



Assessing the Building's Developments on the Human Perception: The Case Study of Imam Al-Hussein Shrine in Karbala, Iraq

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Abstract— This paper investigates the implications of buildings' developments of Imam Hussein Holy Shrine in Karbala, Iraq. It is questioning the space perception from within normal and expert human experience. The investigation spans a decade of reflections since the new shrine development accomplished. The ratio between mass and void have been changed significantly and thus led to alterations in viewing angles, inclusion, visual axis's, orientation, movement, and human sense of scale. Those developments were encompassing, the addition of a new floor to the existing outer wall building, adding huge steel columns, covering the open-to-sky courtyard of the shrine, and extending the old boundaries of the shrine outwardly 10 meters using arched floors. The purpose is to tackle the current problem of how the shrine's developments have affected the space perception, hierarchical order of space, and the induced new sensual spatial activities, such as eating, sleeping, and gathering. This paper therefore aims to address the current question of how the shrine's developments have changed the individual's experience in perceiving the inner spaces and other building's components. It was hypothesized that an analysis of the perception of Holy Shrine of Imam Hussain's developments can provide clear answers of the urban changes, which were occurred. The findings showed that the space inclusion has increased while the viewing angles, visual axis's, continuous movement, and human scale have reduced. Further work will include the influences of the socio-economic and environmental factors in relation to the existing spaces and activities in the analysis and compare the findings with other similar shrine cases, like the Holy Shrine of Imam Al-Abbas.

Keywords—Imam Hussein Shrine, Space, Human Perception, Urban Development, Karbala.

1. Introduction

Despite our common sense of sanctity of the shrines that mostly built and flourished in the Middle East during Islam epochs, many of these shrines and their surrounded old organic clusters have been subject to phenomenal changes, in particular, spread in some geographical regions shared some socio-economic, cultural, and religious characteristics [4] Like many other important buildings including mosques, schools, and Caliph Palaces in Islam, they developed in response to religion, authority, and society [1]. Religion in this study refers to a set of Islamic principles and rules that people followed in certain cases and aspects [9,5]. Authority refers to the power structure – such as caliphates, princes, or sometimes tribal leaders [5,6]. A society is a human unit that shares a set of habits, organizations, traditions and norms that are clearly

demonstrated in its physical building forms and the hierarchy of its spatial networks [7].

The Imam Hussein Shrine-referred to later in this paper as (IHS)-in Karbala, Iraq was not an exception of these developments and changes that affected the shrine and even the old historic organic fabrics that lost many urban areas [2], (**Figure 1:** The Location of Imam Hussein Shrine). The latest developments included adding a new floor on the existing external wall building, adding huge structural columns that divided the main courtyard into four courts, covering the courtyard of the shrine, and extending the old boundaries of the shrine outwardly 10 meters using arched floors (a set of site observations were carried out; in addition, reviewing masterplans of Imam Hussein Shrine's developments were studied).



Figure 1: The Location of Imam Hussein Shrine;
authors: collection

This paper seeks to explore our apprehension of these changes by exploring the consequences of the shrine development with particular reference to perception issues. Comments and remarks gained from the analysis of comparative material supplemented by digitizing the development processes and observations made during fieldwork for other local studies [10,11,12]. Literature about the impacts of these changes on the shrines in Islamic world relatively limited and the ways they reshape these shrines are rare.

This study addressing the following question of; how the shrine's developments have changed the individual's experience in perceiving the inner spaces and other building's components? The purpose is to tackle the current problem of how the shrine's developments have affected the space perception, hierarchical order of space, and the induced new sensual spatial activities, such as eating, sleeping, and gathering.

The significance of studying the IHS can be noticed by relation to the Islam's prophet and Muslims, the greatness of this can be easily reflected when the date of visiting the forty comes up every year. Annually, millions of Muslims and non-Muslims have been participated in the revival of the holy decrees. Here are the most important phases that shaped the IHS.

