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Digital CX: customer engagement implications after Covid-19 in Italian museums

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Abstract

This paper examines the process of museum digitization that occurred in the wake of the Covid-19 pandemic and the subsequent reaction of visitors to that process. The analysis focused on how an interactive online experience can increase user engagement and consequently user satisfaction and intention to revisit. This study described how Italian museums doubled their online activity, and showed that, during the weeks of lockdown, their cultural initiatives did not come to a stop but, on the contrary, there has been a sharp rise in online cultural material and initiatives taking place through social media. Since the emergency situation is extremely contemporary and very unexpected, the literature has not yet focused on how much it has affected museums in terms of adoption of new technologies. In fact, the literature review is based on a detailed analysis of the reforms and processes that have brought museums to what they are today, both from a bureaucratic-administrative point of view and from the point of view of their role in society. This text also describes the many initiatives put in place between March and April 2020 to get the public to interact with the world of museums and ensure that even in a time of pandemic, a community could be created. Moreover, existing literature has already widely described how important user engagement and customer satisfaction are for museums, which in recent years have been adopting more and more marketing strategies aimed at implementing a positive electronic word of mouth. While broadly examined with reference to stores, the importance of making users part of an experience has been rarely looked at in the museum context, particularly in Italy. A research framework has been developed to analyze the relationship between the interactivity of the experiences offered and the customer satisfaction and the intention to revisit. Using a survey as a research instrument, the study was conducted with 182 respondents to an online survey sent via email and social networks (Instagram, LinkedIn and Facebook). Were produced visual stimuli and then proposed several questions to better identify the sentiment of users regarding the proposed stimuli. Results show that an interactive experience affects both customer satisfaction and intention to revisit. The paper makes the case for using the development of interactive experiences as a strategy to include the visitor perspective in the museum value co-creation process. Conclusions and implications will then be pointed out according to the results and future research and limitations will follow.

Keywords*:* *museums, user experience, engagement, customer satisfaction, Covid-19, reiterated experience, digital technology, Augmented Reality, culture, interactivity.*

1. Introduction

Since the end of 2019, the world has found itself experiencing a unique crisis. During an extremely short period of time, the world has witnessed as never before a radical change that has forced the sudden freezing of every activity. Each social relationship, productive activity or economic exchange has seen a sudden change that has led to an immediate immobilizing of life. All this has brought with it endless organizational, logistical, economic, and social problems that still, after more than a year, everyone does not know how to deal with.

Covid-19 has caused humanity to experience a shock. "Suddenly they realized that the globalized society they had built was facing a threat from natural causes, a nature they tended to believe was tame and controllable, as well as from social causes" (Maffettone, 2020). Analysts who made estimates in March and April, after measures taken by the government to contain the spread of contagion, expect a sharp decline in economic activity; almost all those who updated them more recently expect a recession stronger than those experienced after World War II, including that induced by the great global financial crisis. Moreover, available data on household and business confidence and expectations, as well as labor market data, clearly indicate that the economic and social costs of the Covid-19 pandemic will be enormous: its impact on productive activity will be comparable to that of the greatest crises of the last century and will involve, although with different intensity, all world economies, advanced and not (Locarno and Zizza 2020). Another characteristic that makes the current crisis exceptional is the fact that the main channel of transmission of the epidemic's effects to the economic system is that linked to the containment measures decided by the government. Production is blocked mainly not by a fall in demand, but by administrative measures, made inevitable to limit the spread of the contagion. As the virus quickly spread globally, country after country resorted to a lockdown to contain the epidemic. But "as a global response to the pandemic, the idea of lockdown is problematic. First, it is hugely expensive. Lockdown has led to the shuttering of businesses and skyrocketing unemployment rates. Second, it exacerbates inequality. The ability to work from home varies greatly across different socio-economic classes" (Ren 2020).

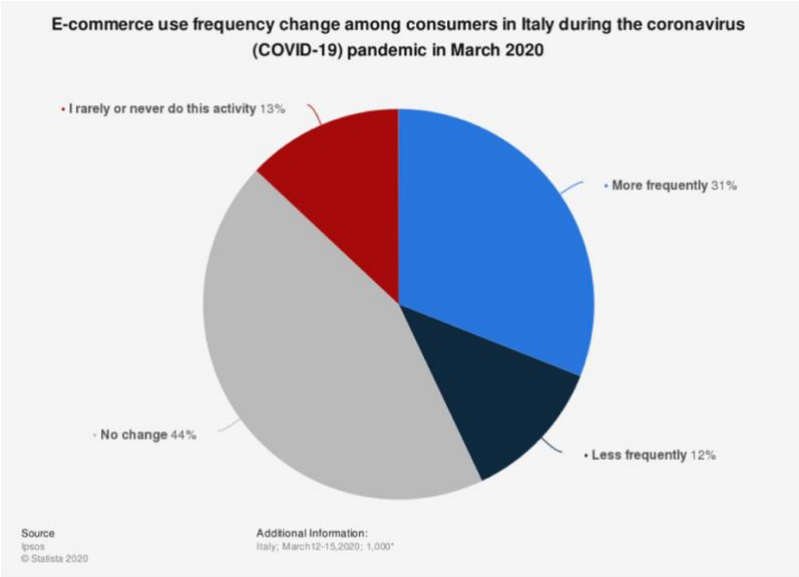
Italy was one of the first countries in Europe to face an exponential growth in COVID cases, its healthcare system nearly brought to a standstill, with overcrowded intensive care units and doctors forced to apply triage. "Moreover Italy, has seen a loss of GDP of 8.9% in 2020. The causes are, of course, the blocking of internal social and productive activities, but also the greater dependence of our economy on services compared to Germany, for example" (More in Common 2020).

Confinement measures were imposed by authority during the coronavirus emergency in Italy from March 9, the date on which retail businesses, educational activities, and food services were suspended, and gatherings of people in public places or places open to the public were prohibited.

The measures were then relaxed from May 4, the date on which the so-called Phase 2 was started. The measure was called *"#iorestoacasa*", according to which it was imposed a ban on gatherings, moving if not for necessity, the closure of all unnecessary businesses, closed schools, gyms, places of worship and places of culture, such as galleries and museums.

Yet our society has not stood still, has not remained unarmed, but instead has deployed tools and resources not only to deal with the health emergency but also to overcome the physical distance. The main method used has been internet and new technologies. The use of internet has been fundamental in overcoming forced isolation. Primarily for smart working. It was estimated that there were 500,000 remote workers in the pre-covid era, a number that has risen to 8 million by March 2020 (Treu, 2020). Smart working has been a challenge; it's been a sudden but necessary change that has dared many companies, especially smaller ones that weren't prepared for this real evolution. But this challenge can represent an opportunity: businesses can safeguard the health of customers and employees while ensuring business performance. Indeed, many companies have benefited from this change, so much so that 68%, according to a survey conducted by the Association of Personnel Directors Aidp, have decided that they will extend remote activities even as they return to a "new normal" (Barbieri, 2021). In March 2020, 100% of educational activities were conducted remotely, as were social and business activities. On a business level, new horizons and opportunities have opened. E-Commerce has seen a significant increase in sales, more than 81% in 2019, according to data indicated by Nielsen. (Nielsen 2020). Consumers, on one hand because they are unable to go out and on the other because they are frightened to do so, have moved towards a more flexible and secure ways of purchase, and supply must adapt accordingly.

Figure1.1: E-commerce use and frequency



Source: Statista 2020

In a scenario so profoundly changed it is fundamental to consider a revolution even from the point of view of customer care and customer experience. The Covid in fact, "for vulnerable individuals and the customer teams that serve them, has also forced a rethinking of what customer care means. Suddenly, examinations of customer journeys and satisfaction metrics to inform what customers want have given way to an acute urgency to address what they need" (Diebner et al. 2020). The first element to satisfy customer needs in a general moment of crisis is to focus on caring rather than marketing and sales. Caring can have different shapes: to the customer, employee, or community. Today's industry leaders have demonstrated that genuine care should extend beyond the immediate customer base. Italian companies have donated hundreds of millions of dollars to local hospitals and the Civil Protection Agency to combat the virus spread (Diebner et al. 2020). A second step is to meet customers where they are, which is by leveraging e-commerce and new technologies. Consumers' adaptations to online shopping, which are accelerated by the pandemic, are not likely to end or reduce after the COVID-19 passes.

Even consumers who were part of the late majority were driven by covid to buy online by overcoming the barriers that had previously kept them tied to physical stores: direct ownership and social interactions. Another reason why some customers preferred the physical store to the online store was the limited availability of information offered by the latter. When you buy online, the information and images on the product are only those made available by the seller. There are two ways to overcome this problem: new technologies and reviews. Consumers are increasingly relying on online reviews as a form of personal protection. Regarding new technologies, managers might want to utilize recent technologies to help consumers make decisions more easily while they shop online, for example "Amazon offers virtual clothes fitting experience by utilizing augmented reality (AR) technology. Virtual reality (VR) and AR techs are expected to open new opportunities for personalized shopping experiences online"(Kim 2020). Other ways to improve the digital customer experience are to include music within ads or to exploit interactivity.

By digital customer experience is meant all digital interactions with the customer that have the goal of creating a lasting relationship between the customer and the company based on trust. "Trust" is often a determinant factor to predict whether a consumer is willing to shop" (Bilgihan et. al. 2016). Creating an emotional connection with your consumers creates loyalty, and it has been shown that consumers who have an emotional bond with a brand have a 306% higher lifetime value (Morgan 2019).

More problems obviously arise when the relationship must be created virtually because the part of human connection and social relations is lost. Based on the research, scholars find that there are two key digital technology elements that can lead to a rich customer experience: personalization and inter-

activity (Parise et. al. 2016). Personalization involves the provision of expertise and solutions based on the shopper's in-store behaviors, such as product browsing, item comparison, and wish to exit; in addition to more mainstream factors such as their online efforts, self-reported preferences, and demographics. It often translates into positive consumer attitudes about the brand, as the consumer feels that the company cares and appreciates them. “Personalization in the retail space is often the result of advanced customer analytics: the ability to integrate and deliver information from customer data across all touch points” (Parise et. al. 2016). On the other hand, mobile apps, augmented reality, and live video technologies can empower interactivity by linking the purchaser with the product expert in real time in an engaging space. Interactivity gives purchasers a sense of control as they have conversations with the brand about their wants and needs (Klein 2003). Customer experience is also affected by immersion. In a technology-mediated space, immersion is the degree to which the client has a sense of "being there." The two main concepts that define immersion are breadth (number of touch points) and depth (quality of information transmitted through the touch points, including visual, tactile, and auditory senses) (Parise et. al. 2016).
Covid therefore raised many barriers but also opened many doors.

Of all the industries affected by the crisis, culture is one of the hardest hits. At an international level following the closures of March 2020 “3 out of 5 museums reported losing an average of €20,300 a week due to closure and travel halt. While some museums have found their budget minimally impacted yet, many museums reported a considerable loss of income of 75-80%, with larger museums and the museums in touristic areas reporting weekly losses adding up to hundreds of thousands of Euros” (NEMO 2020).
The global Coronavirus crisis has had and will have an unprecedented effect on museums around the world. Nonetheless, museums have been fast and purposeful in their reaction to the pandemic, moving their attention to address the unmet needs within their markets in this situation.
They have digitalized their core business, exhibitions, and organized themselves to try to maintain a high rate of customer engagement by arranging interviews with experts or guided tours in the company of the museum director. Still others have chosen a more 'playful' approach, launching virtual treasure hunts among the museum's collections, or organizing quiz events.
According to NEMO research 4 out of 5 museums have increased their digital services to reach their audiences, often by having staff take over new tasks to cope with the circumstances and 2 out of 5 museums reported an increase in online visits, ranging between 10 to 150% during the reporting time (NEMO 2020).

Figure 1.2: Increased online activity

Source: NEMO 2020

Regarding Italy, ISTAT assessed that the health emergency and related lockdown that closed museums throughout Italy caused, between March and May 2020, a lack of attendance of nearly 19 million visitors and a loss of revenue of approximately 78 million euros. In the same quarter last year, state museum facilities had recorded over 17 million visitors, realizing gross receipts of 69 million euros (ISTAT 2020). The experience of lockdown lived since the beginning of March, with the physical closure of all the places of culture on the Italian territory, has highlighted the need to implement and develop alternative ways of exploitation and enjoyment of cultural heritage by the public and to rethink the contribution that digital technologies can provide.

Responding to the call "#iorestoacasa, la cultura non si ferma", many cultural institutions have promoted initiatives to allow citizens to access their heritage online. In Rome, Milan, Venice, Naples, Turin, Florence, Bologna and Padua, several state museums have made available virtual tours, online collections, digital and social initiatives to involve the public, even if virtually. Since March 2020, during the first wave of closures, museums have been able to create renewed attention around themselves. Some museums have been able to increase their social media followers even by major orders of magnitude, going viral and engaging some social media not really designed for museum cultural activities such as TikTok. It is difficult to measure the overall success of these efforts because, in many cases, museums have moved to digital content without clear expectations of results (Agostino, Arnaboldi, and Lampis 2020).

Regarding the type of public most involved in these activities, the General Management of MiBACT carried out an analysis to find out some more information. The survey was conducted between April 23, 2020 and June 30, 2020. In summary, the main indications that emerged from the study are that the rate of involvement in the proposals of the places of culture of the people who are citizens of Italy does not reach an average of 34%, however, there is a part of the residents who are very familiar and in sometimes a special affective relationship with the institutions of art and history. About 95% of respondents have a special memory of a museum they visited in person during the past year. 90% say

they felt they missed museums, and one-third specify that the sense of missing them was very strong. 93.3% intend to return to museums in general or a specific museum in the coming months. The profile of survey respondents is distributed as follows: females prevail slightly (52.6%). The distribution by age group is dominated by the 25–44-year-old group (approximately 48%) and the educational level of respondents tends to be high. In fact, 69.7% have a degree corresponding to or following a bachelor's degree (Solima, Cicerchia, and Staffieri 2020).

Having this kind of information is crucial for museums to be able to better convey the digital communication mode.

The theme is therefore extremely contemporary, so that every day there are developments, and even today at the time of writing, we don't know what the future of museums will be or what the right balance between online and offline will be. MiBACT affirms that an "online visit" could not replace an in-person visit to a museum but, on the contrary, could lead to a visit to the museum or complete the visit in person. On the other hand, 44.2% of museum visitors will continue to use digital resources as intensively as they did during the closed period (Solima, Cicerchia, and Staffieri 2020).

Because of the significant impact of closure on museum economics, the literature and relevant bodies have already focused on analyzing how covid has forced technological and cultural changes within the Italian museum world. Little has yet been said, however, about the impact of interactivity on customer satisfaction in museum experience. It has been long proven that in general, interactivity on websites leads to a higher level of satisfaction. Indeed results show that both objective and subjective level interactivity significantly influenced online shoppers' satisfaction and behavioral intentions (Roy Dholakia and Zhao 2009). According to another research, interactivity is "constitutes a key element that differentiates new media from the conventional ones." (Palla and Zotos 2017).

However, how the interactivity of the events implemented by museums during the first wave of the covid 19 pandemic affected customer satisfaction is still a topic to be addressed.

The first research hypothesis taken into consideration in this paper is in fact that a higher level of interactivity corresponds to a higher level of customer satisfaction. And "customers with high levels of satisfaction were more likely to translate their 'intentions' into 'actual behaviors,' which was inferred through measuring incidences of repeat purchase/visit and recommendation" (Piancatelli, Massi, and Vocino 2020).

H1 In conditions with interactivity there may be higher satisfaction than standard condition.

The museums during the closure from March 2020 to May 2020, did not only focused on virtual tours, conferences, interviews and talks with experts, but have gone further. Many of them have done their best to create games, workshops, crosswords, quizzes, everything that could actively involve the virtual visitor and make him/her passionate about the exhibition in an alternative way.
The museum experience during the pandemic therefore underwent a deep mutation. Both at the level of content and at the level of time and frequency. Online tours, interviews with experts or museum directors, take a limited amount of time, 10-15 minutes at most, as opposed to the 2-3 hours, even full days, that a physical visit to a museum requires. The public can focus even on a single work of art in which they were initially interested, but while before they might have gone to the same museum very rarely, now they come back on a regular basis, the connection can be even daily or weekly. This reduces the time of the visit but lengthens the pre-participation time of the visit itself because the user must know what he/she is looking for.

H2 The interactive online experience can lead to a higher level of reiterated experience.

So, visits no longer last one, two or three hours, but have instead become short events that take only a few minutes and follow a precise thread. This may mean concentrating on an article from the museum's collections related to "what happened on this day", an interview with the museum manager or an expert on a specific subject. This change in time has opened the door to thoughts about using visitation time differently even when museums reopen. One might consider spending a few minutes alone and up close with a work of art, or taking a personalized virtual tour from one's living room (Agostino, Arnaboldi, and Lampis 2020).

The paper is organized as follows: Initially, a literature review in which the highlights of the literature will be analyzed regarding various issues. It will make an analysis of the pre covid Italian panorama and how digital technologies were exploited. It will then go on to describe the sudden change that occurred during the covid and the environment that was formed following the pandemic and then focus on the importance of personalization and word of mouth.
The second part is characterized by the research analysis in which design, method, results will be described.
Conclusions and implications will then be pointed out according to the results and future research and limitations will follow.

2. Literature Review

2.1 Italian context pre-covid and Digital technologies in cultural sector

Digital innovation and new technologies have been a constant focus in the development of museum management in recent years in Italy. This happened because it has been realized for some years now that in some way, the entire museum ecosystem required an innovative push. In fact, there has been a strong push towards digital innovation also from the point of view of legislation.

Until 2014, the museum is defined as "Permanent, non-profit institution, at the service to society and its development. It is open to the public and carries out research that regarding the material and immaterial evidence of humanity and its environment; it acquires, preserves, communicates and exhibits them for purposes of study, education and enjoyment, promoting knowledge among the public and the scientific community"(ICOM, 2014).

Italian museums had always been divided by the ideological opposition between protection and valorization, a dichotomy that is partly overcome thanks to the 2014 Franceschini reform, which sees museums as true places of knowledge. “The reform highlighted the importance of museum collections as artwork to be admired, enjoyed and learnt from, stating also that museums had to embrace a more open role and ‘talk with their public’, offering real experiences of knowledge” (Agostino, Arnaboldi, and Lampis 2020). In operational terms, this agreement was attained by first establishing a set of independent museums and then setting up a museum system at the state level. The reform's stance on museum autonomy meant that museums institutes with their own identity, a set budget, and statute. They must also be administered by their own board of directors and scientific committee. In this way, the status of an institution is granted to the museum. The initial 32 directors of autonomous museums were appointed in 2015. The project also established 17 regional poles, to manage the coordination of non-autonomous state museums and lead the development of networks between social and institutional actors in the territory.

The first phase of the reform produced important results. In the first phase (2014-2017), visitors to state museums increased by 18.5% (+7 million), reaching a record 45.5 million admissions in 2016 and confirming a positive growth trend in 2017 as well (Lampis and Franceschini 2017). In general, as Minister Franceschini (2017) said: "The reorganization of the Ministry is paying off. Three years after the reform that has recognized the State museums full legal dignity as Institutes, visitors in the State places of culture have increased from 38.5 million to 45.5 million and receipts have reached 175 million euros. These figures are set to rise again this year, with growth of 9.4% in visitors and 13.5% in receipts in the first nine months, and bear witness to a radical reversal of the trend due to the important innovations introduced with the national museum system”.

The reform set the stage for a revolution from a digital perspective as well. In fact, one of the objectives was to create a true network between Italian museums, state-owned and non-state-owned, showcasing the cultural heritage of almost 500 Italian museums and in this way promoting the dissemination of Italian artistic heritage and collections. Private museums wishing to join the national system must meet minimum quality requirements, parameters that are evaluated on a scale of 1 to 10 and are all indicated in a completely digital way. In fact, one of the fundamental objectives was to initiate a process of de-bureaucratization, to streamline the process of regulatory enforcement and make museum institutions lighter and faster and in this way more able to adapt to the changes that the outside world imposes (Agostino, Arnaboldi, and Lampis 2020). A "zero bureaucracy" and paperless approach was applied, but everything was based on online voting, videoconferencing, and digital communication among the members of the CDA along with the use of a digital platform for voting on quality standards. This was intended to bring digital into all aspects of museum life, no longer just at the level of communication or contact with the public but also at the internal, administrative level.

In 2018, the Three-Year Plan for Museum Digitization and Innovation was also published, which defines the shared guidelines for the digitization of the various operations and the management of digital projects. With this project for the first time the focus of the use of new technologies was no longer unidirectional but rather bidirectional. In fact, with reference to the museum-visitor relationship, a reputational monitoring project was launched on a sample of 100 state-owned museums, to assess public perception through the analysis of material generated by online users rather than through visitor satisfaction surveys.

Indeed, the Three-Year Plan was born out of the need for a greater connection between the artistic heritage and the younger generations. Just listening to that call made it particularly necessary to reflect on the relationship between digital environments and learning experiences related to art and cultural heritage because, as Antonio Lampis (2018) said:" The toolkit of many art venues, of many operators in the field has desolately remained the same, still too often impervious to change. Most curators and other professional operators base their training on traditional museology and it is from there that they have borrowed methodologies and habits that are now obsolete, adding to this the growing tendency to turn their attention not so much to the final consumer of their work, but to their colleagues and other specialized operators, also due to the very few opportunities for scientific debate" (Direzione Generale Musei 2018).

The goal of this study, to examine the online response of museums during lockdown, was made possible by analyses of this kind. It should be noted that the potential of the use of new technologies applied to the museum environment and to the relationship between museum and visitor has been

understood for many years, but, before the lockdown of 2020, only the first steps were taken for digital technology to be effectively incorporated into Italian cultural activity.

Another step in this direction was taken through the project MuD, Museo Digitale (Digital Museum), born from the collaboration between the General Directorate of Museums and Ales Spa, an in-house company of the cultural heritage, had the objective of increasing the performance of state museums in the digital sphere, consciously enhancing the technological aspect of communication with the aim of boosting the cultural heritage at national and international level. "MuD starts from the conviction that technology is able to amplify the cultural message, offering users other opportunities to experience the museum than the extemporaneity of the visit, and intends to concretely support museums in the design of their digital identity and in the identification of an effective strategy for audience engagement" (Direzione Generale Musei 2016). MuD aims to create an innovative museum system, a sort of immense museum 3.0, with the involvement of users. An experience that is therefore social, which overcomes the old concept of a passive visit and above all continues over time and is communicated effectively thanks to technological tools, in a perspective of continuous exchange between what happens inside and outside the museum (Macchi, 2015). MuD was also open to collaboration with giants such as Facebook, Twitter, Google, according to a project that aims to communicate culture directly to the person, transforming art into a shared experience.

