
RESEARCH/INVESTIGACIÓN

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COMMUNICATION AND CULTURAL SPACES IN TIMES OF COVID-19

Comunicación y espacios culturales en tiempos de COVID-19

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ABSTRACT

COVID-19 has caused the closure of large cultural entities, which has impacted on citizens' cultural habits. Since the beginning of this Global Pandemic, digital tools have become the great allies of museums to keep in touch with their visitors, strengthening their links and betting on the digitization of live and delayed content. It is essential to analyze the effectiveness of this digital communication and the use and consumption habits that characterize museum visitors to readjust and improve museum communication strategies in times of Coronavirus. This is a statistical-descriptive study that presents the results of a questionnaire administered to 619 visitors from two of the museums with the highest number of visits in Castile and León: The Museum of Human Evolution and The Art Nouveau and Art Deco Museum-Casa Lis. Among the main results, the increase in the number of visitors who access information via social networks and mobile services stands out, which implies a change in how they get informed, but the necessity of implementing digital strategies to face a crisis such as the COVID-19 is also detected.

KEY WORDS: COVID-19 – Coronavirus – Pandemics – Museums – Social networks – Digital resources – Education.

RESUMEN

El COVID-19 ha ocasionado el cierre de los grandes entes culturales que ha impactado en los hábitos culturales de los ciudadanos. Desde el inicio de esta Pandemia Global, las herramientas digitales se han convertido en las grandes aliadas de los museos para seguir en contacto con sus visitantes, reforzando sus vínculos y apostando por la digitalización de contenidos tanto en formato directo como diferido. Analizar la eficacia de esta comunicación digital y los hábitos de uso y consumo que caracteriza a los visitantes de los museos para readaptar y mejorar las estrategias de comunicación de los museos en tiempos de Coronavirus es fundamental. Se trata de un estudio de carácter estadístico - descriptivo donde se presentan los resultados de un cuestionario realizado a 619 visitantes de dos de los museos con mayor número de visitas en Castilla y León: El Museo de La Evolución Humana y El Museo Art Nouveau y Art Decó - Casa Lis. Entre los principales resultados destaca el aumento en el número de visitantes que accede a la información a través de redes sociales y servicios móviles, lo que implica un cambio en la forma de informarse, pero también se detecta la necesidad de implementar estrategias digitales para afrontar una crisis como el COVID-19.

PALABRAS CLAVE: COVID-19 - Coronavirus - Pandemias - Museos - Redes Sociales - Recursos digitales - Educación.

Translation by **Carlos Javier Rivas Quintero** (University of the Andes, Mérida, Venezuela)

COMUNICAÇÃO E ESPAÇOS CULTURAIS EM TEMPOS DE COVID-19

RESUMO

A COVID-19 tem ocasionado o fechamento das grandes entidades culturais que tem impactado nos hábitos culturais dos cidadãos. Desde o começo desta Pandemia Global, as ferramentas digitais têm se transformado nas grandes aliadas dos museus para continuar em contato com os seus visitantes, reforçando os seus vínculos e apostando pela digitalização de conteúdos tanto em formato direto quanto diferido. Analisar a eficácia desta comunicação digital e os hábitos de uso e consumo que caracteriza aos visitantes dos museus para readaptar e melhorar as estratégias de comunicação dos museus em tempos de Coronavírus é fundamental. Se trata de um estudo de caráter estatístico - descritivo onde são apresentados os resultados de um questionário realizado a 619 visitantes dos museus com maior número de visitas em Castilla e León: O *Museo de La Evolución Humana* e O *Museu Art Nouveau e Art Decó - Casa Lis*. Dentro dos principais resultados se destaca o aumento no número de visitantes que acessam a informação através de redes sociais e serviços móveis, o que implica uma mudança na forma de se manter informado, mas também se detecta a necessidade de implementar estratégias digitais para enfrentar uma crise como o COVID-19.

PALAVRAS CHAVE: COVID-19 – Coronavírus – Pandemias – Museus - Redes Sociais - Recursos digitais - Educação.

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1. INTRODUCCIÓN

The cultural sector is one of the most affected industries by the coronavirus (SARS-CoV-2 virus) and museums are no exception to this. The International Council of Museums (2020) “acknowledges the manifold challenges faced by museums and museum professionals during this time” (ICOM, 2020).

COVID-19 has changed society’s daily life tremendously, as well as the field of culture. The closure of cultural spaces, which has been in force since mid-March, has caused many of these cultural entities to strengthen their presence online through digital tools such as web pages, social networks, and online content. This forced lockdown to which they have been subjected limits the possibilities of museums to reach their public, but several institutions around the world are implementing initiatives and are demonstrating great resilience by harnessing the power of communication on social networks and digital tools.

This article presents the results of an online survey conducted on the visitors to the Castile and León museums, regarding the use and consumption habits in the communication context, through digital tools and social networks, of museums with their public. In this way, we are interested in analyzing both the behavior and the impact of technologies on the public of these museums during COVID-19 times. In addition, we have also analyzed a set of case studies and good practices in digital communication that have been implemented since the state of alarm was established, which can be used as inspiring examples for other museums.

1.2. Literature review

Artwork digitization and online communication via social networks represent a great opportunity to promote heritage, to reinforce the visitor-museum relationship, and, above all, to foster interaction processes with the public. This practice of sharing collections online has been being implemented in museums for several years, but during these weeks of lockdown, activity on social networks has intensified for all institutions and, thus, audience engagement has increased.

