IMPACT OF INTEGRATION OF DIGITAL TECHNOLOGIES IN LOST ARCHITECTURAL HERITAGE VISUALIZATION IN POST-CONFLICT SOCIETIES

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ABSTRACT:

Technological developments in architectural visualization and advancements in digital applications that uses Geographical Information Systems (GIS), Virtual Reality (VR) and Augmented Reality (AR) platforms allows integration of digital technologies in heritage visualization more than ever before. Particular advantage of the integration of these digital technologies could be seen in the lost architectural and urban heritage visualization. Since these buildings or historic towns do not exist or simply altered in a way that the historical aspects of these heritage places could not be captured anymore, these digital technologies generates a valuable platform in order to experience these non-existing buildings as they were many years ago.

One of the major objectives of this research was to assess the contribution of recapturing lost architectural heritage for cross cultural understanding, place-identity and heritage relationship. In order to assess this research question, participants were selected as population exchange descendants of 1923, that took place between Turkey and Greece. As one of the primary port of deportation and as major cultural and economic centres of early 1920s, Izmir and Thessaloniki provided valuable research area with their similar historical developments that resulted by the loss of many heritage buildings. Accordingly interviews, focus group studies and participant observation has been performed with conservation decision makers and population exchange descendants by using various digital models of lost historic buildings from Izmir and Thessaloniki. This allowed a comparative analysis of the impact of the use of digital technologies as part of heritage visualization of lost buildings.

This paper aims to discuss the significance of using various digital technologies while visualizing lost architectural heritage in the particular case of post-conflict societies.

1. INTRODUCTION

1.1 Defining Heritage

The theoretical framework of 'heritage' differentiates between different scholars in terms of the several associated terms and definitions (Marmion et.al, 2010) yet it is an idea which can easily evolve into a contested subject with the production of identity and power (Harvey, 2006). "Concern for the past" Turnbridge et. al's (2000) definition of heritage, represents a curiosity for the tangible, such as architecture or other physical artefacts, and intangible components of the lives of the people prior to our lifetime. Hardy (1988) identifies heritage as cultural traditions, as well as the artefacts inherited from the past. On the other hand, Whiteland (1990) describes heritage as accumulated experience, an educational encounter and a link with the previous generations. Ashworth et al (1990) defines heritage as an urban product, an assemblage of selected resources bound together by interpretation. The reason behind the different definitions of heritage is related to the variety of disciplines that study it as a subject. Although architectural heritage definition as it is understood today is evolving, it has been in existence for a significant period of time.

In the United Kingdom for instance, the first legislation to protect the historic environment was the legislation of 'Ancient Monuments Protection Act' in 1882 (Mynors, 2006). This document referred to the subject of protection as 'ancient monuments' that included 26 monuments in England, 22 in Scotland, 18 in Ireland and 3 in Wales which all of them were unoccupied prehistoric structures (Yu, 2008). Following this, the 1932 'Town and Country Planning Act' gave protection status for the outstanding buildings other than ancient monuments (Delafons, 1997). The reference to architecture was a first with this document, which also gave a historic interest to the examples and consequently it introduced the concept of 'conservation areas' without the term being mentioned (Delafons, 1997). With 1960s, wide scale-demolition of historic town centres generated concerns over more legislative measures in order to protect the historic areas. Following that, with the Civic Amenities Act of 1967 the term 'conservation areas' has been introduced as a subsequent document (Delafons, 1997). Evidently, with the more recent documents such as 'Heritage Protection for the 21st Century' document of 2007 and 'The Heritage Statement 2017', there is a newer heritage definition that evolves into a more inclusive and complex subject (Holmes-Skelton, 2019). The documents were published by the UK Government, which provided its vision and strategy for heritage and the historic environment.

1.2 Current Debates

Similar development in the definition of heritage as a significant entity also could be seen in the international legislation and documents that provide guidance for heritage projects. Within this context, there is a broadening scope that covers tangible and

intangible heritage ranging from historic buildings to underwater heritage and from historic urban areas to non-physical heritage. Starting from the earliest examples of international charters, such as the Venice Charter (1964) the extent of heritage subject has been evolved. It was promoted by International Charter for the Conservation and Restoration of Monuments and Sites (ICOMOS, 1964), that determines the definition of heritage and identifies rules and guidelines for architectural heritage studies.

