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Online Synchronous Model of Interpretive Sustainable Guiding in Heritage Sites: The Avatar Tourist Visit

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Abstract: The health crisis caused by the coronavirus (COVID-19) pandemic created an unprecedented social situation. In the most critical moments, tourism activities were cancelled or reduced to their minimum operation, creating an extreme situation of separation of a country's heritage from residents and tourists. The objective of this work is to propose new options and strategies to reconnect the public with heritage under any circumstance and, at the same time, offer tourism services in healthy, secure conditions. Thus, live-streaming experiences of online interpretative tourist guidance were developed in heritage spaces; those visits were led by real guide-interpreters in a real environment and transmitted for remote visitors. We have called this visiting model the "Avatar Tourist Visit". It is based on tools associated with Heritage Interpretation, Interpersonal Communication, Filmmaking and Audio-Visual Language, and Information and Communication Technologies. The methodological development of this tool was based on Design Sciences Research as the creation of a new procedure was pursued. The result is a sustainable, immersive, interactive, inclusive, unique, and resilient tourism product designed not only for times of crisis but also to connect the public with heritage at all times and ensure universal access to it. In addition, this activity constitutes a marketable experience as a specialized and customizable tourist product.

Keywords: avatar visit; heritage interpretation; sustainable tourist guiding; live-streaming experiences; interpersonal communication; filmmaking; audio-visual language



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1. Introduction

The health crisis caused by the coronavirus (COVID-19) pandemic has brought us to an unprecedented social situation. Public health measures for containment and protection adopted worldwide to prevent the spread of the virus and the pandemic, particularly the measures to reduce social interaction (social distancing; restriction of people's mobility; and suspension of economic, educational, cultural, tourism, recreational, and sports activities; etc.), have transformed people's lifestyles and relationships among each other and towards the environment. The colossal impact this situation has had on the economy is the subject of numerous studies and media articles. In this regard, it should be noted that one of the most affected sectors around the world is the tourism industry. Thereby, during the most serious phases of the pandemic, the hospitality companies (hotels, restaurants, etc.), cultural centres, museums, theatres, libraries, archives, scenic and cultural spaces, exhibition halls, and cinemas in all countries have been closed to the public by legislative decrees. During the "New Normal", some have yet to reopen their doors, while others have done so with strict distancing measures and certain limitations designed to reduce social interaction.

One of the changes this situation brought to the workplace, as well as to the educational and cultural spheres, has been the ultimate incentive for online digital activities through live-streaming platforms and videoconferencing software. Remote working and learning, and virtual cultural and leisure offers multiplied as a reaction and adaptation to

confinement and *#stayhome*. Thus, in less than a year, people became familiar to the new lifestyle linked to Information and Communication Technologies.

With regard to cultural centres, it should be noted that the confinement, i.e., the quarantine, led to the cessation of their usual activities or a reduction to the minimal operation. Nearly 70% of the European museums have increased their online presence since they were closed at the beginning of the pandemic. After 3 weeks of being closed to the public, 80% of the museums amplified their online activity in response to the overall increased visibility of digital cultural heritage on the internet [1]. However, the rapid enhancement of digital services requires the ability to reorganize available human resources and personnel tasks. This is especially challenging for heritage sites with limited resources, resulting in complete disconnection of the heritage from residents and tourists.

Consequently, there is a need to sustain ties that reinforce the cultural identity of citizens under these difficult circumstances as well as keep the tourism sector active, as it is the catalyst for the local economy in destinations with cultural heritage. Moreover, destinations and heritage attractions around the world are raising awareness on the fact that people would still like to visit them, even if they cannot physically be there, and so making use of technology accordingly.

This research hypothesises that it is possible to promote heritage appreciation and foster heritage conservation in society by providing some form of continuous synchronous connection to heritage in a meaningful context online.

Thereby, this work aims to face the challenge brought by this exceptional situation onto the culture and tourism sector, as well as presents a simple model for implementing a real-time interpretive guided visit to heritage sites based on real environments, with a real human guide on site and remote visitors. This model is supported by the tools and principles provided by Heritage Interpretation, Interpersonal Communication, Filmmaking and Audio-Visual Language, and Information and Communication Technologies. We have denominated this visiting model “Avatar Tourist Visit”, which is the first of its kind. The term “avatar” comes from the Sanskrit *avatâra*, referring to an incarnation, embodiment, or manifestation of a person or idea [2].

With this new model of visit, the intention is to propose new options and strategies for reconnecting the public with heritage under any circumstances, while simultaneously offering travel services in a safe environment. In addition, the model provides an opportunity to visit both to people with physical limitations, and to general public when mobility or travel restrictions occur, or when difficulties emerge concerning the access to cultural sites, thereby contributing to universal accessibility to heritage. Finally, this new era should be seen as an opportunity to explore creative options to disseminate and promote heritage, as well as to offer more sustainable, inclusive, and resilient tourism alternatives.

The use of digital technologies in applications for the development of tourist visits to heritage sites is not novel. The concept of virtual visits, as well as virtual museums, either in real environments or in the ones artificially generated through Virtual Reality, have a long history of existence and have proven to be effective tools that ensure accessibility to heritage [3–10]. This way, the visitors are already familiar with concepts such as virtual tours, augmented reality, interactive maps, 360° virtual exploratory tours, or live-stream webcams in outdoor environments. It is noteworthy that these applications have only virtual heritage scenarios, where people are usually not represented. Some applications that introduce interactive virtual agents or avatars (representations or icons of virtual humans) have been proven to have positive effects on users due to the heightened sense of immersion and realism [11,12]. There have even been developments such Avatar applications, where an animated avatar takes the user on a virtual tour of the site. The user can move the avatar around the scene and ask questions about the visit, buildings, etc., to which the avatar provides answers [13].