As stated by Ayala, Cuenca-Amigo, and Cuenca (2019), in museums “communication processes and marketing strategies constitute one of the challenges identified” (p. 66). Therefore, currently, it is essential to analyze the communication implemented in museums, both the one inside and outside the museum (social networks, media, posters, and brochures), that engages audiences to visit (Mateos, 2012) and that has made connections possible during the COVID-19 context. It is important to emphasize that, since 2005, UNESCO has urged museum institutions to be aware of the importance of Information and Communications Technologies (ICTs) to preserve, educate, investigate, and communicate (Mariátegui, 2020).

Before this new pandemic context, museology was immersed in the development of programs about the use of digital tools, which can be noted in national museums, as pointed out by Delgado (2018), such as the case of the Thyssen Museum in Madrid. Technology as a platform has allowed this museum to digitize its content to make it more accessible to the public and boost the digital museum through agreements with other international galleries.

Another museum that has successfully incorporated technology is the Prado Museum. In this case, they have bet on mobile applications to complete the tours during temporary exhibitions by digitizing books, creating high-definition zoom options on details of pieces of artwork, or 360° views of famous works (Pantoja, 2016). The use of technology encompasses multiple areas within a museum, from providing support in communication and marketing (Ayala, Cuenca-Amigo, & Cuenca, 2019) to the interpretation of collections through digital devices during the visit (Cordón, 2012).

Firstly, the Internet and the online world allow communication and marketing to develop very effective digital campaigns for museums (Marakos, 2014), and, in addition, to make their content accessible (Lorente, 2015). Therefore, a two-way communication between museums and the audience emerges thanks to the benefits of implementing digital technologies in the management of museum institutions. With regard to audience studies and analysis, Ticketing and CRM systems have been implemented during the past recent years, which allow generating and collecting information on personal data for a subsequent decisions-making process about cultural marketing (Leal & Quero, 2011).

Secondly, the social and cultural revolution generated by the Internet became indispensable for society’s everyday life. The audience expects and demands new interactive and multidisciplinary activities. Now there are interactive and dynamic environments, based on the power of image and its power of attraction, capable of generating participation from the audience. These are the aspects related to the use of technology and digitization in the museum field (Black, 2012). The Internet has entailed a tremendous advancement for museums, with an increasing number having web catalogs, podcasts with audio guides, technological devices such as touchscreens, facial recognition systems, geolocation, or QR codes, and they bet on taking part in initiatives such as Google Art Project (Cordón, 2012). However, this

author clarifies that museums must bet on the possibilities that the Internet offers them, within their possibilities, and in accordance with their strategic line of communication.

But the Internet, like other digital tools, must be considered a support platform for the physical museum and never as a substitute for it (Almazán, 2007), and as Rodríguez (2011) argues, technology inside a museum must promote communication without overshadowing the institution's museography. In this way, the implementation of these tools within museums requires an analysis for their optimum execution. Under this premise, the Museum of Modern Art (MoMA) in New York should be considered a leading example in technological applications, which has a myriad of multimedia channels, interactive products such as special exhibitions, conversations, blogs, and visual descriptions. Another museum, also located in this city and perhaps not so recognized, is The New Museum, which makes all its publications and collections available to the public digitally and for free. For its part, another museum that has stood out due to its innovative digital strategy and that is an example of good practices is the National Museum of Natural History (Smithsonian), located in Washington, in which visitors can see how their facial features would look like in past epochs using QR codes.

Therefore, it is evident that the interest in new technologies for content creation and development of digital applications in museums had already emerged, at least, as some authors point out, five years before this new COVID-19 context (Delgado Pacheco, 2020). During lockdown, the principal entities in the cultural sector elaborated a set of guidelines to enhance virtual communication with their public (AMM, 2020a; AMM, 2020b; ICOM, 2020), urging museums to move towards a virtual and accessible model. As stated by Delgado Pacheco (2020), a museum becomes more accessible if it shares content freely and develops didactic programs through its digital platforms.

Even so, the study of digital technologies and applications entail a challenge for museums. To promote the dissemination of collections, exhibitions, and information about access in order to reach both physical and virtual visitors, are some of the trends among these cultural institutions (Tamacas, 2016), and that are in line with the recommendations around COVID-19. It is important to mention that this pandemic context has become an opportunity for museums to promote their digital engagement since they are being forced to reinvent their digital strategies. However, the first studies about this crisis context revealed a series of problems that concern museums and that are preventing the progression of the aforementioned guidelines in the face of this new reality. Once again, museums suffer from insufficient audience studies, scarce inclusion strategies, and lack of collaboration with other institutions (Holmquist, 2020 & Riofrío *et al.*, 2019).

Similarly, as affirmed by Delgado Pacheco (2020), although there is previous work on virtualization and connection with the public through digital platforms, the museums that implemented the use of ICTs are facing the crisis with better

communication options, connection with their audiences, and handling of their public. In addition, other studies have detected – during lockdown – an increase in the number of visits to cultural content via devices, such as the case of online museums like the Prado Museum, which has popularized its daily one-hour-long videos on Instagram (Perez-Rufi, 2020).

In this sense, the use of digital technologies to improve the visiting experience in museums requires a deep analysis, essentially due to the emergence of new information consumption habits, which are modifying the way how citizens access information, also cultural information. Hence, it is essential to study the use and consumption habits, and the opinions and assessments of visitors when it comes to obtaining information and interacting with museums. The COVID-19 situation entails a great opportunity to study the communication of museums with their audience in order to improve or to modify the strategies that are not providing the expected results.

