

Absent Theaters: A Virtual Reconstruction from Memories

P. Castillo Muñoz, A. Lara Ramírez

Abstract—Absent Theaters is a project that virtually reconstructs three theaters that existed in the twentieth century, demolished in the city of Medellín, Colombia: Circo España, Bolívar, and Junín. Virtual reconstruction is used as an excuse to talk with those who lived in their childhood and youth cultural spaces that formed a whole generation. Around 100 people who witnessed these theaters were interviewed. The means used to perform the oral history work was the virtual reconstruction of the interior of the theaters that were presented to the interviewees through the Virtual Reality glasses. The voices of people between 60 and 103 years old were used to generate a transmission of knowledge to the new generations about the importance of theaters as essential places for the city, as spaces generating social relations and knowledge of other cultures. Oral stories about events, the historical and social context of the city, were mixed with archive images and animations of the architectural transformations of these places. Oral stories about events, the historical and social context of the city, were mixed with archive images and animations of the architectural transformations of these places, with the purpose of compiling a collective discourse around cultural activities, heritage, and memory of Medellín.

Keywords—Culture, heritage, oral history, theaters, virtual reality.

I. INTRODUCTION

NEW devices that make use of Virtual Reality (VR) and Augmented Reality (AR) technologies have characteristics that provide new perspectives and methods for the development of cultural or pedagogical projects of diverse nature. In recent years, numerous interventions involving these technologies have been carried out [1]. Some of these interventions have been taken as examples of applications that can be reached with research projects such as Absent Theaters.

A research group from Pompeu Fabra University of Barcelona specialized in Synthetic, Perceptive, Emotional, and Cognitive Systems, led by researcher Paul Verschure, developed in 2012 a project that reconstructs the Bergen-Belsen, one of the concentration camps and Nazi extermination, that was active between 1943 and 1945. The project has several phases: an application of AR for the open field, an application for enclosed spaces and a sound installation. The group of researchers elaborated a pedagogical model for teaching history in educational institutions, which

helps to reinforce the memory and the interactive experience with the contents of history subject. Users of the application can walk by the land where before it was the Bergen-Belsen camp, while they are doing the reconstruction virtual tour [2].

Other projects have been carried out by students themselves, such as the virtual reconstruction of Hiroshima in 1945. The project is a VR experience that recreates the city as it was 5 minutes before the nuclear bombing explosion. This project was developed in 2018 by a student's group of the Fukuyama Technical High School, who searched for historical photographs and did interviews on some survivors to rebuild this episode [3].

In Latin America, researcher Daniel Thul Dalmás virtually rebuilt the 1950's aspect of the Conventillo de Mediomundo, a building that existed in Montevideo, Uruguay. This building was built in 1885 as an economic solution housing for low-income social groups as immigrants, rural workers, and Afro-descendant people. Afro-descendants had the greatest ownership of the property, using it as a major place for their cultural manifestations, especially the *candombe*, the main expression of African music and dance in Uruguay. The project consisted of a virtual reconstruction, through historical photographs, both interior, and exterior, of the Conventillo de Mediomundo building, the same building that was demolished in 1978 during the military civic dictatorship [4].

For the specific case of a virtual theater reconstruction, in 2018 the Hunter Living Histories research group, from the University of Newcastle in Australia, led a project to virtually reconstruct the appearance of the Victoria Theater in 1891, the year it was opened to the public. The theater stopped working in 1966 and since then it has been abandoned. The research group reconstructed the interior and exterior of the theater, while they are advancing processes to rebuild the physical structure of the building. The interdisciplinary group has compiled and digitized all the theater archives and has proposed another project that seeks to recover the old musical scores of what was heard in the theater [5].

Increasingly, cultural spaces, initiatives, and projects are betting on offering the public completely different experiences. The new technological tools have been a great support to involve with greater public force, making them participants in the contents of the projects. Interactive museography has been implemented with greater impetus in museums on almost every continent in order to reconsider the way of interacting with audience, and how to achieve a greater impact on it. Although education is a field that has not been alien to these technological advances, perhaps it is museums that have dabbled much more in this regard, to the point of

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talking about a 4.0 museography, which recognizes the capacity of the different technologies to create immersive experiences incorporating digital content in the exhibition space, or even outside it, mainly promoting interactivity and participation [6].