- 1) Historically, the roots IHS's existing Al-Haram, dome, and minarets dated back to 13th century [5], but its remarkable changes were mainly in the last decade, when many developments impacted the spaces of building, hierarchical order of space, and the inner activities. One of the significant manifestations of IHS evolution made by the gold cladding for the two minarets, this change was initiated by Sultan Ahmad ibn `Uwaysa long with the courtyard extension.
- 2) Then, Abbas Shah Safavi renovated the sarcophagus with brass and bronze and the dome with Kashi tiles. Both dome and minarets were covered and decorated using gold by Muhammad Shāh Qājār. These developments have become ideals or norms reflecting the reverence, holiness, and virtue through the built form, which increasingly used in erecting shrines in the Muslim world. In the next decades, architects and urban designers follow these traditional built forms and its components. These components are included the

sarcophagus, the mosque, the golden dome and minarets, the courtyard, and Iwans of the shrines in the Middle East [10].

- 3) Islamic architects and urban designers thus would adopt certain architectural styles and features from Arab, Persian, and Ottoman models and techniques. However, the visual presence of the shrines – their connection with the urban fabric, a size of building and associated spaces, and its connection with the landscape – would be designed so as to communicate a symbolic sanctity and spiritual appreciation derived and developed from the Islam thoughts and creeds [9]. (**Figure 2:** Imam Hussein Shrine before and after covering the courtyard) .



Figure 2. Imam Hussein Shrine before and after
covering the courtyard

- 4) The evolution of the shrine form is a continuous process of development and change that encounter unique challenges, mostly associated with the spaces, hierarchical order of space, and activities, as shown (**Figure 3:** Important developments of the Imam Hussein Shrine) .

Today, throughout Middle East, shrines have experienced growth in several aspects: the numbers of Muslim visitors, the building's spaces proportions, managing masses' movement, and newly established-activities over last two decades. For IHS, the number of Muslim visitors has increased significantly to the point that almost every spot of IHS has been faced serious impacts from visitors, spaces' shortages, and mismanagement during religious ceremonies. For example, what we have observed of IHS, the canceled spatial boundaries between Al-Haram and the open-to-sky courtyard previously formed a transitional area can create an isolated building including a static space, which was totally filled by visitors during events and ceremonies. Lack of transitional spaces can also make visitors commute long distances between outdoor and indoor. A low quality of amenities, inappropriate zoning, extreme climatic conditions between the shrines of Imam Hussein and Imam Abbas, and thus an iniquity planning are also potential threats for the forms of shrine and its components.

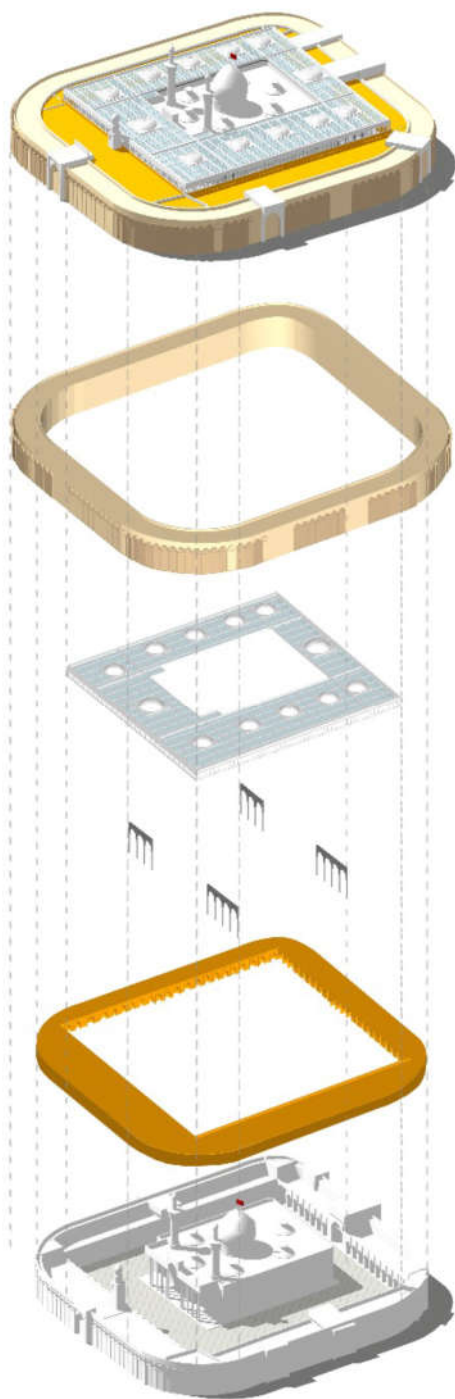


Figure 3. Important developments of the Imam Hussein Shrine (Drawn by Authors)

The impact of IHS developments on human perception can be affected the movement of masses inside and outside the shrine and also encourage some new activities to take place. For example, the presence of a convenient and attractive gathering area within the inner spaces of IHS encourages the opportunity for visitors, beside worship, to socialize, dialogue, eat, and even sleep. Hence, the probability of pray disruption is more likely to occur in such variety of activities.