2. OBJECTIVES

This study's main objective is to analyze the use and consumption habits of visitors to the museums of Castile and León. To this end, we proposed conducting a study of the visitors to two flagship museums – the Museum of Human Evolution of Burgos and the Art Nouveau and Art Déco Museum of Salamanca –, the most important ones to the visitors living in the Autonomous Community of Castile and León; allowing us to know directly their digital use and consumption habits, their opinion on the educational-communicative processes, and their experiences while interacting in the physical and digital spaces during the COVID-19 context.

The general objective is based on the specific objectives hereunder:

1. To know the relationship between the profile of the visiting public and the variables related to the use of devices and social networks during their visit.
2. To study the relationship between the profile of the visiting public and the variables related to the person and their preferences.
3. To analyze the relationship between the profile of the visiting public and the variables related to the person and their assessment of digital resources.
4. To know the relationship between the profile of the visiting public and the variables related to the person and their learning during their visit.

3. METHODOLOGY

This is a descriptive research since the variables under analysis have been measured in a natural context and have not been manipulated. We opted for a cross-sectional investigation to study the data through the elaboration of an online survey, basing on the mean number of visitors per museum (N) to select the sample. From 2011 to 2017, a mean of 296,337 people visited the Museum of Human Evolution of Burgos, and 113,740 people visited the Art Nouveau and Art Déco Museum-Casa Lis

of Salamanca. The questionnaire was first administered to a model sample consisting of 30 individuals from one of the participating museums who agreed to correct the questionnaire and summarize the variables. Subsequently, the survey was conducted during the months of April and May, 2017, at the entrance of the two museums - nB= 310 valid surveys in Burgos, and nS=309 in Salamanca -, assisted by T-CAPI (Tablet and Computer Assisted Personal Interview) and by a team of 4 previously trained interviewers.

Specifically, the sample was weighted according to the total population and distribution between Salamanca and Burgos, 50% of the visitors reside in the same province where the museum is located. The final valid random sample was nT = 619 visitors in the two museums together, with a confidence level of 95%, and a sampling error of +5.5% for finite populations in each museum. To analyze the data, we carried out the frequency distributions and graphical representations of each question in the survey, and, on the other hand, we created contingency tables to display the significant associations between the variables using the Chi-square distribution test (χ^2). We used SPSS statistics software package to analyze and calculate the reliability of the data and had an expert researcher to participate in the investigation.

Table 1: Sample description according to Age

AGE	N	%
≤ 24	216	34,9
25 - 44	184	29,7
≥ 45	219	35,4
TOTAL	619	100,0

Source: authors' own creation.

Regarding their age (V1), the two groups with the highest rate of visits to museums are, on the one hand, those over the age of 45 (N=219; 35.4%) and, on the other hand, visitors under 24 years old (N=216; 34.9%). The third age group are visitors ranging from 25 to 44 years old (N=184; 29.7%).

Table 2: Sample description according to Gender

GENDER	N	%
Man	291	47,0
Woman	328	53,0

TOTAL	619	100,0
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Source: authors' own creation.

Regarding gender, more than half the visitors are women (N=328; 53%) and the other portion are men (N=291; 47%).

Table 3: Sample description according to their Level of Education

EDUCATION	N	%
Primary; Basic General Education; Compulsory Secondary Education	32	5,3
Baccalaureate , COU, Professional development	231	38,2
University	342	56,5
Total	605	97,7
Missing Values	14	2,3
TOTAL	619	100,0

Source: authors' own creation.

Regarding their level of education, more than half the visitors have university studies (N=342; 56.5%). The following group of visitors, with a significant difference, are the people with pre-university studies (N=231; 38.5%). It is important to note the low participation rate of people with primary education (N=32; 5.3%).

Table 4: Sample description according to their Place of Origin

PLACE OF ORIGIN	N	%
Castile and León	377	60,9
Outside Castile and León	180	29,1
Foreign	62	10,0
TOTAL	619	100,0

Source: authors' own creation.

Regarding their place of origin, most of the visiting public comes from the community itself (N=377; 60.9%). In second place, there are the visitors from other

places in Spain (N=180; 29.1%). For their part, foreigners are the group with the lowest percentage of accumulated visits (N=62; 10%).

4. RESULTS

4.1. Use of devices and social networks during the visit

The analysis of the use of devices made by the visiting public based on their ages allowed us to observe interesting habits. With 12.5%, it can be noted that those under the age of 24 are the ones with the lowest rate in “No device”, in other words, these are the ones who most frequently use devices. The next age group that stands out for using a device is the 25-to-44-year-olds (21.7%) and, finally, those over 45 years old show a percentage of 25.1%.

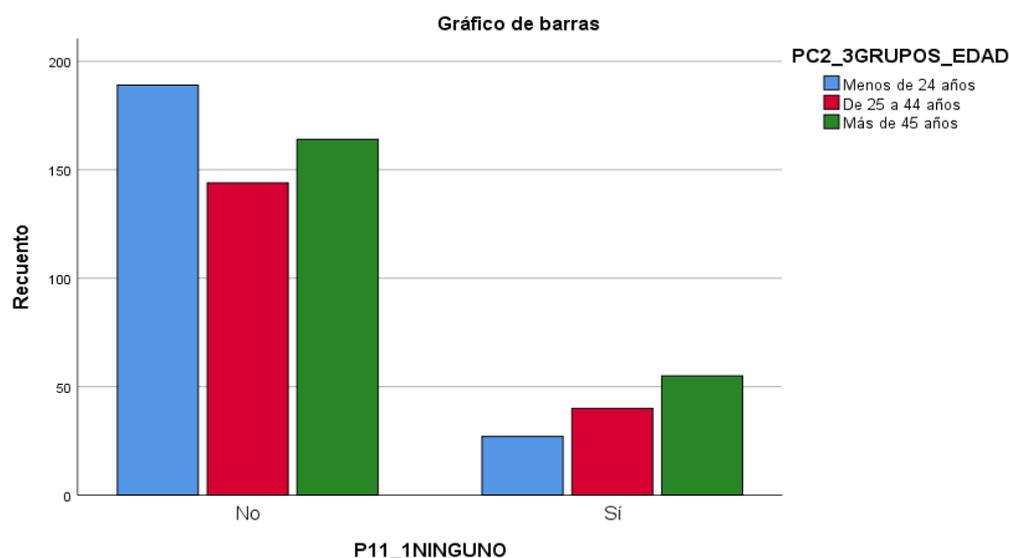


Chart 1: Histogram of the variable “No Device”

Source: authors' own creation.