VR technology has been implemented in an accelerated manner in recent years. However, the invention of VR and AR artifacts and procedures come mainly from developed countries. The companies with the highest number of patents come mainly from the United States, Japan, South Korea, Germany, and China. It also occurs in the research field on these technologies. In this sense, the challenges that Latin American countries assume are to expand the offer in the generation of virtual contents, to have more trained personnel for simulation of complex 3D scenarios, and to increase public and private resources for science education, technology, and culture.

According to the latest report that has been prepared on this subject in Medellín, carried out in 2016 by the CT + i Observatory of the Ruta N Corporation, the number of researches on these new technologies in Colombia has grown effectively since 2013. Although the main focus of these investigations alludes to the area of medicine [7]. From 2016 to 2020, VR projects have significantly advanced in Medellín. However, most of the proposals are intended for entertainment and advertising; more projects are still needed for fields as culture and education.

Absent Theaters are considered one of the first projects in Medellín that use VR to investigate historical and heritage problems, such as the history of the theaters Junín, Bolívar, and Circo España. The methodology consisted of using these new technological tools with the pertinent methods of oral history, which gives a new imprint to previously made researches on architectural heritage in the city. Although these cultural scenarios, Circo España, Bolívar Theater, and Junín Theater, were not the first in the city of Medellín (up to 7 Circus Theaters have been located prior to the Circo España; and the Bolívar Theater, meanwhile, was built in the same place where the old Coliseo or Principal Theater was found), they were cultural spaces of great importance for the city during much of the twentieth century.

Circo España was built in 1909 and designed by the architect Horacio Marino Rodríguez; it was the stage for bullfights, cinema, music concerts, plays, boxing, opera, zarzuela, circus shows, among others. The inauguration of Bolívar Theater was in 1919; it was for a long time the municipal theater of the city, being the ideal place for presentations by different opera and zarzuela companies, musical concerts, political speeches, poetic recitals, and other events. The Junín Theater was designed by the Belgian architect Agustín Goovaerts and opened on October 4, 1924; this theater was the stage for a great variety of artistic activities, among which opera, zarzuela, theater and film projections stand out. The Junín also received great world-class musicians, orchestras and soloists such as the New York Philharmonic directed by Leonard Bernstein, as well as important choirs, dance, and ballet companies from different

countries in Europe, Asia, and America. These three theaters shared a few years of activity until 1939, at which time the Circo España was dismantled. The transfer of the circus theater outside downtown was in 1941, where it remained until 1949, when its demolition was resolved. The end of Bolívar Theater was in 1954; after long discussions on its possible restoration or reconstruction, it was determined its complete demolition, leaving the area where it was located as a parking lot, a function that it still fulfills today. In the case of Junín Theater, the Gonzalo Mejía Building, in which not only the theater but also the Europa Hotel was located, it was sold in 1967 and immediately demolished to make way for the Coltejer Building construction, the skyscraper that became the symbol of progress of Medellín for the rest of the twentieth century.

In spite of the fact that disappearance of these three theaters did not generate a process of citizen protests, it did leave a deep wound in the generations that lived these spaces somehow and a great regret in the new generations for their architectural loss. Nonetheless, the cultural and artistic importance of these places cannot be recognized in the constant regret about their loss. These theaters were great recipients and generators of culture for the city at that time, so it is necessary to delve deeper into their history, rather than the nostalgia that their absence brings.

II. VIRTUAL RECONSTRUCTION

For the Dutch psychologist and neurologist Paul Verschure, memory needs spaces, because specialty helps to narrate history better. In The Future Memory Foundation, Paul Verschure and his work team believe that “now that we are entering the post-testimony era, we have to resort to advanced technologies such as VR and AR so that sites become the portal of historical sources” [8]. His approach is based on a scientifically founded vision of memory and human experience.

