New architectural intervention in historically sensitive contexts: humanistic approach in historic Cairo

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ABSTRACT
All previous researches and studies that dealt with the issue of inserting new architectural development in the historic areas have focussed on the formalistic approaches of the intervention. On the other hand, design principles and guidelines issued by local authorities to control and guide the new architectural intervention in these areas focusses on character, expression and façade's detailing. Yet, the new architectural intervention in historically sensitive contexts has not been researched at the level of humanistic approach with its socio-cultural and economic implications. This research aims to tackle this issue and establish principles and guidelines for dealing with new architectural intervention in these contexts through a humanistic approach with its reflections on the physical and nonphysical aspects. The research aims also to answer the question; are design guidelines issued by local authorities for historic areas adequate in capturing the difficult questions of integrating new and historic buildings. To attain the research objectives and answer its questions, an in-depth field study carried out at MSA University in historic Cairo is analyzed, investigated and discussed. Through this analysis and investigation, the intervention approaches are examined and assessed to establish principles and guidelines that could be followed in dealing with the issue of new architectural intervention. The case study analysis is guided by significant principles that followed in a relevant project in old Cairo that received international recognition and awarded the Aga Khan Award for Architecture for its perfect integration with the historic context. The research also examines and discusses the appropriateness of the design guidelines issued by local authorities in historic Cairo to deal with the new buildings. The results of this research are expected to help those involved in making decisions affecting the quality of the historic built environment at all levels.

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Significance of historic areas
The significance of historic areas in contemporary city centers relies on its nature as a product of accumulated layers of human history with its physical
and nonphysical aspects. Historic areas typically exhibit a range of heritable values, such as social, historical and architectural [1]. Structures of these areas can be read as historic evidence just like written documents and can aid the understanding of past conditions and of how society changes. In the main Arab cities, most of the old historic areas were parts of the old Islamic cities that were found through the different Islamic ages. Old Islamic city had a cultural, social, political and economic logic in terms of physical fabric, layout and uses [2]. A number of factors played crucial roles in ordering and shaping the plan and form of the Islamic city. These factors are religious and cultural beliefs, shariah law and social principles.

Islamic architectural legacy was neither more shapes and forms to be copied nor beautiful arches and internal courtyards to be imitated. It expresses Islamic values and principles that guided the architects while studying and carrying out their achievements. Abdelbaki Ibrahim [3], Eman Eid [4], Essa Bin-Essa [5], and Mohammed A. Ibrahim [6] all have defined these principles using different expressions, but with the same meaning. Mohammed Elrefa'y defines these principles as follows: Unity: Unity of the creed is the keynote which provided over the Islamic thinking on the account of the oneness of God. In architecture, the presence of unity in the architectural composition links together the various construction elements of the building. Simplicity: It is revealed in the formations of volumes and treatments of facades. Privacy: Ensuring privacy is one of the main principles that should be observed in urban and architectural designs. Human scale honoring: the urban and architectural formation including volumes, spaces, illumination, shades and colors must proceed from the human scale. Natural environment honoring: the architect used to deal with elements of the natural environment in a positive and realistic way. Observance of adjacent settings: the architecture of any building is always in harmony with the neighboring building [7].

To complete the previous discussion, it is important to explain the notion of content in the Islamic built environment. Ernst J. Grube defines Islamic architecture as the ‘hidden architecture’. By this expression, he means that is an architecture that is truly existed, not when seen as a monument or symbol visible to all and from all sides, but only when entered, penetrated and experienced from within [8]. Grube emphasizes the importance of content rather than form in Islamic architecture. Understanding Islamic architecture could be attained when it is perceived through living within its spaces not by viewing its forms and symbols. In this sense, Saleh Alhathloul blames the recent studies on Arab Islamic cities for their interest in the forms in Islamic architecture and ignorance of the principles and values that led to employ these forms [9]. At this point, we can indicate that a traditional Islamic city like Historic Cairo was originated and developed based on values and principles
of the Islamic built environment and acquired its identity through the integration of content (which is related to socio-cultural and religious values) as an invariable factor with forms as a changing factor. Accordingly, when studying these areas and investigating the possibilities of inserting new buildings, it is important to deal with forms and content. The study of traditional Middle Eastern contexts has shown a strong bond and integration between the physical built environment, the ideologies of its inhabitants and the values of its society [10]. Human values that are embedded in the content of the Islamic built environment have a great impact on its architecture and generated what is called ‘humanistic architecture’.

**Humanistic architecture**

Humanistic architecture is the architecture that appreciates the human values inherent in the socio-cultural life of the community and emphasizing the creation of interactive spaces based on human behavioral aspects [11]. It is the architecture that relates buildings to effective content rather than a form which was one of the guiding principles in creating the built environment of the old Islamic city. It enhances social values and human ties among inhabitants themselves and reinforced ties among the broader community.

