The Rooms of Art. The Virtual Museum as an Anticipation of Reality

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Abstract

In this essay we propose a methodological approach for the realization of a virtual expositive space in which converge on one hand the results of a scientific research based on the study of author's paintings whose contribution has embellished the Venetian territory, and on the other hand a strategy based on a credible interactive proposal for the users, for a creative fruition able to involve emotionally the observer and facilitating at the same time the learning.

Keywords
virtual museum, digital fruition, virtual tour, interactive graphic, digital vision.
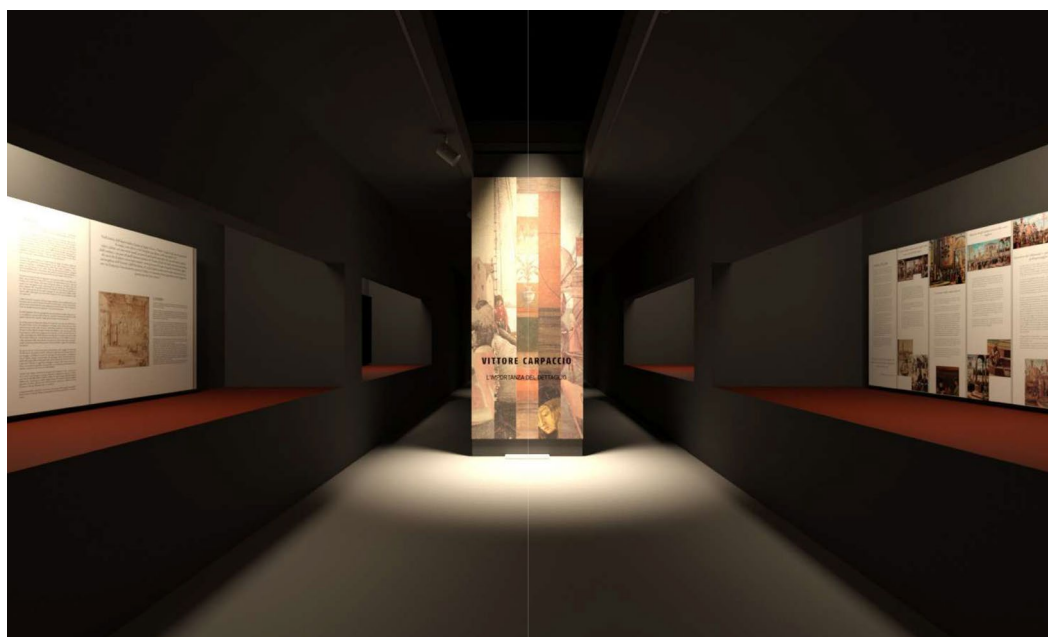
Discovering the Rooms of Art

During the last decades, with the beginning of the so-called "Digital Era", museums have seen a significant expansion of the spaces and media for the knowledge dissemination about their collections and projects. In contemporary society, the increasing presence of ICT has inevitably pushed cultural institutions to update themselves and begin a complex process of digitization carried out at several levels. Museums have shown a growing interest in the web[1], no longer considered only as a promotional space, but as a valid and innovative tool for interaction and user involvement [Mandarano 2019, pp. 65-112]. The museum can be effectively supported by its online one and by Immersive Reality experiences in the performance of its functions, participating in the dissemination of heritage knowledge both because it uses digital reproductions of the preserved works and because it goes beyond the physicality of real spaces. The online version intercepts a public that moves more and more on the web, guarantees global visibility and, above all, brings an extremely diversified audience closer to the world of museums.

In this contemporary panorama, the new systems of sharing and consulting catalogs in digital format present themselves as an innovative means of accessing information.

The exploration of dynamic interfaces, interactive graphic systems, the interrogation of databases accessible by thematic and sensitive maps, 2D/3D tours and a whole series of activities are designed to arouse and stimulate curiosity and creativity.

