



The Impact of Relationship Between Interior and Exterior Design on the Heritage Value: Case of Heritage Buildings in Old Mosul City

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Abstract

The image of the heritage cities is an interactive process between interior and exterior design. Visitors can perceive the reality of the place after matching what they have in their mental image with the existing form. The preservation of this matching lead to preserving the heritage places' image. Conservation processes should follow the original places' image. Using strange materials, elements, rules, and techniques will defiantly change the place image, which is the main problem nowadays during the restoration of heritage buildings. The research question is "what are the requirements to preserve the image of a heritage city depending on the relationship between the interior and exterior design of heritage buildings". Therefore, the research aims to identify the efficient materials, elements, rules, and techniques that can be applied to activate the relationship between interior and exterior to enhance the image of the buildings". The case is the buildings in Old Mosul city. The quantitative approach was used to reach the aims of the study. A checklist with visual analysis is the instrument for measuring the study aspects. The result shows the importance of the matching relations between (interior-exterior), and (existing image-mental image), which should include materials, elements, rules, and techniques related to the original by 68% in total, but not less than 54% for each aspect.

Disciplinary: Architecture, Heritage Study.

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1 Introduction

The restoration process of heritage buildings is complicated and critical. It is related to the factors of the heritage value of the buildings and the city. The restoration process of the valued heritage buildings is associated with the sustaining of the heritage context quality. Many restored buildings lost their aesthetic and heritage value because of ignoring the mental image in the restoration processes. According to UNESCO the WHS (World Heritage Site) legislations, the restoration processes must follow the integrity and authenticity principles, which have a role in the quality of restoration and heritage value (UNESCO & WHC, 2013). Most of the heritage documents and legislation focus on the exterior and urban image of the city, in which facades and street context are the focal points. There is a lack of attention to interior design, space, and environments, which is one of the tangible and physical elements that have a real integration with the intangible elements. Moreover, most of the heritage literature focused on the methods, materials, and images of the exterior and how can impact the sense of the city. The literature related to heritage interior design focused on the details, elements, and cultural impacts on the existing layout. However, there is an integration relationship between the interior and exterior of the heritage building that this study will identify. Using strange materials, elements, rules, and techniques in the restoration processes of interior design that are different from exterior design will defiantly change the image of the place, which is the main problem. A research question was issued to solve this problem, which is "what are the requirements to preserve the image of a heritage city depending on the relationship between the interior and exterior design of heritage buildings". Therefore, the research aims "to identify the effective material, elements, rules, and techniques that can be applied to activate the relationship between interior and exterior to enhance the Image of the buildings". Old Mosul city located north of Iraq faced a disaster of war during 2014-2017 (see Figure 1). The processes of reconstruction, restoration, or rehabilitation started directly after 2017, but without orientation, direction, or limitations for the constructors from governmental or private sectors (see Figure 2). Many efforts support the restoration processes in Old Mosul City, such as the project of "Revive the Spirit of Mosul", which is moderated by UNESCO (UNESCO, 2019).



Figure 1: A sample of partially destroyed heritage houses in Old Mosul City (Wakalat, 2019).



Figure 2: A sample of restored heritage houses in Old Mosul City (Alsenjary, 2018).

From Figures 1 and 2, the problem is identified clearly. The shifting in materials, colors, details, and design of the interior skin of the heritage houses in Old Mosul City will lead to the extinction of the original image of the traditional and heritage city. The working on interior design should follow the exterior design theme and vice versa. The integration between interior and exterior layout impacts the original image of the heritage house and the image of the alleys, and the city in total. Some studies mentioned the importance of the integration between the existing urban systems and conservation plans, which include the construction, rehabilitation, and development of the buildings, streets, and urban fabric (Fakhouri & Haddad, 2017).

2 Literature Review

The previous studies revealed two themes linked to the objective of this study as follows:

2.1 The Mental Image and Heritage Value

The mental image value of the heritage building has a role in enhancing the value of the city in general. The matching between the mental image and the existing place impacts the recipients' evaluation of the heritage buildings. It is a type of authenticity value of heritage buildings when the interior and exterior images are matched. The challenges of conservation and restoration processes are represented by reaching the satisfaction of the visitor of the restored or conserved buildings. Mental satisfaction is the point where the culture and society integrated with the restored buildings (de la Torre, 2013). Heritage places' sustainability depends on the sustainability of managing these places in terms of matching the place image with the reality of heritage status. There is a relationship between the place image, heritage value, and users' attraction (Gholitabar et al., 2018). The human memory of the architectural heritage is considered the reference for the heritage buildings before and after conservation processes, where users can perceive the transformation of the architectural values and observe the shifting of existing from previous. It is a process to preserve the image of the place by considering the cultural values and inherited culture in the architectural conservation of the buildings (Avila & Alejandro, 2009).