In 2019, therefore, the digitization of cultural heritage was underway but incomplete. Despite the progressive diffusion and application of digital technologies in the museum world, in Italy only one in ten museums out of ten (10.4%) has digitally catalogued its heritage. Of these, about one third (37.4%) have already completed the digitization process, while two thirds have started digitization activities but have covered about 50% of the available assets and collections. The use by Italian museums of interactive technologies and digital tools that allow to enrich the visiting experience and the engagement of the public still appears limited: only half of the structures (44.7%) provide at least one device among smartphones, tablets, touch screens, visit supports such as video and/or multimedia rooms, QR Code technology and augmented reality paths (Istat 2019). If onsite communication and information had wide margins for development, online communication involves an increasingly large number of facilities: in fact, half of the institutions have a dedicated website (51.1%) and 53.4% have an account on the most important social media (such as Facebook, Twitter, Instagram, etc.). The number of facilities that offer the ability to buy tickets online has doubled in three years, from 6.6% in 2015 to 14% in 2018, while the number of facilities that provide their users with free Wi-Fi has grown (from 18.6% in 2015 to 25.1% in 2018). 38.4% of museum institutions publish links to digital maps and/or geographic coordinates on the web that are useful for geo-locating the facility, and one in ten museums (9.9%) offer the possibility of virtually visiting their institution (Istat 2019).

New technologies and digital, together with the new administrative organization, have certainly been the tools that have facilitated the development of the museum space as we understand it today and have laid the groundwork for the digitization of the customer experience that took place during the 2020 lockdown. However, there is another fundamental change that took place over a longer period that served to lay the foundation for the very concept of the modern museum: the shift from preservation to entertainment.

Indeed, we must not ignore the fact that museums have historically directed their attention to conservation and preservation. For hundreds of years, museums have had the role of preserving art items no more in use but considered worthy, and of giving testimony to the cultural and artistic brilliance of places, individuals, and actions.

The concept of the museum itself was therefore profoundly different, it was not user-centric, rather the focus was on the pieces of the collection and their protection, so much so that it led museums to hide the most famous pieces in cellars because it was believed that in this way they were better protected (Agostino and Arnaboldi 2021). However, this methodology has often led to the opposite effect, often museum storerooms are places where no one really knows what treasures are hidden anymore and it is estimated that storerooms collect more than 80% of museum holdings and with the concern of a constant trend of exponential growth of collections (Salvi, 2019).

On top of that, museums were not considered a place for the masses but rather a study environment of the elite. “The change from this elitist model originated in the United States, with the Cleveland Museum of Art. Built on grand lines with beautiful and welcoming architectural features, its focus on the broader public was new, denoting a shift from a place for a few to a place for many” (Agostino and Arnaboldi 2021). In this way, the target audience of the museum changed from the elite to the common people, but still its goal had not changed. The fact that the museum could be considered boring by the users of the experience was not taken into consideration and in any case was not considered important, museums were still a place that had to be the main conduit of culture, they had to convey a message of teaching, it was not important whether the audience was entertained or not. Visitors were passive spectators of the magnificence of the past and could not be measured against it in any way. The real shift into participation occurred in the 2000s, when ICOM (2007) at last released and promoted its own definition of a museum, putting 'fun' on the same floor as the two basic components of education and study. Since 2007, therefore, a radical change has taken place precisely in conceptual terms. In fact, while entertainment has been outlined as ‘the experience one goes through while being exposed to the media’ (Vorderer et al., 2004), ‘at the core of the entertainment experience there is a “pleasant” experiential state that we term enjoyment, which includes physiological, cognitive, and affective components’ (Vorderer et al., 2004). Since ICOM has

explicitly endorsed the importance of entertainment and enjoyment within museums, the effort that museum administration has had to put into managing the customer experience has changed considerably, and entertainment has been included among the museums' core objectives. “The museums’ new function has been associated with increasing requests for them to move from an authoritative to a participatory model” (Bonet et. al. 2018). This sort of immersive, entertainment-focused and participatory transformation radically influences a museum's vision and mission, its managerial operations, and its accountability processes(Agostino and Arnaboldi 2021). While the idea of placing the visitor at the heart of the thinking process and tasks is a long-established concept in other businesses, it is a new challenge for museums (Rentschler, 2007), even though this transitional change has been recently sped up by the digital revolution (Mihelj et al., 2019).

As has been said in the last decade the museum ecosystem has been subject to several transformations that have led to radical mutations. First, the technological one. Digital technologies and the social web have brought more and more into the museum industry, providing opportunities for the different cultural stakeholders to interact and share. Digital technologies are helping to reshape the role of museums in society as distributors of culture at different levels for the attraction and satisfaction of a diverse audience. Moreover, for the first time we can witness an epochal change in an extremely short period of time. Speed, the need to adapt in a timely manner to changing times is what characterizes technology but has always been considered antithetical to museums, now for the first time, this is no longer the case.

Furthermore, “the widespread use of social media is a strategic key to create, develop and deliver innovative business models, with services and solutions, where physical and digital boundaries blur and visitors become prosumers" (Pulh and Mencarelli, 2015). Museums have therefore begun to rethink their communication strategy and business, with a focus on a broader, more inclusive target audience (De Bernardi, Gilli, and Colomba 2018). In fact, digital technologies represent extremely useful tools to improve visitor experience and unlock cultural values through effective communication strategies (Pallud & Straub, 2014), “reaching millions of users through multiple channels: video, social media, website updates, email campaigns, blog posts, the app, audioguide, interactive gallery interactions, digital transactions, and other digital solutions” (De Bernardi, Gilli, and Colomba 2018).

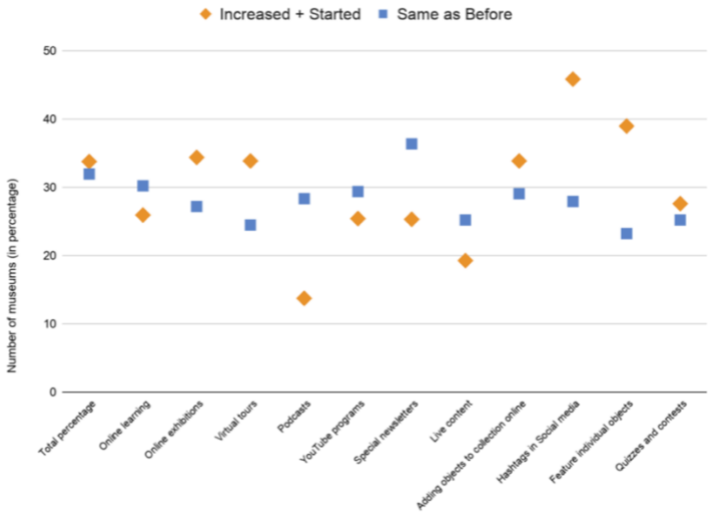
If the importance of these tools was only guessed at before 2020, it was sorely needed during the lockdown when precautionary measures from covid-19 made it impossible to reach visitors in any other way but virtually.

2.2 Environment During and Post Covid-19

During the pandemic of Covid-19, following the lockdown policy imposed by the Government to limit the spread of the virus, cultural institutions have given life to several initiatives at the communication level to increase public awareness of the need to change, at least for the moment of the emergency, some behaviors and lifestyles. Museums and art galleries begun some communicative actions, through the most popular social networks, such as Facebook, Instagram and Twitter, which required the active participation of users and their collaboration. The final purpose was twofold: to keep alive a communication channel with the public at a time when any other method of human relationship was forcibly interrupted and to ensure access to cultural content otherwise not available (Carlino et al. 2020).

If until 2019 as data show museums had not fully exploited the communicative potential of new technologies, the emergency situation has led to a sharp reversal. Three key elements that go along with the application of new skills are worth highlighting here. A first important issue relates to "the organizational change necessary for managing social media, which requires new skills and processes" (Giannini and Bowen, 2019). What is clearly understood is that you cannot improvise as a social media manager, but you need preparation, study, know how to communicate and prepare content. "Responses show that in Europe online services that require less additional financial resources and/or experience and skills are the ones increasing the most (hashtags on social media or activities around an already existing online collection), while services that require time, resources and skills (podcasts, live content, online learning) are the ones that increased the least" (NEMO 2020).

Figure 2.1: Online Service Activity

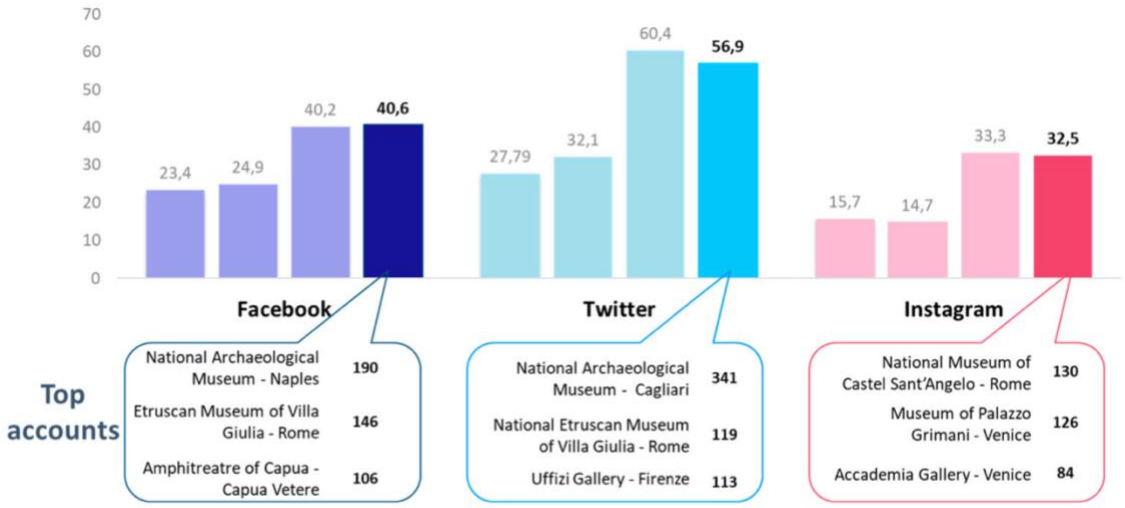


Source: NEMO 2020

The second issue that emerged clearly during the COVID-19 pandemic is to use social media with a broader user experience and overcome the difficulties of managing both online and offline activities. In fact, "the boundaries between physical and digital worlds become seamless, according to the new

concept of 'phygital' (physical + digital) experience" (Ballina et. al. 2019). Social media sites, particularly Facebook, Twitter, and Instagram, have become museums' favorite ways to disseminate knowledge during the COVID-19 freeze. "Museums that were actually physically closed to the public were instead open thanks to their digital tools"(Agostino, Arnaboldi, and Lampis 2020). And in addition to being open, they have focused on their online communication strategy, seeing their efforts satisfied as between March and April 2020 in Italy there has been a significant increase in online activity on museum websites. Agostino, Aramboldi, and Lampis (2020) did research analyzing just the activity of online museums during that period and determined that: "Online activity doubled on all social media platforms as from March 2020 when Italy went into lockdown and every museum in the country was forced to shut (on the 8th of March). On average, museums would publish 25 posts a month on Facebook beforehand, but they rose to 40 in March. On Twitter, the previous 32 posts a month went up to 60 and, on Instagram, they more than doubled, rising from 15 to 33 posts a month per museum. The data then settled at this two-fold increase in value for all April 2020".

Figure 2.2: Average n. of post in April 2020



Source: (Agostino, Arnaboldi, and Lampis 2020)

The third and final issue regards the free-fee dilemma. Normally when visitors go to a museum, they pay a ticket and expect to do so. It is not a surprise to them and they consider it fair to pay a certain amount for the service offered. It is different when it comes to online experiences. Before the pandemic, museums had always offered all online initiatives for free. The closure, however, caused the loss of their daily means of livelihood, making them question the possibility of continuing to offer online services for free, since they were the only services that could still be served and still required work on the part of the employees) (Agostino, Arnaboldi, and Lampis 2020).

The question that arises now is, how will the experience of visiting museums change when they are physically reopened? The only certainty is the common thread that connects all post-Covid events:

nothing will ever be the same again. Consequently, what will be the new place of the public in museums? Lorenzo Greppi (2020), museum scenographer, has tried to answer this question by saying that surely, at least at first, we will all travel much less than in the pre-covid era: the fear of disease and infection, restrictive regulations on free movement and the strong economic contraction will forcibly limit our movements to the essentials. As a result, museums will need to consider two potential audiences simultaneously: the online audience and the offline audience. The offline one will be mainly local, more domestic, and proximate while the online one will be a global, distant audience that can create a network and a community. "Two audiences, completely different, that museums will be forced to face contextually and within the same integrated strategy: to vary and adapt the forms and targets of their cultural marketing; to decline the two scales of proximity and distance; to humanize the digital visit and make the real visit experience more imaginative" (Greppi, 2020).

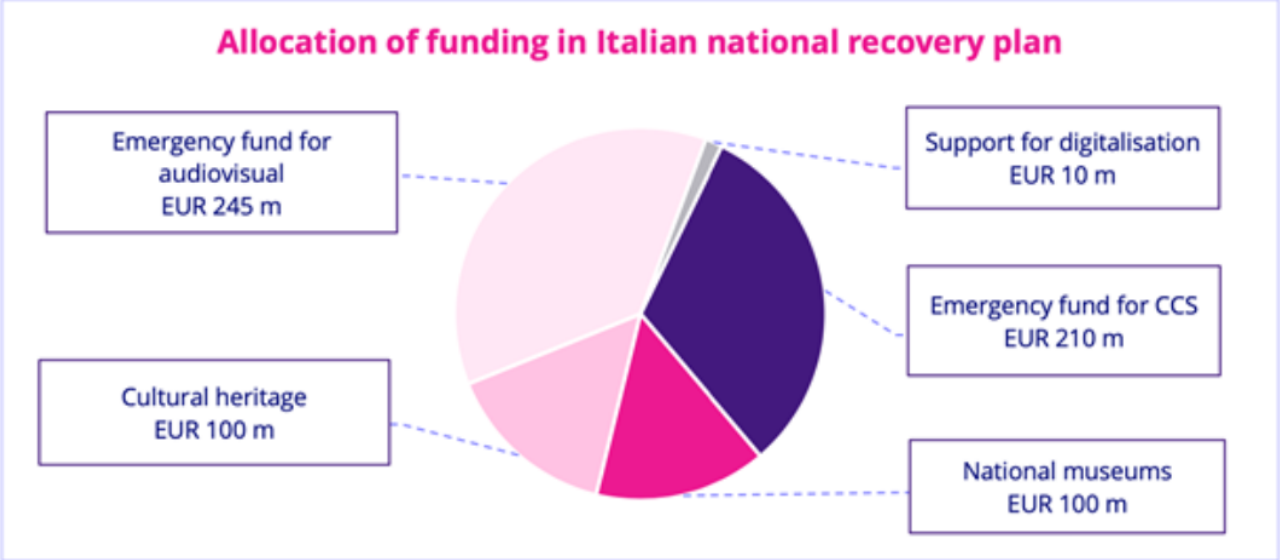
The idea is that of a step change, of rethinking the entire tourist experience. Sergio Risaliti (2021), who heads the Novecento Museum in Florence, said, "The creativity that is essential in the post-industrial world must be formed in museums. Museums will be the places where we must feel like citizens and where contemporary taste and complex cognitive skills are educated. In the recent past, we have leaned too much on the attractiveness of mass tourism, which has become a source of income, and we have created museum itineraries to obtain an economic return, both direct, catalogs, merchandising and so on, and indirect, bars, restaurants, B&Bs. The trauma of the pandemic has left us with collapsing cities of art".

The Fondazione Scuola dei beni e delle attività culturali (Foundation for the Study of Cultural Heritage and Activities) carried out a survey with an online questionnaire among the operators of the Italian museum sector to identify the main elements of concern regarding the impacts of the pandemic on the future. On the level of expected changes, concerns about economic resources prevail, but especially about human resources and their skills. There is a need to strengthen cooperation and the sharing of structures and activities. There is recognition of the centrality of the digital issue and the need to manage it with adequate means and skills. There is a need to rethink cultural offerings, both by considering the new constraints and by leveraging the potential offered by virtual tools for virtual participation and fruition. Finally, the new centrality of the local dimension stands out clearly, both as cultural and landscape heritage and as the origin of proximity audiences probably long obscured by the preference for tourists, especially international ones (Miedico and Cicerchia, 2021).

As for Europe in November 2020 IDEA Consult et al. delivered to the European Council a report entitled: “The Impact of Covid19 pandemic on the Cultural and Creative Sector” with an analysis of policies implemented to mitigate the impacts of the pandemic on the economy of the cultural sector in Europe that can be divided into:

1) Measures taken by International Organizations like European Union, UNESCO, the Organization for Economic Cooperation and Development (OECD) and the Council of Europe.
2) Measures taken by Public Authorities. Regarding Italy, "In August 2020, the Italian government announced a EUR 1 billion funding package for Culture"(KEA European Affairs 2020).

Figure 2.3: Allocation of funding in Italian national recovery plan



Source: KEA European Affairs 2020

3) Measures taken by Private Sector indeed in parallel with public measures, the private sector is paying support to the CCS (all the sectors whose actions are based on cultural ideals, or artistic, creative vocabularies, market or non-market positioned) in this moment of deep emergency.

Undoubtedly, uncertainty and *horror vacui* have characterized and continue to characterize this period, making every security lacking. The direct consequence of the pandemic on the management and marketing strategy of museums have been twofold: an increase in the use of social networks and the rediscovery of local visitors as opposed to the great importance given to international tourists in recent years.

2.3 User Engagement and CX in Cultural Sector

The context, created by the pandemic event, has caused the need to change the way in which cultural institutions exploit digital channels, expanding the purposes for which the same institutions began to use the technologies, i.e., attracting visitors to exhibitions or promoting a range of related services. Pandemic has changed the scale of priorities by making social from a simple tool of communication

become an indispensable tool. The User Engagement and the Customer Experience have consequently changed a lot compared to the on-site experience.

The online visitor experience becomes the focal point of attention. “A museum that is more active online is more likely to attract a public”(Agostino, Arnaboldi, and Lampis 2020). From mere communications devices, social networks have developed into ways to deliver knowledge. For instance, some museums are using Facebook to exchange knowledge about a piece of art and disclose some or other unfamiliar aspects of it. Other museums have arranged expert interviews or tours with the museum director. Still others have opted for a more leisurely approach, holding a virtual treasure hunt among museum collections or quiz events (Agostino, Arnaboldi, and Lampis 2020). The physical visitor becomes a user. “The service of the museum is completed through the user. The process of expanding knowledge and experience of the interface improves the quality of service and expands usage. From this point of view, a new interface (new media) beyond the existing exhibition space (old media) can be added to the existing service, so that more users can utilize it, contributing to stable management”(Choi and Kim 2021). By feeling like an active part of the experience, the user is more likely to repeat it.

Thus, the covid pandemic has played a role in driving museums' recent efforts to engage users, in a volatile social context. In the current situation, the challenge for museums is to change the long-term perspectives of museum management. One must consider all the interests at stake and how the balance will change because of the pandemic.

Museums around the world have equipped themselves to approach visitors in new ways. The challenge was not easy, in fact “they were attempting to simulate not only the process of seeing art, but also the sense of activism and belonging that museum can cultivate in their communities through countless activities and initiatives” (Kamp, 2020). Worldwide museums have taken inventive ways to reimagine the museum at-home experience. For example, MoMA PS1 held the "Come Together (Apart)" online arts festival, an enlarged (though isolated) rendition of the originally planned music festival and album fair at the arts center that same weekend. The festival combined live-streamed DJ sets, film documentary showings, distance film talks, and online workshops. The record fair side of the festival also saw an online equivalent with a curated fair hosted on Bandcamp. The Museum of Contemporary Art in Chicago has implemented a similar idea and made it a weekly event as part of the museum's Commons Online. The Commons Online is structured to bring a variety of workshops and group events to life, often taking place on Instagram Live. Examples include a cyber fashion show with young makers, livestreams led meditation, drag queen narratives, and structured activities and crafting tutorials for families. “Elsewhere, institutions have embraced their roles as agents of community-focused activism, turning digital reach into a vehicle for action. New York’s Poster

House Museum released “Coronavirus: Chinatown Stories,” a series of video interviews with Chinatown residents and shop owners detailing the effects COVID-19 has had on their lives and livelihoods. The tender, often heart-wrenching interviews were a result of quick thinking on the museum’s part.” (Kamp, 2020).

Since the beginning of the COVID-19 epidemic, museums have prosecuted daring new archival initiatives, embraced shared team practices, and welcomed community-centered activities. While these are all great aspects of the museum space experience, many people are also lacking the basic pleasure of engaging with and interacting with art. Museums all over the world have initiated social media campaigns that seek to recreate visitors' profoundly felt relationships with art, and these campaigns have often taken the shape of memes.

In Italy, a proposal was promoted by the Ministry of Cultural Heritage and Activities and Tourism (MiBACT) that was initially conceived as a digital flash mob dedicated to photography in which users were asked to share shots they had previously taken inside museums. The project, called ArT you Ready, was an attempt to keep alive the cultural heritage enclosed within the museums made necessarily deserted (Carlino et al. 2020). In fact, the invitation was to share photographs of works of art, museum halls, archives and libraries, foyers and theater stages, but also landscapes and places of the heart throughout the country. Whether it's a matter of fishing for photos in the gallery of one's smartphone, opening drawers and leafing through photo albums from many years ago or re-photographing old black and white images, every Sunday was an opportunity to collect and share on the web the beauty and uniqueness of Italy's cultural heritage and show it to the whole world. Through the exchange and sharing of content, it gives life to a virtual space for traveling, meeting, exchanging information, experiences and knowledge.

This initial proposal was enriched by a more creative aspect because, using the hashtag #lartetisomiglia, users had fun posting on social networks photos of themselves imitating a work of art with what they have at home. The event of international reach was also replicated by the Getty Meseum in Los Angeles, which was inspired by the Rijksmuseum in Amsterdam (Carlino et al. 2020).