While the value of heritage is defined, appreciated and recognized with these legal acts and international guidelines and regulations, there is also continuing debate around the production of heritage as a commercial and touristic entity (Turnbridge et al., 2000; Walsh, 1992; Orbasli, 2000) and the (ab)use of heritage buildings or places as a power and authority generating tools (Johnson and Thomas, 1998; Lowenthall, 1996; Turnbridge and Ashworth, 2000; Bevan, 2006).

Current scope of heritage studies has been evolved to include various types of tangible and intangible aspects as the subject of heritage. This variety in definition also enables designating new meanings to historical buildings for different purposes such as commercial, economic and/or political reasons and consequently making heritage as the subject of different values.

1.3 Contestation of Heritage and the Reason of Loss

Architectural heritage can become the subject of political and cultural debates as proof of legitimacy or cultural symbol. Bevan (2006) defines the architectural heritage in conflict areas as having a totemic quality, which might lead to contested architectural heritage practices. In some cases, historic buildings considered to be the heritage of the 'other' are not prioritized for protection, and are subsequently lost. Jokiletho (1999) describes this as the elimination and destruction of some historic architecture that are contrary to political goals of the group that is politically dominant. Today, it is a reality of many geographies that settlers migrate to different places and they are leaving behind tangible and intangible heritage that may not survive these migrations. Additionally, pressures of economic development and urbanization has often resulted in the further loss of a significant amount of historic buildings, in addition to the loss due to conflict.

Discourses in lost historic urban fabric and its relation to the contestation in heritage are multifaceted. Therefore, examples of contested heritage are directly related to an ongoing or past conflict between different ethnic or religious groups (Singh, 2008). There are several contributors to the contestation of architectural heritage, they are context dependent and the loss of historic urban fabric is one of the particular associated implications.

As an important component of historic cities, architecture is a key element to provide evidence about the historic city's past and its current and former identities. The way we perceive the past events not only rely on historic references or documents but also could be exemplified with the architectural remains of the past civilizations. In religiously and ethnically diverse societies, depending on the dominant ideology, certain heritage examples might be abandoned or eventually they might be lost (Tanis, 2016).

At this point the discussion moves towards different perception of historic events in the formerly pluralist societies and their acceptance of these perceptions towards the future implications of architectural heritage. It is however directly related to the dominant authority's standpoint with regards to these past events and their intentions to utilize heritage as a contested power tool (Silverman, 2011).

As a reference to the conflicting essence of heritage where different actors identifies certain heritage with certain meanings, it is inevitable to see the contestation of heritage. Conflict or dissonance provides reasonable environment for the interpretation of the past and implications for the future.

In this context, the ownership of tangible or intangible heritage becomes a discussion point, which in some cases can be significantly conflicting. Additionally, conservation of heritage in itself a multifaceted challenging complex process where various factors and parties are involved (Jokiletho, 2005).

Balkans, as many other areas where religious and ethnic diversity exists, has several examples of dissonant heritage and evidently lost heritages. National territorial state today houses various ethnic and religious groups including; Greeks, Bulgarians, Slavs, Turkish etc. Most of the nation states were created with the 1878 Berlin Treaty (Karpat, 1997). Karpat (1997) defines the purpose of Berlin Treaty and consequently the creation of these nations as self-serving. He defines two different levels of "nationality" in the Balkans as follows;

> ..that sanctioned by the Treaty and based on residence within certain area, and that proclaimed by the leadership of the states and based on religion and ethnicity.

Karpat adds that many of the cities of these nation states of the Balkans that were previously ruled by multi ethnic "millet" system under the Ottomans, could maintain their traditions, religious practices and architectural examples until the end of 19th century. He defines the creation of these nation states as one of the reasons for the conflicts that we see today until the late 20th century which also resulted with the loss of architectural heritage that does not fit comfortably with these nation states' claimed history.

It is important to highlight the relations between the local conservation decision makers approach to value identification and the status of historical architecture examples in conflict areas. Even if it is an identification of a trend to restore or reconstruct selected buildings from certain periods of the history of the cities, it will provide an understanding of the attitude of those city's conservation decision makers towards value identification of their heritage examples.