This was less experienced with the previous HIS building settings and interrupting the flow of masses' movement during big ceremonies like Arba'aynia Visit. In sum, the shrine's spaces and hierarchical order and arrangements of space can stimulate certain patterns of behaviors than others.

The impacts of shrine form typology can be identified by examining the HIS from the viewpoint of human scale and masses' movement [12, 8].

A good shrine form not only provides a proper space, convenient transition, and comfortable worship atmosphere, but also adds "sense of inclusion", "sense of place", "sense of sanctity", and "meditating" to the experience of holy lessons of Imam Hussein's attitudes in that place [10,12].

The above-mentioned observations can suggest crossing a place between the two shrines in the historic center of Karbala that can create an opportunity for visitors to socialize and experience feeling of belonging and inclusion, but out of the HIS building. Harmony in the architectural design of buildings, space proportions, and the landscaping of the surrounded places between the two shrines can enhance the "sense of place". Perhaps, locating the main amenities and facilities on such places and widening the main pathways with welcoming gates can encourage visitors to enter and manage their movements. In addition, all other activities currently fulfilled inside. The shrine can be relocated in these places. Still, among the many methods employed to foster the performance of such shrines, the use of unplanned decisions primarily relied on the immediate needs is perhaps the most neglected aspect in HIS developments. The study will follow up with a relevant literature review in the next.

2. Literature review* (Table. 1)

There is an extensiv studying the Islamic architecture in e literature the Middle East, some of which were addressing three essential topics that associated with this study. First, studies that discussed and described the guidelines of Islam as a source of legislation, through which guidance can be drawn for builders, architects, and even town planners.

Hakim (2013) studied the principles and methods derived from understanding the Islamic traditions and how they have become an agreed set indicator over time. He stated that these principles and methods form a lot of buildings and urban forms found in historic nuclei of old Arab and Islamic cities nowadays. [1,4] have explained how the Arab and Islamic traditions have manifested at multiple scales, from micro to macro, of physical structures, street-networks, density, and urban blocks. In addition, Al-Attabi and Majid (2017) have studied the role of reverence, derived from the expression of glorification and sanctification in Islam, in influencing the process of forming the architecture of mosques and shrines.

Then, studies that have dealt with conservative issues focused on the historic and spiritual values of old Islamic buildings, in particular Mosques and shrines, and considered their historical and cultural interests. They considered these buildings as artifacts of human being and heritage.

Khalid Al-Sultani (2009) sharply criticized the developments conducted on the IHS and considered them a tearing down of a heritage and history of the building [8].

also studied the historical developments of IHS and highlighted the importance of the building for Muslim and non-Muslim worlds. He recommended that changes must be controlled by academic and professional groups.

Finally, studies that have focused on the process of making decision and procedural conducts highlight the role of main actors of making policy applied on historic buildings and nuclei in the Middle East. In his study on (2006), Karim discussed three main aspects associated with the Shrine building's development which are technical, religious, and procedural. Briefly, the technical aspect addressed the perception of space and gradual movement from outside to inside the Shrine and described how the building was established in the first place to satisfy spiritual need. The religious consideration attached to the Shrine building in general and to the whole philosophy of Imam Hussein in particular was linked to the virtues of asceticism, patience, and struggles. The procedural aspect that underpinned all processes from the beginning to the final implementation was lacking the professional code of practice.