Heritage places are landmarks in the cities, which are the key elements of the heritage identity. The preservation of the heritage image of the city started with the heritage elements and users can identify the important elements in the city that can impact their mental image positively or negatively (Hussain & Ujang, 2014). Abdelmonem, Selim, Mushatat, and Almogren (2017) argued

the simulation of the existing heritage places in a virtual reality environment, must be similar and match the existing one. The changing between the existing and reality will construct and install mental images in the human brain far from the existing image. Therefore, archaeologists and architects should involve in the construction of the virtual environment (Abdelmonem et al., 2017).

Restoration techniques have a role in recognizing the heritage image of the restored buildings, which depends on the value of matching between the original and restored image. The literature identified restoration techniques. The maintenance of the heritage building as the real image will be stored in the recipient's mind and will transfer from one generation to another. The traditional construction materials influence the heritage image and the use of new modern materials will lead to losing the heritage value. Adding and changing the elements of heritage buildings should follow a special mechanism to avoid the shifting of the heritage image which affects the mental image. Restoration can be in four levels, which are; General restoration, Partial restoration, Parts restoration, and urban restoration. The management of heritage building conservation and restoration is an important factor in sustaining the architectural heritage value (Sodangi et al., 2013).

2.2 The Relations between the Interior and Exterior Design

The integration relationships between interior and exterior design represent the architectural balance and authenticity of the heritage buildings. Most of the heritage studies deal with exterior and façades as an element of heritage value. While the interior design of the heritage buildings is mentioned separately in the literature. Few studies deal with interior and exterior, which connected architecture and urban design with public interior space. Çetin (2017) argued the relationship between interior spaces and urban space settings. The interior space is an extension of urban spaces and urban spaces as extensions of interiors. There is a language of connection between the interior and exterior space referred to as the architectural components, elements, and layout (Çetin, 2017).

Onay (2015) discussed the importance of analysing and understanding the interior environment in the heritage and historic buildings, which provided the platform to understand the nature of the relationships between form, structure, and material. Each historic building has a unique identity depending on this relationship, which is a critical process. The strangeness of the relationship between interior and exterior form, structure, and material is a measurement tool to evaluate historic buildings. Onay (2015) focused on interior space more than architectural details, which reflects the reality of the historic environment. The researcher identified analysis types of architecture and interior design and space. The Architecture of the whole building used; context, tectonic order and material, geometric relations, spatial organisation, and spatial circulation analysis. Onay (2015) identified the analysis types of the interior design of historic buildings which are; Spatial envelopes, Materials, interior details, furniture, accessories, The human factor, and

Spatial atmosphere analysis. The relationship provided spatially supports activities and enriches the value of the heritage buildings (Onay, 2015).

3 Research Methodology

The methodology used a quantitative approach to reach the aim of the study. Two qualitative techniques were used to collect the site and media documents of Old Mosul City. Visual observation of the heritage buildings was restored and rehabilitated in Old Mosul city. The observation notes recorded in the observation checklist are designed to cover the value of the relationship between the interior and exterior design (Table 1). Visual observation is used in two types; site visits and visual documents. Some owners of the heritage buildings provided photos and plans of the heritage building before and after the reconstruction, restoration, and rehabilitation processes.

Table 1: Observation sheet to record the notes of visual observation.

Case no.		Site visit date	
Case name		Case type	
photos			
		Notes	
Exterior elements			
Interior elements			
Which part restored			
Who restored the building			
Colour matching			
Materials matching			
Image matching			
Relationship			

The structured interview (survey) was used to investigate the importance of this relationship in the construction and sustaining of the image of the heritage value. The questionnaire was used as an instrument to measure and identify the effective variables that can influence the users' mental image. The questionnaire contained four questions related to the aspects of design, relationships, elements, and materials of the interior and exterior image of the heritage buildings in Old Mosul City, which measured the influenced value in the mental image of the users and visitors of the heritage building and the city in total (table 2). The Questionnaire form that distributed on the site and written in the Arabic language to be understood by the respondents. The researchers distributed 560 forms in various areas of old Mosul city. The accessibility and process of clearing and construction of the main streets are the main limitations that affect the distribution and collection of the questionnaire forms. However, 358 forms were collected from the respondents. The analysis of data was conducted statically to investigate the percentage of the variables related to each aspect.