The physical beauty of formalism does not last for long since the perception is mostly superficial especially when routinely observed. Socio-cultural values create continuous interaction and variable meanings that last. Familiarity may weaken passion for architectural forms through daily use but can be reversed into a place attachment when being a continuous place of a humanistic and social interaction [12]. El Husseiny argues that architecture should not be appreciated as a piece of art. It is important to express values in a daily use context and interact with people’s feelings and attitudes through humanistic spaces.

At this point, it is important to discuss the notion of place attachment to explain how the humanistic approach in inserting new buildings in historic areas can be achieved through creating a sort of place attachment between people and the new buildings. Place attachment refers to emotional and functional bonds between place and people which are interpreted on a different scale from a building to a district to a country [13]. Attachment to places is one of the most important concepts in the relationship between place and people. Researchers name this concept in relation to the place when people have a positive sense about it. In this process, when place becomes important for them, it leads to attachment to place [14]. This is raised from activities and interaction between human-place and human-human in a special place. In general, the interaction between humans and places is in three dimensions: Cognitive, behavioral and emotional. Cognitive
aspects of the interaction are led to spatial perception. Behavioral aspects of the interaction are mentioned to activities and functional relationship between people and the environment. Emotional interaction with place points to satisfaction and attachment to place [15].

A review of literature about place attachment reveals that factors that influence on creation or promotion of place attachment are classified as follows: physical factors: Stedman [16] studied the physical place role on place attachment and pointed to the direct role of it on satisfaction and its indirect role on place attachment. Socio-cultural factors: some researchers believe that place attachment is based on people’s participation, social network engagement and cultural interactions, there is equal or more importance than a physical place. Interaction and activity feature: One important factor of place that plays important role in the promotion of place attachment are activities and interaction between human-place and human–human interactions [17]. Place activities results in place meaning and finally place meaning causes place attachment. Studies showed that place attachment promoted even with periodical celebration and events or permanent activities dominated on places, so that, in some intercultural studies, festivals, celebrations, story activity featured as more important factors in different culture attraction to people. Loving the events might reflect to love the place where they happen and buildings when their beloved are much more precious than being esthetically striking.

**Inserting new buildings in historic areas**

Compared to building outside a defined historic zone, new buildings or interventions in the historic areas need to be more sensitive in order to protect the value of monuments and cultural identity [18]. Before discussing the regulations and controls issued by local authorities to guide the construction of new buildings in historic areas, it is important to clarify the necessity to insert new facilities within these areas. In many cases, we need to build in these areas to provide facilities needed by the inhabitants of the growing and changing local community such as health care educational and retail. Building in these areas also helps in solving socio-cultural and economic problems of the local community through supporting, enhancing and utilizing the inhabitants’ skills, for instance, by providing handicraft workshops and outlets. It is also important to utilize all the vacant lands which have great values in these significant locations whether they are governmental or private tenure.

The deteriorated nonhistoric buildings with very bad conditions are very dangerous for the inhabitants’ safety and represent a continuous life threat and they need to be replaced by new buildings. In some parts of the historic
districts like the case of historic Cairo and adjacent to the historic buildings, there are informal settlements with many buildings that were built illegally without following any regulatory rules. These buildings need to be replaced by new constructions respecting the building regulations and guidelines. In some cases the adjacent monuments are affected negatively by the encroachment of these illegal buildings on their walls. At the cultural and economic levels, it is important to take full advantage of the historic and cultural values of these areas and develop projects that enhance the tourism industry which has a great impact on developing the national economy.

**Regulations and controls by local authorities**

Before discussing the local authorities’ regulations and controls to guide the construction of new buildings in historic areas, we need to answer a raised question. Do the previous researches and studies introduce appropriate approaches for dealing with the insertion of new buildings in the historic areas? Literature review revealed that all previous researches and studies that dealt with the issue of inserting new architectural development in the historic areas have focused on the formalistic approaches of the intervention. Aiming to establish guidelines in dealing with new architectural interventions in historic contexts to achieve esthetic fitness, these studies tackle factors related to the appearance of the building. These factors focus on matching the pattern of the existing context, the building scale, the architectural vocabularies and building materials and techniques [19,20], and [21].

Another question related to the local authorities needs to be answered; are the regulations and controls issued by local authorities adequate in capturing the difficult questions of integrating new and historic structures? As our architectural heritage is a unique resource and irreplaceable expression of the richness and diversity of our past, local authorities establish regulations and controls for building new structures in historic areas in order to preserve the historic nature of the context. The broad goal of these regulations is to ensure that the new building is compatible with its historic context. While compatibility is a broad term that includes numerous factors such as massing, size, scale, architectural elements, etc. … that often come down to the opinion of the responsible committee.