Based on the literature reviewed, it is obvious that there is enough room for further research focusing on morphological dimension; in relation to the Islamic architecture in the Middle East; and in relation to the IHS. Most research has remained limited to illustrate the role of Islam rules and principles in shaping buildings' components and city parts. However, comparative researches on the implications resulted from the development projects of historic shrines and cores are yet to be explored. The existing literature on conservation has focused on describing the situations and documentations of historic buildings and cores, with or without shrines. As far as this study concerns, few researches were found to address morphological changes of shrines including the implications and recommendations. Nevertheless, some relevant studies have conducted on the influences of the professional code of practice; there is still need to highlight the role of authorities in managing and controlling the process of making policy in relation to historic buildings including shrines.

In conclusion, there is a gap in the literature related to the spaces' perceptions, hierarchical order of space, and

norms of the practice of shrine developments and the objectives of them. To address this issue as well, this research is conducted in two main phases: (1) categorization and digitizing phase, (2) the analysis and conceptualization phase. This research thus tries to fill in the gap with further investigation and analysis.

3. Methodology

This study Shade the light on important concerns associated with Imam Hussein shrines' developments, renovations, and extensions. These points can be indicators and suggestions for the architects and urban designers. In addition, they can draw attention of practitioners and policy makers by increasing consciousness and cautiousness when decisions are about to be made in similar tasks to the case of IHS. A case study strategy will be use to analyze, categories, and thus conceptualize the existing developments Carried on within the last decade. The scope of this research is limited to the physical features resulted from the developments of IHS and so does not involve other related topics and areas including socio-economic, environmental, and human heritage dimensions. Focusing on the IHS developments, this research was organized and carried out in two main phases.

3.1 Categorization and digitizing

The first phase of the study was paid to the content analysis of four main developments that generated the most influential impact on the building's components of IHS. In this phase, the most common challenges, objectives, and consequences in the reviewed historic developments are drawn and analyzed.

Although the four selected developments are not necessarily the best practices of handling shrines in the field; yet, they can be considered as the norms mostly applied on the other shrines in Iraq. The examined developments have been selected through a long historic research processes used all available sources and data, that certified by Iraqi academic institutions and professional agencies. A number of ten IHS maps, plans, and photos were found in the aforementioned institutions and agencies. Four of which selected based on two guidelines:

- The first; The shrine developments that examined in the analysis should be implemented after 2003 where the shrine form significantly has changed.
- The Second; The challenges, objectives, and consequences of HIS developments should be clearly stated.

A percentage of (65%) of the selected developments were targeting the decorated roofing of the previously open courtyard space of IHS; the rest of (35%) percent was addressing a horizontal expansion towards the outer

space surrounds the shrine building. The master plans for these developments were categorized as three inwardly inside the open-to-sky courtyard and the last one was outwardly of the outer walls. Developments were last updated and adopted new renewal processes in 2016. However, these last are not involved in the analysis since they have not implemented yet. All selected developments have been digitized. A table of IHS developments has drawn to show the differences before and after the changes,(**Figure 4:** Imam Hussein Shrine’s developments) .

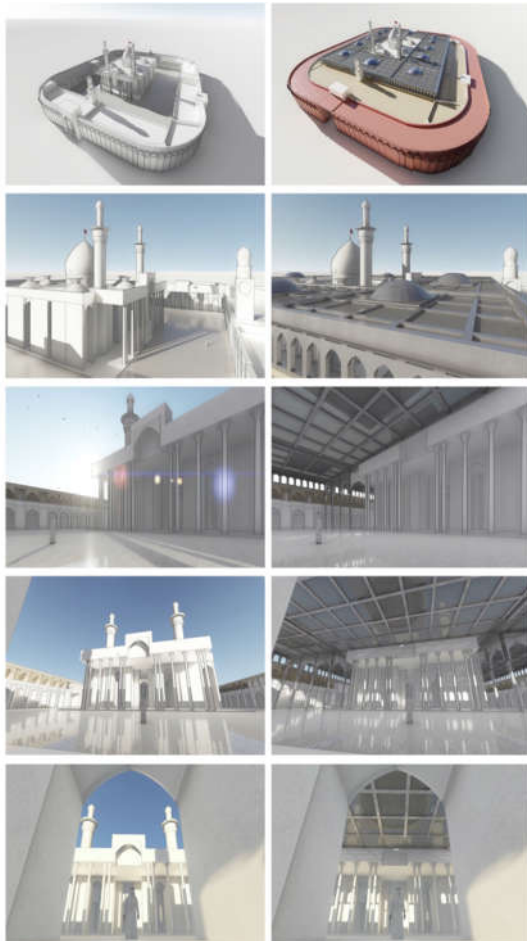


Figure 4. Imam Hussein Shrine’s developments.