In addition to this, various online activities were organized by the museums, such as online exhibitions: these were the first initiatives promoted by the museums as soon as the coronavirus forced the closure of their doors to the public: the online "transfer" of current or newly inaugurated exhibitions. To allow virtual visitors to enjoy the exhibitions, various tools were adopted: videos posted on social channels and on the museums' websites, but also the use of the Google Arts & Culture platform. Alternatively, museums have dedicated themselves to the daily sharing of content through social channels or created online guided tours and "walks with the Director," virtual tours conducted by exceptional guides. Museums have offered educational activities for adults and children: to

entertain the many homebound visitors in a useful and enjoyable way, many museums have reinvented web-based learning, with quizzes and games designed to help them learn about museums and their collections (Maida, 2020).

Cultural institutions, therefore, are committed to offering all-round services that can educate and entertain, but above all that make the public feel close to Italy's cultural heritage at a time when social distancing has put a strain on society. Beyond this, the fact remains that museums are a physical place of aggregation, they are an atypical business, quite different from many others, with its own characteristics, that will struggle to return to what it was in the days of pre covid but that in any case will never be able to adapt to a 100% online condition. For this reason, the customer experience in museums should be analyzed differently than in other businesses, for example it is difficult to have a Marketing Funnel, 80% of visitors to a museum are seeing it for the first time, there is no loyalty, and it is very difficult to have a retention process. This happens because to see a museum can often take hours, a whole day for some of the most important museums, and it can be a long time before a user decides to physically return to a museum after such an experience. One of the big differences between online and offline is that online initiatives last very little time. “They typically only last a few minutes, two or three to read a post about a work of art or at most 10–15 minutes for an interview or a virtual visit. These events also run on a regular basis, where users are invited to meet up every day at the same time and connect to the museum’s social platform for a daily dose of culture” (Agostino, Arnaboldi, and Lampis 2020). This may involve concentrating on an item in the museum's exhibitions that is linked to 'what happened on this day', an interview with the museum manager or an insider on a specific topic. This shift in time has opened the way for reflections on whether we can use our tour schedule otherwise even when museums will reopen. We can think about taking a few minutes by ourselves and up close and personal with a particular work of art or doing a customized digital tour from our home.

As we have seen, the online experience could make it easier for museums to get visitors to repeat the experience. In a more general sense, this should be the goal of museum marketing strategies because, “visitor experience is a key factor in ensuring the museum’s sustainability and even its very survival. The experience should be so rewarding and pleasing that it leads to the intention to repeat” (Antón, Camarero, and Garrido 2018). Consequently, for an experience to be worth repeating, it must be intrinsically valuable. Measuring whether an experience is valuable or not is very complicated because it is an essentially subjective variable. There are scholars who have tried to do some analysis, for example Pine and Gilmore’s (1998) established four areas of experience value economy model depending on the individual’s degree of involvement and engagement: entertainment, education, aesthetics, and escapism.

Entertainment implies amusement, pleasure, having a good time, typically when an attitude of inaction is taken. This is the result of passively taking in experiences through the senses, even though there is fewer interpersonal links to the happening as it is viewed from the outside. Entertainment in the museum setting is accomplished when users can entertain themselves in a casual manner, gaining delight and fun from an experience (visiting various rooms and galleries, trying out interactive equipment, etc.)(Antón, Camarero, and Garrido 2018).

Education relates to the mental results of consuming, i.e., gaining learning, obtaining knowledge, or enhancing one's awareness. According to Pine and Gilmore (1998), it demands that one participate actively but not be connected closely to the experience. For instance, when attempting to deliver an educational experience, the museum may deliver historical recreating, art shows, walking tours, and audio guides that provide an interpretation of whatever the museum can offer.

Aesthetic experiences relate to the viewing and appreciation of the setting or physical ambience of a location. It involves higher degrees of customer involvement but lower degrees of customer engagement. “Aesthetic experience can be achieved through sensory perceptions, especially visual and tactile” (Antón, Camarero, and Garrido 2018).

Escapism is also about fun, but as an imagination-based activity that enables individuals to disconnect from reality or busyness. It requires active participation and a high degree of engagement in an event. Escapism requires viewers to look at objects that can raise their awareness, fire their imagination, and assist them in finding the wonder, delight, and charm in objects, as well as escaping the routine of daily life.

It has already been discussed that over the years the idea that museums should produce experiences that generate exclusively educational value is now almost completely outdated. Today, the range of expectations is broader and more complex than in the past, and consumers of cultural products are not only interested in satisfying a need to learn, but also want more engaging and varied experiences. Another element to consider is competitiveness: like any other sector, the cultural sector must act to beat its competitors in terms of strategy and attracting new visitors. This necessity has become particularly urgent at a time when, due to Covid-19, the general number of visitors to museums has decreased. It is in every museum's interest to provide a quality experience, so a service that fulfils the customers' expectations (Rowley 1999). Great quality products or services are essential elements the success of a business, and quality is and must often be a core element of an organization's marketing strategy. Quality is therefore inextricably linked to customer experience and satisfaction, as a good quality service is one that offers clients an experience with which they are satisfied. This definition of quality makes everything contingent on the visitor's expectations. Once again, management's goal is to create a customer-centric experience. But if everything is related to perception this means that

everything is conditioned by individuality. “Since different users access different museums in order to fulfil very different needs it can be difficult to identify a set of criteria that are appropriate in every case” (Rowley 1999). Tucker (1991) provides a helpful checklist of factors that make a significant contribution to the customer experience in which he asserts that firms must beat their competitors to gain a competitive advantage:

1) Speed of service delivery. This element is obviously lacking during lock-down as there are no access lines, but in any case, the use of new technologies can certainly help museums to speed up waiting times and make the experience more pleasant.
2) Convenience. As previously mentioned, one of the big dilemmas has been whether to make online services available for free. The availability of free content could be a competitive advantage.
3) Age waves. Are focused on responding to changing demographics. Museums, for example, need to be concerned about offering activities for children, such as classes and video tutorials during emergencies.
4) Choice. Visitors like to have options. Different services, different prices, managers must take care to differentiate offerings.
5) Lifestyle. Understanding the lifestyle of visitors is the starting point for offering quality services and organizing activities that will be appreciated. It is necessary to understand what their priorities are, why they decided to connect to the platform, what they find enjoyable, how they spend their time, etc.
6) Discounting. Discounting is a common practice in many industries to attract new customers. In this case, you might consider implementing freemium strategies on courses offered by museums,
7) Value adding. The definition of value adding depends on the basic service offered by the museum and what it can add, especially how much it can deviate from its service of delivering educational content and how much it can tailor its services.
8) Customer service. This covers the various interactions between staff and customers. During the covid-19 period these relationships were obviously reduced considerably, but in the long term this point is fundamental to the success of the business.
9) Technology. The fundamental element during the pandemic. Despite the progress made, it is necessary to continue to incorporate new technological developments into the company's strategy, even in the long term.
10) Quality. This is the basic element of a good customer experience.

2.4 Co-creation, personalization and importance of eWOM

With the use of industry 4.0 and the exploitation of new technologies personalization and co-creation in museums can be developed.

“In the conventional value creation process, products and services contained value, and markets exchanged this value, from the producer to the customer. In contrast, one basic axiom of the service-dominant logic is the interactive nature of value creation” (Antón, Camarero, and Garrido 2018). The co-creation process is crucial for the implementation of a successful business as it influences the museum visit experience by increasing museum users' satisfaction and loyalty while at the same time making sure that positive emotions are connected to the experience (Ruiz-Alba et al., 2019). So, it is crucial for the museum to create a shared value so that visitors feel connected to the experience especially in a particular moment like the one that hit the world in 2020. Normally in fact the experience of co-creation would involve active participation and interaction with other individuals and the environment (Campos et al., 2015). Visitors choose to go to a museum, mainly for the core reason i.e., the exhibits, and then to be with people or to enjoy the social interaction and the opportunity to play an active part. With Covid much of the social interaction is obviously gone except for the virtual ones. As seen museums have been working to ensure that user participation can be as active as possible and that in this way the level of satisfaction can increase. “Participation is active when the individual becomes a key factor in developing and creating the experience” (Antón, Camarero, and Garrido 2018). In the situation of museums, active participation can be concrete or abstract and emotionally related, planned by the museum itself or genuine. Unlike being considered a mere spectator, a visitor can become an actor, a discoverer of experiences, someone who wants to learn.

When people are directly involved in the experience, both physically and virtually, and as a result become more of an actor than a spectator when they are committed to the activity, they will feel greater levels of immersion. This will give them the opportunity to forget for a few moments the boredom of the daily routine and have fun. This is especially true in the time of the covid emergency where bad news and fear are a constant in people's lives, giving a means to lighten, albeit for a moment, life is a powerful way to get through a complex era like the pandemic. Active participation by guests is also essential to broadening their understanding and skills and thus giving them an educational experience (Campos et al., 2015). An element that remains core objective of museums.

An experience of co-creation may have an initial phase that takes place even before contact between the organization and the customer itself. Even at this time, the museum must work to use the resources at its disposal to design and offer its future guests experiences and offerings of value and quality. At this stage, however, are the customers themselves who are involved in the decision-making process,

being able to design their own visit or museum experience. In fact, visitors have the opportunity to prepare themselves, structuring the service that will be offered to them and having a basic knowledge of what they will see. Moreover, it has been shown that when visitors plan their visit in advance and when they already have knowledge about the museum's topic, acquired in various ways, they are more prepared and secure to commit themselves and join the proposed activities (Prebensen & Foss, 2011). In addition, having initial preparation makes it more likely that you will fully understand what the museum has to offer. As a result, prior planning and knowledge provide a starting point for deriving more value from the experience in terms of both learning and entertainment. In addition, greater visitor understanding combined with a more carefully planned visit could create a familiarity that will lead visitors to play an active role in implementing co-creation of their experience. This is especially true with online visits because since tours and visits last between 10 and 15 minutes on average (Agostino, Arnaboldi, and Lampis 2020) this suggests that visitors often concentrate on one or two works per visit. Consequently, to make such a selective choice, a significant pre-visit preparation is necessary.

Given that during the pandemic, the only time the public had contact with the museum was through social media and websites obviously technology played a major role in supporting the growth, regeneration, and attractiveness of cultural organizations. In terms of co-creation, interactive technologies assume relevance. The concept of interactive technologies relates to the interaction between a user and an interface that is driven or assisted by a technological device (Ponsignon and Derbaix 2020).

One particular form of co-creation, promoted mainly by the supply side, is personalization. This term refers to the delivery of diverse access to information and services tailored to the unique profile of the visitor, either in the physical museum or online. This is because viewing interesting content on an individual level fosters visitor engagement and learning (Bohnert 2015). With the goal of providing a more enjoyable experience, visitor service personalization systems can provide a variety of facilities. These services may include providing customized features on physical museum exhibitions, making suggestions on individually interesting museum exhibits, stimulating interaction with the museum space by connecting multimedia content with museum exhibits, and fostering social interaction with other museum guests. During the period of Covid, of course, the first of these services (the provision of personalized content about the objects on display in the physical museum) failed. For this personalization process to be fully implemented there are still challenges to be addressed. Some challenges, for example, include achieving greater consistency in customized presentations and linking on-site presentations with direct access to online museum collections.

In any case, it should be noted that a fundamental part of the museum experience has disappeared: social interactions. The opportunity to interact with others during museum visits is a source of experiences beyond the mere visit and stimulates people's thinking, emotions, and inventiveness. Visitors also co-create their experiences through interpersonal relationships with other visitors, who may be family or friends or people they meet on site, and by interacting with employees. Most individuals tour museums and tourist sites in groups, and those who go alone encounter and speak with other visitors or staff members on a frequent basis. A large part of the social interactions in these contexts is a way to network with each other and to find significance together (Ponsignon and Derbaix 2020). “However, social interaction might also prove detrimental when interaction contributes little to learning or when visitors feel the crowd is invading their personal space or is creating a noisy atmosphere” (Antón, Camarero, and Garrido 2018). The only social interactions that were possible during the lock-down were virtual ones, this obviously applies to the museum environment as well, where the only substantial part of social interaction remained post-visit co-creation i.e. “when visitors intensify their experiences through further participation in the museum’s activities and social networks and by giving their opinion in blogs and other opinion social networks” (Antón, Camarero, and Garrido 2018). In this case one speaks of electronic word of mouth (eWOM).

Word of Mouth refers to the oral transmission of information, opinions and preferences between two or more individuals (Orea-Giner, De-Pablos-Heredero, and Vacas-Guerrero 2021). If this is done online, then it is electronic Word of Mouth. This activity is essential in the moment after the visit, when the visitor has had an experience and has already formed an opinion about the museum and is ready to share it. “Furthermore, the post-visit stage is also crucial, as it facilitates greater involvement by the museum and forges a link with visitors”(Orea-Giner, De-Pablos-Heredero, and Vacas-Guerrero 2021). Obviously, eWOM insights influence buying intention, so it impacts consumer loyalty, positive eWOM is essential to create links with customers and transmit a brand's corporate image, i.e., develop relationship marketing strategies. Anton et.al. (2019) proposed that the effect of post-consumer assessment (reaching, feeling, and gratification) on short-term post-consumer behavioral intentions (escalation and online media creation) is non-linear. They theorized an inverted U effect on visit escalation. When the visit experience is rich and intensive, users achieve the best level of engagement and the desire to consume further decreases. On the other hand, based on equilibrium theory, they suggested that experience rating has a U-effect on post-visit content creation intention: both more successful and more adverse experiences drive visitors to sharing them to achieve an emotional equilibrium. Therefore, visitors may be willing to post their own experiences and thoughts in the museum's community social networks and other online public opinion forums both when they felt huge gratification, achieved high emotional value, and benefited from the visit,

and when they were not gratified and perceived no value in the museum. In contrast, medium levels of satisfaction, accomplishment, and excitement will not account for an unbalanced feeling and will result in more unconcern and less desire to generate content (Antón, Camarero, and Garrido 2019).
Content generation implies sharing the positive or negative experience with others. Tourists like to talk about what they have learnt and felt during their visit (Carballo et al. 2015).
So, as mentioned, a particularly positive visit, pushes the visitor to want to share online with friends and family, or with the community their experience, both to share his/her opinion and advice but also to feel part of a community. In fact, as Loureiro said (2019) the social factor is obviously the main driver of any visitor action, "visitors who enjoy learning and having fun visiting a museum may also want to convey such pleasure and knowledge to others, because in doing so they can achieve approval from the group or community dedicated to culture and even have a sense of belonging to such a group or community"(Loureiro 2019).
On the other hand, an unsatisfying or poor experience, low accomplishment, or lack of felt hedonic significance will drive negative emotions to flare up through posting comments online. These attempt to balance the unhappiness and disagreement affiliated with negative emotions and can serve to relieve frustration, reduce anger, and vent. Negative WOM is often driven by a wish to punish organizations that have not promoted a memorable consumer experience via unqualified, incompetent, or inefficient attitudes, conduct, strategies, or products (Antón, Camarero, and Garrido 2019). Several writers have concluded that negative WOM is guided by a wish to relieve anger, revenge, as much as advice seeking and a genuine want to help other consumers (Zeelenberg and Pieters, 2004). Another element that determines how much visitors will be influenced by online comments is the familiarity they have with the brand, in this case the museum. Ahluwalia (2002) compared the results that a group of survey participants had with respect to negative or positive reviews of brands with which they were or were not familiar. It was found that when participants were unfamiliar with the brand tended to give much more weight to negative reviews whereas when brands were familiar there was no significant difference between negative and positive reviews. Furthermore, when brands were familiar, they tended to tone down the relevance of the perception of negative reviews and instead focus only on positive reviews. This is an instinctive process; we tend to consider what we already know as good excluding innovative factors.
Word of Mouth may also influence the visit intensification. "One type of short-term tourist behavior is visit intensification" (Antón, Camarero, and Garrido 2019). Intensification refers to the visitor's intention to extend the experience by looking for more knowledge about the visit (the museum, content, etc.) or even making the experience more tangible by purchasing gifts, souvenirs, and photographs. It reflects the interest and motivation that individuals maintain after visiting. In the

setting of museums, users may try to escalate their experience with later actions, such as taking part in other activities promoted by the museum, seeking more information on the Web site, or following the museum's social media.

This is particularly important in the era of museums during Covid-19 since, as previously seen, the online experience can lead to a higher level of reiterated experience, as visit times are much shorter and the activities offered by museums are multiple. It is therefore crucial that there is a perceived value to visitors and consequently a positive eWOM that can lead users not only to a first contact with the organizations' websites, but also to subsequent approaches. Furthermore, as stated by Harrison and Shaw (2004), although the nature of the museum product does not encourage frequent repeated purchases, if the product being offered does not change dramatically (such as frequent exhibits which happened during Covid with exhibitions, virtual tours, etc.), extremely happy customers may plan to come back soon. Highly satisfied clients had the strongest and most single response in terms of post-purchase behaviors (Harrison & Shaw, 2004).

2.5 Literature Gap

What emerged from the analysis of the literature underlined how in recent years the world of culture in Italy has been affected by countless changes from different points of view. These changes concern both a purely bureaucratic sphere and a conceptual one, in which way the museum is seen and used, from a vehicle of culture to a means of learning and entertainment. The use of new technologies has introduced another important innovation, giving museums the opportunity not only to communicate with their audiences but also to make them participants in the decision-making processes and in the creation and personalization of the experience. The pandemic has made the use of such tools particularly necessary as social distancing has forced the world to stay indoors and change its lifestyle and consequently museums have had to adapt and change their offerings.

The literature has largely focused on how active participation and co-creation can increase engagement and positive eWOM but very little has been said about interactivity as a learning tool. During the lock-down in fact many museums have made use of games and "more fun" means to increase the satisfaction in the online experience of their visitors. Because the topic is very recent, it has been poorly studied and it will be the subject of this report to show how, through interactivity, satisfaction can be improved.

H1 In conditions with interactivity there may be higher satisfaction than standard condition.

The passage from a predominantly offline experience to an exclusively online one has obviously caused a series of revolutions also regarding the modality of fruition of the experience. If before the visits lasted hours, days for some museums, just think of the most famous Uffizi in Florence or the

Vatican Museums, during the lock-down at any time it was possible to connect to search for information about a work of art about which one was interested or to see a video of an expert giving guided tours, to connect for virtual tours, to participate in online games and so on. In any case, each of these services required no more than 10-15 minutes at most, so the whole experience was completely overturned. On the one hand, more pre-visit information is required as it is necessary to be able to connect and search for a specific service rather than simply entering a museum and wandering around, on the other hand users can connect online several times a day. In the past more than 80% of visitors to a museum were seeing it for the first time, now the push is on for people to have the opportunity and desire to repeat the experience. Again, since the event that caused such an environment change is very recent, it has not been well studied in the literature and therefore I will focus on it in this paper.

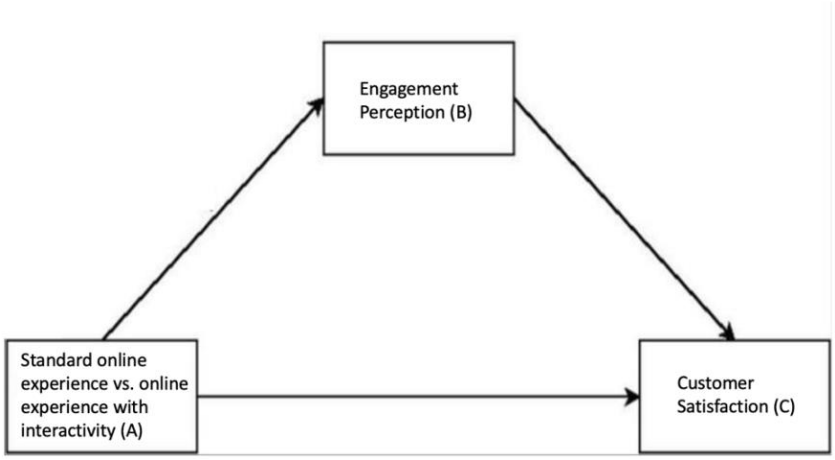
H2 The interactive online experience can lead to a higher level of reiterated experience.

3. Methodology

The goal of this research is to analyze the effect that the interactivity of museum services has on the satisfaction of virtual visitors. The goal is to assess whether in the presence of out-of-the-ordinary, therefore interactive, experiences, customer satisfaction can increase. The second hypothesis that will be analyzed is whether the possibility of fully online experiences, that use online interactivity, leads users to increase the frequency of visits to a museum.

The model considered is Langfred's (2004) model with mediator.

Figure 3.1: Model with Mediator by Langfred



Source: Langfred (2004)

According to this model, in fact, there is no immediate cause-effect relationship between the Independent Variable (A) and the Dependent Variable, or Outcome Variable (C), but rather this relationship is mediated by an intermediate variable, the Mediator Variable (B). Rather than a direct causal relationship between the Independent Variable and the Dependent Variable, in a mediation model we investigate the hypothesis that the Independent Variable influences the Mediator Variable, which in turn influences the Dependent Variable. Therefore, the mediator variable serves to clarify the nature of the relationship between the independent and dependent variables.

Specific to this research regarding hypothesis 1:

H1 In conditions with interactivity there may be higher customer satisfaction, if compared to standard experience.

The Independent Variable (A) is the "Standard online experience vs. online experience with interactivity". It has been discussed how, especially during the lockdown, many museums have tried to modernize their service offerings by not limiting themselves to simple virtual exhibits, but by expanding their offerings and taking steps to increase online engagement.

Engagement is therefore a fundamental element around which all the research revolves, and for this reason "Engagement perception" was designated as the Mediating Variable. The concept of consumer

brand engagement implies the manifestation of an active behavior of the consumer that, in general, takes the form of active and continuous participation in brand communication, i.e., in the conversations that take place within the community or communities of the brand, with comments, opinions, reviews, ratings, etc.… Consequently, if the user's perception of engagement during the experience increases, it is likely that their final satisfaction with the experience in general will increase.

“Customer Satisfaction" is therefore the Outcome Variable, the final element that the research wants to analyze. Customer satisfaction is defined as a measurement that determines how happy customers are with a company's products, services, and capabilities. It is therefore assumed to measure the extent to which customer satisfaction has been altered by the museums' activities during the pandemic.