The advantages of this assistant or avatar being a human, as in the model presented in this work, suggest (1) a more empathetic, attractive, authentic, and immersive experience for the user; (2) job opportunities for the tourism guides in times of crisis, as they can

continue to perform their professional services; and (3) an innovative, accessible, and sustainable option to promote cultural heritage by encompassing a larger audience.

This proposal arises from the experiences carried out within the framework of a Master's Degree in Conservation of Architectural Heritage at the Universitat Politècnica de València (UPV) [14]. Given the pandemic, in March 2020, this academic program had to reformat from an on-site to online education model. These specialization studies in conservation and management of the built heritage are usually based on in situ activities (visits, data collection, fieldwork, etc.) carried out in the heritage sites under study; therefore, it was crucial to look for new models for the sake of having an alternative to on-site activities.

2. Methodology

As stated earlier, the main objective of this work is to develop a model or procedure for an online synchronous tourist visit; hence, it should be designed for sociality, for on-site spaces, and to place effective connection, perspective-taking, and empathy at the centre of this design. Projects of this type are framed within prescriptive research since the purpose of the product/solution is to provide guidelines for their proper implementation, as it is in the case of the Avatar Tourist Visit. Since, according to van Aken [15], the dominant paradigm of prescriptive research is Design Science, the general methodological approach of this work was that of Design Science Research (DSR). This decision is justified by the double goal of this consolidated approach: to construct a new reality or to solve a current problem from the existing knowledge, and to generate new insights [16,17]. Hence, the five stages suggested by the author were followed and applied to our research process (Figure 1):

1. Identify the problem: First, the traditional method of data collection and analysis was implemented to identify the problem. This analysis was based on a literature review and expert interviews. The literature review provided a useful insight into the state of the art and the conditions of museums, monuments, cultural centres, etc., during the pandemic period. It was carried out through scientific search engines, databases, digital libraries, and scientific journals. A lot of information was also retrieved from newspapers and broadcast media. In addition, open interviews were conducted with curators, heritage, and tourism managers, among others. The aim was to identify problems during the pandemic with regard to the operational procedures for visitor management.
2. Understand the problem: This stage consists of recognizing the traditional process followed by visitor management and heritage interpretation sites under normal circumstances, as well as being aware of the problem of cultural disengagement and its consequences caused by the pandemic. Open interviews with experts were also carried out at this stage. A tentative design or the first idea emerged from the awareness of the problem.
3. Develop a solution: Based on the problems identified in previous stages, in this one, it is proposed to design a procedure in order to carry out a live-streaming visit to heritage sites so that it is as immersive as possible and can serve as a way to develop the interpretation program of the site. The design of the visit was developed based on scientific experience and specific field works on the subject of the research group, the review of the existing scientific literature on online strategic communications, as well as consultations with experts from various fields of knowledge.
4. Implement the solution: Once designed, the procedure was subsequently implemented in five heritage sites in València (Spain) of both the cultural and natural type. Preliminary prototypes were obtained from them.
5. Evaluate the solution: A procedure evaluation system was developed to validate and optimize the model. Consequently, an online focus group was created, that was composed of a wide variety of experts and researchers (20) in the fields of Strategic Communication, Heritage Interpretation, and Sustainable Tourism. Based on a quali-

tative discussion with this focus group after each test, the procedure was evaluated on five criteria: applicability, usefulness, immersion (sense of presence: perception of “being physically there”), engagement (involvement), and enjoyment [18–21]. These participative debate sessions were intended to provide suggestions for analysis and progressive improvements of the model procedure. The feedback derived from the evaluation phase (Stage 5) allows to implement the suggested improvements and, therefore, improve the solution (Stage 3) as many times as necessary to optimize the model in a looping process (Figure 1) until obtaining the best-fitting final design.

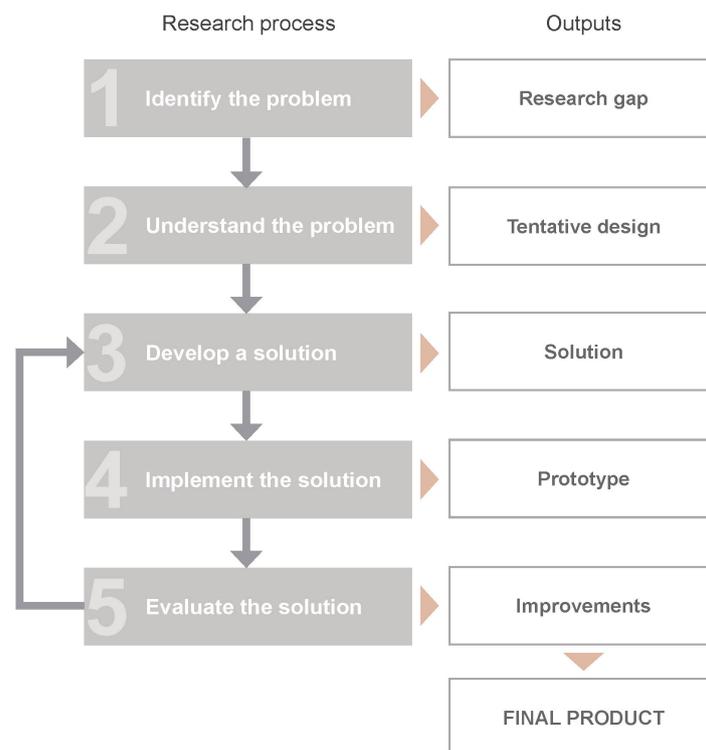


Figure 1. Research stages and outputs according to the DSR approach [15,22].