(drawn by Authors)

Authors also could not find any public or private consultant offices and firms that were involved in the production of these master plans. Hereby, the goal was to know if the master plans were developed by privately hired consultants to legitimate the entire development process. The results show that 95% of the master plans were produced without the involvement of consultant offices and firms and the entire process was managed by the engineering office of IHS.

The remaining 5% were produced by only two public consultant committees, appointed in a collaborative agreement between the headquarters of IHS and the University of Baghdad (UB).

3.2 Analysis and describing

The second phase of the case study covers the analysis and description of the changes before and after the conducted developments. Three ‘main ideas’ in HIS changes were derived, based on the 5 scenes showed physical differences of the four developments. In addition, from the comparison carried out at the three-dimensional figures in the first phase, three ideas that have been identified were recognized. To be more specific, this phase presents the main ideas of shrine developments which are included the building’s spaces, hierarchical orders, and new-established activities.

3.2.1 Building’s spaces

First development processes were conducted on the band rectangular space. This space was characterized by openness, continuity, and human scale proportions. Later, it has modified by adding four groups of steel columns. These columns divided the previous continuous space of the courtyard into two groups of spaces, for each consists of two equal spaces,(**Figure 5:** Imam Hussein Shrine’s Space).

Recent development has impacted the previous spaces properties such as converting openness to the closeness, describe the continuity, and lastly turning the space into non-human scale.

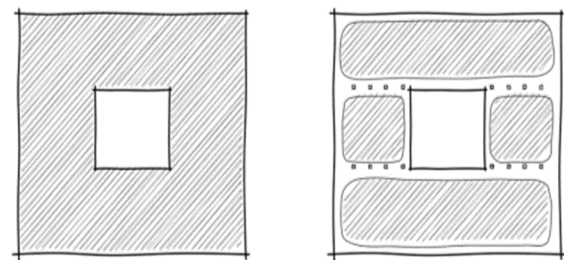


Figure 5. Imam Hussein Shrine’s Spaces.

(Drawn by Authors)

3.2.2 Hierarchical orders

Observing the arrangement of the spatial manifestation found in IHS can be described in three types of space: inside, transitional, and outside. The first space has included the movement of masses inside Al-Haram, where Muslims have been often doing their worship or pass-through this area towards Al-Haram. Then, the transitional space of the courtyard and included the other two types of movements (inside and outside) are accommodated. While the movement conducts in the outdoor, the space it-self is surrounded by the main walls and Iwans of HIS external walls. Many other service activities, including administrations, clinic, Waqif rooms, and meeting halls, all are accommodated in the external shrine walls, courtyard. Finally, the outside type refers to all other movements conducted outwards of IHS building. Different groups of people enter through

ten gates into the IHS serving different directions, placed around the shrine external walls, (**Figure 6:** Change on spaces Hierarchical order of HIS.)

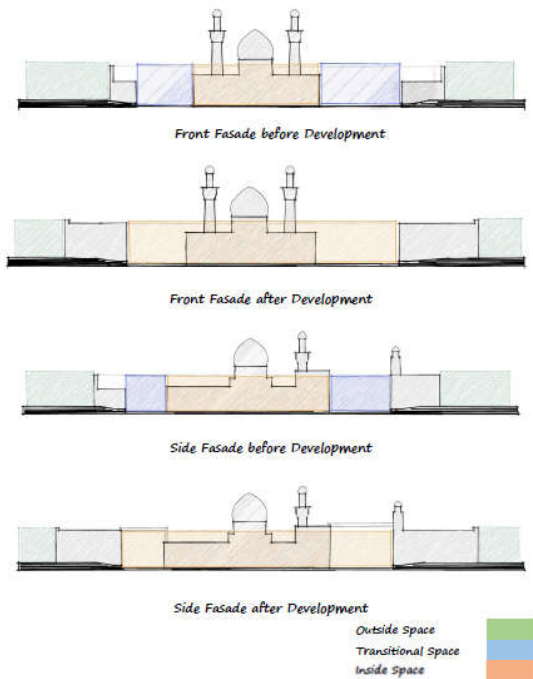


Figure 6: Change on spaces Hierarchical order of HIS. (Drawn by Authors)

4. Results

The outcomes derived from the analysis conducted based on the comparative analysis before and after HIS changes will be based the three main ideas: building's spaces, hierarchical orders, and new-established activities.

