

3D Heritage as a catalyst for social participation in safeguarding cities in conflict. A Case study of Damascus in Syria

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Abstract

Cultural heritage is in danger in Syria, as in all the world heritage cities. Historical buildings have been radically destroyed by conflict and communities have been displaced. Many factors have contributed to this situation such as the inadequate preservation strategies before the war and the lack of local communities' awareness about the importance of their heritage. The local communities' inability to contribute to the protection of cultural sites rises from a lack of resources and knowledge in addition to their perspective of heritage as obstruction of development and an economic burden rather than a source of pride and identity. Therefore, this paper seeks to investigate the notion of heritage as a cumulative process of community cultural production over time and a key element of identity. Cultural heritage reinforces the interrelation between communities and the land by re-establishing connections that are often a part of peacebuilding. This paper investigates through qualitative surveys and statistics the problematic gap between cultural heritage and local communities in Syria. Additionally, "3D visualization" is discussed as a potential catalyst for conducting successful participation of the local community through its youth in safeguarding their cultural heritage. 3D visualization has a significant role in distributing knowledge (nationally and internationally) about heritage through the process of its creation, participation, and the 3D product. In addition, academic institutions have a significant role in distributing knowledge about heritage through heritage education programs.

Keywords: 3D visualization, Education, SDG11, Peacebuilding.

1. Introduction

Heritage is a complex process formed by interpreting history and then using that interpretation to create a powerful narrative of what has occurred and how it should be perceived by its audience. Heritage is about negotiation, about using the past, and collective or individual memories, to negotiate new ways of being and expressing identity. Heritage artifacts, sites, and institutions become cultural tools to facilitate this process but do not themselves stand-in for it (Smith, 2006).

The paper is built on this argument. Specifically, to suggest that the process of re-presenting historical architecture through technology and involving societies in its documentation could enhance people's attachment to the place and create an interpretive narrative of heritage that encourages society to adhere to the identity expressed in physical cultural heritage sites.

In Syria, the current disconnection between communities and cultural heritage is a multidimensional issue. We often observe a mosaic of

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competing and overlapping identities, so heritage is interpreted in different ways by various communities. Further, there is a lack of heritage education practices that present the meaning and importance of historical places. In particular, there is insufficient consideration for the memory of places and their history as connected to identity which can create a sense of belonging and attachment to the place in people's minds (Ibrahim, 2021). Given this paucity, the paper explains a pilot experiment conducted during the Syrian conflict to encourage local communities through their youth to become active participants in the

process of the 3D documentation of cultural heritage. This experience could serve as a methodology for raising awareness about cultural heritage along with a sense of identity and attachment to the place, which contributes to peacebuilding and push stability of war-torn society. The gap in knowledge between communities and heritage is an influential factor in the destruction of heritage in Syria. Thus, it is incorrect to assume that the current heritage destruction is only a result of the present crisis, nor that the deterioration of historical fabric began with the crisis (Kanjou, 2018) (Ibrahim, 2020). Such loss of heritage is

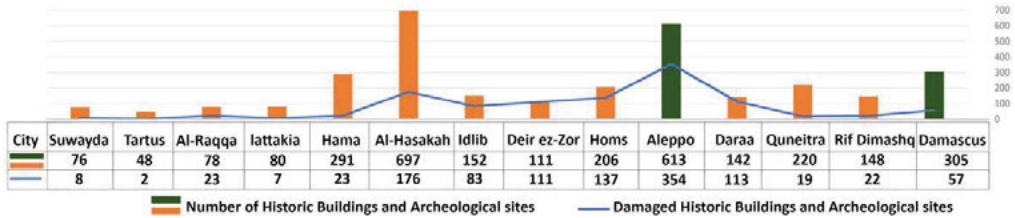


Fig. 1. Classification of historical buildings and archeological sites' damages according to cities, in green the two world heritage cities, (Source: The author)