3. Results and Discussion

The outcome of this research is a procedure for conducting an Avatar Tourist Visit. That is mainly the result of the corresponding online adaptations made for an on-site interpretive visit. To develop this model, the five methodological phases of DSR discussed above were followed.

Regarding the first two phases (Stage 1: *Identify the problem* and Stage 2: *Understand the problem*), the introductory part of this work has already set out the information concerning the obvious problem identified in 2020. At that time, the world was overwhelmed by COVID-19; destinations were closed to tourist activities. Subsequently, other heritage-visit virtual models and ways for connecting people to culture came about.

Stage 3: *Develop a solution* represents the core part of this research, so as to come up with a workable solution; in this particular case, to develop the procedure for the Avatar Tourist Visit, the first thing to do was a bibliographic review of the techniques and tools in the respective research areas to identify solutions that could be adopted into this model. Thus, those useful aspects related to Heritage Interpretation, Interpersonal Communication, Filmmaking and Audio-Visual Language, and Information and Communication Technologies that could contribute to solving the problem were considered, because these disciplines were most actively involved in the creative process.

Next, all personal resources that were involved to set up an Avatar Tourist Visit were identified. The procedure is described below.

3.1. Conceptual Bases to Solve the Problem

3.1.1. Heritage Interpretation

There are many definitions of Heritage Interpretation [23–27], and they all agree that it is an effective informal learning, communication, and management tool, embodied in an Interpretation Programme, aimed at improving and enriching the visitor experience and raising their awareness of heritage by creating cognitive and emotional connections between visitors and the site. Ultimately, it strives to provide the visitor with a pleasant, enjoyable, and memorable visit.

Among the various techniques, means, and activities for developing an Interpretation Programme, a guided (personal) tour is one of the most effective and popular ones because it is a personalized, flexible, and responsive presentation and the best format for conveying emotions. The guided tour allows adapting the style and content of the presentation to suit the visitors' needs and interests [28,29]. Moreover, a good guide-interpreter should ensure an emotional engagement by providing a human dimension to the visit.

According to Shalaginova [30], the main techniques in the construction of information for understanding the Heritage Interpretation are based on the creation of themes, context, and stories. They help to orient visitors in their perception of the heritage site. The theme or message is the main idea that should be conveyed about the site. According to Ham [24], it is based on concepts or thoughts of transcendental significance (capable of recalling other concepts or facts) and relevance. The theme represents something personal and meaningful to the visitor; it is a reality seen through one's own experience. It is based on profound beliefs or universal values shared by all people. The context is the general framework (the big picture) for the information perception where the theme and the story must be inscribed because it is necessary to link the heritage site to larger trends and events. In this regard, it is essential to provide at least a geographical and historical perspective so that the visitors can place themselves in the time and space in which the story takes place and makes sense to them. Stories have always been the most primary method to convey experiences, oral traditions, and knowledge. These are important cognitive events, for they encapsulate information, knowledge, context, and emotion into one complex package [31]. Stories help the visitors understand and engage with the place or objects [25,32,33]. Many institutions, such as the Lancaster County Planning Commission [34], put the focus of Heritage Interpretation on the very fact of telling good stories. Steven Spielberg, the filmmaker, stated: "Audiences are harder to please if you're just giving them effects, but they're easy to please if it's a good story."

All these features and tools were taken into account when developing the Avatar Tourist Visit.

3.1.2. Interpersonal Communication

Guided tours, including the Avatar Tourist Visit, fall into the field of Interpersonal Communication. According to Hooper-Greenhill [35], as opposed to Mass Communication, this concept, among others, is characterised as two-way reactive communication and possible feedback. The target audience in Interpersonal Communication are active small groups or individuals. The Interpersonal Communication that is usually carried out in the development of Heritage Interpretation goes beyond the basic linear transmission model (Communicator → Message/Medium → Receiver), as it incorporates Cameron's feedback loop communication model [36], which is usually developed for museums. It was meant to make sure that the message was received correctly and if it was possible to readjust it if necessary.

Later, this model was refined to meet the objectives of Heritage Interpretation as in the case presented by Shalaginova [30]. The following points were taken into consideration by this author: the feedback principle (if necessary, the guide can provide additional explanations or clarification); role-taking principle (the guide puts him/herself into the shoes of visitors); attention (to obtain information and, therefore, achieve the desired effects); perception (messages are understood as they were intended); motivation (the type

and degree of expected visitor satisfaction); among others. Guided tours are very concerned about these issues. The Avatar Tourist Visit model will have to facilitate interaction as a key element that fosters the social context of cultural experiences and ensures better emotional closeness.

3.1.3. Filmmaking and Audio-Visual Language

Unlike other virtual products, the Avatar Tourist Visit is shot in a real place and shows real events happening; credibility is the key to this live-streaming experience. The trust of the audience in the veracity of the image and spoken narration are critical to this model of visit.

The basic principle on which the avatar visit is based is the easiness; that is, this model of visit does not require much expertise in filming. Nevertheless, minimal technical requirements should be taken into account. Nowadays, great technological advances allow us to create highly professional content with affordable handheld devices.

Attention must be paid to the way this type of visit is filmed. An Avatar Tourist Visit is not a documentary; it is a story about a heritage site narrated by an avatar guide who intends to represent physically the remote visitor in the on-site place. Therefore, the Point-of-View (PoV) filming style was specifically chosen to accentuate the subjective perspective. This style is a film-angle shot characterised by the fact that shows what a character (the avatar guide) is looking at (represented through the camera) [37]. In other words, the camera acts as the eyes of the avatar guide; consequently, the remote visitors see what the guide sees. Therefore, it shows a real-time situation, as well as facilitates the immersion of the remote visitor in space as the height and movement of the camera resemble the point of view of a person when visiting the place. Once the camera is inside the avatar guide's perspective, remote visitors can better experience various emotions with him/her. The only exception when the camera operator must change the filming PoV style to the one more typical of a TV reporter is at the beginning and end of the visit. These are the two instances when the avatar guide looks directly into the camera to create complicity and a sense of reciprocity with the remote visitor.