When the spaces disappear, as it was the case of the three theaters in Medellín, the memory of these spaces does not disappear, on the contrary, in the words of one of the witnesses who was interviewed in this research: “the memory is not deleted, the physical part of the buildings is deleted but the memory is not erased, the story is still there” [9]. This is why the Absent Theaters project wondered about the memory of three buildings, searching about the stories and experiences people lived there.

The investigation began with the realization of a three-dimensional model of Junín Theater, based on two photographs of the interior of the theater taken by Jorge Obando in 1925, currently guarded by the Photographic Archive of the Pilot Public Library of Medellín. From these two photographs, the interior spatiality of the theater was reconstructed on a computer using photogrammetry techniques, thus producing 360° images to be shown in VR glasses to the general public.

The two photographs were published for the first time in the magazine *El Gráfico* No. 723, page 359, which is found in the archives of the National Library of Colombia. These two

photographs have been the benchmark, since 1925, to cite the Junín Theater in books, newspaper articles and in academic research. This is why the perception of any researcher, or interested in this theater, has easily been to believe that this interior space remained intact during the 43 years of life it had.

With Bolívar Theater and Circo España, the elaboration of three-dimensional models was easier due to a greater number of available photographs. However, in the case of Circo España, the architectural modifications evidenced in the photographic images were not indicated in the different architectural investigations carried out previously.

The initial idea of the virtual reconstruction was to allow people who did not know these theaters to virtually observe the interior of these places; and for those who had the opportunity of visited them as children, to give them the chance to be back inside the theaters. This objective changed with the first immersive experiences of people who had visited the theaters when differences were noted between what was seen in the VR glasses and the spatial remembrances that these people had in their memories. In these interviews, for example, architectural changes were evident inside the Junín Theater that was not previously registered. Likewise, much more detailed testimonies were found about theaters' interiors (building materials, colors, and smells). Therefore, the investigation developed new questions that required a more exhaustive documentary sources search that considered as the main source the oral accounts of those who had attended the theaters.

III. ORAL HISTORY

The importance of oral sources in historiography arose from the need to cover large historical gaps. For a long time, orality was considered an auxiliary science that sought to supplement, replace or complement other documentary sources. Nonetheless, oral history has become a strong criticism of historical discipline, positioning itself as a new way of doing theory and social science [10].

At the beginning of the research on the three theaters, it was found that most of the present information in the historiography had been obtained from documentary sources such as newspapers, periodicals, photographs, books, hand programmes, official documents, among others. In relation to these theaters, important data had been identified, mainly about its construction process, subsequent demolition, and the cultural and artistic relevance that, thanks to the quality and quantity of shows that were presented, had at the time. Nevertheless, the previous investigations did not emphasize how these buildings were spatially, what transformations they had in the period of their existence, much less, how these places marked the memory of those who knew them.

Perhaps one of the great values of oral history is that it contributes to the construction of stories about the most recent history and the history of the present. The research question around these theaters took a more concrete course when we began to think about spaces as spaces lived, inhabited and recorded by certain people still living in the city.

To consider the inseparable relationship between memory and space was essential to recognize oral sources as the main sources of this research. VR technology was, in this way, the methodological tool that generated conversations with people over 60 who had gone to these theaters. The immersive experience of being back inside the places that they visited in their childhood and youth was the starting point to deepen their memories and experiences as inhabitants of the Medellín of the last century.

The search and selection criteria were simple: people who had visited one or more of the three theaters. One visit to the theaters was enough for their memories to be part of the testimonies. At the same time, there was an intention to find people who had a much more direct relationship with these places; people who inhabited theaters in some way (workers, most frequent visitors, artists, and neighbors).

Little by little, a network of witnesses was formed, in which each one of them recommended friends, family or acquaintances. Around 100 people between 60 and 103 years old were interviewed. The interview methodology was semi-structured: although specific questions for all witnesses were established, prior to the conversations with them, it was also possible to ask spontaneous questions that arose at the time of each conversation.

After almost 40 interviews, some topics were identified in almost all of the testimonies. In consequence, a series of analysis categories was established to give a sense to the accumulation of memories recorded in the narrations of the people interviewed. The analysis categories contributed to this research to the extent that it answered the most relevant questions that were raised since the beginning of the project.