64.4% of the age group under 24 uses a tablet or smartphone while visiting museums, 50.2% of the age group over 45 makes use of these devices, followed by visitors from 25 to 44 years old (48.9%). However, if we break down the data by museums, there is a clear difference between them; in the Museum of Burgos, 85.5% of visitor under 24 affirm using a tablet or smartphone during their visit, followed by 75.3% of visitors over 45, and 70.7% of 25-to-44-year-olds. The use rates are lower in the Museum of Salamanca, 72.8% of 25-to-44-year-olds state not using these devices, followed by the group of visitors over 45 years of age (68.3%), and those under the age of 24 (60.6%).

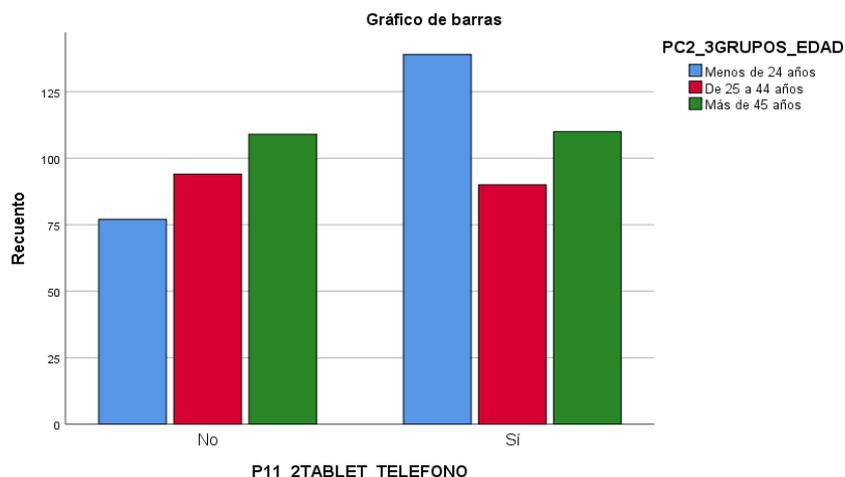


Chart 2: Histogram of the variable “Use of Tablet or Smartphone”
Source: authors’ own creation.

In conclusion, visitors under the age of 24 are the ones who use a device the most. The younger the visitor, the greater the use rate of devices. Tablets and smartphones are the most used devices during the visits. For its part, the Museum-Casa Lis in Salamanca stands out due to the limited use of devices during the visits, maybe because of the prohibition on taking photographs or recording videos inside the building.

On another note, addressing the use of social networks according to ages, we can note that among the people who share a post about the museum they visit, 32.6% range from 25 to 44 years old, followed by those under 24 (30.6%), and visitors over 45 with 16.9%. That is, there are low interaction rates regarding the action of sharing a post about the museums on social networks.

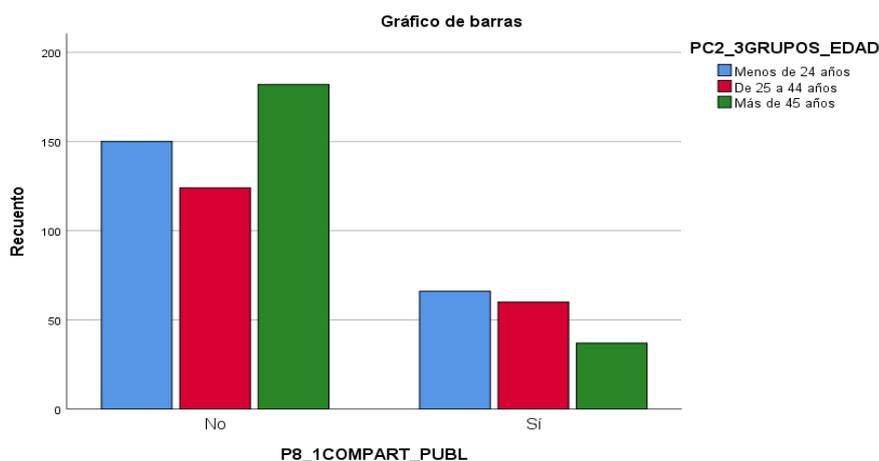


Chart 3: Histogram of the variable “Posting on Social Networks”
Source: authors’ own creation.

For their part, 34.7% of visitors over 45 claimed to have participated in a museum event or game on social networks, 10.9% of 25-to-44-year-olds stated to have participated, and only 6.9% of the group under 24 years old has done it. Once again, people over the age of 45 exhibit the highest participation rates on social networks, 11.4% mention the museum they visit on social networks, and only 5.4% of 25-to-44-year-olds do it.