Certainly, the current communication technologies have stimulated the search for multiple forms of learning and a different way of interacting with the knowledge contents, encouraging a much more widespread promotion and dissemination, but also generating a growing impatience with the digital paradigm [Arcagni 2016, pp. 3-35]. If, on the one hand, technological devices and social platforms have redesigned the grammar of seeing, focusing on narration forms that are increasingly interrelated to digital logic, on the other hand, museum institutions are moving towards the experimentation of hybrid exhibition models in which the virtual component, combined with traditional analogue supports, creates places of multidisciplinary knowledge, favoring the possibilities of expression and inclusion. "It is not, in fact, a matter of preferring digital to analog, but rather of developing an integrated system of communication" [Mandarano 2019, p. 9] [2].

The museum defined as the privileged place "of visual testimonies, which concern culture and the human environment", is the place "that shares the task of collecting, preserving, documenting and studying cultural heritage, but is distinguished because its relationship with the public passes through the exhibition, that is, the presentation and interpretation of objects" [Marini Clarelli 2021, p. 13].

Unfortunately, following the recent pandemic, the containment strategies triggered by the health emergency led to a rapid change in the forms of communication and fruition adopted or being adopted up to now, and to abandon the direct experience of anthropic spaces for an educational re-enactment totally replaced by digital devices. In an attempt to guarantee the right to knowledge, the absence of direct contact with the works has led to an increasing development of dissemination projects that can be implemented on websites, to the exclusive access to resources of the archives on the web, to the sharing of information in social networks and to a continuous proposal of virtual visits [Balboni Brizza 2006, pp. 37-44].

In line with the cultural strategies of many national museums, the authors' interest in digital experiential paths, closely then connected to the virtual museum, stems from the attempt to concretely experiment an alternative solution to the temporal slippage or even the suppression of possible permanent or temporary exhibitions that have occurred in some regional contexts. The exhibition proposal able to clone and digitally transform real environments with multiple information devices and artifacts on display is not intended to replace a physical exhibition, but to collaborate with it, to manage possible emergency situations or to ensure a knowledge dissemination to people who do not have the possibility to reach the existing places.

During the period of physical isolation imposed by Covid-19, in the first year of the Master of Science in Architecture at the Iuav University of Venice, students were given the
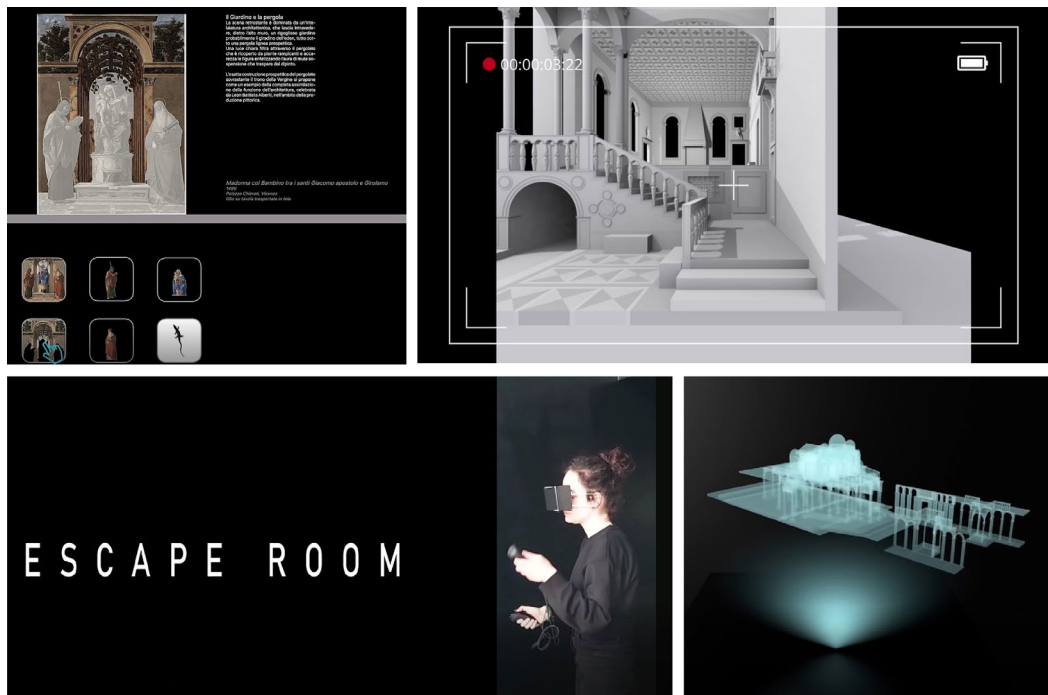
task of creating a virtual exhibition within an existing physical space, the Gino Valle class-room of the former Venetian cotton mill, a space periodically reserved for exhibitions or cultural events [3].