Oral sources by themselves lose meaning and rigor when they are not contrasted with other types of historical sources. Parallel to the realization of the interviews, sources such as the press (El Colombiano, El Espectador, El Correo), periodical publications (Pantalla, Micro, Sábado, El Gráfico), photographs (Foto Rodríguez, Jorge Obando, Gabriel Carvajal, Carlos Rodríguez, Gonzalo Escovar, Francisco Mejía, Benjamín de la Calle, Manuel Lalinde, León Ruíz, Hermann Oppenheimer), hand programmes, and sound archives were consulted.

It should be noted that there is no fund, collection or archive specialized in theaters or in cultural buildings in Medellín. This is why finding documents about these places is a marathon task in which the search was beyond the most recognized documentary centers in the city. The antique dealers and private collections were crucial in the search of traces and signs of the three theaters. In these private collections, there were more hand programmes, photographs, sound archives, film archives in 8 mm and 16 mm, press clippings, and some objects that belonged to these theaters.

The analytical exercise of contrasting the sources was always based on the testimonies from people interviewed. But the reason is not reduced to the intention of verifying oral narrations. The testimonies are neither true nor false; they are valid in the way that they help to think about the urban history and cultural heritage of the city. When the work on memory

constituted the basis of a certain historical investigation, it is necessary to consider specific limits and challenges: the memory is selective and fragmented, it cannot exist if there is no forgetting, and there is a subjective element that approaches the myth and the imaginaries that the witnesses have about themselves and about spaces they remember.

All conversations were recorded by audiovisual media with the purpose of compiling all the testimonies in an oral sources archive that could be accessed at all times during the investigation. Fragments from the interviews related to the analysis categories, previously defined, were transcribed. The tool used to give a certain order to the testimonies was the interface platform, a tool created for this investigation to group all interviews in different ways and to enable different readings of the accounts.

Working with oral sources means worrying about individual memory but also asking about collective memory. The immersive experience generated by virtual reconstruction is a way to address the memories of each witness as an individual but in fact, when the witnesses remembered their childhood and youth, they talked about themselves as people who belong to an entire generation that lived in a different city and time from where they live now.

The intention of the interface platform was to give a sense to those individual memories and make them a common story. Not as the only one, the absolute one nor the true one, but as a common story recorded by the witnesses interviewed: all of them, somehow, not only lived these three spaces but also inhabited and walked by a different downtown of Medellín. These are some assessments that were made of what emerged from each analysis category:

A. Emotional Reactions

Emotions arose with much more momentum when the interviewees lived the immersive experience of going back inside the theater where they went as they were children or young. The feeling of returning to these spaces, thanks to VR technology, generated various emotional reactions such as amazement, laughter, crying, nostalgia, rage, among others. It is from this emotionality that generates memories that the interviewees felt confident and started to narrate their experiences in the theaters.

B. Spatialities

This category allowed to group all testimonies that contributed to the research questions about how these buildings were and how, those who knew them, remembered them. Issues such as capacity, architectural aspects, sensations inside the theaters (smells, colors, acoustics, size), and the relationship that these theaters have with other nearby buildings, are some of the more relevant perceptions from the oral narrations. Both testimonies and photographs found in the investigative process provided most of the information about the spatiality of these places.

Within the mathematical processes that are carried out for the elaboration of the images made by the computer for the virtual reconstruction of the theaters, there is a specific one for

the calculation of the light on the objects; it is called the irradiance map. This term refers to a specific method to efficiently calculate the irradiation of diffuse surfaces of objects in a three-dimensional scene. Irradiation is a function that is defined for any point in 3D space and represents the light that reaches this point from all possible directions. The irradiance map is, therefore, a collection of points in 3D space that stores the indirect lighting information calculated at those points. This irradiation is different for each point and in each direction since not all parts of the scene have the same detail in indirect lighting so that in the irradiation map there are areas of greater definition due to a greater degree of information (see Fig. 1). Under this concept we based this investigation, where that *cloud*, which is the irradiance map, is made up of partial photographic images and memories of the interviewees. The memories of the witnesses are incomplete as are the images shown on the irradiance map. However, the sum of oral stories and images forms a panoramic view of the visual object that, at a distance, allows a virtual reconstruction of the theater's interiors and their physical transformations in their activity time.

