

3-D printing is helping museums in repatriation and decolonization efforts

December 4 2019, by Myrsini Samaroudi and Karina Rodriguez Echavarria



Credit: AI-generated image ([disclaimer](#))

Manchester Museum recently [returned items](#) taken from Australia more than 100 years ago to Aboriginal leaders, the latest move in an ongoing debate over calls to "repatriate" museum artifacts to their countries of origin.

It's part of a wider discussion over to what degree museums need to reform and "decolonize" away from displaying collections that were gathered or stolen from other countries during the colonial era, in a way that portrays foreign cultures as strange or inferior and other nations as unsuitable possessors of the world's cultural heritage and knowledge. Major institutions including the British Museum and the [Victoria & Albert Museum](#) have been caught up in the debate.

One way forward may be found in digital technologies that can enable people to access representations of other cultures in fair, interesting ways, without cultural institutions needing to hold on to controversial artifacts. For example, with 3-D imaging and 3-D printing we can produce digital and physical copies of artifacts, allowing visitors to study and interact with them more closely than ever before.

Copying artifacts

Copying artifacts has a surprisingly long history. Many ancient Greek statues that we have today are actually [Roman copies](#) made hundreds of years after the originals. Famous Renaissance artists' workshops regularly [produced copies](#) of artwork. In the 19th century, museums produced copies through processes that involved making a mold of the original item, such as casting and [electrotyping](#). The famous diplodocus skeleton "Dippy" actually exists as a number of copies in museums all over the world.



Copy of Myron's Discobolus at the Vatican Museums in Rome. Credit: Leomudde - Own work, CC BY-SA 4.0

Today, [digital technology](#) has democratized the art of copying so it isn't limited to big museums with generous budgets or top experts with specialist knowledge. Accessible digitization technologies, such as [photogrammetry](#) and 3-D scanning, can digitally record the shape of objects to a good degree of accuracy. And 3-D printing and cutting machines can physically reproduce this digital information at an affordable cost.

3-D copies can be touched and handled by visitors and can also be customized in shape, material and size. What's more, digital files of artifacts can be shared online and replicas can be printed in other parts

of the world. And most importantly, physically printing a copy from a digital image doesn't depend on whether the original artifact still exists or not.

Some governments and institutions have supported the creation of copies by adopting these technologies. These include, just to name a few, the prehistoric cave engravings in [Lascaux IV](#) in France, Jackson Pollock's 3-D poured painting [Alchemy](#), and the 900-year-old [Signing Oak Tree](#) from Windsor Great Park near London.

Democratising and repatriating heritage

Once the digital information from an artifact is produced and shared, the knowledge the artifact represents is no longer locked up in a single museum and can potentially be accessed by many more people. Sceptics might argue that the value of the artifact cannot be reproduced by these means. But 3-D technologies open up the possibility for democratizing cultural heritage and creating alternative meanings by different groups of people.

3-D technologies can also support museums to adapt to changing social, political, financial, environmental and other challenges. For instance, creating physical copies allows museums to repatriate artifacts to their communities of origin, or to display objects without having to transport them across the world. It can also be a starting point for talking to different communities about repatriation and decolonization. All these actions can support museums through their transformation from colonial institutions to more modern and open organizations, helping them to become less bound to "original" artifacts.

For example, the Smithsonian National Museum of Natural History in the US has worked closely with the Tlingit native community of southeast Alaska, which requested the repatriation of several objects that

were sacred to them. One of the most important objects was the [Killer Whale clan crest hat](#), which the museum digitized and made an accurate replica of, before returning the original to the community.

3-D copies have even been deployed in repatriation activism without the official involvement of museums or their approval. For the project [Nefertiti Hack](#), artists Nora Al-Badri and Jan Nikolai Nelles claimed that they secretly scanned the bust of Egyptian queen Nefertiti, held by the Neues Museum in Berlin, and freely released the 3-D data online. A 3-D replica of Nefertiti's bust was also 3-D printed and exhibited in Cairo. The artists argued their intention was to return Nefertiti to her homeland and criticized the colonialist practices of Western museums.

Moving forward

The repatriation debate is forcing museums to rethink what and who they are for and how they can best serve society.

Some museums have taken decisions to [return artifacts to their homeland](#), others to organize exhibitions dedicated to indigenous voices. Yet, in most cases, these efforts are scattered, or one-off events still infused with colonialist spirit. A more concerted effort to use 3-D copying technologies could help overcome this.



3-D printed copy of Pot Oiseau produced for research at the University of Brighton. The original edition of Pot Oiseau by Pablo Picasso is exhibited at the Brighton Museum & Art Gallery. Author provided

Some might argue that original artifacts have an "aura" that is impossible to recreate, and that looking at a copy just isn't the same. But simply visiting a museum or a cultural heritage site is an [authentic experience](#) in its own way. And this doesn't always have to depend on seeing ["original"](#) objects, as long as the [museum](#) is honest about its exhibitions and purposes. In future, museums will focus more on the experience of [cultural heritage](#), while promoting universal values, regardless of where the artifacts are.

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Provided by The Conversation

Citation: 3-D printing is helping museums in repatriation and decolonization efforts (2019, December 4) retrieved 3 May 2024 from <https://phys.org/news/2019-12-d-museums-repatriation-decolonization-efforts.html>

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