Reviewing and analyzing regulations issued by local authorities of historic Cairo [22] and Old Jeddah [23] revealed that these regulations and controls are classified into two levels. The first level concern regulations and controls for the urban fabric. These regulations have focused on preserving the traditional urban fabric, densification, building height controls, street pattern and setbacks, and built-up areas. The second level concern regulations and controls for the architectural character. These regulations have focused on
compatibility with the surrounding character, opening shape, percentage and proportions, façade design and pattern, façade materials and colors, and façade vocabularies and elements. Yet, the regulations issued by both of the two authorities have not included controls or guidelines for the contribution of the new building in supporting the daily socio-cultural activities of the local community. **Table 1** shows the analysis of the regulations issued by the two authorities.

At this point the following crucial question is raised; are we going to look at the inserted building in this significant context as a piece of art through its formalistic features? To answer this question and understand the meaning of integrating the formalistic and humanistic features and aspects we need to analyze the experiment of Abu Al-Dahab Community Wall.

**The experiment of abu al-dahab community wall**

Al-Dahab Community Wall is part of the Cultural Park for Children designed by Abdelhalim Ibrahim in Alsayeda Zainab district in the heart of historic Cairo Figure 1. In 1992, the project was awarded the Aga Khan Award for Architecture. The project was awarded for connecting the park to the neighboring community of Abu Al-Dahab street and extending the park's presence among the community residents through the park edge. The street wall is particularly a notable concept in park layout and design [24]. The concept of this street is to provide a walled enclosure for the park and community facilities housed within the boundary wall to serve the residents. Through this way instead of separating the residents from the building as conventional walls do, this community wall attracted them and enhanced social events and activities creating a sense of place attachment [25].

However, the designer’s approach to the park design also aimed to extend the park space outward, to interact with the neighborhood community of which it is a part. Accordingly, he rejected the development of well-defined

| Building Regulations and Controls                                      | Historic Cairo | Old Jeddah |
|------------------------------------------------------------------------|----------------|------------|
| • Preserving the traditional urban fabric.                             | √              |            |
| • Densification                                                        | √              | √          |
| • Building height control                                              | √              | √          |
| • Street pattern and vehicular access                                  | ×              | √          |
| • Setbacks and built-up areas                                          | √              | √          |
| • Compatibility with the surrounding character.                       | √              | √          |
| • Opening shape and proportions                                       | √              | √          |
| • Façade materials and colors                                          | √              |            |
| • Façade design and pattern                                            | √              |            |
| • Façade vocabularies and elements.                                    | √              |            |
| • The building contributes to the daily socio-cultural activities of the local community | ×              | ×          |
Figure 1. Main components of the Cultural Park for Children [24].
boundaries to the park within the neighborhood. The park edges are designed as permeable walls that allow access between the park and surroundings Figure 2. Abu Al-Dahab Street was designed to facilitate and encourage this movement. The designer’s approach to the park holds two conceptions of space, a container space of the historic and spatial objects, and a relational space between the park and neighborhood Figure 3. However, he identifies this relational space through the physical boundaries, edges and walls of the park, itself a separate container space inside the neighborhood.

It is important to indicate that the original brief of the project did not include the community wall and its components. Yet, to attain his objectives in integrating the building with the surrounding community and creating a sense of place attachment, the designer provided a number of outdoor and indoor spaces which created the community wall Figure 4. To identify what type of facilities needed, a survey and analysis of the socio-cultural and economic conditions of the local community were carried out.

Principles of integrating formalistic and humanistic approaches that implemented in the project of Abu Al-Dahab Community Wall guided the case study analysis to attain the research objectives. In-depth field study carried out at MSA University in historic Cairo to analyze and investigate intervention approaches.

Case study: new architectural intervention in Haret Khoukha, El-Darb El-Ahmar, Cairo

Handicrafts revival and development center

Cairo’s historic district of Addarb Alahmer lies in the heart of the dense urban environment of the city. It is a neighborhood rich with medieval Islamic structures, bordered by the Ayyubid wall to the east and the Salah-Addin Citadel to the south. The architecture of the Addarb Alahmer district is a physical document reflecting over 700 years of Cairo’s history [26].

Current problems: Haret Khoukha in the southern part of Addarb Alahmer district, Figure 5, is a significant example of the informal settlements in historic Cairo. Accordingly, Haret Khoukha holds complex problems such as illegal tenure, unsafe and deteriorated building conditions, poverty, unemployment, social problems and crimes [27]. Yet, despite these problems, a large number of skilled craftsmen lives in Haret Khoukha and suffer from the indicated crisis.