The final goal of this didactic experience concerned the genesis of a multimedia file, about ten minutes, able to illustrate an exhibition path that reasoned about an idea of contemporary space contaminated by the most advanced multimedia and interactive technologies (Fig. 1). From the various examples that ranged from the famous cycle *Le Storie di Sant'Orsola* by Vittore Carpaccio (1465-1520) at the Gallerie dell'Accademia, to individual works by Gentile Bellini (1429-1507), Giovanni Mansueti (1465-1527), Cima da Conegliano (1459-1517) in the Veneto Region, significant reflections emerged not only on how to effectively communicate information (historical data, geometric constructions, architectural artifacts, augmented and virtual reality, entertainment formulas), but above all on the limits of virtual settings and on how to modify the cultural offer in digital format to increase the degrees of freedom of the user.

It is evident that the experiments conducted at the university have highlighted a certain rigidity in conveying the exhibition contents. If on one hand the user is able to understand the possibilities of interaction in the exhibition, on the other hand he involuntarily undergoes the fruition of the exhibition without being able to choose the times of observation and interaction in the single areas of the room. He remains a passive observer who can only observe how to visit the exhibition, the path proposed by the curator and the division of space into thematic areas. The flow of time is constrained by the times imposed by who made the video, deus ex machina who controls the shots, the reconstructions and the learning times.

In light of the considerations, the digital simulation of an exhibition space, certainly useful in communicating events and replacing a physical visit, becomes even more effective when considered as a visual synthesis of a larger work.

The layout proposal and the concluding video can become themselves the storyboard of a virtual tour in which the user is able to acquire his autonomy in choosing the contents and the time dedicated to them. The digital format allows to associate to the space continuous deepening, also from the scientific point of view, activated by the user/navigator that makes himself more participant in the path of knowledge.

Well-known examples, even if characterized by a basic level of content transmission, certainly intended and designed for a heterogeneous public, are the virtual visits [Orlandi, Zambruno,

Vazzana 2014] managed by renowned museums such as the Louvre Museum [https://www.louvre.fr/en/online-tours#virtual-tours], The National Gallery [https://www.nationalgallery.org.uk/visiting/virtual-tours/google-virtual-tour], or the Vatican Museums [https://m.musei-vaticani.va/content/museivaticani-mobile/it/collezioni/musei/stanze-di-raffaello/tour-virtuale.html] in which it is possible to access individual rooms, to understand and cross the space, to approach the texts or captions, to observe the artifacts on display (Fig. 2).

Ranging from museum rooms to archaeological sites, Virtual Tours offer a digital vision that has invaded cultural offerings, hybridizing them in new ways and demonstrating that in our society "the machine learns from the human eye and the digital eye offers a new support to the human eye" [Arcagni 2016, p. 21].

Exploring the Rooms of Art

Cinema and photography represented the main form and cultural interface of the twentieth century, the tools through which it was possible to achieve a "recording and storage of visible data on material support" [Manovich 2009, p. 1] to write and describe movement. In the era of digital representation, it is virtual reality – necessarily produced through the use of computers – that steals the scene from common forms of data archiving. Consequently, the screen of a PC is in fact the limit of virtual vision, the tool with which the operator/observer is forced to interface by means of windows on an 'illusory' space. This is a physical threshold that offers the possibility of looking at a mosaic of information perceived from multiple points of view with respect to as many different reading planes. The main novelty of the man-computer-culture interface lies in the way machines present cultural data and allow us to interact with them. The contemporary communication technologies have stimulated the research of new forms of learning and a different way of interaction with the contents of knowledge, in order to promote and disseminate them more widely.