2. METHODOLOGY

2.1 Case Studies

Izmir in Turkey and Thessaloniki in Greece are the two case studies for this research. (Figure – 1) The social and economic importance of these selected case studies can be identified through the existing historic buildings as well as the lost architectural heritage. In many parts of the Balkans, Anatolia and the Middle East, populations, borders and urban settlements significantly changed during the 20th century because of wars, civil conflicts and economic developments (Karpat, 1997). The population exchange which took place in 1922 and 1923

between Turkish and Greek populations is one of the most significant examples of such shifts. Therefore, two case studies were selected from these countries, to provide a comparative analysis of the changes that occurred in the region.
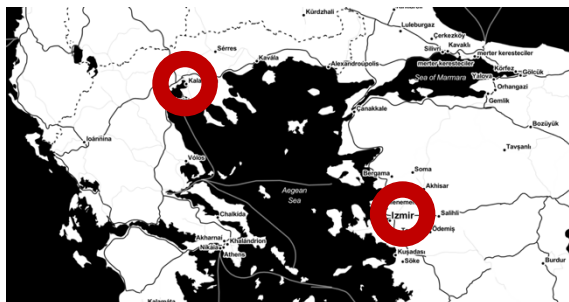

Figure – 1 Izmir and Thessaloniki in Aegean Region

Izmir is a historic port city on the Aegean coast of Turkey and has been an important trading point since Antiquity attracting different ethnic and religious communities to settle there. Thessaloniki is also an important port city on the Greek side of the Aegean Sea and had many settlers from different ethnic and religious backgrounds. In the early 1900s, communities in both settlements were from Turkish, Greek, Armenian, Jewish and European backgrounds. Due to war, conflict and urban development, the majority of both cities' architectural heritage was lost between the 1920s and 1950s. Even though we can see a diversity of a different kind of origin in Izmir and Thessaloniki today, it is no longer possible to capture these earlier communities and their architecture in both cities. In addition to the loss of tangible heritage samples, intangible heritage also disappeared due to the migration of these populations from Izmir and Thessaloniki (Papastathis & Hekimoglou, 2010).

2.2 The Method

In addition to the similarities between the two cities from an historical and urban development point of view, both cities also share similarities in terms of experiences of the population exchange. Thessaloniki was one of the major port of deportation of Turkish and Muslim population of Balkan Peninsula to Asia Minor. Many of the refugees left their hometowns and were put in the boats leaving from Thessaloniki to their new destinations. One of those destinations was Izmir peninsula. For instance, Kucukbahce in Karaburun was the new home for the refugees coming from Thessaloniki in 1924 while Buca in Izmir housed new refugees coming from Yaylacik Thessaloniki.

The semi structured interviews with conservation professionals and government and university specialists in both cities provided a discussion point to assess the heritage professionals' approach towards lost heritage samples in both cities as the primary conservation decision makers and policy makers.

3. DIGITAL TECHNOLOGIES IN HERITAGE PROJECTS

3.1 Rediscovering the Past

An investigative literature review enabled the collection of qualitative data from historical documents, traveller's notes, cartographic and photographic resources, publications etc. The

two fieldwork studies conducted in Izmir in Turkey and Thessaloniki in Greece. Additional data also were collected from archival records in both case study cities. Fieldwork included the collection of data through participant observation and focus groups with 3rd and 4th generation migrant descendants in order to assess the digital technologies and information management systems that was used to generate virtual reconstructions of lost architectural heritage samples from both cities as well as the GIS maps.

Availability of historic documents related to the history of the city also allows a complete understanding of the city's past. Cartographic sources such as Copelan (1834), Graves (1836), Storari (1856), Saad (1876), Wernieski (1882) and Charles E. Goad (1905) (APIKAM Archives) demonstrates the urban development and changes of the city over the years since the early 19th century. For this project, with the available detailed urban and architectural information, Charles E. Goad fire insurance plans have been utilized to trace back the city's lost architectural heritage. Additionally, several historic photographs, such as family albums, postcards, archives of government and private organizations also have been referred to in order to further study and investigate those identified architectural heritage buildings that do not exist today.