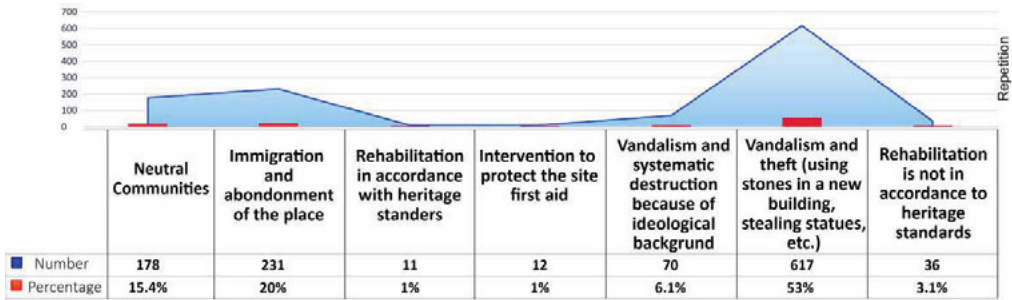


Fig. 2. Communities' attitude in relation to the destruction of Heritage Architecture, (Source: The author)

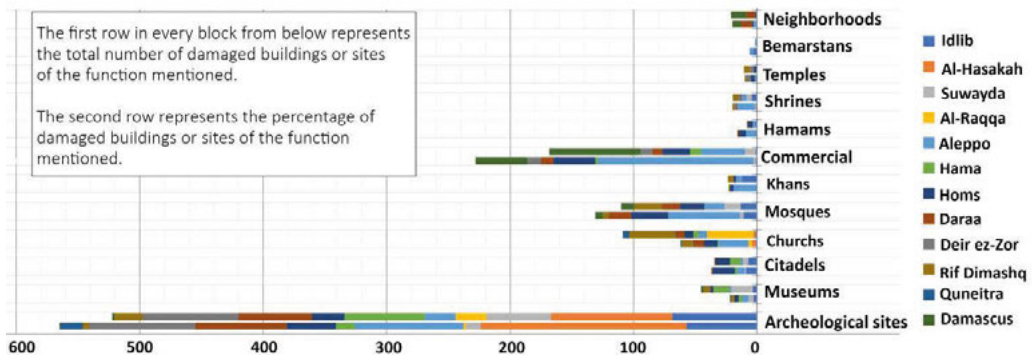


Fig. 3. Classification of buildings and sites' damages based on their functions, (Source: The author)

due to three different factors: looting, deliberate targeting, and the use of heritage sites for military purposes. Looting and the illegal trafficking of antiquities inflict the greatest damage (De Cesari, 2015). The paper initially collected a **classification of building damage** to investigate the status of the destruction. The information was collected by analyzing reports published by different organizations DGAM, AAAS, UNESCO, UNITAR, ASOR. In addition, local communities' attitudes towards heritage were investigated. Then, a method of safeguarding was suggested. The results of the investigation are shown in Fig. 1, Fig. 2, Fig. 3. Fig. 1. shows the percentage of historical buildings that have been damaged during the war in every Syrian city. The paper estimated that the Syrian *archeological sites* are the most damaged and 53% of cause of damage to historical sites is "vandalism and theft" as shown in Fig. 2, 3. Fig. 2 shows that vandalism, systematic destruction, and sabotage of historical buildings by using their stones or materials in new buildings are the main reasons for damages. Therefore, this paper argues that the Syrian communities suffer from a lack of knowledge and awareness to protect the Syrian world heritage. The Syrian conflict illuminated that there is a gap (disconnection) between communities and their heritage. Therefore, the problematic that this research tries to tackle is this "gap" of knowledge. How can incidents where people destroy their heritage be prevented? What are the incentives for communities in safeguarding their cultural heritage?