Taking advantage of New Technologies, it is possible to experiment with the most up-to-date exhibition and virtual fruition models.

In the Course of Drawing at the first year of the Master's Degree in Architecture at the Iuav University of Venice, the students were given the arduous task of creating a virtual exhibition within a real physical space: the Gino Valle's classroom of the ex Venetian cotton mill. The room designated to its function of container, able to virtually accommodate the didactic contents, has been chosen in function surely from the extremely familiar connotation of the environment that has induced the students to lead back the virtuality of the experience with the real architectural dimension that the classroom imposes (Fig. 3).

The strategy adopted, based on a credible interactive proposal for the user, has provided several stages for a creative fruition that pays homage to famous painters belonging to the humanistic-renaissance Veneto. The work has been divided into precise phases that concerned the historical-critical analysis of the case study, the perspective restitution necessary to obtain the internal orientation and through the homology technique the spatial data for the orthogonal projections, the digital model of the painted architectures (Fig. 4). Subsequently followed the 3D modeling of the exhibition hall and the exhibit (Fig. 5) to then focus on the storyboard definition that allowed to control the linear sequence of events, favoring a narrative anchored to gamification strategies [Petruzzi 2010].

The final multimedia file illustrates an experiential path that has allowed us to think about an idea of contemporary space contaminated by the most advanced multimedia and interactive technologies.

Fig. 2. On the left: Paris, Museo del Louvre, *Founding Myths: from Hercules to Darth Vader*, login screen, 2022. In the middle:London, The National Gallery, Google virtual tour, 2022; On the right: Rome, Musei Vaticani, tour virtuale *Le stanze di Raffaello*, 2022.
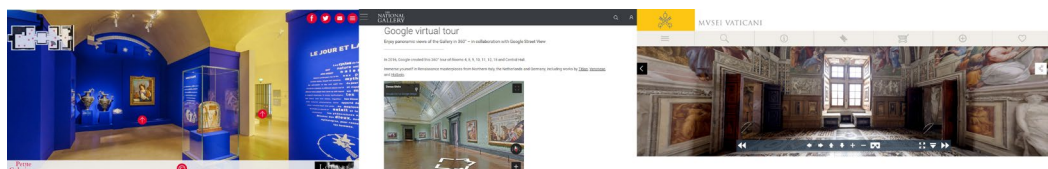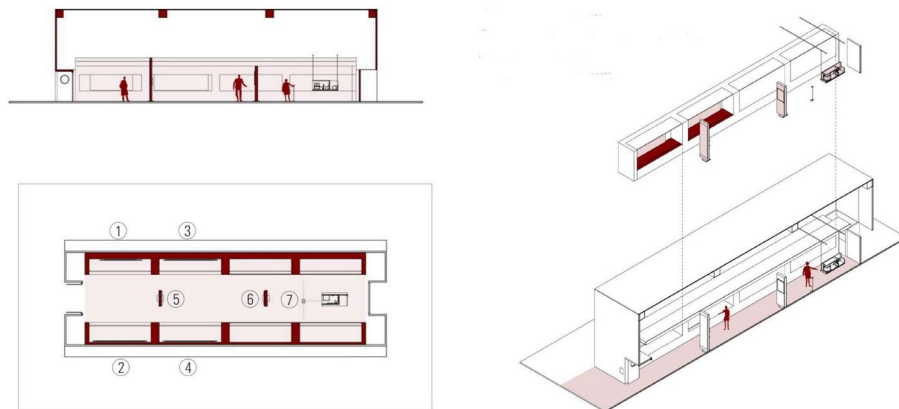
Fig. 3. Gino Valle's room. Plan, section and axonometric cross-section.

