

Digital museums: art learning through technology

When art meets digital: how virtual museums work and how they can help in art learning

Studying and learning often requires a major mnemonic effort, to remember places, dates and events that are complex and immersed in another reality, far from the present one. Sometimes then students are required to work with **imagination**, to reconstruct a world now past and structures that no longer exist, placing them in an unknown past that is difficult for those accustomed to contemporary reality to access. This is the case, for example, in the **teaching of art**, which through the **digital** takes on a new form, facilitating the understanding of the work and the context in which the author created it. In this sense, digital and virtual reality can be of great help, because they offer students the opportunity to go back in time and sit next to the artist who made a painting, sculpture or monument and understand its characteristics and meaning more closely.

Museums

From art to technology, science to archaeology, museums have always sought to collect the most important and spectacular works of our culture to offer them to people of all times and places who are interested in discovering the beauty of different eras. Often, museum visits are the focus of educational programs aimed at students: looking at a painting or sculpture reproduced in a book is quite different from seeing it live. This is also why, since ancient times, museums have been an effective form of communication for a variety of purposes, from education to reflection to the pleasure of admiring a work.

According to the definition of the International Council of Museums, museums are permanent, nonprofit institutions that serve society by collecting and preserving within them a tangible and intangible heritage that spans eras and places distant in time and space. Visiting a museum certainly represents an interesting and engaging experience, opening up to sometimes unfamiliar worlds. But even these institutions have drawbacks:

- The work is **adapted** to a functional environment for the entire exhibition. Thus, when a painting or sculpture is placed in a museum room, it loses the reality in which it was placed and, to some extent, also its meaning. For example, if a work was made for a church and placed in a certain location, for a certain reason, by extrapolating it from its original place, it may lose some of the meaning its creator intended to convey;
- A visit to a museum, to be complete and to allow visitors to fully grasp the meaning of the different works, would need the presence of a **guide**, who can explain what is encountered in the various rooms and the story behind each painting, drawing, sculpture or object.
- The **timing** of the visit is often adapted to the flow of people. In some museums, for example, there is a limited amount of time to stop in front of the works, while in others the time by which you must leave the museum is indicated. In this way, it is not always possible to fully enjoy the beauty of the works on display and delve into them as one would like.

Digital meets art

Also to meet the needs of visitors and solve the disadvantages outlined above, museums have begun to make use of digital. New technologies, in fact, make it possible to approach art in an interactive and innovative way, exploring features and particularities that mere observation of the work would not have allowed one to discover. Several innovative **technologies** are being used to make sure that digital supports the enjoyment of art, such as:

- Videos, which can explain the work and the period in which it was completed;
- Online databases and archives, which allow anyone to learn about the museum, even without physically going there;
- Multimedia and interactive guides, which lead the visitor to actively participate in the museum experience;
- Video or audio guides, which explain step-by-step the different works in the museum, at the discretion of the visitor, who can choose when to activate the guide;
- Visors, which allow visitors to reconstruct the original structures from the remaining remains.

Some of these technologies are used on site, at the time of the visit, while others allow people to travel to the museum, but without moving from their homes.

Although it was already present to some extent, it is with the Covid-19 pandemic that digital has opened up a dirt road in art, representing the possibility of continuing to enjoy art, without physically traveling to a museum. According to an Istat Report, 73 percent of museums promoted online fruition activities in 2020. But that's not all. Because in addition to the fruition aspect, digitization of heritage has also grown in recent years, so as to prevent artistic and cultural works from being lost.

The benefits

Digital museums can be an effective and comprehensive solution for communicating cultural content and placing individual works in the reality in which they were conceived, so as to offer visitors a complete picture, allowing them to step into different eras. The application of digital to art has several advantages:

- Through digital, anyone can visit a museum, which is physically located on the other side of the world, without having to physically go there;
- A digital museum can be visited anytime, anywhere, as long as one has digital devices with him or her;
- Virtual reality applied to museums provides the ability to view the entire work of art (even in cases where only remnants have come down to us, and to explore historical places, promoting art learning;
- Digital allows the user to linger and admire a work of art for as long as he or she wants, without being subject to the physical museum's hours;
- The use of digital attracts a younger audience who, thanks to the interactive and alternative modes of enjoyment, are encouraged to learn about art and culture;
- Digital museums are, for the most part, free and do not involve physical travel;
- Digital makes it possible to go beyond the physical preservation of works of art, because it allows the entire cultural heritage to be digitized, ensuring its transmission over time.

Despite their many advantages, online museums deprive the visitor of the physical experience that only a real visit can provide. From the point of view of art teaching, however, they are undoubtedly very useful in bringing students closer to the various works, which are no longer only viewed in books, but can also be accompanied by videos and reconstructions of the reality of the past.

Virtual museums

Digital applied to art also manifests itself in virtual museums, which aim to complement or enhance the experience of the physical museum visit through interactions and enrichment. These are a collection of digitized works of various kinds, from paintings to photographs to sculptures, audio or video recordings. The first to talk about a virtual museum was a student, Nicolas Pioch, who as early as 1995 created a network by which the artworks contained in the various exhibits were disseminated. It took off from this initiative the development of sites related to art galleries or sculpture and architecture, complete with images and written captions.

Virtual museums do not necessarily have a physical space: in fact, they can be created from scratch, with completely digital products, or they can be based on existing exhibitions, complementing them. Collections can include images, videos, 3-D models, animations, reconstructions, and other multimedia experiences. The virtual museum, then, involves more than just standing in front of a PC or smartphone to view works of art from the comfort of your home. In fact, new technologies give the opportunity to go to a real museum and see, through virtual reality, a place of which only the remains are left reconstructed with 3D graphics and animation. An all-Italian example of a virtual museum is the virtual museum of the Imperial Forums in Rome, which, through the use of 3D viewers, allows the wearer to immerse himself in the ancient Roman power of the various emperors.

In this situation of interactivity, where the visitor is completely immersed in the reality of the past, the museum experience is complete because the visitor is involved from all points of view. The person's senses are more active, and his or her movements and actions determine the virtual reality view. In this way, the visitor is not simply observing a work, but is actively participating in the reality of the time in which the work was created. This can also be an effective method to be used for teaching art and bringing young people closer to architectural, sculptural and artistic works. In this case, in fact, the student

becomes the protagonist of an ancient world that is difficult to imagine, but that seen and experienced through virtual reality allows it to be understood.

Digital, then, can be a very useful tool to allow art to cross the physical boundaries of the museum where it is exhibited and reach any person anywhere, also allowing him or her to step inside the reality of the time.

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