Since the paper has a pedagogical character, it doesn't consecrate heritage as the "right thing" and only to be valued. But realizes that heritage is influential for diverse communities to coexist peacefully. Monuments have always been subject to restructuring, re-signification, and reuse, and the most important factor regarding the protection of heritage sites in post-conflict areas is how local communities feel about them. Therefore, the hypothesis states that involving communities through education and utilizing technology in the documentation of historical buildings can create more effective cultural heritage education

approaches. Approaches that present to local communities the *values* of the architectural heritage and interpret the Syrian heritage as a source of identity and belonging. Furthermore, the 3D presentation techniques also have a significant role in reflecting and presenting the history of heritage sites. Previous studies have indicated potential in the higher education sector in the reconstruction and post-conflict recovery through teaching and training programs (Milton & Barakat, 2016). The Faro Convention (Fojut, 2018) stated that one objective is to take steps to improve access to heritage, especially among young people and the disadvantaged, to raise awareness about its *value*, the need to maintain and preserve it, and the benefits which may be derived from it. Supporting the participation of young people in this process requires supporting opportunities for spatial interaction with this heritage to build an *emotional relationship* with these places of significant value. Then, this emotion is reflected in social behavior that expresses belonging and pride, and on the other hand, awareness, and responsibility to direct behavior towards respecting and protecting those places.

2. Objectives

To introduce an innovative educational approach to the documentation and safeguarding of heritage. And to increase the sense of ownership among citizens in heritage-led development processes. Furthermore, to give a model to cultural heritage institutions and educational institutions towards more participatory culture heritage preservation methodologies in times of conflict.

3. Methodology

The paper builds on the author's work in Damascus (Ibrahim, 2019) and a literature review about heritage, destruction, and place attachment. Additionally, developing a **methodological** framework and testing the methods through a case study accomplished in the old city of Damascus and its historical neighborhoods in Syria. The *framework* was implemented in 2014-2015 during the conflict at the Faculty of

Architecture of Damascus University and was evaluated by several semi-structured interviews conducted in 2019 and 2020 with architects who participated in the framework as students, specifically those who worked on the 3D visualization of the historical sites and buildings. Also, an online questionnaire survey was conducted in December 2021, which provided an indicative sample of the participants' perspectives about the framework implementation and a quantitative evaluation of the framework. The 47 responses yielded information on the framework's influence on their attachment to the historical context, the idea of cultural heritage as a source of identity and belonging, and the 3D heritage as a tool for safeguarding heritage. The author was a teacher and instructor at the workshops and put together a book for the 3D documentation of the different historical buildings and sites. However, the primary source this research is built on is the engagement with students and heritage experts in Damascus, including architects, planners, and people working in related fields. The implementation of the framework was done in the old city of Damascus which has 5% of the total percentage of damaged buildings in Syria, see Fig. 2. Therefore, Damascus was appropriate as a case study. It was approximately the safest city at the time of the workshop 2014 -2015 and the most accessible to implement the pilot experience. In this pilot experience, "building capacities of the

The short-term goal was to build a three-dimensional library to simulate the urban landscape of the city of Damascus in the past, present, and future. This library includes the following elements: examples of typical residential buildings in the city of Damascus which characterize the urban properties of each area of the city; archaeological buildings or of historical and aesthetic values; landmarks; significant buildings that were demolished (such as the group of buildings in the historical Al-Merjah Square); and historical urban furniture of the city (trees, light poles, etc.). The framework was implemented under the supervision of a group of professors, teachers, and instructors from the Faculty of Architecture.

The **methodological framework** consisted of multistable steps, explained as follows:

1. Students learn a visualization program (Sketchup). The learning would be a participatory experience where architecture teachers teach the students, who teach each other and practice the program at the university laboratories.
2. During the learning experience, taking into consideration safety permitting (safe times and a safe environment) the students with the teachers visit the historical building or site and survey it by taking pictures and measurements.
3. Experts and managers of the historical sites explain the history of the place and its significance. Fig. 5 shows the manager of Damascus citadel (Eng. Admon Al Aji) explaining the history of the citadel and its architectural significance in addition to details about its structural and construction techniques.