Undoubtedly, the Avatar Tourist Visit is primarily based on Audio-Visual Language (hearing and sight). Therefore, in addition to visual images, personal verbal and non-verbal communication will be the fundamental elements to be developed specifically to substitute the lack of perception of olfactory, gustatory, and tactile stimuli. Verbal communication refers to the use of words, while non-verbal communication refers to the communication that occurs through means other than words, such as body language or gestures, that can be observed through the camera. In this regard, Pietroni [38] emphasized the important role of narration, recitation style, sounds, visual mood, rhythm, etc., in creating emotions in the audio-visual experience.

3.1.4. Information and Communication Technologies (ICT)

ICT are critical to this model of the visit because it uses a digital channel to transmit information. This section, therefore, addresses the analysis of the digital means and media required for real-time transmission; i.e., live streaming.

Live streaming is the delivery of multimedia contents to an audience over the internet in real-time; i.e., live. In this way, there is a possibility to transmit what is happening at the moment it is happening. Implementing the concept to the avatar visit logic enables the people separated by distances to communicate and share visiting experiences as if they shared the same physical space.

The absolute minimum requirements to perform a live-streaming transmission and to participate in it are a sufficient internet connection and a smart device.

The internet connection plays a key role in the process as the live-streaming outcome greatly depends on it. Sufficient internet speed for streaming (upload speed) and watching (download speed) should be ensured for a pleasant and unobstructed experience. These download and upload speeds are measured by bit rates. Usually expressed by megabits per

second, a bit rate is the number of bits that can be transmitted in a second [39]. As a rule, the upload speed should be sufficiently high so that the live stream is stable throughout the entire process. The viewers, on the other hand, should mainly focus on the download speed to successfully receive the image and the audio.

From a technological perspective, there are multiple options for live streaming. The two most common ones are live-streaming platforms (e.g., Twitch, Facebook live, Instagram live, YouTube live, etc.) and videoconferencing software (e.g., Zoom, MS Teams, Skype, GoToMeeting, etc.). The key to choosing between them lies in the level of engagement or interaction needed between the streamer and the audience.

Live-streaming platforms, and live streaming in general, are suitable for entertaining large audiences; however, they are generally designed for one-way interaction between the streamer and the audience (one-way synchronous live streaming), meaning that only the streamer has a video and audio sharing option, while the audience acts as a spectator rather than a participator. The interaction between them is possible through the comments section.

However, to have a more complete experience, as is the case of an Avatar Tourist Visit, the remote visitors are encouraged to engage in verbal communication with the guide, meaning that they should have the necessary technical support to vocalize their questions and petitions at any time of the visit. As the videoconferencing software supplies both parties with audio-video-sharing options, providing a two-way synchronous live-streaming opportunity, it is the most suitable option for an Avatar Tourist Visit. It should be noted the videoconferencing software, as a rule, does not support zooming in or out. Neither is it designed to cater for large audiences as with every additional viewer the bits-per-second consumption is raised, meaning that the streamer needs a higher upload speed to be able to handle the abovementioned changes along with the possible speed fluctuations. The software works with a fixed bandwidth (the maximum data rate that can be handled by a transmission medium in a second) [39]. Depending on the quality and the type of the meetings, each software requires a different bandwidth.

To estimate the approximate maximum data consumption needed for an hour of live streaming, the maximum bandwidth should be converted from megabits per second to gigabytes per hour. For example, an hour of high-definition group video calling via MS Teams [40] with a maximum bandwidth of 2 megabits per second will require 0.9 gigabytes of data:

$$\frac{2}{8 \times 1000 \times \frac{1}{3600}} = \frac{2 \times 3600}{8 \times 1000} = 0.9 \frac{GB}{H} \quad (1)$$

If the upload speed does not reach the necessary threshold, the audience will experience malfunctions in audio-visual performance reception. More specifically, the experience may range from having sound and visual issues individually, to having them both combined into a single lagging experience. If it is the case, the software usually prioritizes audio quality over video quality. Similar consequences are expected on the other side of the screen; i.e., when the download speed of the audience does not meet the requirements.

Another important aspect to take into account is the network coverage. The same area may have different coverage depending on the providing company. Therefore, before choosing the provider, it is highly recommended to look for a network with the best signal in the area and wider coverage. The fourth- and fifth-generation mobile networks (4G and 5G) are to be given preference, as they permit uninterrupted live streaming due to a reduced latency (the period of time passed from the moment the information is sent from a device until received by another one) and wider bandwidth.

As for the smart devices, the remote visitor needs a screen with speakers (e.g., mobile phone, tablet, computer, etc.) to follow the transmission and a microphone for communication.

Regarding the streamer, the following equipment is needed: a filming device (e.g., camera, mobile phone, etc.) and stabilizing equipment (e.g., stabilizer, selfie stick, etc.), as well as earphones with a microphone as an extra. As for the camera, it should be mentioned that it must have a digital zoom function or a variable focal lens ranging from a wide-angle lens (15 mm–20 mm) to a telephoto lens (70 mm–80 mm). The wide-angle lens should be

used in most visits as it is ideal for capturing the dimensions of the heritage spaces and increasing the feeling of proximity to the details. These types of lenses tend to exaggerate the perspective but, since the audience is sensually absent from the space of broadcast, this slight exaggeration acts as compensation as it adds a spectacular touch to the image. As the zoom itself lowers the quality of the image, the use of a telephoto lens or zoom is advised to be limited to those moments when it is necessary to highlight an element far from the camera.