Table 2: The structured interview questions for users and visitors of the city.

1.General information									
1.1 Types of respondents		Resident		work		Visitor			
1.2 The frequency of being in old Mosul city		Daily		Weekly		Monthly			
1.3 Do you have an interest in the cultural heritage of the old city of Mosul?		Yes		Somehow		NO			
1.4 Which of these places of the Old Mosul interest you?		Houses	Churches	Markets	Allies	Streets	Mosques	Other.....	
2.Design									
2.1 What are the elements of heritage buildings that interest you? Please specify									
Arches & columns		Facades		Materials		Interior facades	Furniture	Ornamentation	
2.2 Do you think that the restored heritage buildings or under the process of restoration reflect the original heritage image of the old Mosul city?				yes		Somehow		no	
2.3 Are restored and rehabilitated heritage buildings included intention by the developer to the interior and exterior design?				yes		Somehow		no	
2.4 Do you think that matching with original elements and materials in the restored buildings influences the value of the building and the city?				yes		Somehow		No	
3.Relationship									
3.1 Is there a significance for the relationship between interior and exterior design of heritage buildings on heritage value?		yes		Somehow		No			
3.2 How to evaluate a heritage building that has an integrated heritage exterior design and a modern interior design that does not match the external image?		Positive		Moderate		Negative			
3.3 Which of these variables is considered one of the most important influences on the congruence between the internal and external image in the heritage building		Element		Materials		Structure		Other	
4. Elements									
4.1 What are the elements that are important in preserving the identity of the heritage buildings in the old city of Mosul?									
Door		Windows		Facades		Interior facades		Arches	Columns
Ornamentation		plan		Ironwork		Traditional wares		Tiles	Furniture
5. Materials									
5.1 Which of these variables affects the image of heritage buildings?									
Stones		Texture		Colour		finishing		Metal	

4 Result and Discussion

The results from questionnaires (Table 3) (Figure 4) showed that around 50% of pedestrians were having a running business in the old Mosul city. While the visitors and residents got the other 50%. Therefore, pedestrians should have a role in forming the image of the buildings and the city in total. The result of daily visiting the old Mosul city shows the attention and attraction to the heritage area in Mosul, which should provide the factors that support the sustaining of the visit to this area. Aspect (1.3) which is related to the interest of the pedestrians shows the importance of the cultural heritage environment. The users need to perceive the originality of the heritage buildings. Most of the users are interested to visit and seeing the heritage houses, alleys, and streets. The users connected the existing images with their mental images to find a way to make the city liveable and attract others to visit, work, and live in the old Mosul city.

The second aspect related to the design of the heritage buildings, which are arches and columns, façade, and interior details (ornamentation and interior façade) was mentioned by 90% of users as important elements of the design of the heritage buildings. These variables show how the

users linked the interior and exterior details together to construct a good heritage image. The respondents answered 77% for the importance of reflecting the original image of the heritage building in the restored and reconstructed buildings in old Mosul city. The intention of the owners and developer to the originality of the building was mentioned by 5% of respondents. This indicates the value of distorting and shifting the heritage identity. The users show an understanding of the heritage value significance from their answers about the matching between the restored material and elements compared with the original. The relationship aspect included three variables. The first variable is related to the importance of the availability of the relationship between interior and exterior design. 76% of the respondents show the importance of this relationship, which can influence the image of the heritage building directly. The mismatching between the interior and exterior design, elements, materials, and structure reflects negative impacts on the users' mental image as 74% of respondents. The important elements selected by the respondents are in sequence; Facades, interior facades, ornamentation, ironwork, windows and doors, arches and columns, furniture, tiles, traditional wares, and plan. The variety in the elements (interior and exterior) confirmed the importance of the relationship between the interior and exterior design, which interior design is more significant to the image of heritage buildings. Therefore, the details of interior design such as color and finishing, stone, texture and metal are sequentially mentioned by the respondents. From the results represented above and in table 3 and figure 4, the visual elements are the most important elements that directly influence the users' minds. The matching between the image of the exterior and interior can reflect the authenticity and credibility of the heritage buildings. The image of the street is to reflect the heritage image of the city in total. While the interior design image can influence the image of the heritage value of the buildings and city. The results show a lack of intention to the interior image of the heritage buildings in old Mosul city in the contemporary time after restoration, reconstruction, and rehabilitation processes started in 2017.