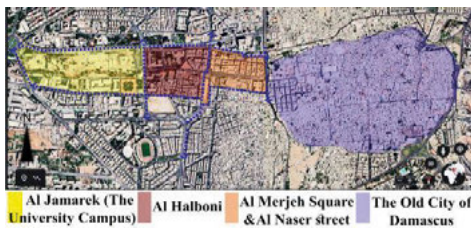


Fig. 4. The four Areas © The author

Syrian students" was the aim of the Faculty of Architecture at Damascus University. Further, the framework was implemented in four main areas within the old city of Damascus (inside the city walls) and its Historical neighbourhoods. Work areas were defined in Fig. 4.



Fig. 5. Visiting the site ©The author

4. The students work on “**Standard Identification Form**” to explain the historical site’s history and importance, Fig. 6.
5. Students use the program they learned (Sketch up) to do a 3D visualization of a historical building/site of the targeted area, Fig. 8.
6. A book of students' work was designed and written by the author to be published. The page from the book contains information about the studied sites (history, location, architectural description) in English and Arabic, 3D rendering pictures from different angles and perspectives of the building model, students’ names and pictures and quotes written by the students about the framework experience, and the teacher who supervised the group, his /her picture and a quote about the workshop, Fig. 7.
7. **Social Media tools** like Facebook and Instagram were used to advertise the cultural heritage’s 3D models through video renderings that were published by the students and professors from the university (Ibrahim, 2016).

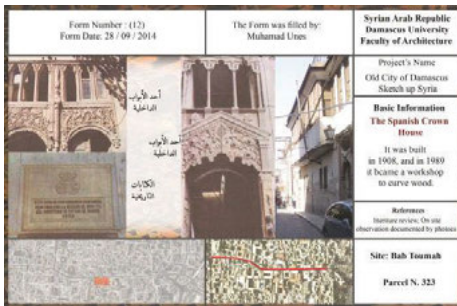


Fig. 6. Standard identification form © The author



Fig. 7. A page from the book of students’ work, ©The author

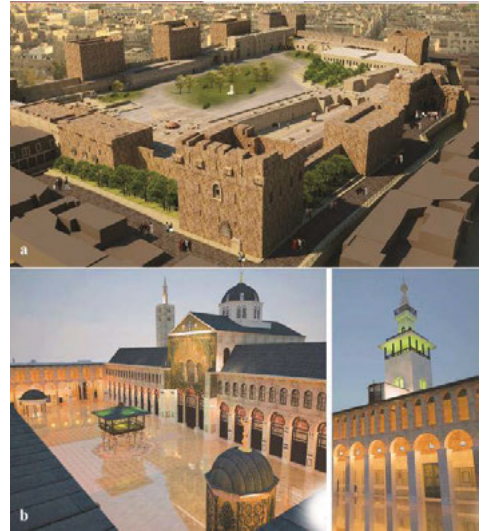


Fig. 8. 3D visualization of a) citadel of Damscur and b) Umayyad Mosque by students © author

4. Evaluation of the Framework

The online questionnaire survey conducted in 2021 indicated workshop participants’ (who are now architects) views, knowledge, practice reflections, and experiences about the framework relative to their gender, age, and place of residence. Almost 96% of respondents in the age range of 26 -35 years old and 4% in the range of 18-25 indicate that they lived through the war in Syria.

Workshop according to area	N
Old Damascus workshop - First phase	12
Old Damascus workshop - Second phase	4
Old Damascus workshop - First phase and Old Damascus workshop - Second phase	11
Al-Nasr Street & Al Merjeh	4
Al Halboni	3
Al Jamarek	3
Al-Nasr Street, Al Halboni and Al Jamarek	3
Old Damascus - First phase and Al Jamarek	1
Al Jamarek and Al-Nasr Street	2
Old Damascus - First phase, Old Damascus - Second phase, and Al-Nasr Street	4
Total Number of respondents:	47

Table 1. Number of respondents from every workshop

The respondents confirmed their participation in the workshops as specified in Table 1 and 2.