In addition, the filming device needs stabilization for smooth shots. Stabilizing equipment reduces the shaking effect produced when recording while in motion, as well as minimizes pixilation and allows the software to process the image faster; therefore, the quality of the video received by remote visitors should be relatively good.

As for the audio, it can be captured directly by the microphone of the filming device or by an additional external microphone. It is preferred to use Bluetooth earphones with a microphone as, in case of background noise, the earpiece will help the program to focus on the voice of the guide, as well as pick up ambient sounds in silence.

3.2. Communication Process: Streamer and Receivers

The personal elements that make up the Avatar Tourist Visit model are not very different from those of a typical on-site interpretive visit. Accordingly, there are the streamer (the avatar guide assisted by a camera operator) and the receiver (the remote visitors).

The content and the interpretive storytelling are discussed in another section.

3.2.1. Avatar Guide

An avatar guide is a real person, an intermediary between a heritage site and a remote visitor. This person provides reliable information, interpretive meanings, and the story about the site. In addition, to contribute to better content delivery and provide a participative experience through increased engagement and involvement, the guide must interact with (1) the environment, making his/her senses available to communicate his/her sensations and feelings to the audience; and (2) the remote visitors through asking and answering questions.

The avatar guides should be able to imagine and visualize themselves in another person's situation or circumstances and, thus, understand their perspective, opinion, or point of view. They should make use of forms of interpersonal communication; for these reasons, they must have a high level of visual (non-verbal) and auditory (verbal) communication skills.

3.2.2. Camera Operator

Unlike on-site visits, this type of presentation requires a collaboration with the camera operator to carry out filming and transmission control tasks. An operator is a person in the physical scene accompanying the avatar guide. However, highly skilled and trained avatar guides could take on these tasks while performing their primary duties.

To begin filming, the first thing the camera operator must do is to plan the stage; this implies becoming acquainted with the heritage site to be filmed in order to identify specific shots, camera movements, and placement, as well as being aware of the lighting on set, the content to be presented and touring pattern to be followed.

3.2.3. Remote Visitor

The audience is an active meaning-maker who receives the interpretation provided by the avatar guide at the heritage site. The options of a single receiver or a group (multiparty communication) accessed from different remote devices are possible.

This avatar model is based on the principles of "remote presence" [41,42]. This concept refers to a system that allows people separated by distance to communicate, collaborate, and understand each other as if they shared the same physical space without losing effectiveness over time. This model aims to provide an immersive experience of real places

and an authentic and reliable feeling of “being there” by interacting with people remotely in real time.

In the avatar visit broadcasting scheme, there is no common environment for interaction between remote visitors, but we believe that this social dimension can be significantly expanded and strengthened in the near future. Vayanou et al. [43] stated that the use of awareness-supporting technologies that are traditionally applied in collaborative systems might also contribute to the creation of cultural experiences to enhance their social dimension. Additionally, they explained that enabling local and remote visitors to share their experiences in real time (“hybrid visit”) and to communicate with each other could potentially provide a very promising use case, offering important socialization opportunities for vulnerable groups who are currently facing the risk of being left out.

3.3. Procedure for Developing the Visit

Regarding the steps for adapting the interpretive program to the avatar model, the results are presented below.

3.3.1. Main Interpretive Theme

This element does not require adaptations for the avatar visit, as the site interpretive theme(s) identified in the Interpretation Program are the same regardless of the format in which they are performed. It should be considered that the profile of the audience of the avatar visit may possibly be unknown prior to the visit; either way, it is likely to be more diverse and varied than in on-site visits, which, as a rule, are concerted groups with similar personality traits. Therefore, it is recommended to use a core meaningful theme focused on shared universal values that can be easily and quickly assimilated by remote visitors.

3.3.2. Context

In addition to themes, good framing is also a powerful tool for allowing visitors to understand heritage sites. In the avatar visit, the geographical and historical framework should be reinforced as the remote visitor may be less familiar with the context than an on-site visitor who has previously known the destination and had the opportunity to access other direct sources of information. Hence, in order to locate the remote visitor in time and space, it is necessary to identify the geographic and historical icons and landmarks that are familiar, friendly, and easy to understand. To do this, it is recommended to use graphic resources, such as maps, aerial photographs, building plans, etc., as they provide the minimum necessary background information to help easily capture details of the site. The avatar guide should show these resources on camera and point to the areas to be highlighted while presenting them.

Additional key, simple, informative materials previously sent to remote visitors should also be useful for becoming familiar with the site.

3.3.3. Storytelling

The storytelling is the special kind of narrative of interpretive programs. It is characterized by working conscientiously on the intellectual and emotional connection with the purpose to engage the visitor. It is the opposite of presenting a historical chronological narrative of facts because these do not capture the imagination or stir emotions [44]. Hal-laham [45] stated that story development includes key themes as well as storytelling or narrative techniques that support the theme.

According to UNESCO [46], in storytelling, a point of view is the perspective from which a story is told. As mentioned previously, in the avatar visit, the point of view is that of the avatar guide, and the latter must provide the best authentic “insider’s view” of the site for achieving a memorable experience.

In an avatar visit, the storytelling is presented orally and conveyed in real time. Undoubtedly, it is very different from writing for print (panels, brochures, etc.). Consequently, the stories should be narrated in an engaging storytelling format: providing information by

using evocative language and including human experience with a highly emotional overall tone. The reason for it is the fact that the remote visitor's engagement is more complex here than on a conventional visit. In order to achieve these objectives, the presentation of the avatar guide is to be narrated in the first person.