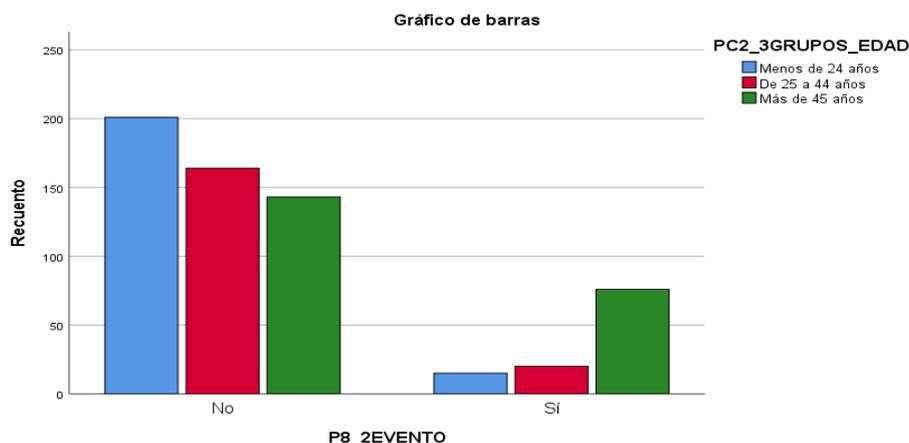


Chart 4: Histogram of the variable “Participation in Event or Game”
Source: authors’ own creation.

If we analyze the results by museums separately, the findings vary slightly. In the Museum of Salamanca, out of the visitors who post photos ($p = .006$), significant differences can be noted in the age group from 25 to 44 years old, with 16.3%, this is the age group that posts photographs of the museums they visit with the highest prevalence.

In conclusion, the older visitors are, the higher their interaction with the museum’s social networks is. However, although people over the age of 45 exhibit higher social network usage, their interaction with the museum shows limited prevalence.

4.2. Visiting public preferences based on their profile

The analysis of visitors’ preferences according to their age shows that out of the visitors in the sample who visit museums from 0 to 1 time a year, 55.1% are under 24 years old, 50.8% from 25 to 44, and 14.6% over 45 years old. Out of those who visit museums from 2 to 4 times a year, 40.6% are under 24 years of age, 33.3% from 25 to 44 years old, and 19.4% over 45. Out of those who affirm visiting museums from 5 to 7 times a year, 1.4% are under the age of 24, 4.8% from 25 to 44 years old, and 5.6% over 45 years old. Out of the visitors who state visiting museums more than 8 times a year, 2.9% are under the age of 24, 11.1% from 25 to 44 years old, and 60.4% over 45 years old.

Table 5: Sample description according to visit frequency based on age

FREQUENCY	Under 24 years old	From 25 to 44 years old	Over 45 years old
0 to 1 time a year	55,1%	50,8%	14,6%
2 to 4 times a year	40,6%	33,3%	19,4%
5 to 7 times a year	1,4%	4,8%	5,6%
More than 8 times a year	2,9%	11,1%	60,4%
TOTAL	100,00%	100,00%	100,00%

Source: authors' own creation.

To conclude this section, we can point out that the highest cumulative percentage for all the age groups is concentrated in the frequencies ranging from 0 to 4 times in visits to the museums that comprise the sample, with those under the age of 44 accumulating the highest visiting rates within these bands. On the contrary, people over 45 years old (60.4%) affirmed visiting museums more than 8 times a year.

4.3. Assessment of digital resources according to visitors' age

Taking into account the assessment of the digital resources provided by the museums in the sample, we observed that the group over 45 years old (42.5%) is the one that claims to agree the most with only using the Museum's website to find practical information (working hours, prices, reservations), followed by the group of 25-to-44-year-olds (37.0%), and visitors under 24 years old (35.2%). The indifference of the group under 24 years old regarding this information is also noteworthy, with a percentage of 39.8%, followed by 25-to-44-year-olds (37.0%), and finally, the group over 45 years old (31.1%).

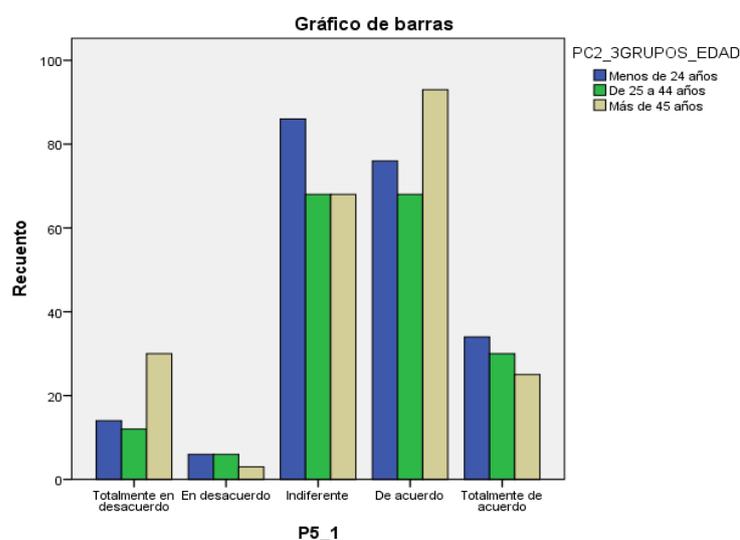


Chart 5: Histogram of the variable “Only using Museums’ website to find practical information (working hours, prices, and reservations)”

Source: authors’ own creation.

For their part, 47.5% of visitors over 45 years old affirm to have looked up for information about the collection and the images of the artwork on the website, followed by those under 24 years old (26.9%), and the group of 25-to-44-year-olds (26.1%). On this occasion, 25-to-44-year-olds (43.5%) exhibit the greatest indifference rates, followed by those under the age of 24 (38.9%), and then by the age group over 45 years old (32.4%).