Table 3: Static results of the questionnaire forms for 358 respondents.

Aspects	Variables											
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1.1	24%	49%	27%									
1.2	64%	22%	14%									
1.3	43%	27%	30%									
1.4	22%	6%	28%	9%	20%	15%						
2.1	23%	26%	4%	27%	2%	19%						
2.2	77%	15%	8%									
2.3	5%	12%	84%									
2.4	62%	13%	25%									
3.1	76%	20%	4%									
3.2	8%	19%	74%									
3.3	37%	38%	25%									
4.1	8%	10%	15%	15%	7%	7%	13%	2%	10%	3%	6%	5%
5.1	22%	14%	26%	25%	12%							

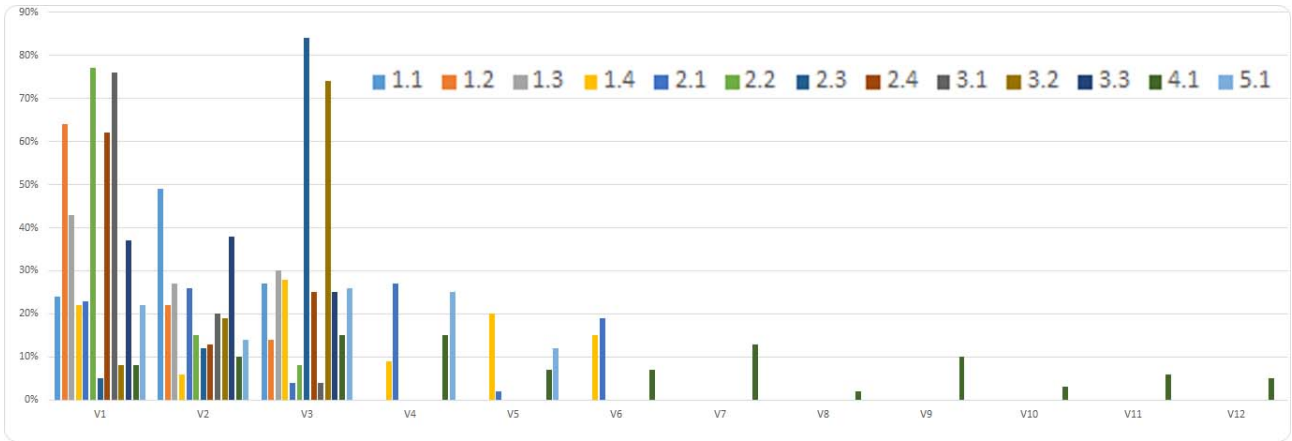


Figure 4: Results of the questionnaire (Source: The researchers).

The results of visual observation of the heritage buildings in old Mosul city show the lack and imperfect matching between the interior design of the heritage buildings and the exterior design. The exterior design of the heritage building is represented by the architectural facades of the heritage buildings, which are simple with few details. Most of the renovation processes focused on the exterior facades. The interior facades and details shifted from the original one using strange materials, elements, and forms. The extreme use of color painting in the interior facades and details, which are strange colors, impact the identity and heritage value of the old Mosul city. Orange, purple, ping, and nave blue color are newly used in the painting of the interior and exterior surfaces, which sometimes covered the original materials such as stone, marble, and finishing texture (figure 5).



Figure 5: Images from Old Mosul City shows the techniques of renovating, reconstructing, and rehabilitating heritage building (Source: The Researchers).

5 Conclusion

The image of heritage buildings and cities is influenced by the relationships between interior and exterior design. It should be integration relations to complete the image of the city. The

visitors of the heritage cities and buildings have built a holistic image of the heritage buildings before the visiting comes to real. Therefore, the existing image of the interior design must be integrated with the exterior design to preserve the mental image of the heritage buildings in the visitors' and users' minds. The mental image has a role in preserving and sustaining the original image of the heritage buildings. The heritage value of the buildings is measured by the integration of the façade, interior facade, material, interior elements, and ornamentation. The mismatching between the buildings' elements, material, and structure can shift the originality, which could lead to loss and extinction of the heritage identity. The old Mosul city as a case contained various factors that can impact the heritage identity, which renovating, restoring, reconstructing, and rehabilitating processes one of these factors. The heritage buildings in old Mosul city in the contemporary time and after the renovation reflect different images of the original, which match between the interior design elements and exterior are lost. Moreover, the mismatching between the original and contemporary image plays a negative role in enhancing the heritage value.

6 Availability of Data and Material

Data can be made available by contacting the corresponding author.

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