C. Public

This category refers to how the witnesses did live the experience of visiting the theaters: how witnesses and their contemporaries did dress, what kind of behavior had the public of the events, what people frequented the different locations of the theaters, which were the plans they used to do before and after going to the theater, what kind of foods and drinks they used to consume, among other aspects. With the VR glasses many of the people interviewed recognized the place where they were located when they attended the theater, the people they went with and other personal anecdotes that emerged in the conversations.

D. Context

It is the category that places the stories at a specific time and spaces. These are the narrations that mention specific data on each of the theaters (location, important dates, information on their constructions, reforms, and subsequent demolitions, etc.), transformations of downtown of Medellín, among other comments about the dynamics in the city at that time.

E. Other Theaters

Remembering Circo España, Bolívar Theater or Junín Theater, the witnesses always remembered other theaters in the city they also used to visit in their childhood and youth years. This fact allowed to look for tracks about other theaters that existed in the center and periphery of the city. Medellín was a city full of theaters that had a very diverse and accessible cultural offer for all types of public, regardless of the socioeconomic position they affected. Most of the theaters were places where cinema was screened. Almost all the theaters in downtown and in other neighborhoods were abandoned and closed, giving way to the rise of the cinemas, or multiplex, in the shopping centers that began to increase since the 1990s and still doing it today.

