. The museum's role has broadened to include monitoring the environment, mitigation, adaptation, and communication. The Network of European Museum Organisations (NEMO) has created a Climate Actions Map[2], in which institutions can submit their actions to inspire other organisations. Some examples from the Mediterranean include organisations creating their own action plan and sustainable agendas (Ju Museum & Gallery, Montenegro), culture and& biodiversity events (Herakleidon Museum, Greece), and the Altri Tempi postcards from the past and present exhibition (Bora Museum, Italy).

Innovative digital strategies

The museum's social role can be investigated through its policies as well as through the messages expressed in its exhibitions (Pastore, 2020). It's a role that's changing due to the digital revolution, with technology that is more capable and accessible. Digital tools can be leveraged by museums to create engaging digital experiences that prompt visitors to action. Digital strategies can be used to both collect knowledge about climate change and to inspire action through enhanced personalised learning.

We propose that heritage organisations could achieve this through digital cultural landscapes (DCL), creating a digital presence of a natural landscape and its cultural heritage, integrating both tangible and intangible heritage. We propose that such a holistic representation can be enriched using powerful gaming engines that allow for increased interactions. DCL would benefit the Mediterranean by creating holistic digital representations of islands and coastline areas and capturing their heritage.

1 Translated by the author.

2 This can be accessed online through http://bit.ly/NemoClimateActionMap

Digital Cultural Landscapes exhibition design

DCL have the potential to collect and preserve local knowledge. Our previous work has included creating DCL for the North Uist community (Pisani et al., 2023), creating virtual walks around several historical sites, presenting information in Gaelic and English, digitising artefacts, and recording Gaelic music. Other work from the research group involved showing a climate future for North Uist where flooding and a rising sea level could be experienced. Based off this work, we propose a digital exhibition design that incorporates the elements discussed below.

Landscape recreation: Real-world geographical information system (GIS) data is imported into a game engine, like Unreal Engine. This forms the basis on which the rest of the cultural landscape is built. With today's technology, it is possible to create representations of entire islands and coastal areas.

Digitised artefacts: The landscape is then populated with 3D digitised objects and heritage sites reconstructions. At this stage, a decision can be made to recreate the cultural landscape as it is now or as it looked during a specific period or in the future. The North Uist cultural landscape included both past and future versions of the landscape. This allows the user to perceive the landscape through time, creating new understanding.

Digitised oral traditions: In addition to physical objects, the scene can include music and narratives. Media can be recorded in the native language with subtitles overlaid. Using characters in a virtual scene enables one to include storytelling features. This is done through non-player characters (NPCs) interacting with each other or interacting with the user. In this way, myths and oral cultural histories are passed down to new generations.

Traditional practices: Other cultural practices, like craft, can be recorded and presented as videos in the landscape or as characters enacting different scenes. Including these intangible heritage elements adds additional layers to the digitised landscape. They are valuable to users who might not be able to experience these aspects at the location.

This exhibition type ensures that multiple heritage features are represented and creates a strong foundation through which the museum's role of monitoring, mitigating, adapting to, and communicating climate change is facilitated as detailed in the following two sections.

Virtual reality and experiential learning

Virtual reality use is possible when building exhibits in Unreal. Through VR, the DCL can be explored with full immersion. This creates a more engaging experience, which strengthens active learning through experience (Fromm et al., 2021).

Applying this model to Mediterranean island communities will enhance heritage identification, fostering understanding of the consequences of heritage loss. Heritage knowledge serves as a powerful tool for promoting sustainability by visualising societal intricacies and how these are affected by an unsustainable future.

Co-creation, exchange, and sustainable heritage policies

Another DCL opportunity lies in their use as vehicles for co-creation and exchange. Apart from displaying heritage content, DCL can be used to gather more information through interactions between the user and the exhibit. In a climate scenario, users can contribute their own climate actions. This adds a layer of personalisation and agency to the exhibit, influencing how the landscape appears for future users. This is a form of resilience by a society, which, through the museum exhibit, can be prompted to mitigate and adapt to issues affecting it as well.

The DCL can further be extended by making it available in different formats. In the North Uist application, websites and touch displays were created using 360° exports. Alternatively, the DCL can be compressed into a portable VR headset application. This is ideal for outreach activities. In Malta, a similar approach involves VR headsets showing 360° footage of underwater heritage sites (Gambin et al., 2021). However, this can be improved by placing these underwater scenes within the larger heritage context of the islands.

Holistic DCL are more than a form of exhibition but take a collaborative approach to heritage preservation and communication. The many ways through which they can be experienced by multiple stakeholders, not just end-users, shows there are possibilities for their use in creating sustainable heritage policies.

Conclusion

At this stage, this framework is planned to be built and tested for the Mediterranean island of Malta, but it is a strategy that is applicable to other regions. This article has highlighted the importance of using DCL and VR to safeguard Mediterranean heritage in an era of rapid environmental change. By embracing a holistic approach to heritage preservation and communication, heritage organisations empower diverse stakeholders to actively participate in conserving and promoting cultural identity. Through immersive experiences and interactive storytelling, DCL offer a dynamic platform for heritage engagement, transcending traditional boundaries and inspiring innovative sustainable heritage policies. Ultimately, this article presents a framework for building future applications in the Mediterranean and beyond.

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