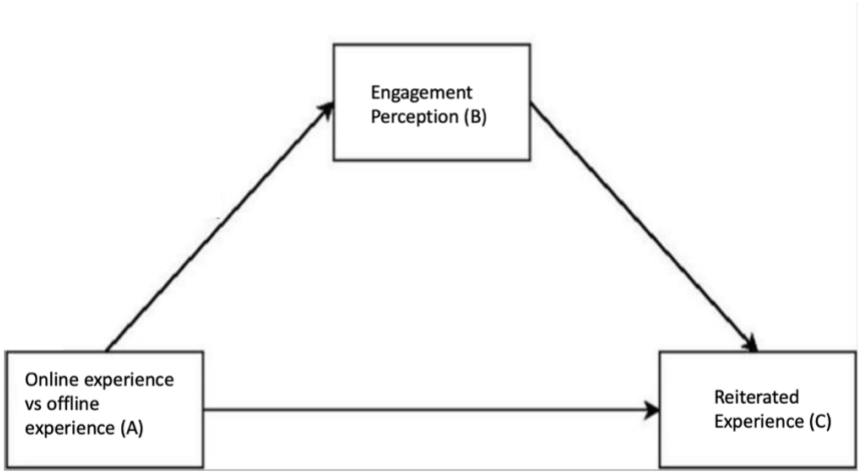
Regarding hypothesis 2:

H2 The interactive online experience can lead to a higher level of reiterated experience, if compared to standard online experience.

The Independent Variable (A) will be "Online experience vs offline experience". We have already seen how during visits to museums in person there were tour of hours, of whole days sometimes, the transition from offline to online has more than halved these times making it possible for visitors to connect even for just a few minutes and enjoy in any case the offer of museums. For this reason, the Mediator Variable (B) remains the “Engagement Perception”, because even if it is only for a short time, visitors need to feel involved and excited, perhaps even more so than when the visits were in person, to make them want to connect again.

The Dependent Variable (C) is therefore "Reiterated Experience". In fact, the research aims to analyze whether a decrease in visit times, greater ease of access and a decrease in prices increase the frequency of visits to the same museum.

Figure 3.2: Model with Mediator by Langfred



Source: Langfred (2004)

Data is collected through an online survey; this is because it will give quick and easy access to the results and according to experts with online surveys the margin of error is reduced because users enter their answers directly into the system. Traditional methods for market research rely on the attention of the staff to correctly enter all the details. In addition, even though at the time of writing the museums are open again, all the research is based on the importance of using new technologies and it is believed that an online survey, in addition to being easier to implement, can ensure greater continuity with the topic of the thesis. The survey is conducted in Italian, this is because the study focused primarily on the impact of Covid-19 within the Italian cultural market and many of the initiatives of the museums themselves had a local rather than global perspective. Therefore, it is believed that the interesting sample for this research is the Italian population and a survey written in Italian can certainly be a more direct method of reaching the desired target.

4. Research Design

4.1 Design

The research was implemented with the realization of a questionnaire created with Qualtrics XM that was shared between 29th July 2021 and 28th August 2021, distributed online via private messages on WhatsApp, Facebook Messenger and Instagram Direct, as well as public messages, sharing the link that connected users to the questionnaire on Facebook, Instagram stories and LinkedIn.

The questionnaire was composed of 16 questions (of which 15 closed and one open) in Italian and were required about 2 min to complete the survey. Respondents were asked to give some answers after being subjected to a visual stimulus, specifically two videos that opened in a randomized way, one representing an augmented reality experience with more interactivity and a second standard video in which they simply scrolled photos with description.

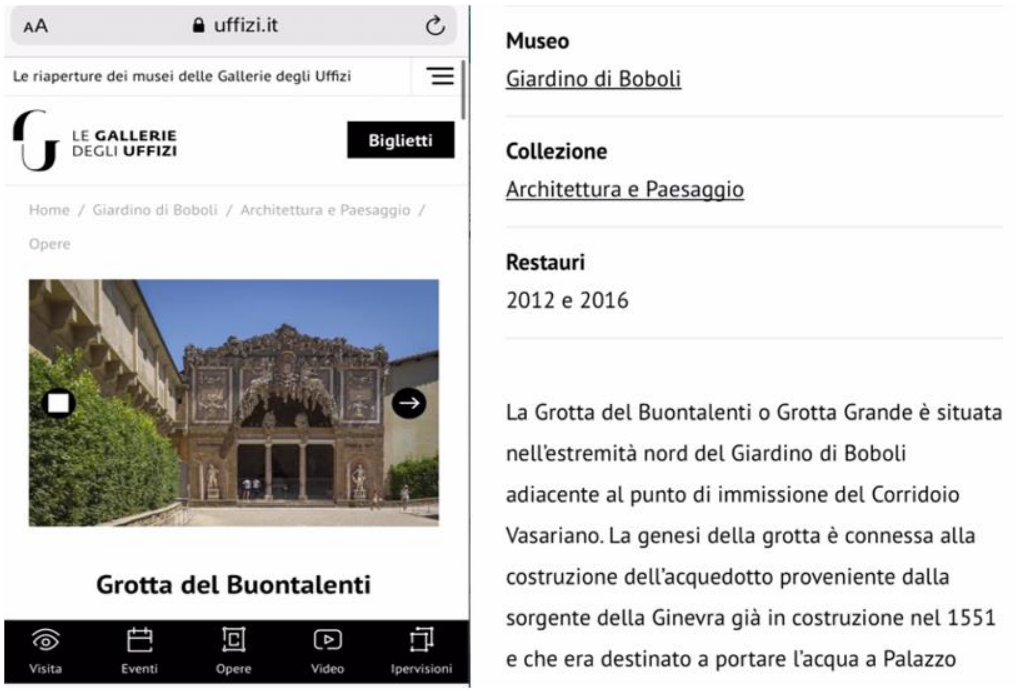
The survey was structured in 4 sections:

1. Introduction to the questionnaire and the inclusion of two videos with randomized opening
2. Consumers' perceptions regarding the interactivity of the videos
3. Consumers' perceptions regarding the frequency of linking to websites based on the proposed experience
4. A final section with socio-demographic questions.

Part 1. The two videos proposed represented two different experiences that can be made on the Uffizi website in Florence to virtually visit the Buontalenti Cave. This opera was chosen for several reasons: first, because of its magnificence that instinctively attracts the interest of users. Secondly, because even though it is a magnificent work of art, it is less known than many others and therefore the probability that respondents to the survey had physically visited the site was lower. This was a fundamental element because it was necessary to avoid that a previous knowledge of the work could somehow influence the answers of the users.

The first video presented a standard experience without interactivity with photos of the Cave and a written description.

Figure 4.1: Buontalenti Cave picture and description-Video 1

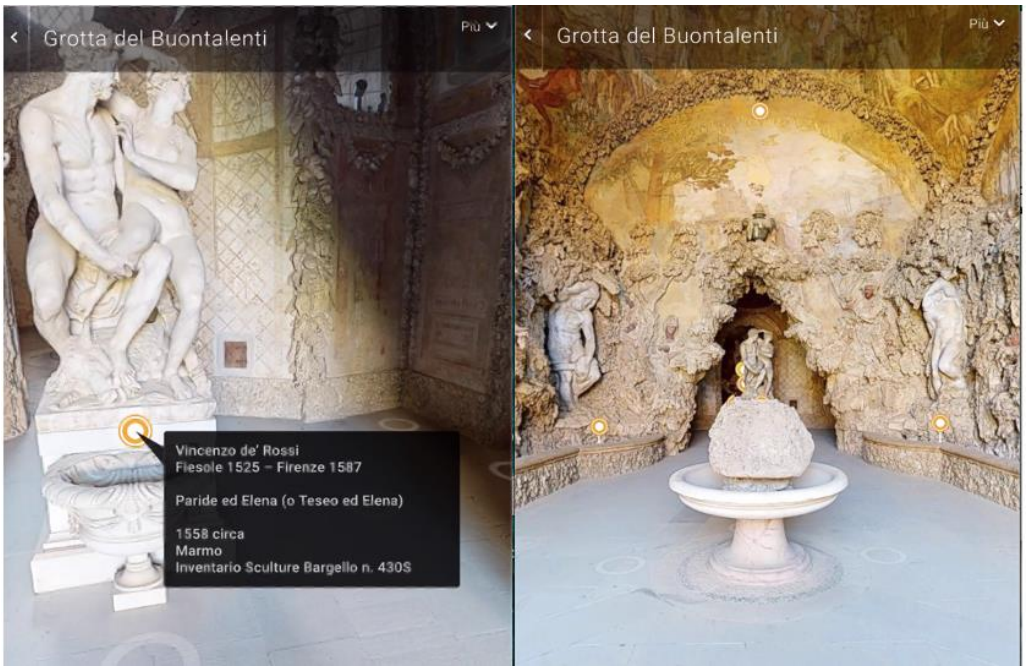


Source: Galleria degli Uffizi website (2021)

The video was introduced with the phrase *"Imagine you want to visit the Buontalenti Cave and an online service is offered. An example of the proposed offer is given in the following video. Watch it carefully."*

The second video instead represented a virtual tour experience of the cave in which the user could move freely around the cave clicking on the point that interested him/her most and having descriptions in pop-up

Figure 4.2: Buontalenti Cave virtual tour-Video2



Source: Galleria degli Uffizi website (2021)

This second video was introduced through the phrase *"Imagine that you want to visit the Buontalenti Cave and that a virtual tour service is offered. An example of a visit offered is given by the following video. Watch it carefully, imagining that you can move freely in the virtual space provided."*

The opening of the two videos was 50% randomized, meaning each user had a 50% chance of seeing the first video and 50% chance of seeing the second.
A timer was included in the video section so that participants could not move forward with the questionnaire until they had completed watching the video.

Part 2. The second section included several questions to analyze user engagement and satisfaction regarding the interactivity of the proposed experience (i.e., Video1 or Video2). Most of the measurement scales of the variables in this study were adapted from previous studies to the context of visiting a museum. Seven-point Likert type scales were used raging from 7 *"Strongly Agree"* to 1*"Strongly Disagree"*.
Engagement perception was measured by a six-item scale based on O'Brien and Toms' (2013) scale. Because the topic discussed is extremely current and recent there were no questionnaires in the literature that could be used in the survey in a mirror manner, this is the reason why the questions asked were manipulated and adapted to the context. O'Brian and Toms created a scale study that was undertaken "to assess its reliability and validity in online shopping environments"(O'Brian and Toms 2013). The goal was to identify six attributes of engagement that were: Perceived Usability, Aesthetics, Focused Attention, Felt Involvement, Novelty, and Endurability. To conduct this research, these six attributes were used as the basis.
In the questionnaire, people had to valuate from 1 (strongly disagree) to 7 (strongly agree) the following statement related to the video shown:

- I think this is an immersive experience
- I think it's easy to visit a museum online in this way.
- The experience is visually appealing
- I think this modality will be useful for online visits in the future
- I think this experience is innovative
- I felt engaged by the experience

Regarding user satisfaction with the proposed experience, it was measured by a three-item scale based on De Rojas Camarero and Toms' (2006) scale. Seven-point Likert type scales were used raging from 7 "*Excellent*" to 1"*Extremely Poor*".
Therefore, people had to rate the following statements:

- Quality of experience
- Satisfaction of expectations
- Enjoyment of the online experience

Part 3. The third section, on the other hand, proposed questions aimed at understanding and analyzing the possibility of a repeated online site visit induced by the proposed video.
As above, there was no question pattern in the literature that was completely suitable for the context and consequently, starting from Chiu et al.'s (2014) model, the questionnaire was adapted so that it was 100% meaningful with the situation to be analyzed.
The study by Chiu et al. (2014) is based on the idea that reiterated experience and thus consumer loyalty is critical to any type of business. In their research "both utilitarian value and hedonic value are hypothesized to affect repeat purchase intention positively"(Chiu et al. 2014). Utilitarian value is proposed as a formative construct consisting of product offerings, product information, monetary savings, and affordability. Hedonic value is also proposed as a formative construct formed by hedonic benefits (Chiu et al. 2014).
Reiterated experience was measured by a three-item scale based on Chiu et al.'s (2014) scale. Seven-point Likert type scales were used raging from 7 "*Strongly Agree*" to 1"*Strongly Disagree*".
The statements that participants had to score were:

- I would gladly reconnect to this museum's site because of the features of the offer
- I am tempted to reconnect several times because I am curious to see what else the museum has to offer online
- I think the time saved on online visits gives me the ability to log on more times than if I were to make actual visits to the museum

Part 4. The fourth section involved socio-demographic questions: age, gender, education and occupation. Participants could select an age range (18-25, 26-34, 35-45, 46-50, 51-60 and 60+).
These questions were included to fully understand the types of people who might most appreciate and use museum online services in the future.

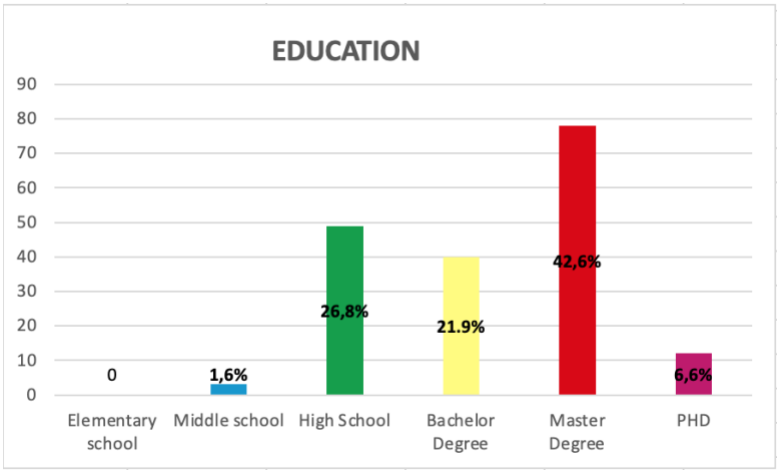
4.2 Method

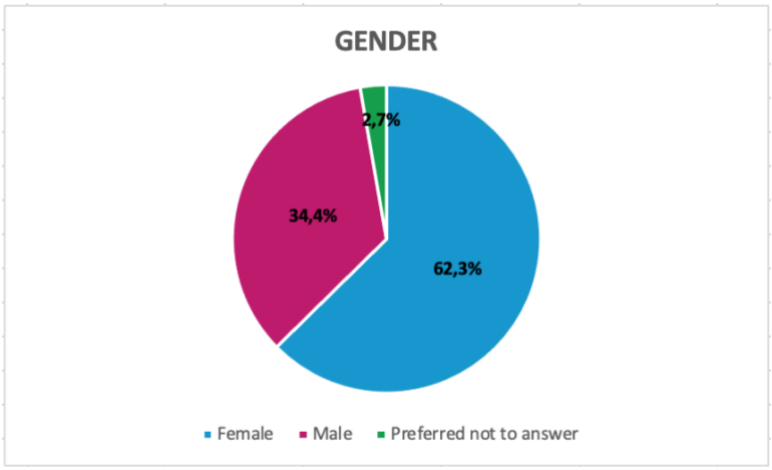
Results of the questionnaire were analyzed using the SPSS software developed by IBM.
The questionnaire was filled in by 290 people of which, following data cleaning, 182 respondents were considered reliable for the study, and so their answers were validated and considered for academic research purposes.

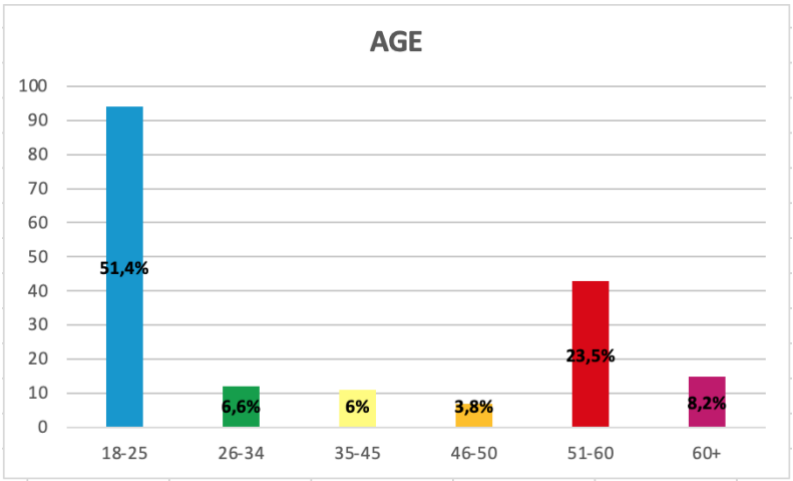
4.2.1 Sample

The sample represented the entire population 18 years of age or older, regardless of gender.

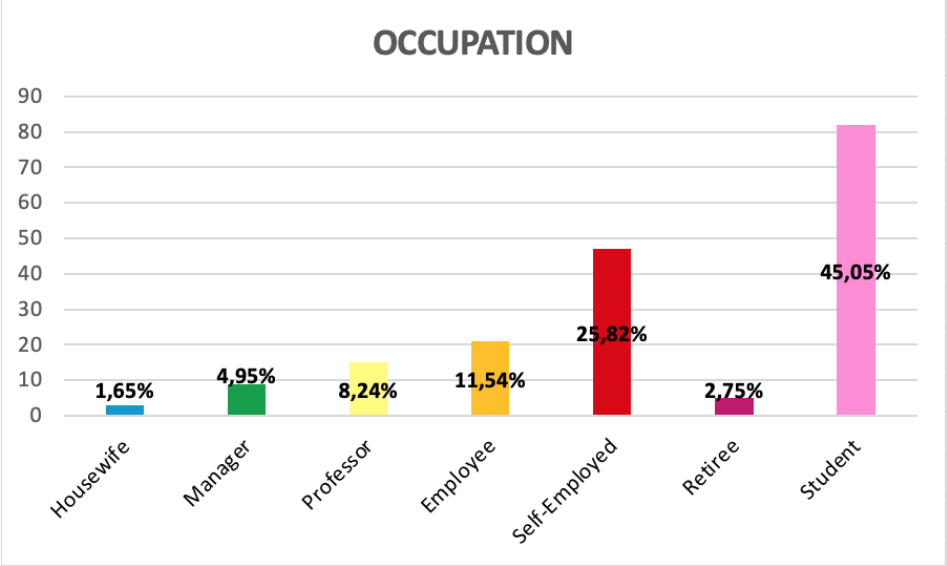
Most of the sample was aged between 18 and 25 years old (51.4%) followed by the age group 51-60 (23,5%). From an education standpoint, a large portion of the sample holds a university's degree, whether it is a bachelor's degree, a master's degree or a PHD. The gender of the population was mainly female, 114 people (62.3%), with 63 males (34.4%) and only 5 respondents (2,7%) preferred to not specify personal sex, as shown in the graphs below.







The degree of education is a fundamental element regarding the target; in fact, out of 182 participants 130 (71.1%) are university graduates and 48.8% have a master's degree or a doctorate. This is also reflected on the professions in fact most of the respondents are still students (45,05%), this is also explained because the survey was shared mainly through social media starting from friends and is reflected with the percentage of respondents between 18 and 25 years (51.4%). The remainder is comprised primarily of Self-employed (25.82%) and Employees (11.54%).



4.2.2 Reliability

Firstly, a reliability analysis was performed using Cronbach's alpha variable. The analysis was performed on all variables: Satisfaction, Reiterated Experience and Engagement

4.2.2.1 Engagement

As said before, Engagement perception was measured by a six-item scale based on O'Brien and Toms' (2013) scale. The original version by O'Brien and Toms involved the analysis of six factors that influence engagement in the purchase of goods online. These factors have been adapted to the situation. The scale used therefore includes all six of the original factors but translated into Italian and formulated in such a way as to make sense for the study.

Figure 4.3: O'Brien and Toms' engagement scale

Factors	*M*	*SD*
1. Focused Attention	1.89	0.56
2. Perceived Usability	3.14	0.33
3. Aesthetics	3.53	0.68
4. Endurability	3.84	0.70
5. Novelty	3.39	0.75
6. Felt Involvement	3.51	0.70

Source: O'Brien and Toms' (2013)

The statements were preceded by: *"In relation to the video you just watched, express how much you agree or disagree with the following statements."*

ITEM	MEAN	SD
I think this is an immersive experience	4,21	1,71
I think it's easy to visit a museum online in this way.	4,82	1,63
The experience is visually appealing	4,2	1,8
I think this modality will be useful for online visits in the future	4,81	1,71
I think this experience is innovative	4,7	1,901
I felt engaged by the experience	3,88	1,905

*Note: SD= Standard Deviation

The internal consistency analysis of the scale yielded a positive result (Cronbach **α** = .926), which means that the items used are highly reliable in assessing the respondent's attitude towards the variables analyzed. Furthermore, no items needed to be deleted to increase the Cronbach's alpha since the values were all less than or equal to .926 as shown in the tables below.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,926	6

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
ENG1	22,41	59,182	,806	,910
ENG2	21,80	63,246	,672	,926
ENG3	22,42	57,316	,837	,905
ENG4	21,81	60,631	,744	,918
ENG5	21,92	56,761	,805	,910
ENG6	22,73	55,656	,850	,903

4.2.2.2. Satisfaction

Regarding user satisfaction with the proposed experience, it was measured by a three-item scale based on De Rojas Camarero and Toms' (2006) scale. The original version of the study aimed to analyze customer satisfaction in relation to the customer experience of users who attended the museum in situ and therefore on site and not online. The original scale consists of 8 items (see Annex III), of which only three (Quality, Expectations and Pleasure) were taken and adapted because they were the most suitable for the online case.

The scale adopted was preceded by the phrase: *"In relation to the video you have just seen, express how satisfied you are overall with the following elements"* and then had to give a score from 1 to 7.