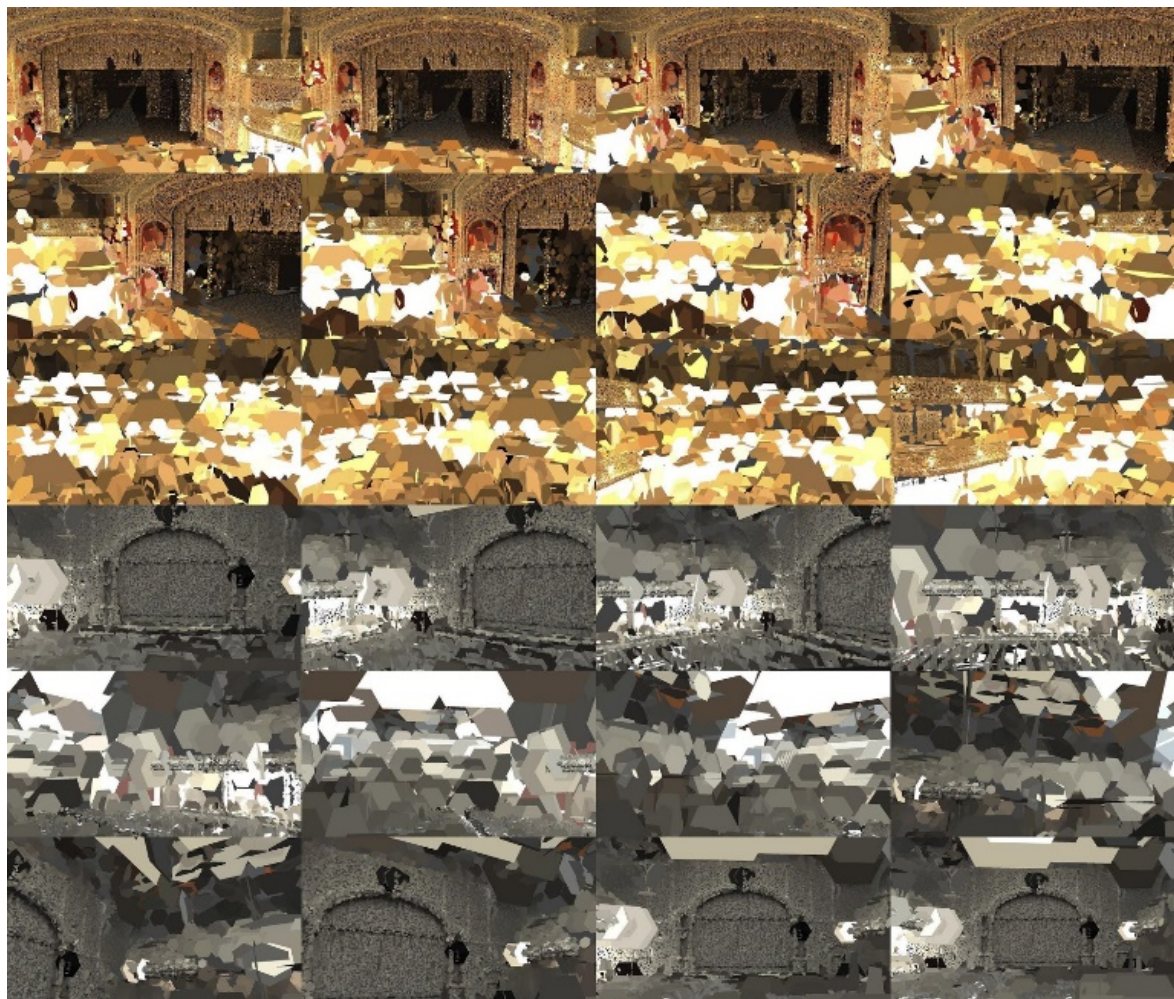


Fig. 1 Bolívar and Junín theaters irradiance map. Computer-generated graphic

F. Events

In the memory of most witnesses, there was a vivid memory of the events they attended. Different arts and shows were shown in the three theaters, becoming important places for the aesthetic and cultural experience for those who frequented them. Not only artistic works from other countries were presented, but national and local works were also held, becoming the ideal setting to boost the city's artistic and cultural development with film projections, solo musicians, great orchestras, theater, opera, zarzuela, operetta, magicians, circus, bulls, boxing, ballet, and poetry recitals among other cultural activities. In addition, the theaters were used as convention centers where, for example, conferences, graduations and other events of schools and companies, political meetings, and beauty reigns took place. The events that the witnesses remembered were described with a great sensitivity, which allows affirming that the social function that each of these theaters had was much deeper. In the words of one of the interviewees, “the theaters were part of the sentimental education because when you go to the theater you compromise all the senses, soul, and body in an aesthetic fact, it is a special sensation. It is a sensation that is not lost in life”

[11]. Another witness also highlighted how important was his attendance to events he could go at the Junín Theater: “I could never find a way to repeat that experience” [12].

G. Characters

Characters are all the people identified in the oral memories as the people who had a closer and more direct relationship with the three theaters. In some cases, people who were interviewed were characters themselves; in other cases, interviewees were the people who talked about the characters because they were close or familiar to them. Workers such as the administrator of Junín Theater, those in charge of the coffee shops and candy stores of Bolívar and Junín, the assistant of the bullfighters in the Circo España, the Junín box-office and the doctors in charge of the three theaters, were some of the characters found. In addition, this category includes artists, musicians and dancers that had presentations in the theaters, becoming living witnesses of this research.

H. Collective Memories

Within the remembered events, it is possible to identify shows that were seen for several of the witnesses; events that they looked back as unforgettable moments in their lives;

events such as the New York Philharmonic concert directed by Leonard Bernstein at the Junín Theater; the multiple presentations of the magician Fu Manchu in the Bolívar Theater; the two presentations made by the American contralto Marian Anderson at the Junín Theater; the presentations of the Vienna Boys Choir at the Bolívar Theater; ballet dancers like the Cuban Alicia Alonso and the Russian dancer Tamara Taumánova, at the Bolívar Theater and the Junín Theater respectively; the zarzuelas of the Spanish Faustino García's company; among others.

There are other memories that have been inherited, so they are events that the interviewees did not witness but the stories that their elders told about them remain in their memory. This is the case of two events that took place in the Circo España: when the silent films were shown on a screen placed in the middle of the arena, the audience were divided in two, according to the ticket they have bought, therefore some of them had to read the movie subtitles backward. The other event was the concert of the Argentine singer Carlos Gardel presented for three consecutive days, a few days before the airplane accident that ended his life.