The project with its current status includes following major stages;

- Literature review
- Collection of cartographic and photographic historic documents
- Utilizing photographic historic documents for image based 3D modelling
- Transfer of cartographic historic documents to digital environment
- Data visualization

Apart from the surviving buildings and the current urban fabric of both cities, cartographic and photographic archives are the only resources that provide information about Izmir and Thessaloniki from the early 1900s. Existing architectural heritage provides information about the architectural and urban characteristics of the civilizations that built them. Their surviving façade compositions, plan organizations, structural and material elements, give clues about various architectural and urban characteristics of these buildings and the periods that they belong to.

In the case of lost architectural heritage, it is challenging to know more about these attributes due to the fact that the accessible information about these buildings could be limited. At this point, cartographic and photographic resources provide valuable information about lost architectural heritage. In addition to their geographic locations, information about their dimensions, structural systems, material finishes, colours could be some of the information that can be collected through cartographic and photographic historic documents. Because of the commercial importance of both cities, insurance maps commissioned by insurance companies are good sources of information for the pre-fire urban structure. The Charles E. Goad Map of 1905 for Izmir (Figure – 2) and the Wernieski Map of 1882 for Thessaloniki (Figure – 3) give information about both cities' commercial and residential neighbourhoods as well as information about their major religious and monumental buildings.

With this project the focus was on the heritage of the lost communities of Izmir and Thessaloniki.

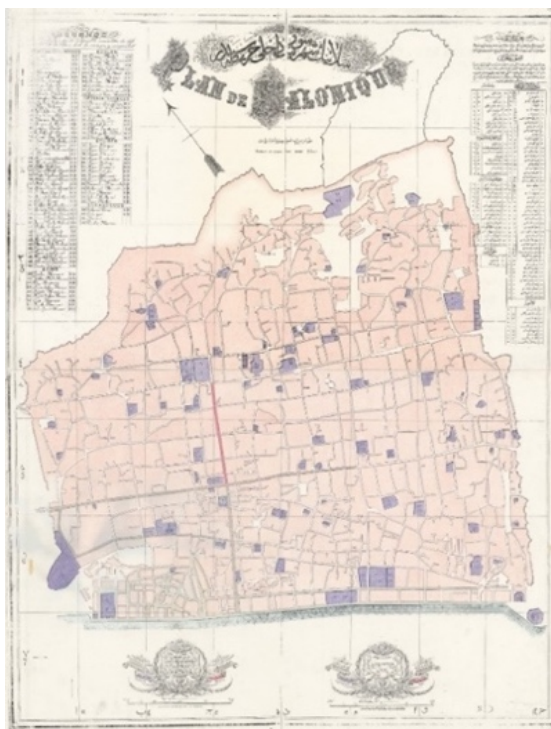Figure – 2 Charles E. Goad Map 1905, Izmir. Retrieved June 14, 2018, from http://archnet.org/publications/10377

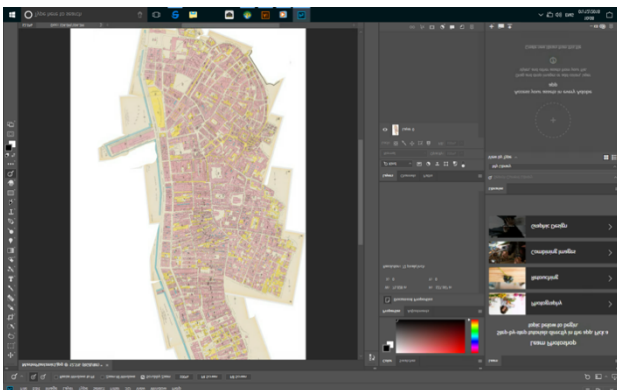Figure – 3 Wernieski Map 1882, Thessaloniki. (Yerolympos, 2000)

Figure - 4. Master map of Charles E. Goad fire insurance plans

3.2 The Outcome

Interviewees of this semi structured interviews were selected amongst the conservation specialists from the city of Izmir and Thessaloniki as mentioned earlier. Except one from Izmir, all the interviewees has a research and teaching background in academia, which demonstrates the intellectual profiles of the interviewees. Moreover, 8 interviewees out of 18 has 20+ years professional experience in the field and 5 of them have 30+ years of experience in teaching, research and professional practice.

