

Immersive installations for virtual time travel, virtual museums and community engagement

Catherine Cassidy, Adeola Fabola and Alan Miller¹

¹University of St Andrews, Scotland

cc274@st-andrews.ac.uk, aef6@st-andrews.ac.uk, alan.miller@st-andrews.ac.uk

Virtual Museums can be defined as an entity that augments or enhances a visitor's experience in a museum, act independently of the physical barriers of a museum or serve as its digital footprint; bringing together media types such as photos, videos and audio as well as 3D reconstructed environments, digital objects and virtual reality.

However, a virtual museum must maintain and encompass the definition of a physical museums set by the International Council of Museums (ICOM). This definition includes its ability for public access, an organisation of knowledge transmitted in a coherent manner, and a commitment to preservation of a collection.

That's a great definition, but also, incredibly broad.

While it acknowledges all the amazing things digital technologies can do for collections as well as for the visitor experience, suggests a virtual museum could be anything from a museum mobile app that has tours and collection information to a full virtual museum environment.

It also doesn't give much detail on the museum's ability to use this as anything but public facing. A museum is not just what the public can see when they step inside, but the constant day to day of collections management, exhibition and events planning.

When the term virtual museum was coined over 15 years ago and institutions began to invest in the idea, the types of media presented ranged from online collection database systems to complete digital environments such as those used in Second Life.

While the technology was there to use and experiment with, commodity hardware had a difficult time keeping up, limiting its use. The overall presentation was clunky and gimmicky, and the amount of detail available didn't necessarily enhance a visitor's experience, however it did give them something to do. Which isn't the best reason to invest in something.

Speed up to present day, what is a virtual museum now? Google has been doing an incredible job digitising museums around the world with its Google Arts & Culture initiative, using its Street View software to create panoramas within museums as well as collating photos, videos and stories.

While this is effective and allows museums in Google's collection to have a massive digital platform to be presented from, the ability to manage content from the museums side, or have the content presented on the institution's site is not in Google's policy.

The praise and shortcomings of what virtual museums have been has been what we have based our research and development on to produce a web-based virtual museum resource for the EU funded project EU-LAC museums.

The virtual museum can host digital content, such as 3D digitised objects, 360 degree virtual tours, virtual reality, and more traditional media such as photos, videos and audio.

The project was a global initiative for community museums, so a map interface visually connects all the participating museums. Both museums and content are discoverable and searchable from the map.

This gives it a user-friendly public facing front end that allows a user to explore digital content from all around the world and allows for comparison of objects and history between continental divides.

What was lacking in virtual museums designs we've implemented, such as a digital upload resource that allows for the museums themselves to create media and to publish it. After login, all content uploaded goes to the respective media platform within the site, is archived to our server, and produces a wiki that is editable by those logged into the site.

In conjunction with the virtual museum, we've produced regional mobile apps that use the uploaded media to create tours of the museums in that country.

What we've produced is a virtual museum that combines the functionality of an archive with a backend that allows upload, managements and storage, along with a public facing front end that "allows public access, presents knowledge in a coherent manner, and promotes preservation". Sounds familiar?

But this is not all what it can be. There's still a divide between the physical and the virtual. How can the content produced not just sit statically on the web or on a mobile app?

What we are currently researching and implementing into our virtual museum system is the ability for virtual representations in the physical museum. The content itself can be used in a museum setting, as we most recently have accomplished in the exhibition Picts & Pixels in the Perth Museum and Galleries, which had full digital integration from day one of exhibition planning.

But what if we could use the virtual museum archive, and pull the content from there, as opposed to moving the digital files around independently. That would enable for a whole digital aspect of an exhibition to be planned, constructed and used from the virtual museum itself.

And finally, now that technology has pressed further into the 3D and virtual realm, can we bring back the idea of what virtual museum representations used to be like? Maybe less clunky and pixelated.

By using augmented virtual reality, 3D digitisation, 360 degree photography and digital reconstructions, we can create a space where the actual 3D object can be interrogated and manipulated as well as compared to other similar objects from around the world. Imagine objects "on loan", but just digitally.

While the museum setting allows for comparison of objects within a collection, the initial physical environment has been stripped away and the object taken out of its original context. Within a virtual world built within a game engine, such as seen with Holyrood Abbey and Palace, the object can be placed back into its environment, perhaps enlightening people on its functionality and overall importance at that time.