1. Criticism, Reflections on Memory and Heritage

Once the witnesses remembered not only the theaters but also the way they lived in the city, they answered the questions about the demolition of this type of buildings and also about the transformations that downtown of Medellín has had. All the reactions to these questions were taken as critical, as a certain position towards the past, which assumes a present and anticipates a way of thinking about the future. From this category, it can be concluded that the demolition of these spaces responded to multiple factors that are part of the process of modernization of the city, a city in which the public space was ceased to be emphasized and in which there is evidence of a change in the public and private initiatives that require the cultural and artistic development of its inhabitants.

The interviewees lament the loss of the theaters. But their position does not remain in the lament; the reflections that arose in the dialogues about the importance of this type of spaces for the city were recurring during the conversations, as well as they mentioned other heritage buildings that have also been demolished and constitute part of an unavailable heritage for the new generations. For this reason, they insist on the need to create more projects on memory and urban heritage of Medellín.

IV. HERITAGE

Absent Theaters is a project that does not conceive heritage as an object of nostalgia, loss or regret. Heritage has a much more practical function: it is the legacy of the past that allows us to think about the present and the future of the next generations. A future without a past implies a serious crisis of meaning because without this return to the past it is not possible to work on memory and heritage. Memory and, in this sense, also heritage, "is not the simple remembrance of the past, but that remembrance of the past that is use to intervene in a critical way the present and the wishes for a

future (...). In all memory, in addition to remembrance, there is also anticipation and criticism" [13].

The notion of heritage is dynamic as its variables and conceptions constantly change according to the time and space in which the subjects that construct this notion of heritage are located. In fact, the concern for heritage said in these terms, is relatively recent. It is in the last decades of the twentieth century and the years of the twenty-first century that this concern has been so much more strength.

We witness a moment of crisis of modernity; the conception of heritage does not escape this crisis. The acceleration and speed in which modern subjects live have made that issues such as history and heritage, become also concepts in a critical state. Technological advances, political and economic models have hindered social processes that need different times, such as the construction of collective memory.

The job of building a collective memory is to make those past experiences available learnings that can be transmitted to different generations. But in times of crisis, memory is also inserted in this state. Memory projects proliferate and, at the same time, it becomes increasingly difficult to think about how that memory can be transmitted. Walter Benjamin had already announced it since the years after the First World War: humanity is immersed in a crisis of experience, in a crisis of memory and, therefore, in a crisis of narration. But if we recognize the language of experience as the language of narration, what remains to be done, in the face of such a crisis, is to strive to narrate past experiences but always narrate with the aim of transmitting learning for the present and future of society [14].

In the specific case of Medellín, it is necessary to think more critically about the urban heritage and memory of the city. What is called the historical downtown of the city is a place that has undergone a large number of transformations in a very short time. In the mid-twentieth century, the city went from an urban planning based on public spaces and common goods, to a town planning in which "the preeminence of the vehicle began to displace man as the foundation, not so much from the planning but from the investments and the execution of public works, especially roads" [15].

Fast avenues and highways were privileged, based on the North American model of urbanism. The scarce conservation of the architectural heritage fits with the foreign models that were used by investors, builders and local governments of that time, which favored other aspects. Another highlight in Medellín is the power of the engineers to work over the work of architects. As a matter of fact, architecture schools barely gained importance until the second half of the twentieth century [16].

What can be verified with the research that was carried out about the theaters is that urban history of Medellín has been modified by the permanent destruction of the architectural heritage. Transformations in downtown Medellín, the city elites' ideals, the eclecticism when using or copying architectural and urban planning models from abroad, and the continuous destruction of the city's architectural legacy, are present concerns because there is a lack of reference points for

the identity and collective heritage for its inhabitants. In other words, most of the architectural heritage of the city, especially the historic downtown, has disappeared, demolished or radically transformed and with much more force in the last decades of the twentieth century and the twenty years of this twenty-first century. Among the hegemonic discourses of progress, modernization, and more recently innovation, Medellín is configured as a city under construction, and the architectural heritage that exists is still at constant risk of being left out of the principles of protection and conservation. Certainly, it is not enough to preserve and protect the old buildings of the historic downtown. The disclosure of heritage today has great challenges with citizens:

“The heritage, as such and *per se*, is not relevant for the vast majority of citizens, with the differences that, paradoxically, arise after the irremediable disappearance of it. (...) It becomes important when articulated with social, cultural and community projects of specific population segments. The architectural heritage requires not only of a legal and technical support that is after its declaration but of pedagogical processes, of disclosure, of activation, of reinvention, combined with the rescue, conservation, and restoration operations” [17].