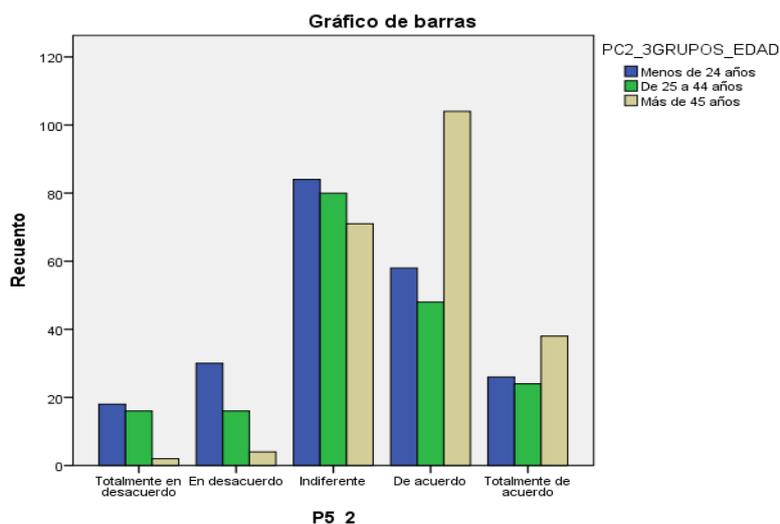


Chart 6: Histogram of the variable “I look up for information about the collection and the images of the artwork on the website”

Source: authors’ own creation.

To sum up, the younger visitors are, the higher their interest in the interactive content on museums’ websites is. However, the older age groups (45 years and older) are the ones who show the greatest interest when it comes to assessing the websites, their content and the information offered, being those under the age of 24 the ones who exhibit the greatest indifference rates towards the web resources of the museums in the sample.

When it comes to assessing social networks, 42.5% of visitors under 24 years old state not following very often information about museums on social networks, in second place, we find 25-to-44-year-olds (32.6%), and, finally, those over 45 years old (21%). In other words, the group over 45 is the one that follows the social networks of the museums they visit the most, and the group from 25 to 44 years old exhibits the greatest indifference rates (42.4%). Specifically, 69.5% (agree and completely agree) of those under 24 years old think that social networks allow creating an interaction with museums that did not exist before, followed by 25-to-44-year-olds (68.5%), and by

those over the age of 45 (65.3%). Indifference rates in this question increased as the age of visitors was higher.

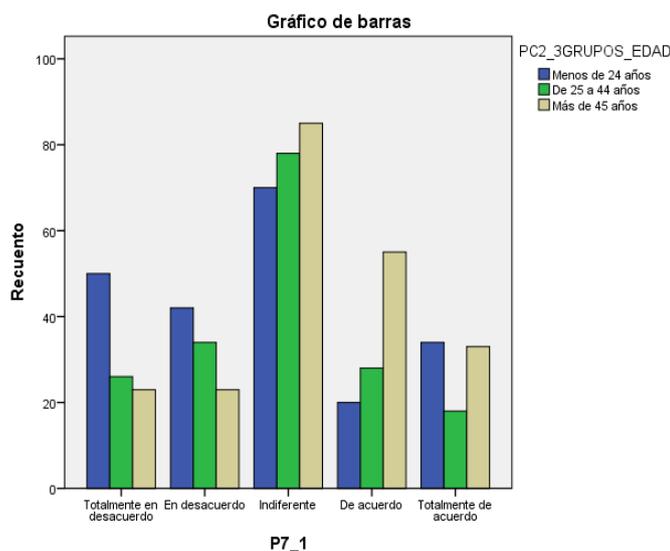


Chart 7: Histogram of the variable “I do not often follow information about museums on social networks”
Source: authors’ own creation.

It can be concluded that visitors under 24 years old are the ones who follow the social networks of the museums they visit the least, although they do assess positively the use of social networks and interactivity. Visitors over the age of 45 are the ones who follow them the most and place greater importance on museums’ social networks.

Taking the age into consideration during the assessments of virtual visits, we observe that 39.3% of visitors over 45 years old agree that the museum they have visited exploits and takes full advantage of virtual visits. On the contrary, the other two age groups stated to disagree with this aspect more frequently. Specifically, 32.6% of 25-to-44-year-olds and 24.1% of visitors under the age of 24 believe that the museums they visit do not fully exploit virtual visits. Furthermore, regarding the indifference rates shown, all the groups stood out for exhibiting high frequencies in this response.

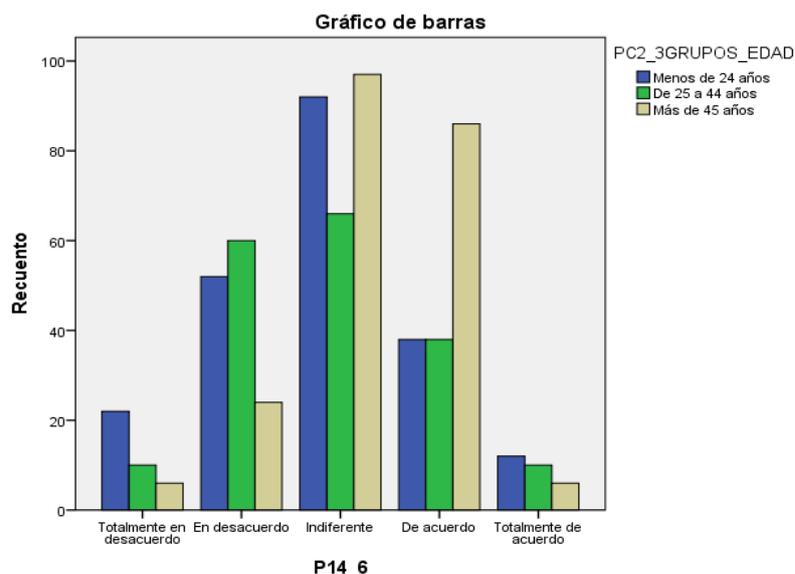


Chart 8: Histogram of the variable “The Museum I visit exploits and takes full advantage of virtual visits”
Source: authors’ own creation.