ITEM	MEAN	SD
Quality of experience	4,27	1,6
Satisfaction of expectations	4,27	1,67
Enjoyment of the online experience	3,97	1,85

*Note: SD= Standard Deviation

Again, the internal consistency analysis of the scale was positive (Cronbach **α** = .911), which means that the items used are highly reliable in assessing the respondent's attitude towards the variables analyzed. No item was to be deleted.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,911	3

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
SAT1	8,25	10,927	,842	,858
SAT2	8,25	10,463	,843	,854
SAT3	8,55	9,862	,788	,906

4.2.2.3 Reiterated Experience

The analysis scale for reiterated experience is based on Chiu et al.'s (2014) model. This model wanted to analyze and understanding customers' repeat purchase intentions in B2C e-commerce. So, there are fundamental elements that explain why a user tends to reconnect and repurchase, in this case reiterate an experience (see Annex IV). Obviously, some changes have been made to the original scale that contained six items (Websites attributes, Seller attributes, Consumer perceptions, Customer service, Shopping benefit, Price/Convenience). They have been used only the 3 more adapted items that is Websites attributes, Consumer perceptions and Price/Convenience meant like Time saving. The introductory sentence was, *"In relation to the video you have just watched, express how much you agree or disagree with the following statements."*

ITEM	MEAN	SD
I would gladly reconnect to this museum's site because of the features of the offer	4,34	1,75
I am tempted to reconnect several times because I am curious to see what else the museum has to offer online	4,53	1,71
I think the time saved on online visits gives me the ability to log on more times than if I were to make actual visits to the museum	3,14	2,11

*Note: SD= Standard Deviation

Once again, the internal consistency analysis of the scale was positive (Cronbach **α** = .824), which means that the items used are highly reliable in assessing the respondent's attitude towards the variables analyzed. In this case, it was appropriate to eliminate one item because its value was greater than 8.24.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,824	3

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
REITEX1	8,66	11,440	,740	,703
REITEX2	8,47	11,035	,814	,634
REITEX3	8,86	11,235	,530	,934

4.2.3 Results

Analysis of the mediating model was performed using the PROCESS Macro extension for SPSS (Hayes, 2018). Engagement was entered as a mediator of the relationship between the standard online experience vs. the Augmented Reality experience and interactivity and Customer Satisfaction. Engagement was also included as a mediator of the relationship between the standard online experience vs. the Augmented Reality experience and interactivity and the Reiterated experience.

The experience with Augmented reality was coded as "1" (Success) and with "0" (Failure) was coded the simple experience without interactivity. This with the objective of seeing if a different type of experience (in this case, an interactive experience) could increase customer satisfaction on one hand and the reiterated experience on the other.

In this analysis model, therefore, the analysis covariates are Gender, Age and Education, the dependent variables are Customer satisfaction and Reiterated Experience and the independent variable is the condition 0 and 1 and the mediator is engagement. The model of PROCESS used is in both cases of analysis the model 4.

4.2.3.1 Customer Satisfaction

Starting to analyze the results regarding the average engagement or the mediated analysis of the relationship between the condition and customer satisfaction, the results show a significant relationship given by a p value of 0,007 and an R-sq of 0,76 for the model. Regarding the condition, the p-value is significant, as it has a value of p=0.016 and the coefficient, β =0.547is positive. This means that about the mediated relationship between the condition posed (X variable) and the Engagement (M variable) there is a positive relationship that makes the presence of an Augmented reality video with interaction increasing user engagement. It should also be noted a significance in the value of the age covariate. In fact, age has p value of 0.02 (again lower than 0.05) and a high coefficient of 0.19 implies that as age increases, the relationship just described increases. The analysis is carried out on the average engagement, previously calculated using SPSS.

```
OUTCOME VARIABLE:
 EngMedio

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,275       ,076      2,191      3,624      4,000    177,000       ,007

Model
              coeff         se          t          p       LLCI       ULCI
constant      4,376       ,568      7,700       ,000      3,254      5,497
Condizio       ,547       ,225      2,435       ,016       ,104       ,991
GEN            ,055       ,204       ,271       ,786      -,347       ,457
AGE            ,190       ,060      3,149       ,002       ,071       ,309
EDU           -,195       ,118     -1,647       ,101      -,428       ,039
```

Furthermore, from the screenshot below it is possible to analyze the effect that Engagement has on the dependent variable satisfaction. Indeed, the Engagement has a statistically significant effect on the Satisfaction, with a p-value of p=,000 and a coefficient of β=,910, highlighting that the more the people are engaged, the more they are satisfied about the overall experience. Therefore, we can state that the mediation is entirely verified, and the interactive experience increases the engagement, which further increases the satisfaction.

On the other hand, regarding the analysis of direct effect, and thus the effect that the independent variable has on the dependent one without the mediation of engagement, the results are different. In fact, it turns out that the p value is not significant because it is equivalent to p=0.134 for the condition which are greater than the threshold of 0.05. This means that the direct relationship between the condition and satisfaction is not significant.

OUTCOME VARIABLE:
SatMedia

Model Summary

R	R-sq	MSE	F	df1	df2	p
,892	,795	,525	136,564	5,000	176,000	,000

Model

	coeff	se	t	p	LLCI	ULCI
constant	,193	,322	,602	,548	-,441	,828
Condizio	,169	,112	1,505	**,134**	-,052	,389
EngMedio	**,910**	,037	24,712	**,000**	,837	,982
GEN	,086	,100	,863	,389	-,111	,283
AGE	,008	,030	,249	,804	-,052	,067
EDU	-,068	,058	-1,168	,244	-,183	,047

This does not mean, however, as it might seem that H1 is not satisfied. In fact, through the mediation of the engagement it is arrived at the satisfaction of the H1. This means that exists a relation completely explained from the mediation. In this case therefore the engagement is a full mediator. "With complete mediation, the entire (or total) effect of an independent variable on a dependent variable is transmitted through one or more mediator variables. Thus, the independent variable has no direct effect on the dependent variable; rather, its entire effect is indirect."(Edwards 2012)

The satisfaction of H1 through mediation is demonstrated both by the analysis of Mean Engagement as shown above, and by the total effect. Regarding the model, it is significant as the p value is p=0,004, with an R-sq=.084. Furthermore, the p-value of the independent variable is significant, with p=0.005, and a coefficient of β=.667. Again, we note a particular importance of the covariate Age, having a p value equal to 0.004, which shows again that as age increases the indirect effect of the condition on satisfaction increases.

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 SatMedia

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,290        ,084      2,335      4,058      4,000    177,000       ,004

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,174       ,587      7,114       ,000      3,016      5,332
Condizio      ,667       ,232      2,871       ,005       ,208      1,125
GEN           ,136       ,210       ,649       ,517      -,279       ,552
AGE           ,180       ,062      2,896       ,004       ,057       ,303
EDU           -,245      ,122     -2,009       ,046      -,486      -,004
```

Further element of test of the satisfaction of the consideration are the bootstrap that do not contain the 0. Consequently, the H1 *In conditions with interactivity there may be higher satisfaction than standard condition.* is valid.

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,667       ,232      2,871       ,005       ,208      1,125       ,422

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,169       ,112      1,505       ,134      -,052       ,389       ,107

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,498       ,217       ,062       ,934

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,315       ,135       ,040       ,584
```

4.2.3.2 Reiterated Experience

The first part of the analysis corresponds in mirror form to that carried out for Customer satisfaction. Starting to analyze the results about the average engagement on the mediated analysis of the relationship between the condition and customer satisfaction, the results show a significant Model, with a p value of p=0,007 and an R-sq= 0,76, Furthermore, looking at the condition (X variable) the effect of engagement is significant, with a p-value of p=0.016 and with a positive coefficient of β=0.547.

Still, considering the second screenshot which analyze the effect on the Reiterated Experience, we can see that the effect of Engagement on the dependent variable is significant, with a p-value of p=,000 and a coefficient of β=,864. This means that about the mediated relationship between the condition posed and reiterated experience there is a positive relationship that makes the presence of an Augmented reality video with interactive increases user engagement and an increase in the user

engagement increases customer satisfaction. It should also be noted a significance in the value of the age covariate regarding the first part of the mediation. In fact, having a p value of p=0.02 (again lower than 0.05) and a high coefficient of β=0.19 implies that as age increases, the relationship just described increases. The analysis is carried out on the average engagement, previously calculated using SPSS.

```
OUTCOME VARIABLE:
 EngMedio

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,275        ,076      2,191      3,624      4,000    177,000       ,007

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,376       ,568      7,700       ,000      3,254      5,497
Condizio      ,547       ,225      2,435       ,016       ,104       ,991
GEN           ,055       ,204       ,271       ,786      -,347       ,457
AGE           ,190       ,060      3,149       ,002       ,071       ,309
EDU           -,195      ,118     -1,647       ,101      -,428       ,039
```

Regarding the direct effect, thus the relationship between the independent variable (Condition) and the Dependent one (Reiterated Experience), the direct condition is also valid. Having in fact a p value for the condition equal to p=0.015 and a coefficient of β=,306 it is demonstrated that the presence of a video with augmented reality and greater interactivity increases the user's desire to repeat the experience even without the mediation of engagement, then even without the need for increased engagement.

```
OUTCOME VARIABLE:
 reitexpM

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,862        ,742       ,653    101,459      5,000    176,000       ,000

Model
             coeff         se          t          p       LLCI       ULCI
constant      ,535       ,359      1,492       ,138      -,173      1,242
Condizio      ,306       ,125      2,449       ,015       ,059       ,552
EngMedio      ,864       ,041     21,061       ,000       ,783       ,945
GEN           ,103       ,111       ,927       ,355      -,116       ,323
AGE           -,011      ,034      -,320       ,750      -,078       ,056
EDU           -,090      ,065     -1,377       ,170      -,218       ,039
```

This means that H2 is verified both directly and indirectly. This means that in the latter case, engagement acts as a partial mediator. "With partial mediation, an independent variable has both direct and indirect effects on a dependent variable. The direct effect is not mediated, whereas the indirect effect is transmitted through one or more mediator variables"(Edwards 2012).

Looking also at the total effect we will have that it is significant, as the p value is p=0.002 for the model and p=0.001 for the condition.

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 reitexpM

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,305        ,093      2,286      4,551      4,000    177,000       ,002

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,317       ,581      7,437       ,000      3,172      5,463
Condizio      ,779       ,230      3,391       ,001       ,326      1,232
GEN           ,151       ,208       ,725       ,469      -,260       ,562
AGE           ,153       ,062      2,489       ,014       ,032       ,275
EDU           -,258      ,121     -2,135       ,034      -,496      -,020
```

Further element of test of the satisfaction of the consideration are the bootstrap that do not contain the 0. Consequently, l'H2 *The interactive online experience can lead to a higher level of reiterated experience* is valid.

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,779       ,230      3,391       ,001       ,326      1,232       ,496

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,306       ,125      2,449       ,015       ,059       ,552       ,195

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,473       ,207       ,081       ,887

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,301       ,129       ,052       ,557
```

5. Discussion: reflections on results and managerial implications

In the modern world where museums should not be a place far from people, where there are secrets and treasures dedicated only to a few, the main objective of museum managers must be to attract consumers as much as possible. From this point of view, museums must be managed like any other business, by placing customers at the center of the business model and making every initiative start from their needs and requirements. Thus, there are two managerial imperatives, attracting customers and satisfying them. This paper set out to analyze how a museum's management efforts should be directed based on the online activity of its visitors. The results obtained showed that an interactive experience in a museum, positively influences engagement which in turn increases customer satisfaction. As a result, museums will need to adopt communication strategies in which the user can interact with the exhibits and create his/her own personalized experience. The future of museums is certainly focused primarily on in-person visits, but that doesn't mean that as the effects of the pandemic fade, the online part will lose importance. Websites, and online experiences, will certainly serve in attracting customers, and so the online experience will sit alongside the on-site experience. Websites, then, will need to be the starting point for museum communication strategies; by creating innovative experiences, museums can generate awareness and interest in their offerings. Consumers nowadays check websites before they buy or act, so a website with interesting features is the gateway to the physical museum. Research results also showed that as age increases, satisfaction with an interactive experience increases. Therefore, museums should not organize online experiences only for young people or teens, as it would be easy to imagine, but rather should create something suitable for all age groups. Marketing strategies will have to use the online part of communication as a support tool for in presence activity, which is valued and not destroyed by new technologies.

The research has also shown how closely the presence of an interactive activity and the predisposition to return to the site are linked. This is a key element in museum management; in fact, part of the marketing strategy should focus on how, once customers are attracted, a link can be created between them and the museum. In business, loyalty is acquired through multiple contacts with the company, and in the case of museums it is the same. In fact, customers must be encouraged to return again and again both to the site and to the physical location, for example every time the museum offers a new temporary exhibition. This can be done through two ways, creating compelling exhibits and displays and communicating the museum's value in the best way possible. Interactive experiences can help with both as interactivity has been proven to act positively on repeated experiences. In addition, the goal of marketing strategies should be to create online experiences that effectively and quickly describe the museum's offerings. In fact, the paper proved that the shortness of online experiences

compared to offline ones induces the user to connect repeatedly. This leads the user to be continually informed about the exhibits in the physical museum and therefore tempted to return to the museum each time a new experience is offered. This implies greater attention by management to local visitors rather than international visitors. The inability to travel because of Covid has led to the discovery of the importance of local visitors. By being able to come into frequent contact with the museum, they can create not only a lasting relationship with the institution but also a community.
Again, is outlined the importance of pairing communication efforts for online and offline experiences.

6. Conclusion

Covid 19's presence has affected the lives of citizens around the world in every way. However, the time of crisis has also been a fundamental push for innovation and inventiveness. Many brands have had to rethink their production and communication strategies from scratch, as physical contact with the customer has been lost. Needs, priorities and requirements have changed. The main objective has been to maintain connections, albeit virtual, with the surrounding world. To reach this primary purpose, new technologies and digitization have played a fundamental role, giving the possibility to live virtually experiences that until recently were normal to live exclusively in person. In this panorama of radical changes, museums have found themselves having to react strongly to ensure that their very existence continues to have meaning. Over the years, in fact, museums have gone from being places of preservation to places of education and information where every artifact and every painting has a sense of existence because it is admired and studied. The lack of an audience immobilized museums for a moment, and they had to rely completely on online experiences to become useful again. The use of social media as a primary means of communication increased dramatically and so did the development of activities that could not only maintain the link between museums and citizens but also distract people from the critical moment they were in. Museums around the world have taken inventive ways to reimagine the museum experience at home.

The result was that between March and April 2020, activity on museum sites increased significantly. The goal pursued was to transform social media and sites from a simple means of communication to a tool for transmitting knowledge, creating a community and a sense of belonging (Kamp, 2020). To do this, museums had to find a way to get visitors to actively participate in their initiatives by implementing co-creation. The co-creation process is crucial for the implementation of a successful business as it influences the museum visit experience by increasing museum users' satisfaction and loyalty while at the same time making sure that positive emotions are connected to the experience (Ruiz-Alba et al., 2019). This was essential at the time of the pandemic when the entire museum experience was reduced to online but co-creation must also be considered when returning to normal. In fact, the first contact between visitors and the museum often happens online even when you can physically get in to see the exhibits. It is important that the relationship between customers and museums is curated from the very first moment. A cared relationship from the first moment of contact to the last will increase visitor engagement and satisfaction and will also influence how visitors talk online and in person to others about their experience. WOM and eWOM are a crucial tool for all businesses that can sink or make a brand successful.

Specifically, this paper focused on how, in this complex time in history, technological changes have occurred because of the Covid pandemic19 and it demonstrated how technology can help museums

implement a modernization process with the goal of attracting and satisfying visitors. It has been shown that an experience with increased interactivity can significantly increase engagement, which in turn increases visitor satisfaction. This has highlighted the need for management to invest in online even when the crisis caused by the pandemic ends. The research carried out has in fact brought to light how fundamental it is for users of all ages to be able to interact with the museum's offerings and to be able to create a personalized and interactive itinerary.

At the same time, the importance of an interactive experience was also demonstrated regarding the incentive to reconnect several times over time. Through the questionnaire, in fact, it was found that users appreciate more an activity in which they can participate, for example an activity with Augmented Reality, compared to the standard situation in which the online visitor can only scroll through images and descriptions. This result must be considered when establishing the marketing strategy. In fact, it is usually very difficult to create a long-term relationship between the museum and the visitors since almost 80% of them visit the museum only once. By creating experiences that are interactive and shorter than the normal tours, museums give the visitor the possibility to connect to the site several times and thus remain informed about the activities offered by the museum. This obviously implies a greater focus by management on local visitors rather than international visitors. The fundamental element becomes making the museum a place of growth and aggregation, where people can meet and create a relationship of loyalty with the museum itself.

6.1 Limitations and future research

This study has some limitations that could serve as recommendations and indicate areas of focus for future research.

The first issue is the limited socio-demographic distribution of the sample; most respondents are between 18 and 25 years old (51.4%), that is a high percentage compared to people between 26-34 years old (6,6%), 35-45% (6%) 51-60 (23,5%) and over 60 years old (8,2%). Future research should stratify more accurately the age of respondents, increasing the sample size, to have more precise feedback on the effect of interactive experiences. In addition, the experiment should also be extended to a geographically point of view, involving diverse populations. The sample selected was exclusively from Italy, where certainly history and museums are a fundamental element in the culture of citizens. Populations of other continents could have a different reaction to the stimuli proposed or could confirm the results of the study done in Italy.

The second limitation is related to the type of the questionnaire, which was distributed through email and social networks (WhatsApp, Instagram and Facebook). To have a more precise reaction of consumers, field interviews could be organized in which research participants could experience firsthand the activities offered on the museum's website and creating a personalized experience. The

visual stimulus of the video and the short storytelling associated with it could lead to misunderstandings or not give a 360° view of the project activity proposed by the museum. In fact, the stimuli proposed do not ensure the achievement of a degree of emotional involvement as high as that present in a real experience.

The third limitation concerns the analysis of the museums themselves. In the proposed study, no differentiation was made regarding the type of museum. In future research, museums could be divided according to specific characteristics (e.g., museum of modern art or museum of ancient history). This would provide a more accurate analysis of visitor response to interactive stimuli and could uncover differences in visitor needs based on the specific museum they want to visit.

Annexes

Annex I – Qualtrics survey

LUISS

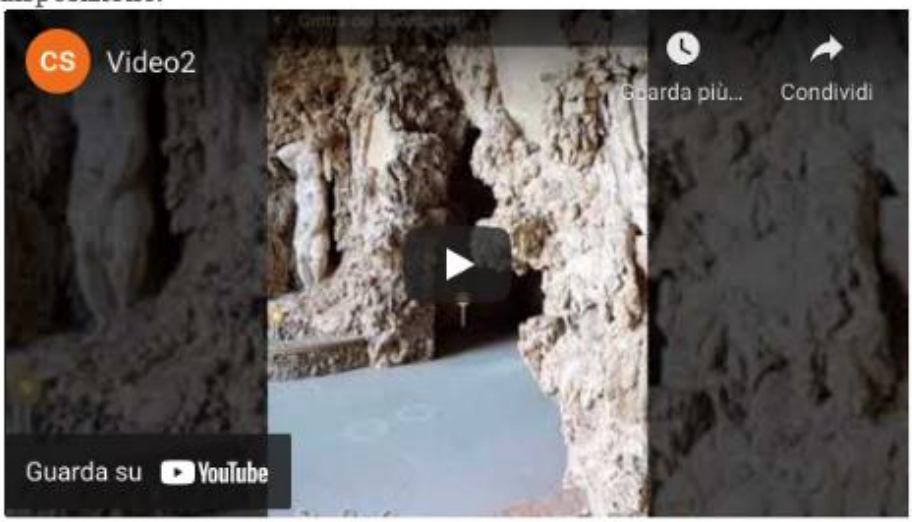
Block 1

Ciao!
Sono una studentessa di Management e ti chiedo qualche minuto del tuo tempo per farti alcune domande per la mia ricerca di tesi. Il questionario è **completamente anonimo** e richiederà solo pochi minuti!

Grazie mille!

Block 2

Immagina di voler visitare la Grotta del Buontalenti e che venga offerto un servizio di virtual tour. Un esempio di visita offerta è dato dal video seguente. Osservalo con attenzione, immaginando di poterti muovere liberamente nello spazio virtuale messo a disposizione.



Block 3

Immagina di voler visitare la Grotta del Buontalenti e che venga offerto un servizio online. Un esempio dell'offerta proposta è data dal video seguente. Osservalo con attenzione

Block 4

In relazione al video che hai appena visto esprimi quanto sei in accordo o disaccordo con le seguenti affermazioni.

	Estremamente in disaccordo- 1	2	3	4	5	6	Estremamente in accordo- 7
Ritengo questa esperienza immersiva	○	○	○	○	○	○	○
Credo che sia semplice visitare un museo online secondo questa modalita'	○	○	○	○	○	○	○
L'esperienza è accattivante dal punto di vista visivo	○	○	○	○	○	○	○
Penso che questa modalità potrà essere utile per le visite online anche nel futuro	○	○	○	○	○	○	○
Penso che questa esperienza sia innovativa	○	○	○	○	○	○	○
Mi sono sentito coinvolta/o da questa esperienza	○	○	○	○	○	○	○

Block 5

In relazione al video che hai appena visto esprimi quanto sei complessivamente soddisfatto dei seguenti elementi:

	Per niente soddisfatto- 1	2	3	4	5	6	Estremamente soddisfatto- 7
Qualità dell'esperienza	○	○	○	○	○	○	○
Soddisfacimento delle aspettative	○	○	○	○	○	○	○
Piacere nel vivere l'esperienza online	○	○	○	○	○	○	○

Block 6

In relazione al video che hai appena visto esprimi quanto sei in accordo o disaccordo con le seguenti affermazioni.