That is why it is necessary to consider heritage as an issue that can connect and interest different generations. One of the interviewees, an architect who has worked for years in the heritage fields, said it in his words: “I began to understand that there were transcendental things, not because they were beautiful or ugly but because people love them. For me heritage is that” [18].

Absent Theaters is a project that focuses in the disclosure of heritage; however it also enrolls in other fields of heritage, in this case, digital heritage, because it proposes new debates by using VR technology to generate digital content that allows us to discuss absent heritage sites and those patrimonial sites that still remain in the city.

One of the main uses of digital heritage is the digitalization of cultural and architectural heritage through technologies such as those used in this research project (3D and VR modeling). Among the great contributions of digital heritage, it is, on one hand, worth highlighting its improvement to the construction of identity and, on the other hand, to the dissemination of cultural and pedagogical contents with a language that takes distance from language that is too academic, scientific, monotonous or difficult to reach for certain types of audiences. “The objective is to evoke feelings in the public through the most advanced scientific and technological means and provide the public with products that show a high degree of cultural and artistic taste, technology, emotion, and value” [19]. Absent Theaters is, in this sense, a project on digital heritage, thus generating new digital content, respecting the bases of a historical research and promoting the application of its contents in areas such as education, tourism, and the dissemination of cultural and artistic heritage of the city. The result of this research is not only the construction of 3D models of each one of the theaters, there was also the development of the interviews interface platform, which

becomes a digital archive of oral memory that can be used for future research and creative projects who seek to reach the public with greater sensitivity.

V. CONCLUSION

From the question about the missing patrimonial spaces, which in this case were three theaters of Medellín, the need arose to deepen the historical gaps, to give new senses of these spaces that no longer exist in the city. But this search did not attempt to elaborate a positivist account of these places but instead proposed to seek other meanings to the history of these theaters and, above all, to dialogue their history with different generations that inhabit the city today.

Absent Theaters was a research project that involved thinking about history in a different way, breaking the traditional schemes in how historical investigations are frequently developed. There were two crucial components in this research that propose new debates for the historiography:

- 1) The protagonists of this project were the living witnesses who met the theaters and, with them, the stories that emerged from their memories.
- 2) The new technologies used as the virtual reconstruction of the interior of the theaters, the VR devices, and the interface platform to classify and integrate the oral narrations.

New technologies allow to approach history, heritage, and memory from three temporal dimensions: past, present, and future. In this sense, the importance of the research project lies in the possibility of generating conversations between different generations, as well as generating multiple readings that, from the present, can be made on the past and the future desired for the city. The aforementioned reaffirms the intention of using technologies not as an ultimate goal, but as a means to generate social impact content.

The future market for VR and AR technology seems to be promising in many sectors. The acquisition of hardware and software will be increasingly easier, which means thinking more seriously about the contents and fields of application that projects want to reach, as the massification of these technologies will begin to grow at an accelerated rate. It is necessary to think about the possibility of transforming the achievements of scientific researches, specifically historical, and create more original digital content for the benefit of society.

After conducting this investigation, 3D models that have a greater interaction in the VR glasses were reconstructed. These models were designed for generations that did not know the theaters. It is a multimedia where the public can: be immersed in other interior spaces of the theaters (such as the foyer, the gardens, the library, the stage, among others); visualize the reforms that the theaters had at different times in their history; observe the assembly of old photographs in the theater's interiors; and listen to fragments of the stories told by the interviewees. It should be noted that the digitalization of heritage is not only for VR devices, it is also possible to make multiple animations with the virtual reconstruction models performed.

Possibilities of generating content with digital heritage are many, as are its applications. This is an example of one of many investigations and possible interventions about heritage buildings and spaces that have disappeared in Colombia, specifically in Medellín.

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