The objective of the first section of questions is to explore main characteristics of the trends in conservation projects and future conservation strategies for Izmir and Thessaloniki. Relevant questions were asked to interviewees in order to understand the current and future trends in conservation strategies in Izmir and Thessaloniki. These questions also identified the role of digital technologies in conservation projects as well as potential use of digital technologies for lost architectural examples as well as existing historic buildings. The interviewees were asked to elaborate on the conservation projects that they were involved in, in terms of any specific area in the city or the period as a specific timeline as well as any specialized project types.

All of the interviewees have extensive amount of expertise in their areas of research and practice ranging from archaeological studies to urban conservation project and from industrial heritage projects to working as a member for the committee of conservation of cultural assets. Majority of project types that the interviewees take part in are residential and monumental heritage projects. For Thessaloniki interviewees residential projects are the major project type and for Izmir interviewees monumental heritage projects are the major project type.

Another input from the interviews was to understand the timeline of the projects that the interviewees took part in. Although majority of Izmir interviewees answered as there is not a specific project period, 3 out of 8 participants defined the project period as 19th century and the buildings that were built after 1922 Izmir fire. On the other hand, the majority of Thessaloniki interviewees mentioned that their projects were related to the buildings built after 1917 Thessaloniki fire. This could indicate that the projects funded or prioritized in Thessaloniki might be for the buildings that were built after the fire and Thessaloniki might have lost more historic buildings dates back from before 1917 fire.

4. FUTURE OF THE URBAN MEMORY

The interviewees were asked if the changes that occurred in the historic city centre was beneficial for the urban memory of the city and the majority of the interviewees stated that the transformation has a negative impact on the urban memory for both cities. 1 out of 8 response from Izmir and 3 out of 10 responses from Thessaloniki only stated that this transformation over the years has a positive impact on urban memory. This shows a discussion point where majority of the interviewees considers their city's transformation as something that erased the urban memory of their city.

Building up on this discussion, the follow up questions were related to their vision for generating this continuity of the urban memory. Understanding the evaluation of conservation specialists point of view for the future vision of conservation strategies of the city also assessed with investigating if continuity of urban memory is a part of this strategy. In order to evaluate this, the interviewees were asked 'How do you think your city's future conservation vision should be with relation to the continuity of the urban memory?' With this question also it was critical to investigate if lost heritage of their city that belongs to a society that does not exist anymore could be considered as part of this future vision.

All of the interviewees from Izmir and Thessaloniki gave their opinion highlighting the critical aspects of different ways of generating continuity in the urban memory, as one of the future visions of the city's conservation decision making discussions.

In the case of Izmir, the focus of the interviewees were related to the current difficulties based on ongoing issues rather than depicting a visionary approach for possible future decisions related to the continuity of the urban memory. Nevertheless the importance of inventories and the critical aspects of the conservation of existing heritage areas were recognized by some participants.

Thessaloniki interviewees also highlighted the important aspects of generating a continuity in the urban memory as part of the future conservation strategies of the city. Although some participants did not provide an elaborated answer, most of the interviewees mentioned the important points. One of the critical issue highlighted by several interviewees were related to the lost architectural heritage and as well as the lost societies. Some participants underlined the importance of the comprehensive understanding of what has been lost as a starting point for the conservation of the remaining heritage buildings.

Some of the participants also mentioned the importance of the archives and their role to keep the society informed about their city's past. The participants mentioned the crucial role of research and studies about the lost heritage of the city and mentions that the relevant studies will provide a continuity of the city's historical memory. One participant critically discusses the lack of taking initiatives by public institutions when it comes to digitizing the archives. It was also argued that digitizing the archives and having trained researchers working on these archives as a key element of building unity between the past and the present. Additionally some participants also mentioned the past societies that were living in Thessaloniki by co-existence and underlines the importance of understanding these harmonious living of these past societies as an important factor in order to build successful future conservation strategies.

As a result, both Thessaloniki and Izmir interviewees highlights the importance of city archives and their digitization as an important starting point for understanding the recent past of their cities. Additionally they provide certain vision for the future of their city's conservation strategies that could be summarized in two major topics; protection of the existing heritage examples by conservation specialists and understanding and learning about what has been lost in order to appreciate the value and celebrate the city's past with all its aspects.