4.1 Building's spaces

4.1.1. Covering the courtyard has changed the outdoor open space environment into four indoor spaces, each two are equal. Inclusion of indoor space has significantly increased by the new decorated roofing. Yet, demolished the open-to-sky space in the previously existed courtyard. The open space in the courtyard was supporting three levels of perception to the building components, (Golding dome, minarets, parapets, and other facade's details), (**Figure 7:** Change on the open-to-sky courtyard of HIS.)

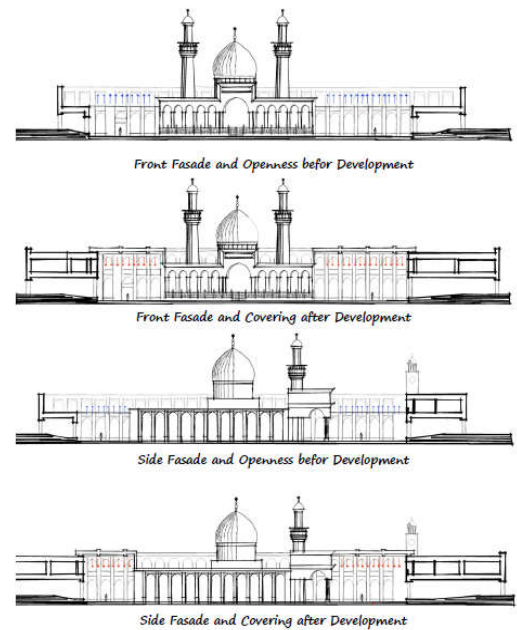


Figure 7: Change on the open-to-sky courtyard of HIS. (Drawn by Authors)

4.1.2.

These levels of space perception were represented in three different locations when approaching the shrine, the first represented in approaching the gates from outside, the second is by getting into the gate where part of the dome and minarets are appearing and finally when setting in the open space of the courtyard where the ultimate glory of Golding dome and the sky-climbing minarets forming a breathtaking panorama. All there were gone forever with roofing of the courtyard.

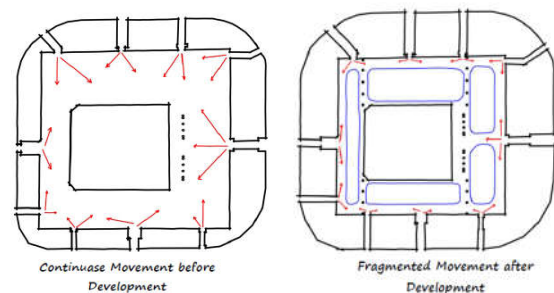


Figure 8: Change on Movement Patterns. (Drawn by Authors)

4.2 Hierarchical Orders

- 4.2.1. Orientation of previous continuous movement has interrupted and produced two static places and two semi-static spaces.
- 4.2.2. Transitional phases of (outside, quasi-inside and inside) movements established in the original shrine special setting disappeared forever with the courtyard covering. (**Figure 8**: Change on Movement Patterns) .

4.3 New-established activities

- 4.3.1. The sizes of the new four spaces form different patterns of space proportions –long-rectangular and semi-square – impacted the sense of place and human scale.
- 4.3.2. Comfort properties of the new indoor environment have encouraged inappropriate activities (sleeping, eating, slapping, and gathering) replace the previously spiritually dominated activities,(**Figure 9**: New-established activities in HIS.)