As for the intellectual connection, it is noteworthy that the avatar guide finds it more difficult to predict the previous knowledge and interests of the audience than a guide on a conventional visit. Hence, in order to generate two-way interactive communication with the remote visitor, the avatar guide must facilitate participation (questions, shared reflections, etc.) at all times. This is to encourage them to use their experience, to think for themselves, and to personally enrich their understanding and facilitate the integration of new knowledge into previous cognitive elements (memories, ideas, beliefs, feelings, models, past experiences, etc.). To do this, during the greeting and presentation of the avatar guide, remote visitors will be instructed on how and when the two-way communication will be established. Either way, it should be noted that this system has certain limitations since the two-way communication can take place only through audio; visually there is only one-way communication from the guide towards the remote visitors but not vice versa.

Emotional connection is perhaps the most difficult element to deal with in an avatar visit, as nothing can replace the feelings and emotions that arise when physically present on-site and personally appreciating it. In recent years, many studies have been dedicated to the exploration of the potential and complexities involved into the design of immersive storytelling experiences that can activate deeper personal and emotional connections with cultural heritage in virtual presentations [47–49]. An Avatar Tourist Visit is a little bit different; the transmitter is a real person, who always helps in the conveying of emotions. However, it must be considered that, as already mentioned, the remote visitor uses only sight and hearing as receptor bodily senses.

Therefore, the emphasis should be placed on enhancing the visual and auditory resources. In terms of visual language, the operator is encouraged to provide inspirational scenery (locations, type of filming shots, camera movements, rhythm, etc.), while the avatar guide should make use of non-verbal communication to support the narrative discourse. Verbal communication, in turn, must be based on a highly suggestive narrative; in this sense, there are very suitable radio techniques (voice, vocal expressions, volume, tempo, etc.) that help convey mystery, tension, etc. Sound effects or music can also be incorporated.

The storytelling to be narrated must be planned and should follow the structure of the written story. Therefore, it is necessary to create an *Introduction* in order to describe the interpretive topic, theme, and context. In addition, it must provide a "hook" that gives the remote visitor an incentive or reason to continue pursuing the story.

The *Middle* addresses the plot by developing the interpretive sub-themes. Therefore, several interpretive stations (3–4) should be devoted to that. These interpretive stations provide structure and sequential flow to the main body of the story, as well as dynamic progression on the interpretive theme. The communication between the guide and the audience is encouraged at the end of each interpretative station so that the avatar guide can convey the information without hindrance.

The *End* is what the remote visitors take home with them. It will determine the audience's opinion of the visit. Therefore, at the end of the visit, the main interpretive theme must be stated in such a way that ensures the achievement of our interpretive objectives.

The storytelling process should be appropriately reflected in the screenplay (or film script), along with other audio-visual actions, filming aspects, and scene requirements of the Avatar Tourist Visit.

3.3.4. Touring Pattern

Once an advanced version of storytelling is available, a touring pattern needs to be designed to adjust the interpretive sub-themes at the different identified interpretive stations. It is important to analyse the touring pattern to be followed on a heritage site as it is crucial to control the order and rhythm of the avatar visit. In this way, the touring

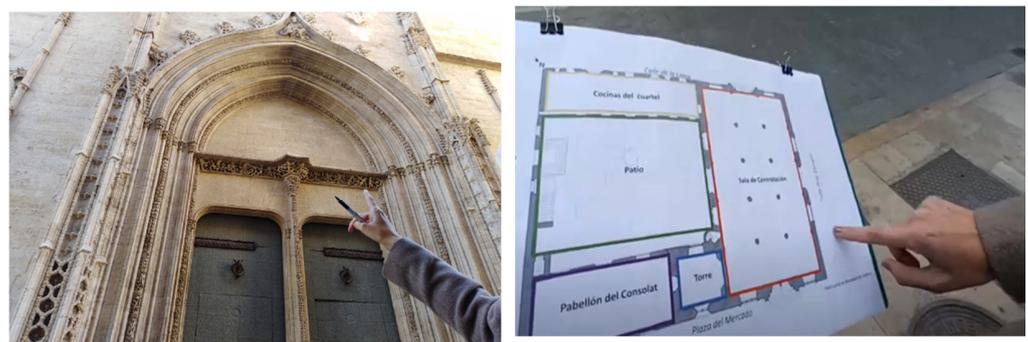
pattern will also shape the development of the screenplay. The spatial arrangement of the heritage elements can also influence the filming dynamics. As an advantage, it should be noted that the avatar guide controls the interpretive sequence and can reach and narrate places that conventional visitors cannot access under normal circumstances.

It is recommended to design a touring pattern that takes up to one hour to be completed. There are many case studies on the optimal duration of a visit, but setting an average duration depends on many local factors. For example, for non-captive audiences, interpretive activities of approximately one hour are planned, which is the approximate time that attention can be kept in an entertained way. It is also suggested to structure the visit, using a total of around 5–6 interpretive stations (welcome and farewell stations plus 4–5 interpretive stations to develop the storytelling).

3.3.5. Filming the Live-Stream Visit

When filming an Avatar Tourist Visit, shots must be well-framed, following the rule of thirds [50]. Given the different types of film shooting, below are those most recommended for an avatar visit:

- *Big and full shots*: This open shot will be used for the sequences that describe the environment and thereby giving the idea of the scale and spatiality of the place.
- *Medium shot*: Framing the avatar guide from the waist up to emphasize the guide's expression; it is specifically designed for the welcoming and farewell to the visit.
- *Close-up shot*: It is used to specifically highlight some detail or elements. One advantage to be highlighted is, as Das [51] suggests, that this kind of filming allows seeing details that people would normally miss. This shot can be useful to show small details about an architectural element, to explain or draw the audience's attention to a specific object, etc. Another useful aspect of this close-up shot is the one that is employed to display complementary contextualization elements, such as documents, maps, elevations, and floor plans, etc., that are displayed to the camera at different parts of the route so that the audience is spatially oriented at all times. It is suggested that these shots include the hand of the guide showing the relevant details to be highlighted (Figure 2).
- *Upside-down shot*: It is characterized by the fact that the camera is directed towards the sky to show the height of the building or the facade of a monument. It gives an idea of the size and dimensions of the heritage element; it produces an effect of splendour and grandiosity (Figure 2).