Description of the questionnaire survey
<p>Developing the Survey</p> <p>The questionnaire was designed to collect data on: Respondents' profiles (gender, age, academic level, and place of residence), in addition to their participation in the different workshops (Al Jamarek workshop, Al Halboni workshop, Al Nasr Street workshop, Old Damascus workshop (First phase – Second Phase).</p> <p>Respondents' experience and information gained and the influence on their research and work.</p>
<p>Administering the survey</p> <p>The survey was shared through Facebook and students who participated in the workshops were addressed and tagged in the comments and was completed by 47 respondents.</p> <p>Questionnaire instructions indicated the survey's content and purpose and estimated completion time. A consent question was included in the online questionnaire, to be selected by the respondent.</p> <p>Duration: The questionnaire survey was available for one month, including weekends.</p>
<p>Respondent profiles</p> <p>Gender distribution: 51% Female, 49% Male.</p> <p>Age distribution: 45 are between 26-35 year, and 2 are between 18-25 year.</p> <p>Current place of residence: 47% Damascus, 13% Rif Dimashq, 40% outside Syria</p>

Table 2. Description of the questionnaire

The table shows that some students participated in the 3D documentation for more than one area. About 91% confirmed that they learned about the historical buildings and sites they visualized. 96% confirmed that their experience at the workshop enhanced their sense of importance in protecting the historical architecture. About 83% confirmed that the framework intensified their sense of cultural heritage as a source of identity and belonging. 83% of participants confirmed that the workshop reinforces their sense of memory of the place. **Details** of the buildings were mentioned in the respondents' answers including the ratio and patterns, which confirm the influence of the framework in creating an

attachment to the place and a sense of memory. In a quote from the participant “Shady Bahsas” describing memories from the framework “*what I remember is that all windows have a similar dimensional ratio, also I was wondering about the huge difference in financial situations amongst the residents in those areas*”. Further, Words like “Alley” which means the traditional narrow streets (“زقاق” in Arabic), “Souks”, and “Gates” (“بوابات” also were mentioned by the participants which confirms the knowledge that the students got during the workshop about the old city urban structure. A quote from the participant “Mohammed Younes” highlights gained knowledge and awareness: “*The number of architectural details testifies to the significance of this historical architecture and what it could give to human memory. The modeling of buildings was not easy; thus, this is evidence that this architecture is not effortless despite its simplicity, it is the impossible easy*”. 87% confirmed that the workshop can Re-establish and reinforce the connection between communities and cultural heritage.

In raising awareness, 96% of the participants confirmed that the workshop boosted their knowledge about the importance of protecting cultural heritage, ten participants specifically mentioned remembering the “**details**” of the historical architecture of the site, and another eight participants mentioned the unique building materials in addition to mentioning specific heritage patterns of the building structure. Four of the students mentioned the neglect of the historical buildings despite their significant importance. Those are indicators of the knowledge that the students got and the awareness and sense of the historical place that they gained. 77% of the students supported the hypothesis that the 3D production of the historical site could be a tool for safeguarding heritage in Syria. They confirmed that the **3D documentation** would be an important resource to identify and define the historical property in addition to deepening the communities' collective awareness about cultural heritage. The visits played a role in creating new meanings and **values** associated with the