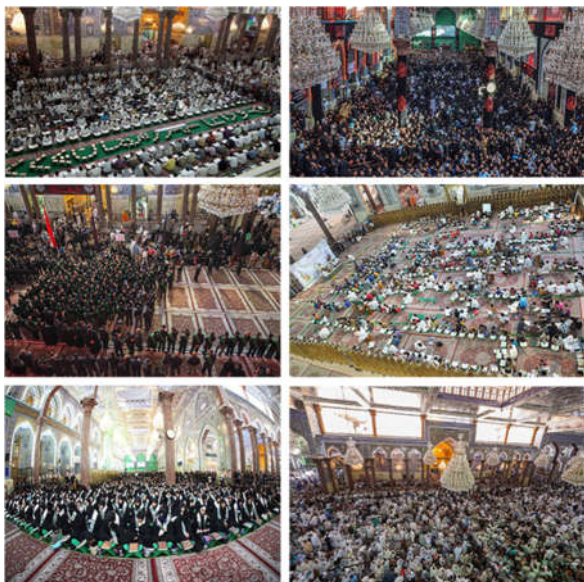


Figure 9. New-established activities in Imam Hussein Shrine

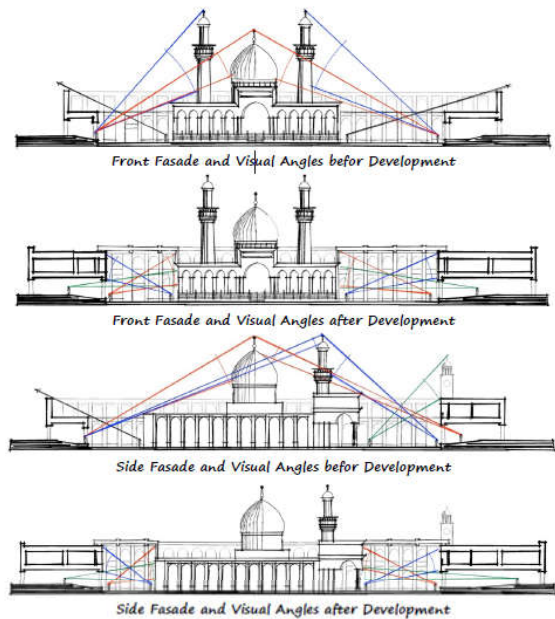


Figure 10. Change on the Visual Angles of Imam Hussein Shrine. (Drawn by Authors)

5. Conclusions

This paper has investigated the impacts of the IHS’s developments on the human perception of the space and implementation processes. Spatially the focus was paid to the perception of spaces, hierarchical order, and the new-sensual-based activities driven by climatic comfort that the confined space provide.

The fast implementation of the IHS development was lacking the professional code of practice normally applied in handling similar historical buildings. This can be explained by purposefully neglecting all other potential expertise proposals and viewpoints necessary to managing the need of extension itself and apply the essential principles of conservation of IHS.

The findings of this study were addressing the consequences of perception of the shrine spaces and building, and proportional coherence between building mass and open space. Among the study objectives, the study was also aiming at rising awareness toward ameliorating the aforementioned consequences of the HIS development. While the influence made by the developments’ physical interventions varies across different parts of the shrine amenities, yet the greatest effect was experienced at the level of spaces perception, (**Figure 10**: Change on the Visual Angles of HIS.)

Nevertheless, an international influence of organizations like UNISCO has been neglected. This was happening in the circumstances of political chaos and institutional fragility witnessed in Iraq after the year of 2003. An effective cohesion between local and international efforts could have brought the entire process into the right track. Values of conservation of heritage sites along with expert's tutorship could have been addressed the process with technically sound solutions.

Despite the absence of international expertise, internal voices of architects, historian and other practitioners were barely heard. Nevertheless, an increasing alertness was witnessed around the importance of spiritual, architectural, and socio-cultural values of such shrines throughout the last ten years. Correspondingly, conflicts arose about the legitimacy of the development process triggers increasing determinations to appropriately monitor and professionally regulate attempts aiming at resolution in the years ahead.

-It is hoped that this paper has succeeded in providing central insights into the interactions between the need of Muslim visitors and the architectural importance of IHS for human heritage which are of value to authorities, society, academics and local communities in both the Muslim and non-Muslim worlds.