(a)

(b)

Figure 2. Different types of shots filmed during the Avatar Tourist Visit in the Lonja de Mercaderes de València: (a) upside-down shot of the East gate; (b) close-up shot of the floor plan of the building (Photography: M. Darés, 2021).

On the other hand, the camera operator must keep a steady hand at all times to achieve smooth and precise camera movements. On an avatar visit, the most common camera motions are:

- *Travelling*: It is a tracking shot sideways-camera movement, which, in our case, was taken while walking. The camera physically moves, following the subject. On a narrative level, carrying the camera in hand produces a great sense of realistic motion and realism. Thus, most of the visit is taken by a big shot (in which the avatar guide's figure is not fully displayed) that shows the space as the camera moves through it, moving forward.
- *Panning*: This technique allows to present an image wider than the display (an expansive view that exceeds the gaze) by rotating the video camera horizontally from a fixed position. This is very useful for creating a sense of action during the avatar visit. The motion effect provided by this camera movement is similar to that of a person when he/she turns the head from left to right and it draws remote visitors into the story.

In the meantime, the importance of sound quality must be emphasized in filmmaking. It is absolutely necessary to ensure that remote visitors can clearly hear what is happening in the heritage scene. The ambient sound naturally present in the atmosphere surrounding the visual image are also recorded simultaneously with the avatar guide's speech. It is important to include them as they give the audience an opportunity to become aware of space and time. Nevertheless, the distracting background noise must be eliminated as much as possible. The intentional absence of sound at certain points in the visit makes the audience focus on the visual content.

3.4. Implementing and Evaluating the Procedure

Once the preliminary design of the Avatar Tourist Visit is completed, the Stage 4: *Implement the solution* was carried out in five case studies in València (Spain):

- Religious ensemble of San Juan del Hospital (Spanish Cultural Asset of National Interest);
- Palacio del Marqués de Dos Aguas—Spanish National Museum of Ceramics González Martí (Spanish Cultural Asset of National Interest);
- Valencian Archaeological Centre of L'Almoína;
- Lonja de los Mercaderes de València (UNESCO World Heritage Site);
- Túria River Natural Park (Valencian Regional Natural Protected Area).

These assets were selected for the following main reasons: they hold the highest level of national or regional protection of cultural and natural heritage; they have a regular, strong visitor inflow; and they present different heritage characteristics.

The implemented visits of this work were carried out through video conferencing via Microsoft Teams. Faced with the unexpected shift from on-campus to online instruction, UPV recommended using Microsoft Teams through the Office 365 Enterprise license for all the synchronous learning activities, which enabled to organize on-line lessons through videoconferencing with a large number of people connected simultaneously [14].

The first three pilot visits were made for the focus group of experts as remote visitors, who reviewed the experience and assessed the procedure in terms of the five established criteria: usefulness, applicability, immersion, engagement, and enjoyment.

The results derived from the discussion with the focus group revealed the originality, adequacy, and the potential of the procedure, as well as the smooth functioning of technological media. The suggestions for improvement the early prototypes mainly consisted of increasing the avatar guide–remote visitor interaction, improving camera movements, and enhancing emotional engagement techniques through the avatar guide performance in order to reinforce immersion and engagement.

Following suggestions from the focus group members, the procedure was optimized, and a new version was created. Thus, the second version was implemented in the Lonja de los Mercaderes de València (Figure 3) after designing an accurate interpretative storytelling and touring pattern, developing a detailed planning of the visit, and conducting several previous rehearsals. This time, in addition to the focus group's expert evaluators, the transmission was provided to a large generalist audience (more than 100 people). It was a more complete and more complex experience as live music was incorporated and the

emotional connection was deeply conveyed through interpretative storytelling, avatar guide performance, and filming techniques.



Figure 3. Avatar Tourist Visit to the Lonja de los Mercaderes de València streamed through Microsoft Teams. Photography: Antonio González (Photography: A. González, 2021).

The avatar guide and the camera operator were streaming directly from the mobile application of Teams, which is almost as inclusive in terms of conference-managing options as the desktop version. The main drawback, however, from a cinematic perspective, was the inability to zoom in or zoom out.

After the visit, the remote visitors were requested to evaluate the new prototype, particularly to know the perception of the general public. This was done through the Teams chat tool, where the remote visitors were asked to express their opinion about the visit and to comment on aspects related to their feeling of being physically at the site (immersion); personal connection with the guide and ease of interaction (engagement); and attractiveness, dynamism, general satisfaction, and interest to repeat the experience (enjoyment, loyalty). Participation was considerably high, and their opinions were very favourable, even the ones coming from people who were unfamiliar with the new technologies. From the analysis of the received comments it could be stated that the experience was beyond the quality standards of a regular visit, and in terms of engagement and enjoyment, it was much better than an on-site visit with an audio guide. The reason for this lies in the good performance of the avatar guide, based on a very well-prepared interpretative storytelling, which can even compensate for the shortcomings of the non-presence. It was concluded that the feeling of immersion mainly depends on the guide's performance and his/her communicative skills, and can be complemented with some filming techniques and graphical and sound extras. The degree of enjoyment depends above all on the attractiveness of the heritage resource and entertaining interpretive storytelling, on the sensory and emotional sensations transmitted by the guide performing, and on the itinerary, the structure, and the rhythm of the visit.