Impact of Haret Khoukha on Salah-Addin Citadel:

Salah-Addin Citadel which is located to the south of Haret Khoukha was affected negatively by the attached informal settlement with all the indicated complex problems. As a result of such closeness, the main northern gate of
Figure 2. The park edge as a permeable wall [24].
Figure 3. Plan showing part of the park and Abu Al-Dahab street [24].
Figure 4. Outdoor facilities and spaces created the community wall [24].
the Citadel which links it to the city has been blocked for decades. Many forms of transgression on the gate approach led the government to close it. The apparent transgression is that of the informal residential buildings which were built attached to the monumental wall of the Citadel and supported by its stone towers Figure 6.

Intervention objectives: The main objective of this project is to enhance and develop the traditional handicrafts. It is considered as a process of revival of old dying crafts. The project makes a valuable contribution toward the national crafts and uplifting of the socio-economic condition of craftsmen in addition to creating new jobs. The project involves establishing a training center to train and educate youth in fine handicraft production. In addition to training, the center plays a key role in the revival of the local handicrafts through design development, research, publications, and exhibitions. The project also establishes marketing outlets for the products produced by the craftsmen. These outlets are places of great interest to tourists. The project provides residential units for residents who currently live in unsafe houses with deteriorated building conditions. One of the significant objectives of the project is to revive the

Figure 5. Haret Khoukha area in the southern part of El-Darb El-Ahmar [28].
closed northern gate of the Citadel. Historically, this gate was considered the main gate of the Citadel which connects it to the city.

The proposed project succeeded in attaining the intervention objectives and introduced an appropriate model for dealing with the insertion of new facilities within the context of historically sensitive areas at both the formalistic and humanistic levels. The project addressed the local social, economic and environmental issues, in addition to taking full advantage of the existing assets, for instance, historic buildings and townscape. The design reinvented the historic area to create pedestrian streets, public spaces and facilities which are human, lively, intimate and secure Figure 7.

The design created a new cultural and tourism destination utilizing the substantial values of the place including the significant location and historic buildings. Figure 8Figure 9 shows the project master plan where the edge of the project that facing the citadel is distinguished by open courtyards and plazas to enhance the socio-cultural and touristic activities. This part of the project includes galleries, retail units, coffee shops, restaurants and gathering
Figure 7. The proposed project: main components and integration with the fabric [29].
plazas. While behind the edge, in the heart of the project, the training center, workshops and residential units are located.

**Discussion**

In attaining the intervention objectives, the proposed design adopted a reliable approach based on principles and guidelines derived from the experiment of the Abu Aldahab community wall. The design provided two types of spaces. Firstly, the indoor spaces (the container space), where the required facility spaces are provided through a comprehensive design process. Secondly, the relational space on the building edge between the building and neighborhood. This space was dealt with at two levels. The first level has focussed on the formalistic aspects of the space, while the second level focuses on the humanistic aspects through creating interactive socio-cultural spaces.

**Conclusion**

Conclusion of this research can be drawn at three levels:
Figure 9. The developed framework for dealing with the process of inserting new buildings in the historically sensitive contexts [the author].
1) The regulations and controls issued by local authorities are inadequate in capturing the difficult questions of integrating new and historic structures as they lack the humanistic dimension.

2) The research established principles and guidelines for dealing with new architectural interventions in historic contexts through more appropriate approaches.

3) The research developed a framework for dealing with the process of inserting new buildings in the historically sensitive contexts.

The developed framework

This framework is one of the significant contributions of the research. It indicates two types of spaces; the container space which is the indoor space with the required functions which is relevant to the building design process. The other space is the relational space on the building edge between the building and neighborhood and this space will be dealt with at two levels. The first level focuses on the formalistic aspects by adopting one of the approaches (referential, deferential, and contrasting). While the second level focuses on the humanistic aspects through creating socio-cultural and economic spaces on the edge of the ground floor and integrate them with the adjacent urban spaces. Working on both of the two levels creates what we can call the community façade which ensures the integration with the neighboring community and adjacent fabric and attains the principle of place attachment. This framework is intended to guide and assist community organizations and regulatory agencies and decision-makers in their review of proposals for new constructions in historic districts. It is also intended to assist architects and developers in planning and designing projects in historic contexts.

Recommendations

This research recommends the following:

(1) Regulations and controls issued by local authorities to guide the construction of new buildings in historic areas needs to be revised to reflect the humanistic dimensions.

(2) The developed framework represents an appropriate tool to be utilized in guiding and assisting community organizations, regulatory agencies and decision-makers in their review of proposals for new constructions in historic districts.

(3) The developed framework is also intended to guide and assist architects and developers in planning and designing projects in historic contexts.
Disclosure statement

No, potential conflict of interest was reported by the author.

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