-Furthermore, authors have recognized some of the shortcomings, confined at the comparison aspects such as space perception, hierarchical order, and new established sensual-based activities, founded in the analysis. Research on studying space perception of shrines in many Islamic aspects is still limited and some topics of these studies can be considerably critical. Although some studies have addressed the morphological changes based on environment influences like [3]. Literature considers climatic condition is also needed. More cases outlining the process of shrine developments at local attempts as well as procedures would be useful, as would analyses of motivations of Muslim visitors and their experiences in using the HIS spaces and components. Impact assessments encompassing proportional, environment, socio-cultural, religious, and economic would yield valuable data to assist in sustainable development and management. Other worthwhile topics include levels of religious and political involvement in making decision of development projects within and across real professional code actions and views about the consequences, not relying on immediate needs, desires, or orders. Integrated efforts between Muslim and non-Muslim are essential and worth encouraging. The questions and remarks brought to attention in this paper can be important for researchers and practitioners, who involved in decision-making processes, concerns rose earlier worth further investigation, and feed continued research.

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Table. 1: Literature review.

No	Authors	Signification	Facade	Space	Physical properties	Movement	Traditions Rules
1	Hakim,(2013)	Focusing on the production Arab-Islamic architecture and urbanism.	•	•	•		•
2	Attiya, H,(2009) & (2014)	Describing the urban 101111 developments over time.		•	•		•
3	Al-Sultani, Khalid, (2009)	Criticizing the rule of historic valise of Arab and Islamic buildings as culture values.		•			•
4	Karim, M. (2006)	Focusing on the impacts of covering the open -to- sky space.	•	•			•
5	Al-Attabi and Majid (2017)	Emphasizing the rule of holy influences in such building.		•	•		•
6	Alobaydi,D. and Rashid, M. (2015) & (2017)	Studying the morphological changes of the physical properties of historic cores in Iraqi cities.		•	•	•	•
7	Our study	Studying all the physical qualities and spatial properties of the building, and filling on the research gap founded in the previous Literature.	•	•	•	•	•

تقييم اثر تطورات المبنى في الإدراك الانساني:

ضريح الإمام الحسين في كربلاء /العراق- حالة دراسية

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الخلاصة – يستكشف هذا البحث اثار تطورات المبنى لضريح الامام الحسين (عليه السلام) على الادراك الحسي للإنسان، ويتساءل البحث عن إدراك الفضاء من خلال التجربة الحسية للإنسان، ثم يمتد الاستكشاف البحثي لمدة عقد واحد والذي جرت خلاله التطورات والتغيرات لمبنى الضريح، والتي هي موضوعة الدراسة والاستقصاء. لقد شهدت النسبة بين الفضاء والكتلة تغيرات كبيرة لمجمع مبنى الضريح، وبالتالي أدت الى تغيرات أخرى حدثت في زوايا النظر، والاحتواء، والمحاور البصرية، والحركة، والاحساس الإنساني داخل وخارج مجمع المبنى. تضمنت هذه التطورات: إضافة الطابق الجديد للسياح الخارجي وإضافة الاعمدة الضخمة داخل الفناء الداخلي (الصحن الشريف) وتسقيف هذا الصحن، وأخيرا إضافة توسعة الـ(10م) حول المبنى. تظهر مشكلة البحث في كيفية تأثير التطورات الحاصلة على مبنى الضريح في الادراك الفضائي والمقياس الانساني وظهور فعاليات جديدة داخل مبنى الضريح كالنوم والاكل والتجمع. يهدف هذا البحث لمعالجة السؤال التالي: كيف اثرت تطورات مجمع مبنى الضريح على التجربة الفردية في استيعاب الفضاء الداخلي والاجزاء الأخرى في المبنى؟ اذ يفترض البحث بان التحليل الادراكي الحسي لتطورات ضريح الامام الحسين ع يمكن ان توفر حلول واضحة للتغيرات الحضرية التي حدثت. اشارت نتائج البحث الى ان الاحتواء الفضائي ازداد بشكل واضح، بينما تأثرت زوايا النظر والمحاور البصرية وانسيابية الحركة والمقياس الإنساني بشكل كبير بعد حصول هذه التطورات. تتضمن البحوث المستقبلية ذات الصلة بهذا البحث دراسة التأثيرات الاجتماعية، الاقتصادية، والعوامل البيئية في العلاقة مع الفضاءات والفعاليات بالمقارنة مع مباني الاضرحة الأخرى (كضريح الامام العباس ع).

الكلمات الرئيسية – "ضريح الامام الحسين ع، الفضاء، الادراك الإنساني، التطورات، المقياس الإنساني".