Finally, an outdoor visit was carried out in the Natural Protected Park of the Túria River. The interpretation of natural and cultural resources was jointly addressed during

an itinerant tour with several interpretive stations (Figure 4). In this case, the evaluation of the focus group concluded that it is necessary to develop a touring pattern which natural and cultural attractions are framed within a manageable area that is not too large. In other words, the attractions should be relatively close to each other so that there is not too much transit time between them, since there is the risk of losing the remote visitor's attention during these moments and finding it challenging to re-engage with the storytelling. It should also be noted that these outdoor visits are more prone to unforeseen events. Therefore, the avatar guide should always be quick to deal with any circumstances. The process of filming these visits offers the possibility of panoramic shots, even though these kinds of shots should not be overused, as they can take the remote visitor's attention away from the focal points. Either way, it is noteworthy that one strong advantage of natural environments is that they can remotely stimulate the senses of smell and touch through the suggestive sounds and images of flowers, plants, wet soil, breeze, wind, sun, water, etc.



Figure 4. Avatar Tourist Visit to the Trenches of the Spanish Civil War in Túria River Natural Park (Paterna, València), streamed through Microsoft Teams (Photography: A. González, 2021).

Another issue discussed by the research team after verifying the model's proper functioning and the public's acceptance was the potential to convert it into a marketable tourist product. The preliminary results of this analysis inform on the actual possibility of booking

and purchasing such visits through e-commerce platforms. Thus, a guiding company can offer these services and allow the customer to make a visit reservation by selecting the day and time and using a payment gateway. It is a very relevant option to the tourism sector as it makes it more resilient, especially in times of cancellation of on-site activities. It should be remembered that in the stages of the “New Normal”, after forced restrictions on the mobility of people due to the pandemic, visits to monuments, museums, cultural centres, etc., began to be allowed on an individual level (not in groups); therefore, the avatar guide could work on these phases by offering his/her services to remote groups and scholars. In any case, it could always be a product of the permanent portfolio of local guiding companies, museums, or heritage sites because it is a specialized and customizable product to cope with any physical constraint. One of the main conclusions of the focus group evaluation in this regard was that “as a model that facilitates universal access to resources it does not seem likely to lose its demand after the pandemic situation is resolved”.

4. Conclusions

The Avatar Tourist Visit model is the result of applied research in the field of Strategic Communication that contributes to the dissemination and resilience of the tourism, heritage and educational sector on a permanent basis. While making final reflections of this work, some ideas emerge that are very consolidated for the future to scale up this tool.

First of all, unlike the exciting virtual products that present the heritage sites, the Avatar Tourist Visit is interactive and personal. It is presented by real people who are in real-world scenarios and have a live interaction with the audience in real time. In addition, to raise the heritage knowledge, it focuses on achieving an emotional and sociable connection and an authentic feeling of “being there” (physical presence), so that the remote visitor can enjoy a quality experience. All this makes it an immersive, interactive, customizable, unique, and inimitable experience, providing more emotional closeness than the current virtual tourism products.

It is noteworthy that the Avatar Tourist Visit has been very useful in the development of educational activities in courses related to heritage management. Thus, in the UPV Master’s Degree in Conservation of Architectural Heritage, field trips and study visits have been satisfactorily resolved during the pandemic period thanks to this model of visit. In addition, alternating with the on-site model, this kind of visit will remain on the scholar agenda for years to come, as it allows remote students to follow practical lessons in a simple and interactive manner.

This idea allows foreseeing its successful implementation in the tourism sector. Although nothing can replace the on-site visit, it is still true that, in times of mobility or accessibility restrictions, this model allows the development of interpretive guided visits that can be online and commercially available by using inexpensive off-the-shelf hardware and thus offer tourism products that meet the needs of certain groups. As Buhalis and Sinarta [52] stated, these kinds of real-time, personalised, and interactive online services facilitate consumer’s engagement and adds value to brands’ competitiveness. Additionally, this model offers personalized, enhanced access to heritage sites that were still completely inaccessible due to expensive travelling costs or physical difficulties. It can, therefore, be considered a sustainable, inclusive, and resilient model with a high potential impact for cultural heritage institutions that can keep their audiences connected in a more personalized way.

In terms of technology, it can only be said that, with simple technological tools of common use and which are universally accessible, it is possible to solve the problem of live synchronous transmission, allowing the development of a nonintrusive visiting model (which fully guarantees the heritage preservation) and provide promotional opportunities to the heritage site on a large scale. Furthermore, given the unprecedented speed of ICT development, the technology and its seamless use will, undoubtedly, lead to everything becoming better, simpler, and of higher quality.

Adapting interpretive visits to the avatar model is not difficult for educational institutions and guiding companies; only some expertise is required for interdisciplinary planning

of the visit, as well as adequate training for the avatar guides. As for the heritage sites, this model is said to be able to be deployed anywhere with a decent internet connection.

For the time being, the model has certain notable limitations that offer room for improvement for future developments of the model. As mentioned before, two-way communication can take place only through audio and not video, the visit design is not prepared for a hybrid version combining on-site and remote visitors, and only highly skilled and trained avatar guides could conduct a visit without the help of a camera operator. Moreover, time zone differences between the remote visitors and the guide can be an obstacle to marketing the product in distant countries.

Despite this, it can be said that the Avatar Tourist Visit model represents a new paradigm in the way we understand tourist visits. It can never replace an on-site interpretative visit, nor a face-to-face physical interaction with a guide, which is the most engaging way to experience heritage sites. Nevertheless, it is a creative alternative to a very important part of the offer for the visitor and, more importantly, this model is an excellent tool for creating and maintaining connections between people and heritage and fostering the cultural dialogue in any circumstance. Therefore, the initial hypothesis is fully accepted.

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