The final product is presented as a digital simulation of an exhibition space, but above all it becomes the storyboard of a possible virtual tour: the starting point for the construction of a virtual tour inside the Gino Valle classroom set up as designed by the students and subsequently realized by the authors.

The virtual fruition of the room and the possibility to visualize its interior at 360° happens through the realization of spherical images. Panoramas mapped on the internal surface of an ideal sphere, in order to simulate a 360° panorama (Fig. 6).

The virtual tour has been realized with an open source program. The software is Marzipano that provides for a step by step assembly of the tour.

At first, the 4 spherical images related to the 4 different areas of the exhibition have been imported. The presence of hotspot links makes it possible to create a connection between one room and another, facilitating navigation with the mouse.
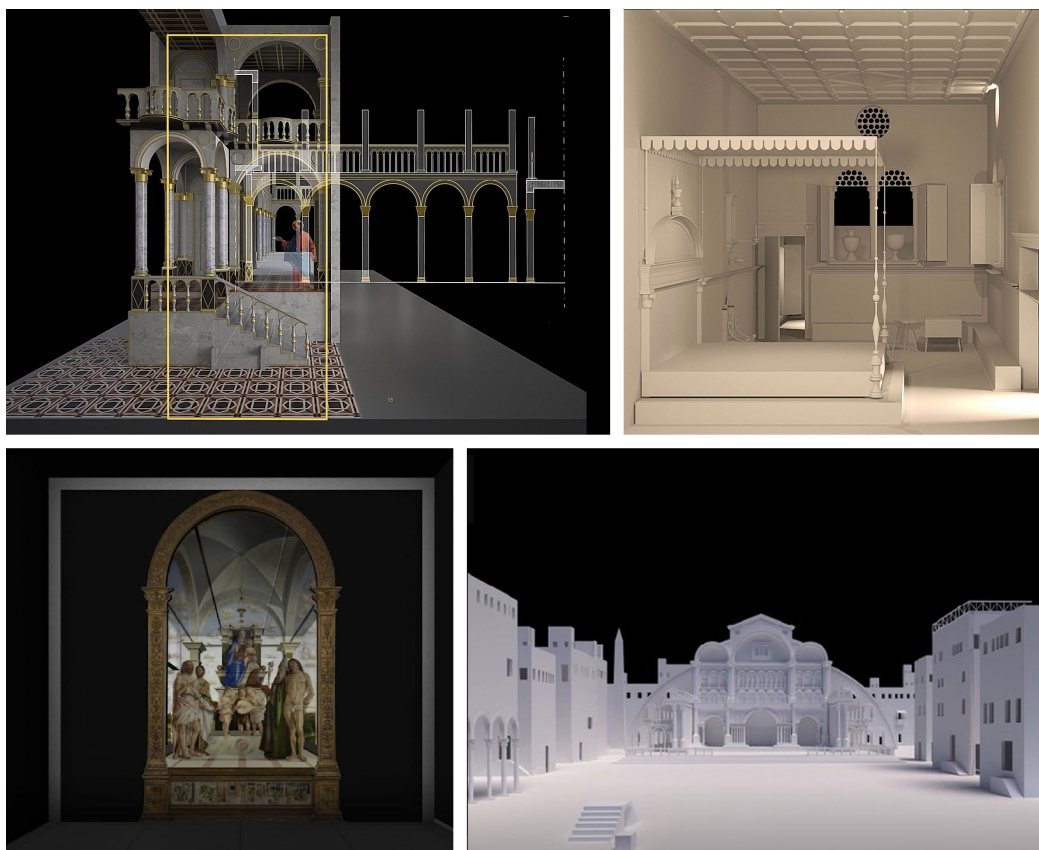