	Estremamente in disaccordo- 1	2	3	4	5	6	Estremamente in accordo- 7
Mi ricollegherei volentieri al sito di questo museo grazie alle caratteristiche dell'offerta data	○	○	○	○	○	○	○
Sono tentata/o a ricollegarmi più volte perché sono curiosa di vedere cosa altro il museo ha da offrire online	○	○	○	○	○	○	○
Penso che il tempo risparmiato nelle visite online mi dia la possibilità di connettermi più volte piuttosto a se facessi delle visite reali al museo	○	○	○	○	○	○	○

Block 7

Indica il tuo genere di appartenenza

- ○ Donna
- ○ Uomo

- ○ Altro

Block 8

Età

- ○ 18-25
- ○ 26-34
- ○ 35-45
- ○ 46-50
- ○ 51-60
- ○ 60+

Block 9

Titolo di studio

- ○ Licenza elementare
- ○ Licenza Media
- ○ Diploma superiore
- ○ Laurea breve
- ○ Specialistica
- ○ Dottorato

Block 10

Professione

Annex II – SPSS analysis

Statistiche

		GEN	AGE	EDU	PROF
N	Valido	182	182	182	183
	Mancante	1	1	1	0
Media		1,40	2,66	4,26	
Mediana		1,00	1,00	4,00	
Deviazione std.		,545	1,940	,983	

Tabella delle frequenze

GEN

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	donna	114	62,3	62,6	62,6
	uomo	63	34,4	34,6	97,3
	altro	5	2,7	2,7	100,0
	Totale	182	99,5	100,0	
Mancante	Sistema	1	,5		
Totale		183	100,0		

AGE

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	1	94	51,4	51,6	51,6
	2	12	6,6	6,6	58,2
	3	11	6,0	6,0	64,3
	4	7	3,8	3,8	68,1
	5	43	23,5	23,6	91,8
	6	15	8,2	8,2	100,0
	Totale	182	99,5	100,0	
Mancante	Sistema	1	,5		
Totale		183	100,0		

EDU

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	2	3	1,6	1,6	1,6
	3	49	26,8	26,9	28,6
	4	40	21,9	22,0	50,5
	5	78	42,6	42,9	93,4
	6	12	6,6	6,6	100,0
	Totale	182	99,5	100,0	
Mancante	Sistema	1	,5		
Totale		183	100,0		

PROF

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido		1	,5	,5	,5
	Agente di viaggi	1	,5	,5	1,1
	Analista marketing	1	,5	,5	1,6
	Architetto	3	1,6	1,6	3,3
	Architetto, docente di Scuol Superiore, esperto di tecnologie digitali	1	,5	,5	3,8
	Avvocato	5	2,7	2,7	6,6
	Bancario	1	,5	,5	7,1
	Biologa	1	,5	,5	7,7
	Casalinga	3	1,6	1,6	9,3
	Commercialista	1	,5	,5	9,8
	Consulente	2	1,1	1,1	10,9
	Consulenza	1	,5	,5	11,5
	Dipendente	2	1,1	1,1	12,6
	Direttrice amm.va scuola in pensione	1	,5	,5	13,1
	Dirigente	2	1,1	1,1	14,2
	Dirigente Farmacista ospedaliero	1	,5	,5	14,8
	Dirigente industriale	1	,5	,5	15,3
	Docente	2	1,1	1,1	16,4
	Dott. Commercialista	1	,5	,5	16,9
	Dottore commercialista	1	,5	,5	17,5
	Ex docente ora pensionato	1	,5	,5	18,0
	Fotografa	1	,5	,5	18,6
	Fotografo	1	,5	,5	19,1

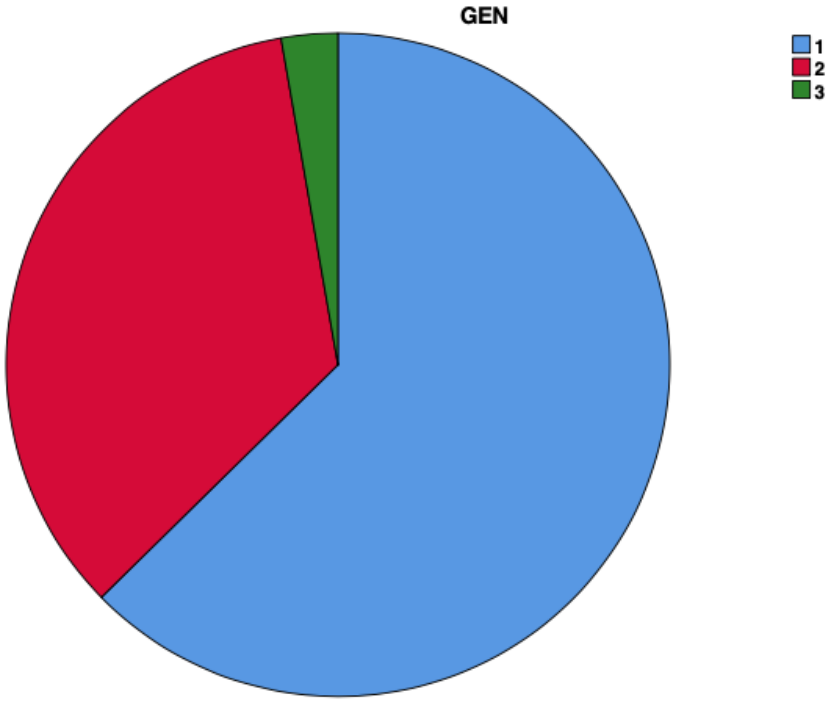
PROF

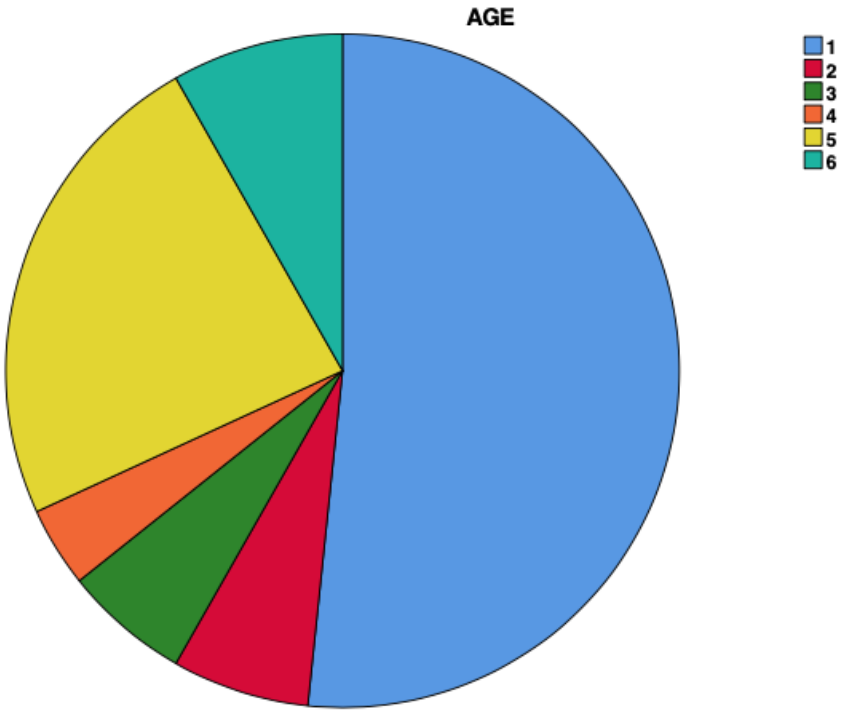
	Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Funzionario statale	1	,5	,5	19,7
ICT pm	1	,5	,5	20,2
Impiegata	7	3,8	3,8	24,0
Impiegata in banca	1	,5	,5	24,6
Impiegato	3	1,6	1,6	26,2
Imprenditore	2	1,1	1,1	27,3
Infermiera	1	,5	,5	27,9
Infermieristica	1	,5	,5	28,4
Informatore Scientifico del farmaco	1	,5	,5	29,0
Ingegnere	4	2,2	2,2	31,1
Ingegnere chimico	1	,5	,5	31,7
Ingegnere edile	1	,5	,5	32,2
Ingegnerei	1	,5	,5	32,8
Insegnante	5	2,7	2,7	35,5
Intern	1	,5	,5	36,1
Libero professionista	2	1,1	1,1	37,2
Libero professionistq	1	,5	,5	37,7
Maestra di danza	1	,5	,5	38,3
Manager	3	1,6	1,6	39,9
Medico	8	4,4	4,4	44,3
Medico chirurgo	1	,5	,5	44,8
Militare	1	,5	,5	45,4
onsegnante	1	,5	,5	45,9
pensionata	1	,5	,5	46,4
Pensionato	3	1,6	1,6	48,1
Pensionto	1	,5	,5	48,6
pilota	1	,5	,5	49,2
Professore	1	,5	,5	49,7
Professore universitario	2	1,1	1,1	50,8
Professoressa universitaria	1	,5	,5	51,4
programmazione	1	,5	,5	51,9
Psicologa	1	,5	,5	52,5
Psicologo	1	,5	,5	53,0
Quadro direttivo settore bancario	1	,5	,5	53,6
Responsabile marketing	2	1,1	1,1	54,6
Responsabile mktg	1	,5	,5	55,2
Ricercatore Universitario	1	,5	,5	55,7

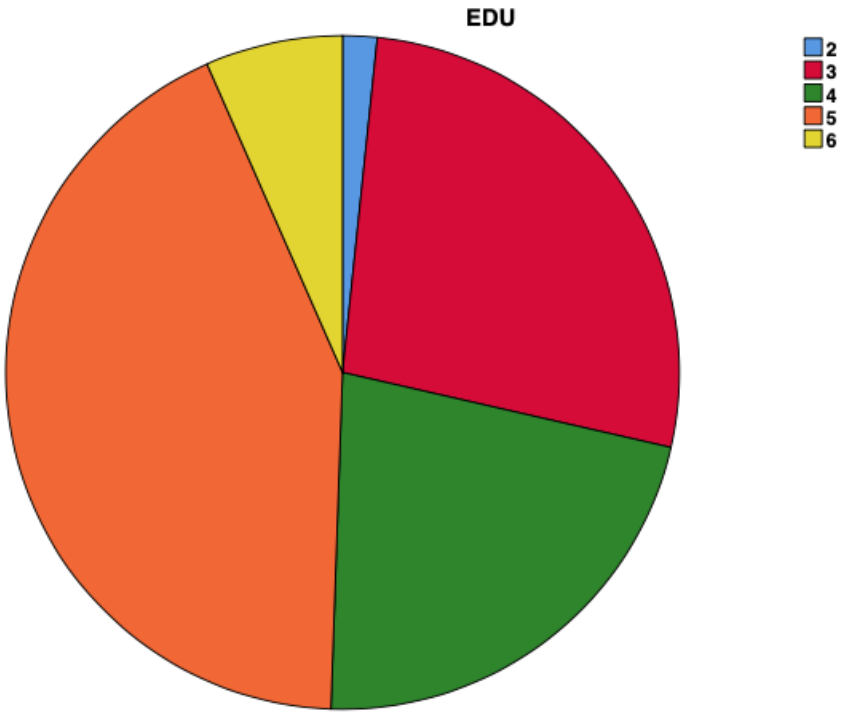
PROF

	Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Student*	1	,5	,5	56,3
studente	3	1,6	1,6	57,9
Studente	42	23,0	23,0	80,9
Studente universitario	4	2,2	2,2	83,1
Studente universitario, insegnante di inglese e italiano	1	,5	,5	83,6
studentess*	1	,5	,5	84,2
studentessa	3	1,6	1,6	85,8
Studentessa	22	12,0	12,0	97,8
Studentessa di Architettura	1	,5	,5	98,4
Studentessa medicina	1	,5	,5	98,9
Stupente	1	,5	,5	99,5
universitario	1	,5	,5	100,0
Totale	183	100,0	100,0	

Grafico a torta








```
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 /SCALE('engagement') ALL
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 /STATISTICS=DESCRIPTIVE
 /SUMMARY=TOTAL.
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Scala: engagement

Riepilogo elaborazione casi

		N	%
Casi	Valido	182	99,5
	Escluso[a]	1	,5
	Totale	183	100,0

a. Eliminazione listwise basata su tutte le variabili nella procedura.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,926	6

Statistiche degli elementi

	Media	Deviazione std.	N
ENG1	4,21	1,718	182
ENG2	4,82	1,637	182
ENG3	4,20	1,804	182
ENG4	4,81	1,715	182
ENG5	4,70	1,901	182
ENG6	3,88	1,905	182

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
ENG1	22,41	59,182	,806	,910
ENG2	21,80	63,246	,672	,926
ENG3	22,42	57,316	,837	,905
ENG4	21,81	60,631	,744	,918
ENG5	21,92	56,761	,805	,910
ENG6	22,73	55,656	,850	,903

```
RELIABILITY
 /VARIABLES=SAT1 SAT2 SAT3
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Scala: satisfaction

Riepilogo elaborazione casi

		N	%
Casi	Valido	182	99,5
	Escluso[a]	1	,5
	Totale	183	100,0

a. Eliminazione listwise basata su tutte le variabili nella procedura.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,911	3

Statistiche degli elementi

	Media	Deviazione std.	N
SAT1	4,27	1,605	182
SAT2	4,27	1,679	182
SAT3	3,97	1,849	182

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
SAT1	8,25	10,927	,842	,858
SAT2	8,25	10,463	,843	,854
SAT3	8,55	9,862	,788	,906

```
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  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE
  /SUMMARY=TOTAL.
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Scala: reit.exp

Riepilogo elaborazione casi

		N	%
Casi	Valido	182	99,5
	Escluso[a]	1	,5
	Totale	183	100,0

a. Eliminazione listwise basata su tutte le variabili nella procedura.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,824	3

Statistiche degli elementi

	Media	Deviazione std.	N
REITEX1	4,34	1,747	182
REITEX2	4,53	1,713	182
REITEX3	4,14	2,117	182

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
REITEX1	8,66	11,440	,740	,703
REITEX2	8,47	11,035	,814	,634
REITEX3	8,86	11,235	,530	,934

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 * Encoding: UTF-8.

/* PROCESS version 3.4 */.
/* Written by Andrew F. Hayes */.
/* www.afhayes.com*/.
/* www.processmacro.org*/.
/* Copyright 2019 by Andrew F. Hayes */.
/* Documented in http://www.guilford.com/p/hayes3 */.
/* PROCESS workshop schedule at http://www.processmacro.org/workshops.html
*/.
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Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.4 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : SatMedia
    X  : Condizio
    M  : EngMedio

Covariates:
 GEN      AGE      EDU

Sample
Size:  182

**************************************************************************
OUTCOME VARIABLE:
 EngMedio

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,275       ,076      2,191      3,624      4,000    177,000       ,007

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,376       ,568      7,700       ,000      3,254      5,497
Condizio      ,547       ,225      2,435       ,016       ,104       ,991
GEN           ,055       ,204       ,271       ,786      -,347       ,457
AGE           ,190       ,060      3,149       ,002       ,071       ,309
EDU           -,195      ,118     -1,647       ,101      -,428       ,039

**************************************************************************
OUTCOME VARIABLE:
 SatMedia

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,892       ,795       ,525    136,564      5,000    176,000       ,000

Model
             coeff         se          t          p       LLCI       ULCI
constant      ,193       ,322       ,602       ,548      -,441       ,828
Condizio      ,169       ,112      1,505       ,134      -,052       ,389
EngMedio      ,910       ,037     24,712       ,000       ,837       ,982
GEN           ,086       ,100       ,863       ,389      -,111       ,283
AGE           ,008       ,030       ,249       ,804      -,052       ,067
EDU           -,068      ,058     -1,168       ,244      -,183       ,047

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 SatMedia

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,290       ,084      2,335      4,058      4,000    177,000       ,004

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,174       ,587      7,114       ,000      3,016      5,332
Condizio      ,667       ,232      2,871       ,005       ,208      1,125
GEN           ,136       ,210       ,649       ,517      -,279       ,552
AGE           ,180       ,062      2,896       ,004       ,057       ,303
EDU           -,245      ,122     -2,009       ,046      -,486      -,004
```

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,667       ,232      2,871       ,005       ,208      1,125       ,422

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,169       ,112      1,505       ,134      -,052       ,389       ,107

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
EngMedio       ,498       ,217       ,062       ,934

Partially standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
EngMedio       ,315       ,135       ,040       ,584

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.

------ END MATRIX -----


* Encoding: UTF-8.

/* PROCESS version 3.4 */.
/* Written by Andrew F. Hayes */.
/* www.afhayes.com */.
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set printback=off.
```

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.4 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : reitexpM
    X  : Condizio
    M  : EngMedio

Covariates:
 GEN      AGE      EDU

Sample
Size:  182

**************************************************************************
OUTCOME VARIABLE:
 EngMedio

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,275       ,076      2,191      3,624      4,000    177,000       ,007

Model
              coeff         se          t          p       LLCI       ULCI
constant      4,376       ,568      7,700       ,000      3,254      5,497
Condizio       ,547       ,225      2,435       ,016       ,104       ,991
GEN            ,055       ,204       ,271       ,786      -,347       ,457
AGE            ,190       ,060      3,149       ,002       ,071       ,309
EDU           -,195       ,118     -1,647       ,101      -,428       ,039
```

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 reitexpM

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,305       ,093      2,286      4,551      4,000    177,000       ,002

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,317       ,581      7,437       ,000      3,172      5,463
Condizio      ,779       ,230      3,391       ,001       ,326      1,232
GEN           ,151       ,208       ,725       ,469      -,260       ,562
AGE           ,153       ,062      2,489       ,014       ,032       ,275
EDU           -,258      ,121     -2,135       ,034      -,496      -,020

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,779       ,230      3,391       ,001       ,326      1,232       ,496

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,306       ,125      2,449       ,015       ,059       ,552       ,195

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,473       ,207       ,081       ,887

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,301       ,129       ,052       ,557


 ************************ ANALYSIS NOTES AND ERRORS ************************

 Level of confidence for all confidence intervals in output:
   95,0000

 Number of bootstrap samples for percentile bootstrap confidence intervals:
   5000

 NOTE: Variables names longer than eight characters can produce incorrect output.
       Shorter variable names are recommended.