monument. “Mohammad Habel” one of the students who is now an immigrant in Germany said that he will always remember his pride in belonging to this heritage when he entered the citadel, he said, *“The scale of the stones and the building was magnificent, I felt proud being part of this heritage”*. Places become meaningful from personally important experiences, such as realizations, and milestones (Scannell & Gifford, 2010), the memory of the place was strong and present in the interviewee’s mind even after his exile, he talked about his memories of war and how the workshop created a milestone in his relationship with the idea of “home”, he said, “I grew up during the war, my memories about the city are memories of checkpoints and military stops, but the workshop created a difference in my perspective of identity and sense of belonging”. Habel talked about the influence of the 3D model in teaching him about heritage architecture *“Before the workshop, I did not know what a Muqarnas is. After the workshop, I did a Model of the Muqarnas of the Ayyubid hall because I was mesmerized by its structure and proud of my ancestors who build it and I wanted to learn from them. I learned that the Ayyubid hall has one of the most unique tetrastyle domes in the world. One of my beloved memories was me and my friends imagining together people who lived in this beautiful structure”*. One of the students’ respondents talked about the attachment to the place that the experience created *“The idea of working on a landscape model of an area would enhance its sense of importance to the student. Also, the time spent modeling with your friends will create a beautiful memory about the place and about your contribution to protecting it, which increases your sense of belonging to it”*. It is not simply the places themselves that are significant, but rather what can be called ‘experience-in-place’ that creates meaning (Manzo, 2005). Awareness of the place history intensifies place attachment, “Place exerted its influence on place attachment through physical features and symbolic meanings” (Lewicka, 2008), through the workshop, belonging was reinforced as self-identity meets self-

values, and individual behavior was directed toward social and community responsibility.

5. Discussion

The framework used for the case study in Syria has gained overall positive feedback regarding the enhancement of community participation, social cohesion and creating *emotional attachment with heritage*. The framework succeeded in raising awareness about the historical sites. The survey showed that the framework enhanced the sense of importance of historical sites among the community and encouraged the eagerness and passion to protect them. The results from the survey showed that if the presentation of the historical sites (their meaning, memory and aesthetic value) were reinforced by creating the 3D model, this can lead to the accomplishment of positive changes regarding strengthening social protection of heritage in a multicultural and multi-ethnic community during the conflict. The framework supported spatial interaction with heritage to build an *emotional relationship* with historical places of significant value. Then, this emotion is reflected in social behavior that expresses belonging and pride, and on the other hand, awareness, and responsibility to direct behavior towards respecting and protecting historical places.

6. Conclusions

The study's findings highlight the importance of embracing youth participation through educational institutions in order to develop a methodology for successful heritage safeguarding during conflicts. The protection of historical neighborhoods is related to how local communities feel about them. If they are neglected, they can be linked to negative memories. However, by intensifying their visualization and image, they could work as a tool for strengthening local communities’ identity attachment and connection to the historical place. The sites are already perceived as world heritage. Nevertheless, with this framework, they could become a catalyst for social recovery. The results of this framework regarding Damascus show how participatory 3D

documentation could greatly contribute to the social identity and in consequence a positive society's attitude toward the protection of heritage. Participatory approaches such as the one in the case study should be emphasized as important short-term interventions. The "3D visualization" is a catalyst for social participation and the protection of cultural heritage in conflict areas. The framework repositioned heritage as an active tool in building peace efforts, rather than merely a passive recipient of damage and restoration. 3D Heritage through the process of its creation, participation, and the 3D product could be a tool in conducting successful participation of the local community through its youth in the safeguarding of cultural heritage.

In planning and management projects of endangered heritage sites, the starting point should be the development of methodological approaches for creating positive memories and strong emotional relationships between local communities and sites. The framework could be replicated in different endangered sites to create a positive perception of heritage connected with the collective identity of complex conflict communities. As a consequence, architectural heritage becomes a carrier of positive changes, not only in a material sense but also in the recovery of the community's damaged social structure.

Higher education plays a key role in the safeguarding of cultural heritage. The 3D documentation workshop is one of the tools that could be used in other frameworks to simulate urban reminders of history, identity and protect Heritage. The study's findings highlight the importance of embracing youth participation through educational institutions to develop a methodology for successful heritage protection during conflicts.

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