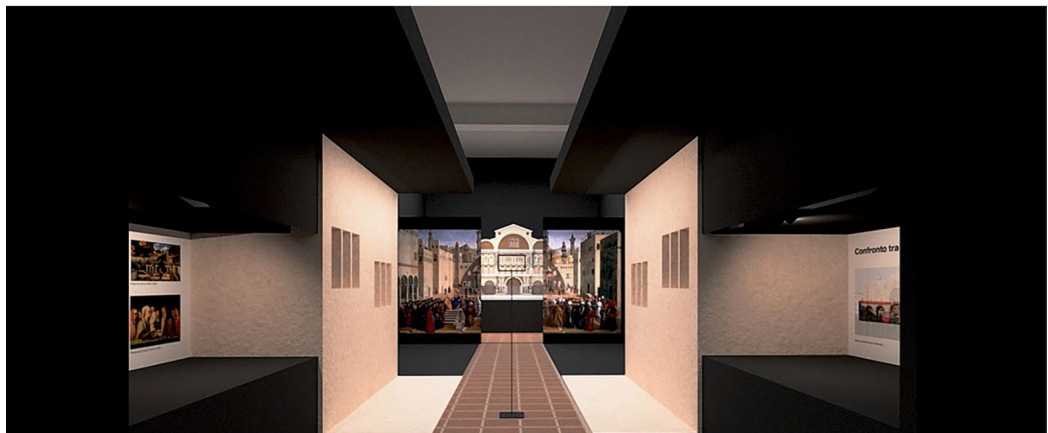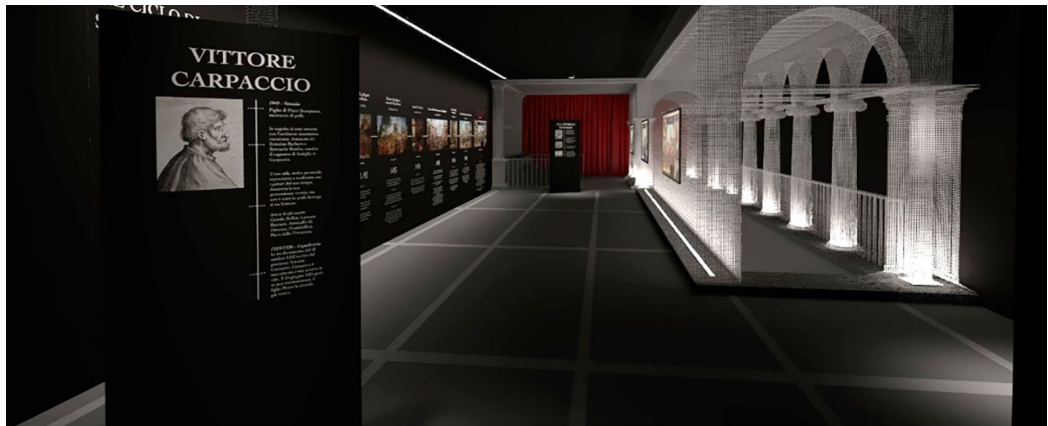Fig. 4. 3D models of painted architecture. Università Iuav di Venezia, a.a. 2020-21.

On the other hand, the possibility of accessing info hotspots or informative and questionable links allows you to implement knowledge thanks to the inclusion not only of text files but also static images or multimedia files that aid reading and facilitate learning. Thus allowing the user to freely access and query the documents or multimedia files for in-depth study of some of the topics analyzed (Fig. 7). In fact through the virtual navigation it is possible to move among the rooms through a guided path indicated by arrows. The goal of the virtual exhibition is to accompany the visitor on a journey towards an in-depth knowledge of both the artist and his works.