 ------ END MATRIX -----
```

Annex III - De Rojas Camarero and Toms' satisfaction scale 2006

Variables and items in the empirical research.

Variable	Item	Description	Mean	S.D.	λ	α
Expectations	EXP1	I think there will be qualified professionals in the centre offering me information and answering my requirements	4.01	0.91	0.93	0.888
	EXP2	I expect to receive a good treatment by the employees	3.63	0.92	0.81	
	EXP3	I think in this centre I will find modern, technologically advanced installations	3.76	1.00	0.68	
	EXP4	I think the centre will have informative panels and adequate lighting and use of spaces	3.46	0.99	0.88	
	EXP5	I think the content of the exhibit will be unique and different from what I could find in other centres	3.67	1.00	0.68	
	EXP6	I think this centre is to offer me an interesting formative or educational experience	3.76	0.97	---**	
	EXP7	I expect the objects, materials and information in the exhibit to be of high cultural and historical interest	4.01	0.91	0.77	
Perceived quality	CAL1	The treatment received by the staff in the centre has been excellent (*interaction quality*)	4.58	0.62	0.97	0.767
	CAL2	At every moment employees in the centre have showed their willingness to look after me in the right way (*interaction quality*)	4.56	0.73	0.82	
	CAL3	The installations are better than those in other centres or museums I have visited (*physical environment quality*)	3.32	1.02	0.91	
	CAL4	I consider informative panels and generated atmosphere in the centre positively (*physical environment quality*)	3.76	1.03	0.86	
	CAL5	I think the visit to the centre to have been a good formative or educational experience (*quality of results*)	3.84	1.09	---**	
	CAL6	I think the objects and materials in the exhibit to be excellent (*quality of results*)	3.38	1.11	0.81	
*Disconfirmation**	DIS1	In a general sense, and comparing what you expected, the visit to the centre of interpretation has been: much worse / worse / the same / better / much better than expected	3.64	0.94		
*Pleasure**	AGR1	Angry / pleased	4.04	0.89	0.87	0.879
	AGR2	Bored / amused	3.87	1.02	0.81	
	AGR3	Unhappy / happy	3.87	0.87	0.89	
	AGR4	Disillusioned / impressed	3.49	1.02	0.78	
	AGR5	Sad / joyful	3.83	0.95	0.69	
	AGR6	Disappointed / delighted	3.51	1.02	0.57	
Satisfaction	SAT1	This is one of the very best interpretation centres that I could have visited	3.25	1.04	---**	0.897
	SAT2	I am pleased with my decision to visit this interpretation centre	3.88	0.89	0.84	
	SAT3	I have really had a good time, I have experienced fun in this centre	3.69	0.98	0.83	
Recommendation	REC1	I will recommend somebody to visit this centre	3.93	1.06	0.95	
	REC2	I will positively talk about this interpretation centre	3.85	1.04	0.79	
Intensification	INT1	I have bought a book or guide for more information	1.97	1.31	0.75	0.685
	INT2	If there were a shop in this centre I would buy some souvenir	2.95	1.39	0.84	
State of mind	EST1	Quiet / enthusiastic	3.25	1.03		
	EST2	Calm / excited	3.47	0.97		
	EST3	Relaxed / cheerful	3.69	0.94		

* Semantic differential scale.
** Eliminated items.

Annex IV - Chiu et al.'s reiterated experience scale 2014

Determinants of behavioural intention

Constructs	The effect on initial purchase intention (reference)	The effect on repeat purchase intention (reference)
Website attributes		
Ease of use	* (Wang *et al.*, 2006)	x (van der Heijden *et al.*, 2001)
Layout/design	* (Baker *et al.*, 2002)	x (Otim & Grover, 2006)
System quality	* (Kuan *et al.*, 2008)	x (Yang, 2007)
Seller attributes		
Reputation	* (Jarvenpaa *et al.*, 2000)	x (van der Heijden *et al.*, 2001)
Size	* (Jarvenpaa *et al.*, 2000)	x (van der Heijden *et al.*, 2001)
Consumer beliefs/perceptions		
Perceived risk	* (Pavlou, 2003)	* (Pavlou, 2003)
Trust	* (Gefen *et al.*, 2003)	x (Brown & Jayakody, 2008)
Customer service	* (Baker *et al.*, 2002)	x (Brown & Jayakody, 2008)
Shopping benefits		
Product offering	* (Liao & Cheung, 2001)	* (Sirohi *et al.*, 1998)
Product information	* (Chen *et al.*, 2006)	* (Yang, 2007)
Convenience	* (Baker *et al.*, 2002)	* (Prasad & Aryasri, 2009)
Price	* (Liao & Cheung, 2001)	* (Kim & Gupta, 2009)
Perceived usefulness	* (Pavlou, 2003)	* (Pavlou, 2003)
Enjoyment/playfulness	* (Teo, 2001)	* (Cyr *et al.*, 2007)

x, not significant; *, significant

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Executive Summary

Abstract

This paper examines the process of museum digitization that occurred in the wake of the Covid-19 pandemic and the subsequent reaction of visitors to that process. The analysis focused on how an interactive online experience can increase user engagement and consequently user satisfaction and intention to revisit. This study described how Italian museums doubled their online activity, and showed that, during the weeks of lockdown, their cultural initiatives did not come to a stop but, on the contrary, there has been a sharp rise in online cultural material and initiatives taking place through social media. Since the emergency situation is extremely contemporary and very unexpected, the literature has not yet focused on how much it has affected museums in terms of adoption of new technologies. In fact, the literature review is based on a detailed analysis of the reforms and processes that have brought museums to what they are today, both from a bureaucratic-administrative point of view and from the point of view of their role in society. This text also describes the many initiatives put in place between March and April 2020 to get the public to interact with the world of museums and ensure that even in a time of pandemic, a community could be created. Moreover, existing literature has already widely described how important user engagement and customer satisfaction are for museums, which in recent years have been adopting more and more marketing strategies aimed at implementing a positive electronic word of mouth. While broadly examined with reference to stores, the importance of making users part of an experience has been rarely looked at in the museum context, particularly in Italy. A research framework has been developed to analyze the relationship between the interactivity of the experiences offered and the customer satisfaction and the intention to revisit. Using a survey as a research instrument, the study was conducted with 182 respondents to an online survey sent via email and social networks (Instagram, LinkedIn and Facebook). Were produced visual stimuli and then proposed several questions to better identify the sentiment of users regarding the proposed stimuli. Results show that an interactive experience affects both customer satisfaction and intention to revisit. The paper makes the case for using the development of interactive experiences as a strategy to include the visitor perspective in the museum value co-creation process. Conclusions and implications will then be pointed out according to the results and future research and limitations will follow.

Keywords*:* *museums, user experience, engagement, customer satisfaction, Covid-19, reiterated experience, digital technology, Augmented Reality, culture, interactivity.*

1. Introduction

Since the end of 2019, the world has found itself experiencing a unique crisis: Covid-19 pandemic. As the virus quickly spread globally, country after country resorted to a lockdown to contain the epidemic. Italy was one of the first countries in Europe to face an exponential growth in COVID cases. Yet our society has not stood still but instead has deployed tools and resources not only to deal with the health emergency but also to overcome the physical distance. The main method used has been internet and new technologies. The use of internet has been fundamental in overcoming forced isolation. Mobile apps, augmented reality, and live video technologies have become tools to empower interactivity by linking the purchaser with the product expert in real time in an engaging space.

Of all the industries affected by the crisis, culture is one of the hardest hits: many museums reported a considerable loss of income of 75-80% (NEMO 2020). Nonetheless, museums have been fast and purposeful in their reaction to the pandemic. They have digitalized their core business, exhibitions, and organized themselves to try to maintain a high rate of customer engagement by arranging interviews with experts or guided tours in the company of the museum director. Still others have chosen a more 'playful' approach, launching virtual treasure hunts among the museum's collections, or organizing quiz events.

Because of the significant impact of closure on museum economics, the literature and relevant bodies have already focused on analyzing how covid has forced technological and cultural changes within the Italian museum world. Little has yet been said, however, about the impact of interactivity on customer satisfaction in museum experience.

The first research hypothesis taken into consideration in this paper is in fact that a higher level of interactivity corresponds to a higher level of customer satisfaction.

H1 In conditions with interactivity there may be higher satisfaction than standard condition.

The museum experience during the pandemic, as said before, underwent a deep mutation, both at the level of content and at the level of time and frequency. Online tours, interviews with experts or museum directors, take a limited amount of time, 10-15 minutes at most, as opposed to the 2-3 hours, even full days, that a physical visit to a museum requires. The second hypothesis of this paper starts with the analysis of this change.

H2 The interactive online experience can lead to a higher level of reiterated experience.

2. Literature Review

2.1 Italian context pre-covid and Digital technologies in cultural sector

Digital innovation and new technologies have been a constant focus in the development of museum management in recent years in Italy. This happened because it has been realized for some years now that the entire museum ecosystem required an innovative push. Italian museums had always been

divided by the ideological opposition between protection and valorization, a dichotomy that is partly overcome thanks to the 2014 Franceschini reform, which sees museums as true places of knowledge. The reform set the stage for a revolution from both administrative and digital perspective.

Furthermore, in 2018, the Three-Year Plan for Museum Digitization and Innovation was published. It defines the shared guidelines for the digitization of the various operations and the management of digital projects. In 2019, therefore, the digitization of cultural heritage was underway but incomplete. Despite the progressive diffusion and application of digital technologies in the museum world, in Italy only one in ten museums out of ten (10.4%) has digitally catalogued its heritage. The use by Italian museums of interactive technologies and digital tools that allow to enrich the visiting experience and the engagement of the public still appeared limited: only half of the structures (44.7%) provide at least one device among smartphones, tablets, touch screens, visit supports such as video and/or multimedia rooms, QR Code technology and augmented reality paths (Istat 2019).

There is another fundamental change that took place over a longer period that served to lay the foundation for the very concept of the modern museum: the shift from preservation to entertainment. This shift occurred in the 2000s, when ICOM (2007) released and promoted its own definition of a museum, putting 'fun' on the same floor as the two basic components of education and study. Since ICOM has explicitly endorsed the importance of entertainment and enjoyment within museums, the effort that museum administration has had to put into managing the customer experience has changed considerably, and entertainment has been included among the museums' core objectives. Digital technologies and the social web have brought more and more into the museum industry, providing opportunities for the different cultural stakeholders to interact and share.

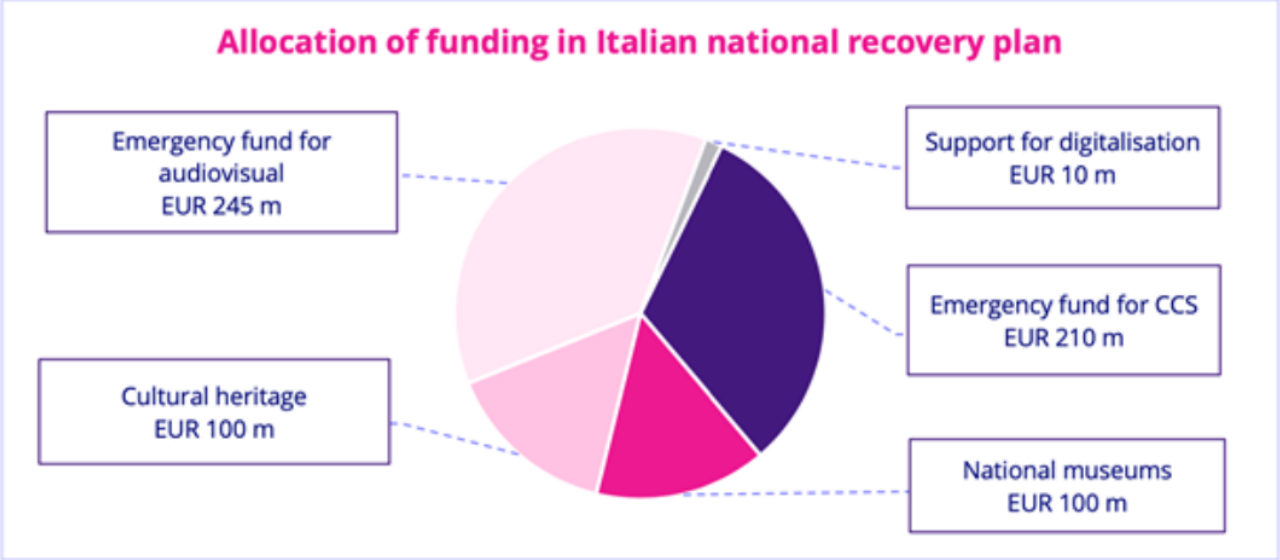
2.2 Environment During and Post Covid-19

During the pandemic of Covid-19, following the lockdown policy imposed by the Government to limit the spread of the virus, cultural institutions have given life to several initiatives at the communication level to increase public awareness of the need to change some behaviors and lifestyles. Museums and art galleries begun some communicative actions, through the most popular social networks, such as Facebook, Instagram and Twitter, which required the active participation of users and their collaboration.

The question that arises now is, how will the experience of visiting museums change when they are physically reopened? Lorenzo Greppi (2020), museum scenographer, has tried to answer this question by saying that museums will need to consider two potential audiences simultaneously: the online audience and the offline audience. The offline one will be mainly local, more domestic, and proximate while the online one will be a global, distant audience that can create a network and a community.

As for Europe in November 2020 IDEA Consult et al. delivered to the European Council a report entitled: “The Impact of Covid19 pandemic on the Cultural and Creative Sector” with an analysis of policies implemented to mitigate the impacts of the pandemic on the economy of the cultural sector in Europe. As regards Italy, the image below shows the allocation of funds.

Figure 2.1: Allocation of funding in Italian national recovery plan



Source: KEA European Affairs 2020

2.3 User Engagement and CX in Cultural Sector

Pandemic has changed the scale of priorities by making social from a simple tool of communication, become an indispensable tool. The online visitor experience becomes the focal point of attention. “A museum that is more active online is more likely to attract a public”(Agostino, Arnaboldi, and Lampis 2020). For instance, some museums have arranged expert interviews or tours with the museum director. Still others have opted for a more leisurely approach, holding a virtual treasure hunt among museum collections or quiz events (Agostino, Arnaboldi, and Lampis 2020). Museums around the world have equipped themselves to approach visitors in new ways. Worldwide museums have taken inventive ways to reimagine the museum at-home experience.

In Italy, a proposal was promoted by the Ministry of Cultural Heritage and Activities and Tourism (MiBACT) that was initially conceived as a digital flash mob dedicated to photography in which users were asked to share shots they had previously taken inside museums. The project, called ArT you Ready, was an attempt to keep alive the cultural heritage enclosed within the museums made necessarily deserted (Carlino et al. 2020). This initial proposal was enriched by a more creative aspect because, using the hashtag #lartetisomiglia, users had fun posting on social networks photos of themselves imitating a work of art with what they have at home. In addition to this, various online activities were organized by the museums, such as online exhibitions. Cultural institutions, therefore, were committed to offering all-round services that can educate and entertain. Beyond this, the fact

remains that museums are a physical place of aggregation, that will struggle to return to what it was in the days of pre covid but that in any case will never be able to adapt to a 100% online condition. For this reason, the customer experience in museums should be analyzed differently than in other businesses, for example it is difficult to have a Marketing Funnel, 80% of visitors to a museum are seeing it for the first time, there is no loyalty, and it is very difficult to have a retention process. This happens because to see a museum can often take hours and it can be a long time before a user decides to physically return to a museum after such an experience. One of the big differences between online and offline is that online initiatives last very little time. “They typically only last a few minutes, two or three to read a post about a work of art or at most 10–15 minutes for an interview or a virtual visit. These events also run on a regular basis, where users are invited to meet up every day at the same time and connect to the museum’s social platform for a daily dose of culture” (Agostino, Arnaboldi, and Lampis 2020). This shift in time has opened the way for reflections on whether we can use our tour schedule otherwise even when museums will reopen. As we have seen, the online experience could make it easier for museums to get visitors to repeat the experience. In a more general sense, this should be the goal of museum marketing strategies.

Another element to consider is competitiveness: like any other sector, the cultural sector must act to beat its competitors in terms of strategy and attracting new visitors. This necessity has become particularly urgent at a time when, due to Covid-19, the general number of visitors to museums has decreased. It is in every museum's interest to provide a quality experience so a service that fulfils the customers' expectations (Rowley 1999).

2.4 Co-creation, personalization and importance of eWOM

With the use of industry 4.0 and the exploitation of new technologies personalization and co-creation in museums can be developed. As seen museums have been working to ensure that user participation can be as active as possible and that in this way the level of satisfaction can increase. “Participation is active when the individual becomes a key factor in developing and creating the experience” (Antón, Camarero, and Garrido 2018).

With a co-creation process customers themselves are involved in the decision-making route, being able to design their own visit or museum experience One particular form of co-creation, promoted mainly by the supply side, is personalization. This term refers to the delivery of diverse access to information and services tailored to the unique profile of the visitor, either in the physical museum or online.

However, it should be noted that a fundamental part of the museum experience has disappeared: social interactions. The only social interactions that were possible during the lock-down were virtual ones. In museums the only substantial part of social interaction remained post-visit co-creation i.e.

“when visitors intensify their experiences through further participation in the museum’s activities and social networks and by giving their opinion in blogs and other opinion social networks” (Antón, Camarero, and Garrido 2018). This is the definition of electronic word of mouth (eWOM). Obviously, eWOM insights influence buying intention, so it impacts consumer loyalty, positive eWOM is essential to create links with customers and transmit a brand's corporate image, i.e., develop relationship marketing strategies. Visitors may be willing to post their own experiences and thoughts in the museum's community social networks and other online public opinion forums both when they felt huge gratification and when they were not gratified and perceived no value in the museum. So, a particularly positive visit, pushes the visitor to want to share online with friends and family, or with the community their experience, both to share his/her opinion and advice but also to feel part of a community. Word of Mouth may also influence the visit intensification. “One type of short-term tourist behavior is visit intensification” (Antón, Camarero, and Garrido 2019). Intensification refers to the visitor's intention to extend the experience by looking for more knowledge about the visit (the museum, content, etc.).

This is particularly important in the era of museums during Covid-19 since, as previously seen, the online experience can lead to a higher level of reiterated experience, as visit times are much shorter and the activities offered by museums are multiple.

2.5 Literature Gap

What emerged from the analysis of the literature underlined how in recent years the world of culture in Italy has been affected by countless changes from different points of view. The use of new technologies has introduced an important innovation, giving museums the opportunity to make visitors participants in the decision-making processes and in the creation and personalization of the experience. The literature has largely focused on how active participation and co-creation can increase engagement and positive eWOM but very little has been said about interactivity as a learning tool. During the lock-down in fact many museums have made use of games and "more fun" means to increase the satisfaction in the online experience of their visitors. Because the topic is very recent, it has been poorly studied and it will be the subject of this report to show how, through interactivity, satisfaction can be improved.

H1 In conditions with interactivity there may be higher satisfaction than standard condition.

The passage from a predominantly offline experience to an exclusively online one has obviously caused a series of revolutions also regarding the modality of fruition of the experience. If before the visits lasted hours, during the lock-down at any time it was possible to connect to search for information about a work of art about which one was interested or to see a video of an expert giving guided tours, to connect for virtual tours, to participate in online games and so on. Again, since the

event that caused such an environment change is very recent, it has not been well studied in the literature and therefore I will focus on it in this paper.

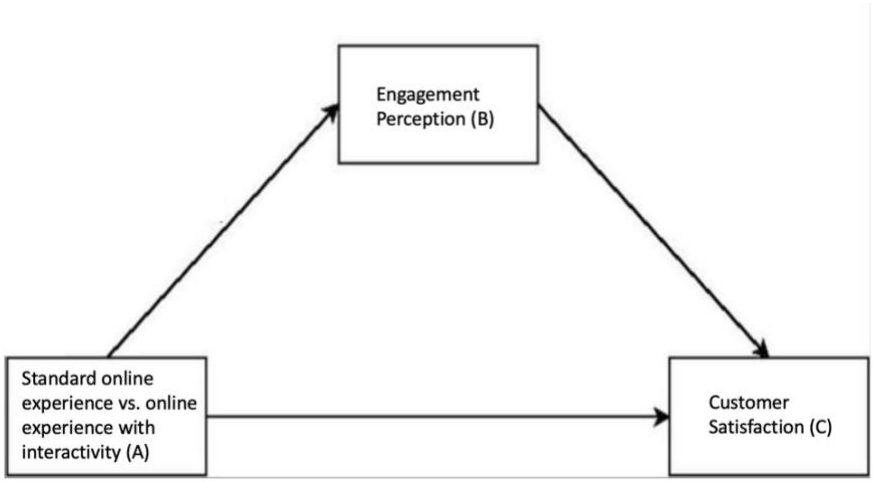
H2 The interactive online experience can lead to a higher level of reiterated experience.

3. Methodology

The goal of this research is to analyze the effect that the interactivity of museum services has on the satisfaction of virtual visitors. The second hypothesis that will be analyzed is whether the possibility of fully online experiences, that use online interactivity, leads users to increase the frequency of visits to a museum.

The model considered is Langfred's (2004) model with mediator.

Figure 3.1: Model with Mediator by Langfred



Source: Langfred (2004)

According to this model, in fact, there is no immediate cause-effect relationship between the Independent Variable (A) and the Dependent Variable, or Outcome Variable (C), but rather this relationship is mediated by an intermediate variable, the Mediator Variable (B).

Specific to this research regarding hypothesis 1:

H1 In conditions with interactivity there may be higher customer satisfaction, if compared to standard experience.

The Independent Variable (A) is the "Standard online experience vs. online experience with interactivity".

Engagement is a fundamental element around which all the research revolves, and for this reason "Engagement perception" was designated as the Mediating Variable. The concept of consumer brand engagement implies the manifestation of an active behavior of the consumer that, in general, takes the form of active and continuous participation in brand communication. Consequently, if the user's perception of engagement during the experience increases, it is likely that their final satisfaction with the experience in general will increase.

“Customer Satisfaction" is therefore the Outcome Variable.

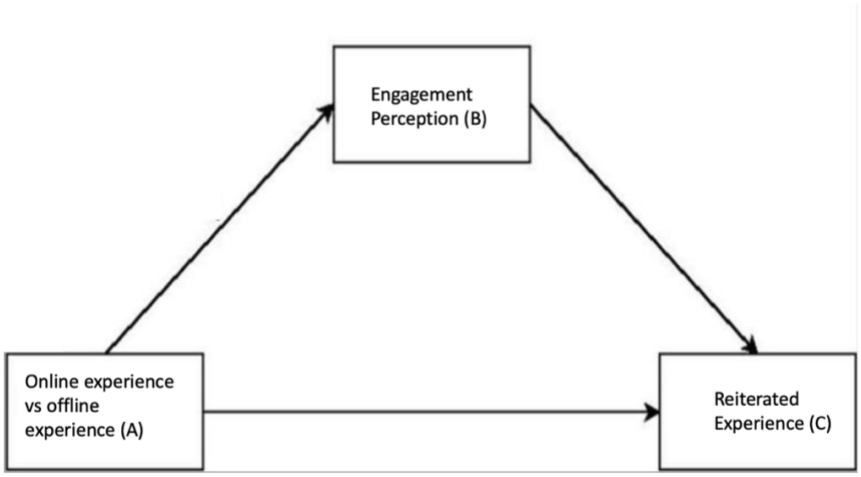
Regarding hypothesis 2:

H2 The interactive online experience can lead to a higher level of reiterated experience, if compared to standard online experience.

The Independent Variable (A) will be "Online experience vs offline experience". The Mediator Variable (B) remains the “Engagement Perception”, because even if it is only for a short time, visitors need to feel involved and excited, perhaps even more so than when the visits were in person, to make them want to connect again.

The Dependent Variable (C) is therefore "Reiterated Experience". In fact, the research aims to analyze whether a decrease in visit times and greater ease of access can increase the frequency of visits to the same museum.

Figure 3.2: Model with Mediator by Langfred



Source: Langfred (2004)

Data is collected through an online survey; this is because it will give quick and easy access to the results and according to experts with online surveys the margin of error is reduced because users enter their answers directly into the system. The survey is conducted in Italian, this is because the study focused primarily on the impact of Covid-19 within the Italian cultural market and many of the initiatives of the museums themselves had a local rather than global perspective.

4. Research Design

4.1 Design

The research was implemented with the realization of a questionnaire created with Qualtrics XM that was shared between 29th July 2021 and 28th August 2021, distributed online via private messages on WhatsApp, Facebook Messenger and Instagram Direct, as well as public messages, sharing the link that connected users to the questionnaire on Facebook, Instagram stories and LinkedIn.

The questionnaire was composed of 16 questions (of which 15 closed and one open) in Italian and were required about 2 min to complete the survey. Respondents were asked to give some answers after being subjected to a visual stimulus, specifically two videos that opened in a randomized way, one representing an augmented reality experience with more interactivity and a second standard video in which they simply scrolled photos with description.

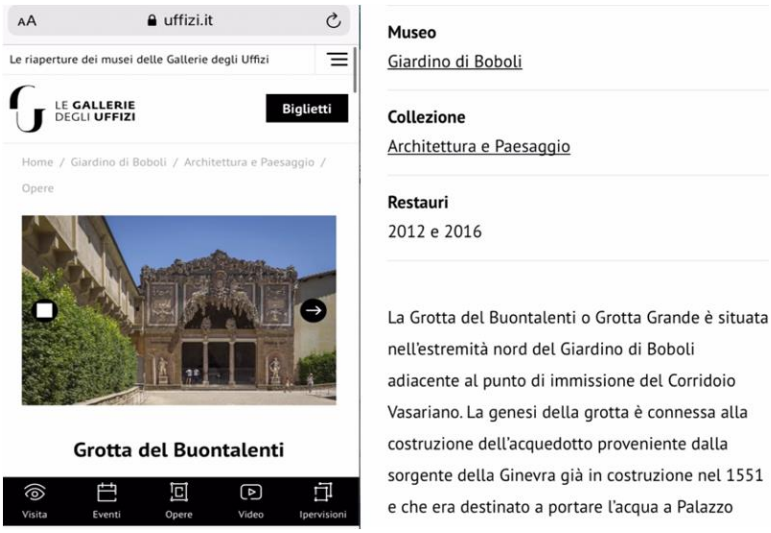
The survey was structured in 4 sections:

5. Introduction to the questionnaire and the inclusion of two videos with randomized opening
6. Consumers' perceptions regarding the interactivity of the videos
7. Consumers' perceptions regarding the frequency of linking to websites based on the proposed experience
8. A final section with socio-demographic questions.

Part 1. The two videos proposed represented two different experiences that can be made on the Uffizi website in Florence to virtually visit the Buontalenti Cave.

The first video presented a standard experience without interactivity with photos of the Cave and a written description.

Figure 4.1: Buontalenti Cave picture and description-Video 1

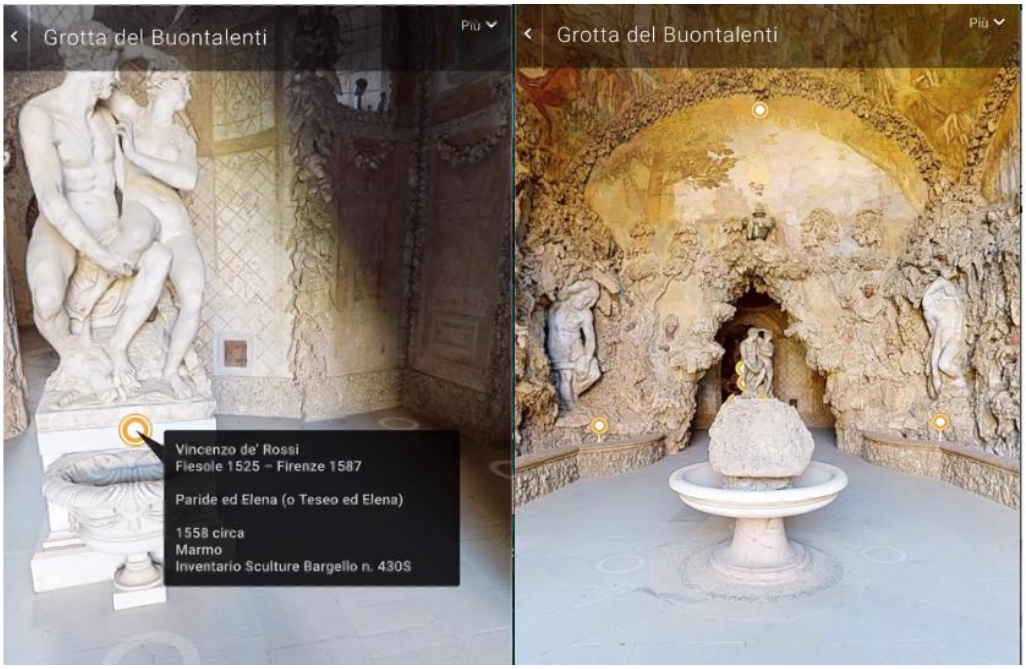


Source: Galleria degli Uffizi website (2021)

The video was introduced with the phrase *"Imagine you want to visit the Buontalenti Cave and an online service is offered. An example of the proposed offer is given in the following video. Watch it carefully."*

The second video instead represented a virtual tour experience of the cave in which the user could move freely around the cave clicking on the point that interested him/her most and having descriptions in pop-up

Figure 4.2: Buontalenti Cave virtual tour-Video2



Source: Galleria degli Uffizi website (2021)

This second video was introduced through the phrase: *"Imagine that you want to visit the Buontalenti Cave and that a virtual tour service is offered. An example of a visit offered is given by the following video. Watch it carefully, imagining that you can move freely in the virtual space provided."*

The opening of the two videos was 50% randomized.

A timer was included in the video section so that participants could not move forward with the questionnaire until they had completed watching the video.

Part 2. The second section included several questions to analyze user engagement and satisfaction regarding the interactivity of the proposed experience (i.e., Video1 or Video2). Seven-point Likert type scales were used raging from 7 *"Strongly Agree"* to 1 *"Strongly Disagree"*.

Engagement perception was measured by a six-item scale based on O'Brien and Toms' (2013) scale. Because the topic discussed is extremely current and recent there were no questionnaires in the literature that could be used in the survey in a mirror manner, this is the reason why the questions asked were manipulated and adapted to the context

In the questionnaire, people had to valuate from 1 (strongly disagree) to 7 (strongly agree) the following statement related to the video shown:

- I think this is an immersive experience
- I think it's easy to visit a museum online in this way.
- The experience is visually appealing
- I think this modality will be useful for online visits in the future
- I think this experience is innovative

- I felt engaged by the experience

The user satisfaction was measured by a three-item scale based on De Rojas Camarero and Toms' (2006) scale. Seven-point Likert type scales were used raging from 7 "*Excellent*" to 1"*Extremely Poor*".

Therefore, people had to rate the following statements:

- Quality of experience
- Satisfaction of expectations
- Enjoyment of the online experience

Part 3. The third section, on the other hand, proposed questions aimed at understanding and analyzing the possibility of a repeated online site visit induced by the proposed video.

The questionnaire was adapted starting from Chiu et al.'s (2014) model.

Reiterated experience was measured by a three-item scale based on Chiu et al.'s (2014) scale. Seven-point Likert type scales were used raging from 7 "*Strongly Agree*" to 1"*Strongly Disagree*".

The statements that participants had to score were:

- I would gladly reconnect to this museum's site because of the features of the offer
- I am tempted to reconnect several times because I am curious to see what else the museum has to offer online
- I think the time saved on online visits gives me the ability to log on more times than if I were to make actual visits to the museum

Part 4. The fourth section involved socio-demographic questions: age, gender, education and occupation.

4.2 Method

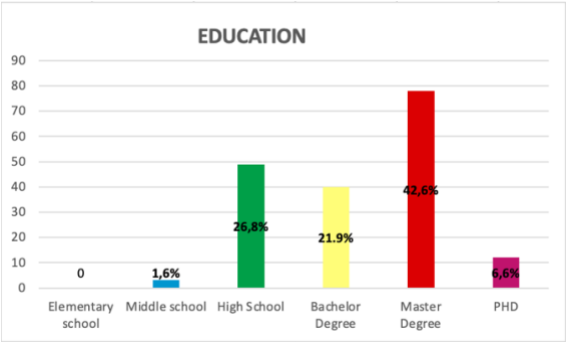
Results of the questionnaire were analyzed using the SPSS software developed by IBM.

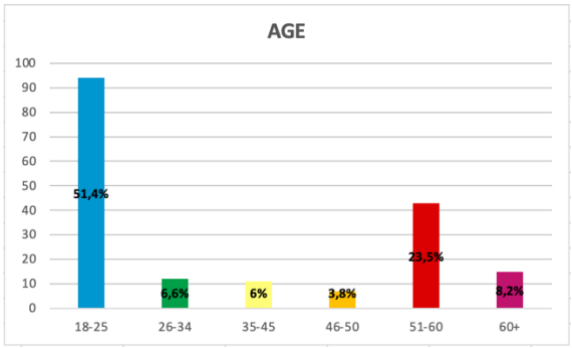
The questionnaire was filled in by 290 people of which 182 respondents were considered reliable for the study.

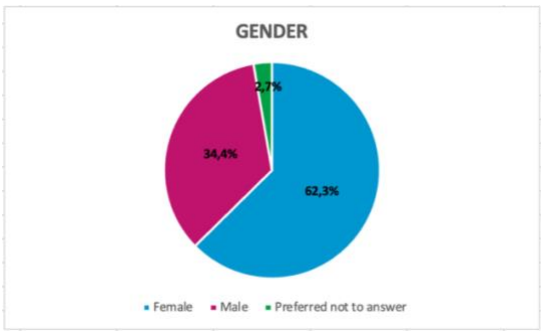
4.2.1 Sample

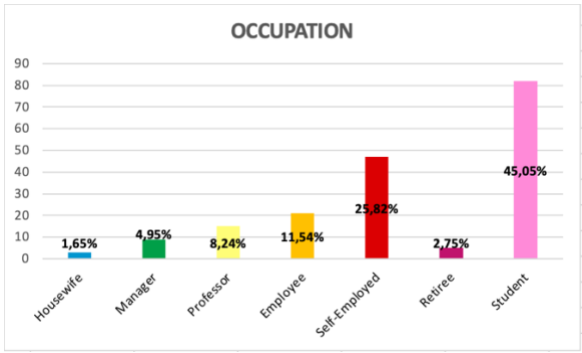
Most of the sample was aged between 18 and 25 years old (51.4%) followed by the age group 51-60 (23,5%). From an education standpoint, a large portion of the sample holds a university's degree.

The gender of the population was mainly female, 114 people (62.3%), with 63 males (34.4%) and only 5 respondents (2,7%) preferred to not specify personal sex, as shown in the graphs below.









Most of the respondents are students (45,05%), this is also explained because the survey was shared mainly through social media starting from friends. The remainder is comprised primarily of Self-employed (25.82%) and Employees (11.54%).

4.2.2 Reliability

A reliability analysis was performed using Cronbach's alpha variable.

4.2.2.1 Engagement

As said before, Engagement perception was measured by a six-item scale based on O'Brien and Toms' (2013) scale.

The statements were preceded by: *"In relation to the video you just watched, express how much you agree or disagree with the following statements."*

ITEM	MEAN	SD
I think this is an immersive experience	4,21	1,71
I think it's easy to visit a museum online in this way.	4,82	1,63
The experience is visually appealing	4,2	1,8
I think this modality will be useful for online visits in the future	4,81	1,71
I think this experience is innovative	4,7	1,901
I felt engaged by the experience	3,88	1,905

*Note: SD= Standard Deviation

The internal consistency analysis of the scale yielded a positive result (Cronbach α = .926), which means that the items used are highly reliable in assessing the respondent's attitude towards the variables analyzed. Furthermore, no items needed to be deleted to increase the Cronbach's alpha since the values were all less than or equal to .926 as shown in the tables below.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,926	6

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
ENG1	22,41	59,182	,806	,910
ENG2	21,80	63,246	,672	,926
ENG3	22,42	57,316	,837	,905
ENG4	21,81	60,631	,744	,918
ENG5	21,92	56,761	,805	,910
ENG6	22,73	55,656	,850	,903

4.2.2.2. Satisfaction

Regarding user satisfaction with the proposed experience, it was measured by a three-item scale based on De Rojas Camarero and Toms' (2006) scale. The scale adopted was preceded by the phrase: *"In relation to the video you have just seen, express how satisfied you are overall with the following elements"* and then had to give a score from 1 to 7.

ITEM	MEAN	SD
Quality of experience	4,27	1,6
Satisfaction of expectations	4,27	1,67
Enjoyment of the online experience	3,97	1,85

*Note: SD= Standard Deviation

Again, the internal consistency analysis of the scale was positive (Cronbach **α** = .911), which means that the items used are highly reliable in assessing the respondent's attitude towards the variables analyzed. No item had to be deleted.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,911	3

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
SAT1	8,25	10,927	,842	,858
SAT2	8,25	10,463	,843	,854
SAT3	8,55	9,862	,788	,906

4.2.2.3 Reiterated Experience

The analysis scale for reiterated experience is based on Chiu et al.'s (2014) model. The introductory sentence was, *"In relation to the video you have just watched, express how much you agree or disagree with the following statements."*

ITEM	MEAN	SD
I would gladly reconnect to this museum's site because of the features of the offer	4,34	1,75
I am tempted to reconnect several times because I am curious to see what else the museum has to offer online	4,53	1,71
I think the time saved on online visits gives me the ability to log on more times than if I were to make actual visits to the museum	3,14	2,11

*Note: SD= Standard Deviation

Once again, the internal consistency analysis of the scale was positive (Cronbach **α** = .824). In this case, it was appropriate to eliminate one item because its value was greater than 8.24.

Statistiche di affidabilità

Alpha di Cronbach	N. di elementi
,824	3

Statistiche elemento-totale

	Media scala se viene eliminato l'elemento	Varianza scala se viene eliminato l'elemento	Correlazione elemento-totale corretta	Alpha di Cronbach se viene eliminato l'elemento
REITEX1	8,66	11,440	,740	,703
REITEX2	8,47	11,035	,814	,634
REITEX3	8,86	11,235	,530	,934

4.2.3 Results

Analysis of the mediating model was performed using the PROCESS Macro extension for SPSS (Hayes, 2018). Engagement was entered as a mediator of the relationship between the standard online experience vs. the Augmented Reality experience and interactivity and Customer Satisfaction. Engagement was also included as a mediator of the relationship between the standard online experience vs. the Augmented Reality experience and interactivity and the Reiterated experience.

The experience with Augmented reality was coded as "1" (Success) and with "0" (Failure) was coded the simple experience without interactivity. In this analysis model, therefore, the analysis covariates are Gender, Age and Education, the dependent variables are Customer satisfaction and Reiterated Experience and the independent variable is the condition 0 and 1 and the mediator is engagement. The model of PROCESS used is in both cases of analysis the model 4.

4.2.3.1 Customer Satisfaction

Starting to analyze the results regarding the average engagement or the mediated analysis of the relationship between the condition and customer satisfaction, the results show a significant relationship given by a p value of 0,007 and an R-sq of 0,76 for the model. Regarding the condition, the p-value is significant, as it has a value of p=0.016 and the coefficient, β =0.547is positive. This means that about the mediated relationship between the condition posed (X variable) and the Engagement (M variable) there is a positive relationship that makes the presence of an Augmented reality video with interaction increasing user engagement. It should also be noted a significance in the value of the age covariate. In fact, age has p value of 0.02 (again lower than 0.05) and a high coefficient of 0.19 implies that as age increases, the relationship just described increases. The analysis is carried out on the average engagement, previously calculated using SPSS.

OUTCOME VARIABLE:
EngMedio

Model Summary

R	R-sq	MSE	F	df1	df2	p
,275	,076	2,191	3,624	4,000	177,000	**,007**

Model

	coeff	se	t	p	LLCI	ULCI
constant	4,376	,568	7,700	,000	3,254	5,497
Condizio	**,547**	,225	2,435	**,016**	,104	,991
GEN	,055	,204	,271	,786	-,347	,457
AGE	**,190**	,060	3,149	**,002**	,071	,309
EDU	-,195	,118	-1,647	,101	-,428	,039

Furthermore, from the screenshot below it is possible to analyze the effect that Engagement has on the dependent variable satisfaction. Indeed, the Engagement has a statistically significant effect on the Satisfaction, with a p-value of p=,000 and a coefficient of β=,910, highlighting that the more the people are engaged, the more they are satisfied about the overall experience. Therefore, we can state that the mediation is entirely verified, and the interactive experience increases the engagement, which further increases the satisfaction.

On the other hand, regarding the analysis of direct effect, and thus the effect that the independent variable has on the dependent one without the mediation of engagement, the results are different. In fact, it turns out that the p value is not significant because it is equivalent to p=0.134 for the condition which are greater than the threshold of 0.05. This means that the direct relationship between the condition and satisfaction is not significant.

OUTCOME VARIABLE:
SatMedia

Model Summary

R	R-sq	MSE	F	df1	df2	p
,892	,795	,525	136,564	5,000	176,000	,000

Model

	coeff	se	t	p	LLCI	ULCI
constant	,193	,322	,602	,548	-,441	,828
Condizio	,169	,112	1,505	**,134**	-,052	,389
EngMedio	**,910**	,037	24,712	**,000**	,837	,982
GEN	,086	,100	,863	,389	-,111	,283
AGE	,008	,030	,249	,804	-,052	,067
EDU	-,068	,058	-1,168	,244	-,183	,047

This does not mean, however, as it might seem that H1 is not satisfied. In fact, through the mediation of the engagement it is arrived at the satisfaction of the H1. This means that exists a relation completely explained from the mediation. In this case therefore the engagement is a full mediator. The satisfaction of H1 through mediation is demonstrated both by the analysis of Mean Engagement as shown above, and by the total effect. Regarding the model, it is significant as the p value is p=0,004, with an R-sq=.084. Furthermore, the p-value of the independent variable is significant, with p=0.005, and a coefficient of β=.667. Again, we note a particular importance of the covariate Age, having a p value equal to 0.004, which shows again that as age increases the indirect effect of the condition on satisfaction increases.

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 SatMedia

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,290       ,084      2,335      4,058      4,000    177,000       ,004

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,174       ,587      7,114       ,000      3,016      5,332
Condizio      ,667       ,232      2,871       ,005       ,208      1,125
GEN           ,136       ,210       ,649       ,517      -,279       ,552
AGE           ,180       ,062      2,896       ,004       ,057       ,303
EDU          -,245       ,122     -2,009       ,046      -,486      -,004
```