These results allowed noting that younger visitors are more critical of the use museums make of virtual visits. In addition, older visitors agree on the importance of virtual visits and the support they give during such visits.

4.4. Assessment of the level of personal exploitation and learning process during the visit according to age

The analysis of the assessment of the learning process during the visit according to the ages allowed observing various interesting aspects. To 54.6% of the visitors under the age of 24, digital applications are indispensable for museums today, 46.6% of visitors over 45 also agree on this aspect, and, in the last position, we have the group from 25 to 44 years old with 39.1%. By observing these results, we noted that the older the visitor is, the higher the indifferent rates are.

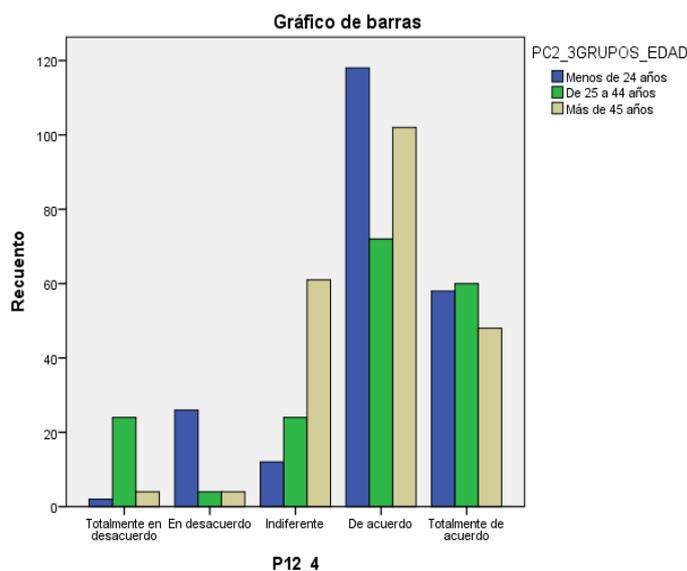


Chart 9: Histogram of the variable “Digital applications are indispensable for museums today”

Source: authors’ own creation.

48.9% of visitors over 45 years old disagree with the question: A museum such as the one I visit does not need to develop digital applications. The second group of visitors who disagrees with this is the one under 24 (39.8%), and finally, 25-to-44-year-olds (32.6%). Indifference rates increase as visitors’ ages increase.

49.3% of the public over 45 years old would like Museum Apps to offer fun and playful games and tours, followed by visitors from 25 to 44 years old (42.4%), and those under 24 (40.3%). Regarding indifference rates, these percentages increase as visitor’s ages increase.

Ultimately, younger age groups believe that applications are indispensable for museums, and as the age increases, so does the belief in the need for applications in museums to promote learning. Although in all the questions, the older age groups tend to be more indifferent in their responses.

5. DISCUSSION AND CONCLUSIONS

The results reveal that the public under 24 years old is the second group who visits museums more often, and in their responses to the questions they state that visits to virtual museums complement physical tours in an informative way, but at the same time, it is the age group showing the least amount of interest in the web content and social networks of the museums they visit, followed by young adults from 25 to 44 years old. Similarly, younger visitors stood out due to the use they make of mobile devices during their visits to take photographs and use their own social networks; it seems that the social networks of the museum do not capture their attention, according to these results.

This finding leads us to think that the apparent disenchantment, attributed to young people, with museums would hide their misunderstanding of the role played by new technologies, which influences on the presence of museums in the contemporary society. Museums' conservative initiatives to promote access of young people go from merely offering discounts, while the most avant-garde strategies are those seeking to implement comprehensive strategies to strengthen their link with young people by recognizing their needs in the first place (Antoine-Faúndezy Carmona-Jimenez, 2014). Perhaps it would be convenient to develop equality schemes (Jones, 2012) that allow creating specific categories with benefits aligned with a young visitor profile such as the Young Friends of the Philadelphia Museum of Art - group of friends of the museum between 21 and 44 years old with common interests, with discounts on events, free classes, and invitations to programs -, or the strategy implemented by the New York Metropolitan Museum that goes beyond the traditional discount on admission by offering a wide variety of advantages just for being young, such as free audiovisual tours or paid internships for high school students. These strategies entail an economic effort for museums, but would facilitate the construction of a meaningful relationship between young people and the museum, thus overcoming the communication barriers with an a priori disconnected public.

Another noteworthy aspect, related to the limited interest of younger visitors in museums' web content, is to determine the particularities of the young public, to identify their needs, and, based on that, to offer content, services, and activities aimed especially at stimulating young people's participation on the digital medium of the cultural entity. That is, not to base the youths-museum linking experiences exclusively on workshops and family visits without taking into consideration the singularities that characterize it as a multigenerational group.

On another note, even though visitors under the age of 24 stand out due to the use they make of mobile devices during visits, they are not the ones with the highest engagement rates with social networks and digital interaction with the museum. It should be noted that, although museums have interactive digital resources such as tablets, and virtual or augmented reality, the most important aspect is for a museum to adjust to any type of public through the predisposition to interact with them, by changing from a passive exhibition to a living entity (Santacana *et al.*, 2016). Regarding museums' social networks, we propose to harness the new information and communication technologies to allow the young public to have a more active role in the communication process of museums. Using museums' website, blog, or Facebook would represent an opportunity to approach young people by informing them about what the museum does, but at the same time to use these platforms as a mirror that reflects what they think and discuss about the museum.