5. CONCLUSION

With this research, both in Izmir and Thessaloniki, the lost architectural samples that has been reconstructed, focuses on both examples of the buildings of current and former societies. The digital reconstructions allowed the current residents of these cities to experience the former disappeared buildings of their cities that belong to the 'other' residences (Figure 6).

One of the key contribution of this research is the production of user friendly 3D reconstructions of the lost architectural heritage examples of Izmir and Thessaloniki by using Artificial Reality (AR) and Virtual Reality (VR) technologies (Figures 5-6-7). The use of digital technologies allowed the users to experience the previous lives of these cities in digital environment by using different mobile visualization tools.

Figure 5. 3D visualization by using VR mobile applications of Yilanli Sutun Square, Thessaloniki

Figure 6. 3D visualization by using VR mobile applications, Thessaloniki

Figure 7. 3D visualization by using VR mobile applications of Thessaloniki

As part of a future utilization of this generated digital models could be the sharing of this with the general public. Two applications are foreseen for this sharing experience; one by using the web based applications by using already generated GIS as a main database system and another one through a virtual museum (Figure 8). Both methods will allow the users to experience the lost architectural heritage examples in digital environment which will enable the most real-life like experience that they can get since the historic buildings are lost. This will be achieved not only providing the users a visual experience but also including audio possibilities in order to enhance the experience in digital environment and to provide better real life like platform.
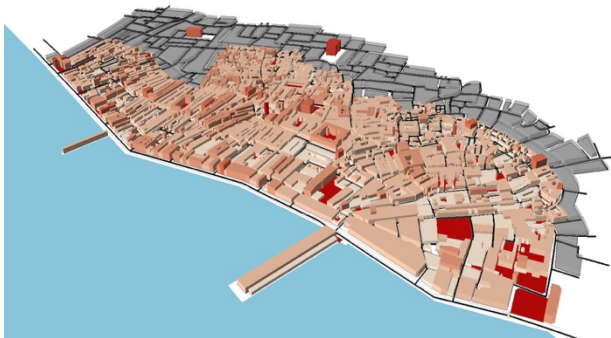

Figure – 8 3D visualization of 1905 Izmir ArcScene

In addition to the VR/AR experiences digital interactive maps that will be based on GIS maps for both cities of Izmir and Thessaloniki will allow the users to interact with the generated database. It will be possible to visualize the generated content as well as reach linked historic documents that are gathered in the creation of this research.

In this sense, the research successfully identified and documented lost architectural heritage examples from Izmir and Thessaloniki and utilized both cartographic resources and historic images into selected software in order to begin testing computer generated models and maps with the participants of this research.

Another beneficial contribution is related to the future researches following up the same subject of lost architectural heritage (Figure – 9). Firstly, the methodology that has been generated could be applied to other places by other researchers

and secondly the continuing research uncovering the not well known histories of previously multi-cultural societies will be possible. This will also benefit both cities' conservation decision makers by considering the 'other' part of their cities history that can be beneficial for future conservation works related to already existing and lost architectural and urban heritage.
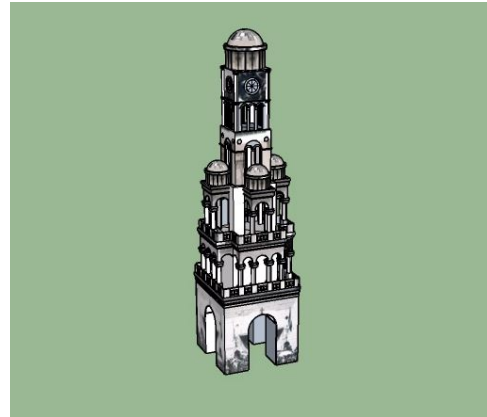

Figure – 9 Digital Reconstruction St Photini Church Tower

The digital tools tested with this research also demonstrated an advantageous data management where different data with different source of reference is stored. In the case of lost architectural heritage this type of data source generates a suitable digital environment for further possible future research areas.

The contribution and the share of knowledge between different cultures will also allow to generate dialogue between different parties and establish a platform for future collaborations as well as the enhancement of the already generated relations.

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