Further element of test of the satisfaction of the consideration are the bootstrap that do not contain the 0. Consequently, the H1 *In conditions with interactivity there may be higher satisfaction than standard condition.* is valid.

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,667       ,232      2,871       ,005       ,208      1,125       ,422

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,169       ,112      1,505       ,134      -,052       ,389       ,107

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,498       ,217       ,062       ,934

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio      ,315       ,135       ,040       ,584
```

4.2.3.2 Reiterated Experience

The first part of the analysis corresponds in mirror form to that carried out for Customer satisfaction. Still, considering the screenshot which analyze the effect on the Reiterated Experience, we can see that the effect of Engagement on the dependent variable is significant, with a p-value of p=,000 and a coefficient of β=,864. This means that about the mediated relationship between the condition posed and reiterated experience there is a positive relationship that makes the presence of an Augmented reality video with interactive increases user engagement and an increase in the user engagement increases customer satisfaction. It should also be noted a significance in the value of the age covariate regarding the first part of the mediation. In fact, having a p value of p=0.02 (again lower than 0.05) and a high coefficient of β=0.19 implies that as age increases, the relationship just described increases. The analysis is carried out on the average engagement, previously calculated using SPSS. Regarding the direct effect, thus the relationship between the independent variable (Condition) and the Dependent one (Reiterated Experience), the direct condition is also valid. Having in fact a p value for the condition equal to p=0.015 and a coefficient of β=,306 it is demonstrated that the presence of a video with augmented reality and greater interactivity increases the user's desire to repeat the experience even without the mediation of engagement, then even without the need for increased engagement.

```
OUTCOME VARIABLE:
 reitexpM

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,862       ,742       ,653    101,459      5,000    176,000       ,000

Model
             coeff         se          t          p       LLCI       ULCI
constant       ,535       ,359      1,492       ,138      -,173      1,242
Condizio       ,306       ,125      2,449       ,015       ,059       ,552
EngMedio       ,864       ,041     21,061       ,000       ,783       ,945
GEN            ,103       ,111       ,927       ,355      -,116       ,323
AGE           -,011       ,034      -,320       ,750      -,078       ,056
EDU           -,090       ,065     -1,377       ,170      -,218       ,039
```

This means that H2 is verified both directly and indirectly. This means that in the latter case, engagement acts as a partial mediator. Looking also at the total effect we will have that it is significant, as the p value is p=0.002 for the model and p=0.001 for the condition.

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 reitexpM

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       ,305       ,093      2,286      4,551      4,000    177,000       ,002

Model
             coeff         se          t          p       LLCI       ULCI
constant     4,317       ,581      7,437       ,000      3,172      5,463
Condizio       ,779       ,230      3,391       ,001       ,326      1,232
GEN            ,151       ,208       ,725       ,469      -,260       ,562
AGE            ,153       ,062      2,489       ,014       ,032       ,275
EDU           -,258       ,121     -2,135       ,034      -,496      -,020
```

Further element of test of the satisfaction of the consideration are the bootstrap that do not contain the 0. Consequently, l'H2 *The interactive online experience can lead to a higher level of reiterated experience* is valid.

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
       ,779       ,230      3,391       ,001       ,326      1,232       ,496

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
       ,306       ,125      2,449       ,015       ,059       ,552       ,195

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio       ,473       ,207       ,081       ,887

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
EngMedio       ,301       ,129       ,052       ,557
```

5. Discussion: reflections on results and managerial implications

In the modern world where museums should not be a place far from people, the main objective of museum managers must be to attract consumers as much as possible. From this point of view, museums must be managed like any other business, by placing customers at the center of the business model and making every initiative start from their needs and requirements. Thus, there are two managerial imperatives, attracting customers and satisfying them. This paper set out to analyze how a museum's management efforts should be directed based on the online activity of its visitors. The results obtained showed that an interactive experience in a museum, positively influences engagement which in turn increases customer satisfaction. As a result, museums will need to adopt communication strategies in which the user can interact with the exhibits and create his/her own personalized

experience. The future of museums is certainly focused primarily on in-person visits, but that doesn't mean that as the effects of the pandemic fade, the online part will lose importance. Websites, and online experiences, will certainly serve in attracting customers, and so the online experience will sit alongside the on-site experience. Research results also showed that as age increases, satisfaction with an interactive experience increases. Therefore, museums should not organize online experiences only for young people or teens, as it would be easy to imagine, but rather should create something suitable for all age groups. The research has also shown how closely the presence of an interactive activity and the predisposition to return to the site are linked. This is a key element in museum management; in fact, part of the marketing strategy should focus on how, once customers are attracted, a link can be created between them and the museum. In business, loyalty is acquired through multiple contacts with the company, and in the case of museums it is the same. In fact, customers must be encouraged to return again and again both to the site and to the physical location, for example every time the museum offers a new temporary exhibition. This can be done through two ways, creating compelling exhibits and displays and communicating the museum's value in the best way possible. Interactive experiences can help with both as interactivity has been proven to act positively on repeated experiences. In addition, the goal of marketing strategies should be to create online experiences that effectively and quickly describe the museum's offerings. In fact, the paper proved that the shortness of online experiences compared to offline ones induces the user to connect repeatedly. This leads the user to be continually informed about the exhibits in the physical museum and therefore tempted to return to the museum each time a new experience is offered. This implies greater attention by management to local visitors rather than international visitors.

6. Conclusion

Covid 19's presence has affected the lives of citizens around the world in every way. However, the time of crisis has also been a fundamental push for innovation and inventiveness. The main objective has been to maintain connections, albeit virtual, with the surrounding world. To reach this primary purpose, new technologies and digitization have played a fundamental role, giving the possibility to live virtually experiences that until recently were normal to live exclusively in person. In this panorama of radical changes, museums have found themselves having to react strongly to ensure that their very existence continues to have meaning. The use of social media as a primary means of communication increased dramatically and so did the development of activities that could not only maintain the link between museums and citizens but also distract people from the critical moment they were in. Specifically, this paper focused on how technological changes have occurred because of the Covid pandemic19 and it demonstrated how technology can help museums implement a modernization process with the goal of attracting and satisfying visitors. It has been shown that an

experience with increased interactivity can significantly increase engagement, which in turn increases visitor satisfaction. This has highlighted the need for management to invest in online even when the crisis caused by the pandemic ends. The research carried out has in fact brought to light how fundamental it is for users of all ages to be able to interact with the museum's offerings and to be able to create a personalized and interactive itinerary.

At the same time, the importance of an interactive experience was also demonstrated regarding the incentive to reconnect several times over time. Through the questionnaire, in fact, it was found that users appreciate more an activity in which they can participate. By creating experiences that are interactive and shorter than the normal tours, museums give the visitor the possibility to connect to the site several times and thus remain informed about the activities offered by the museum. This obviously implies a greater focus by management on local visitors rather than international visitors.

The fundamental element becomes making the museum a place of growth and aggregation, where people can meet and create a relationship of loyalty with the museum itself.

6.1 Limitations and future research

This study has some limitations that could serve as recommendations and indicate areas of focus for future research. The first issue is the limited socio-demographic distribution of the sample; most respondents are between 18 and 25 years old (51.4%). Future research should stratify more accurately the age of respondents, increasing the sample size. In addition, the experiment should also be extended to a geographically point of view, involving diverse populations. The second limitation is related to the type of the questionnaire. To have a more precise reaction of consumers, field interviews could be organized in which research participants could experience firsthand the activities offered on the museum's website and creating a personalized experience. The third limitation concerns the analysis of the museums themselves. In the proposed study, no differentiation was made regarding the type of museum. In future research, museums could be divided according to specific characteristics (e.g., museum of modern art or museum of ancient history).