Similarly, the data allow us to verify that the visiting public of the museums in the sample is characterized by taking photographs, indicating their location, sharing photographs, and looking up for information online during the visit. In addition,

men are the ones who perform the most searches on the Internet during the visit, and the higher their level of education, the more frequently they search for information. On another note, although the general public attaches importance to the use of social networks and their interactivity, visitors over 45 are the ones who most frequently follow the accounts of the museums they visit. Moreover, the level of education also influences on the use of devices and social networks; the higher the level of education, the higher the percentage of use.

These observations take us to the current context characterized by the emergence of new information consumption habits, which is modifying how citizens, and, by extension, the audience of museums, attach relevance to current affairs (Casero-Ripollés, 2020). As seen in the results, the number of visitors who access information via social networks and mobile devices is increasing, implying a change in the way of getting informed.

This trend in searching for information and using social networks during visits can be a great advantage or disadvantage for museums if they do not overcome the two main problems affecting the current media panorama: information overload and indifference of the audience. In practice, it would be necessary to work taking into account the fact that citizens' criteria changes since the audience becomes increasingly demanding and critical (Echegaray-Eizaguirre, 2015). Visitors' interests and behaviors are constantly evolving and they do no longer settle for traditional offers. This audience seeks specialized and innovative content adapted to their way of living. Therefore, the museum audience corresponds to a very different profile compared to that of past generations, and determines the consumption of information and the actions performed during the visits to museums.

Thanks to the Internet and social networks, the public of museums has a new way of relating to the space and how they manage their time during their visit, and this aspect affects the ways of accessing content and consuming information in museums. In this sense, museums should work using various strategies that allow content consumption at a level that meets the public's expectations based on their immediate and future interests, and that would have a positive impact on the image that the audience has of the cultural entity.

It is of interest knowing the assessment of the digital resources that a museum offers in order to implement improvements or to correct initiatives that are not generating the impact required. Visitors with higher education levels and over 25 exhibit greater interest in virtual visits to museums, based on the audience analyzed in this study and our findings. We can affirm that, at first, virtual visits are one of the interactive assets that seem to attract the attention of the public-audience of museums the most, but for these technologies to be an attractive asset, they must meet consumers' expectations. Therefore, to analyze big cultural entities that are implementing initiatives related to virtual reality such as the Metropolitan Museum of New York, The Louvre, the Prado Museum, among others, would be a starting point to readapt to the new digital currents led by these museums.

When assessing virtual visits, most of the visiting public agreed that these were valuable; that they complemented the physical visit and allowed people to approach the museum. However, in practice, the museums in the sample did not have a virtual visit option adapted to the needs of today's audience. This situation has been reversed during the first half of 2020 as a direct consequence of the COVID-19 crisis, and we have been able to witness the boost of digital strategies implemented by museums to remain connected to their publics, which could be the origin of subsequent digital strategies.

Advancing in this line, the Louvre Museum announced – due to the indefinite closure caused by COVID-19 – their launching of 360-degree virtual tours, for whoever is interested in visiting this space could do so from their homes. For its part, the Metropolitan Museum in New York offers the possibility of people immersing in a series of six 360-degree videos to experience “the magic of standing in an empty gallery after-hours, witnessing a bustling space in time-lapse, or floating above The Met Cloisters for a bird's-eye view” (MET, 2020). These videos are available on YouTube for Smartphones, computers, and Google Cardboard or VR Headsets.

In Spain, the Prado Museum made a virtual collection with more than 18.000 pieces of artwork available on its website. You can find the author, description, and technical data on each of them; it even allows you to put the pieces in a timeline to see their pictorial evolution. In addition, all the information can be found on the museums' YouTube channel.

This global pandemic can be a crucial moment, entailing economic efforts to capture and maintain both the young public and the audience that is more disconnected from this type of museum experience. But, what do the museums in the sample do? On the one hand, the Museum of Human Evolution of Burgos has launched a virtual tour, which did not have available until then, through 21 spaces of the museum explained by its coordinator, Aurora Martín and the head of didactics, Rodrigo Alonso. On the other hand, the Museum-Casa Lis in Salamanca, which already had a virtual tour available on Quicktime, after the temporary closure of the museum, started to share content, games, activities, and contests as a virtual window through the web, Facebook, Twitter, and Instagram.

These differences between museums that already have a long history of technology at the service of citizens and that have been able to continue maintaining communication and proximity with their audiences in times of pandemic, leads us to reflect on the necessity of managing digital resources in an effective and stable way over time. It entails an economic effort, but would facilitate fluidity in communication and avoid losing potential visitors in times of need.

Therefore, the objective is to help create use and consumption habits, even accustom citizens to do virtual walks through museums and to prevent the pandemic from breaking the communication and interaction mechanisms between museums

and their visitors. The results of our investigation and the contextualization of COVID-19 as a technological catalyzing factor contextualize and demonstrate the acceleration in the change of the communicative and educational paradigm that had already started in the museums of our socio-cultural context. The hustle of cultural spaces and industries continues to be to adapt proactively to the expectations of a society that is subjected to constant changes, and of an audience that is fragmented, segmented, and experiencing a period of revolution. The communicative and educational opportunities for our physical and digital museums are vast, those spaces that are now also called to be the virtual spaces that are at a click away from a global audience that is increasingly avid for the best entertainment, and cultural and museum content as well.

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