The aim of a virtual tour is to widen considerably the spaces and means for the diffusion of knowledge without aiming at substituting a real fruition, but flanking the museum institutions in the relaunching of cultural objectives and contributing to the success of the educational
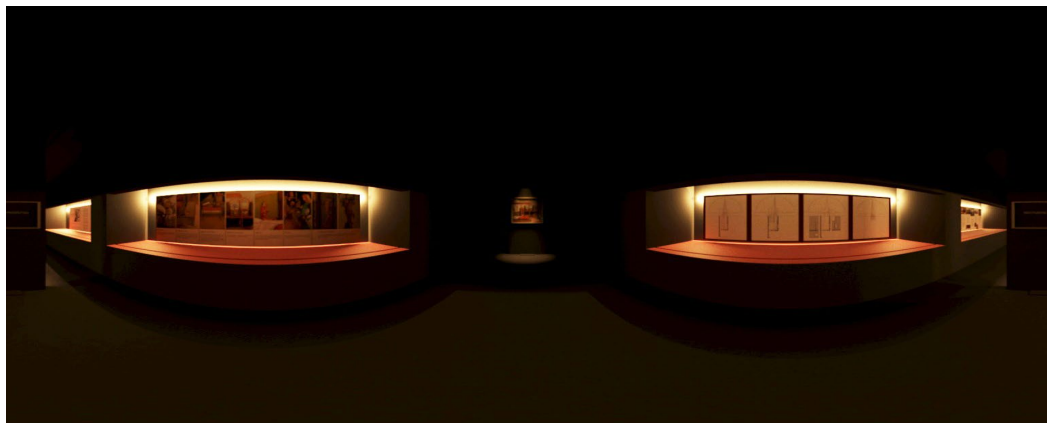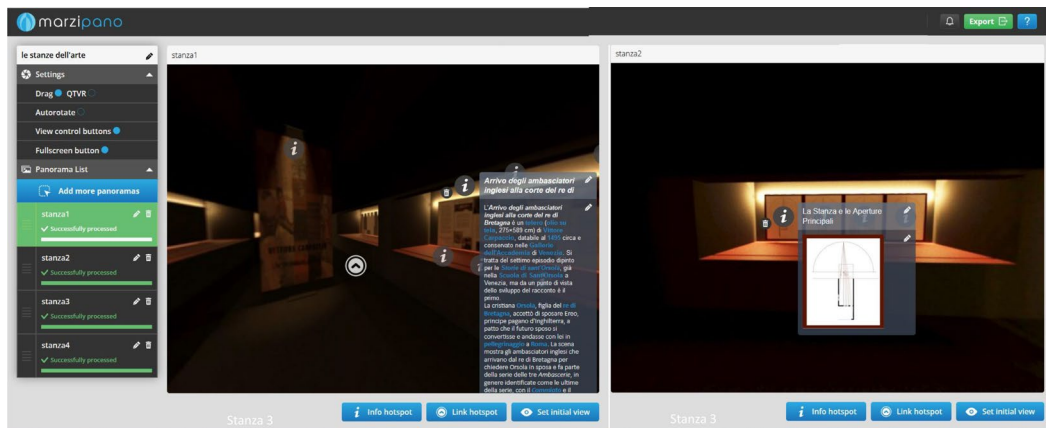
Fig. 7. Screenshot from Marzipano software.

action. In fact, what is missing in these new educational tools is the emotional factor that is present only when the visitor is in direct contact with the work of art and not when the vision of the same is mediated by technology.

In this panorama, the new systems for sharing and consulting catalogs in digital format present themselves as an innovative means of accessing information.

The virtual museum achieves its purpose if it fulfills the functions of research, didactics and alternative information, without aspiring to replace the real museum, but working alongside it in the revitalization of cultural objectives and contributing to the success of educational action. And so, in the last few decades, the progressive introduction of digital devices in museums has found space in many sectors, ranging from the management and preservation of databases, to the cataloguing of materials and the increasingly frequent use of technologies applied to restoration and virtual reconstructions [4].

Notes

[1] All the quotations are translated by the authors.

[2] Museums have expanded online, either by opening official profiles on social networks, or by creating new or redesigned websites.

[3] For more information about the teaching experience at Iuav: Loosening distances: an educational experience of virtual exhibition fruition. In: Aa. Vv. Connecting. Drawing for weaving relationships. 42° Convegno internazionale dei Docenti delle Discipline della Rappresentazione. XVII Congresso dell'Unione Italiana per il Disegno. Roma: Gangemi.

[4] *Discovering the rooms of art* was written by Gabriella Liva and *Exploring the rooms of art* was written by isabella Friso.

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