Volume (11) - Issue (3) - November 2017

Contents

Original Research Articles

ARCHITECTURAL AND URBAN HERITAGE IN THE DIGITAL AGE: DILEMMAS OF AUTHENTICITY, ORIGINALITY AND REPRODUCTION (05/15)
Mohamed Gamal Abdelmonem
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1415

SMART CITIES AND HERITAGE CONSERVATION: DEVELOPING A SMARThERITAGE AGENDA FOR SUSTAINABLE INCLUSIVE COMMUNITIES (16/27)
Patrizia Riganti
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1398

VIRTUAL PLATFORMS FOR HERITAGE PRESERVATION IN THE MIDDLE EAST: THE CASE OF MEDIEVAL CAIRO (28/41)
Mohamed Gamal Abdelmonem, Gehan Selim, Sabah Mushata, Abdulaziz Almogren
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1404

VIRTUAL WOLVERHAMPTON: RECREATING THE HISTORIC CITY IN VIRTUAL REALITY (42/57)
Eleanor Ramsey
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1395

A VIRTUAL OASIS: TRAFALGAR SQUARE’S ARCH OF PALMYRA (58/77)
Stuart Burch
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1401

VIRTUAL REALITY AND THE ISLAMIC WATER SYSTEM IN CAIRO: CHALLENGES AND METHODS (78/93)
Mohamed Soliman
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1386

VIRTUAL REALITY: TOWARDS PRESERVING ALEXANDRIA HERITAGE BY RAISING THE AWARENESS OF THE LOCALS (94/108)
Heba Aggour
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1390

ACHILLES AS A MARKETING TOOL FOR VIRTUAL HERITAGE APPLICATIONS (109/118)
Mohamed Nabil Arafa
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1385
International Journal of Architectural Research
An international fully refereed journal published three times a year-
http://www.archnet-ijar.net  |  https://archnet.org/collections/34

Volume (11) - Issue (3) - November 2017

Contents

SUSTAINED LIVEABILITY: A FRAMEWORK BEYOND ENERGY CONSCIOUS BUILDING CONSERVATION OF MARKET HALLS (119/131)
Neveen Hamza, Dalila ElKerdany, John Pendlebury, Sahar Imam, Aliaa AlSadaty, Tamer ElSerafi
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1381

TALENT MANAGEMENT: A NOVEL APPROACH FOR DEVELOPING INNOVATIVE SOLUTIONS TOWARDS HERITAGE COMMUNITIES DEVELOPMENT (132/145)
Mohamed Khalil, Heba Elsaay, Ayman Othman
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1400

CONTESTED HERITAGE: AN ANALYSIS OF THE PHYSICAL TRANSFORMATION OF DERRY/LONDONDERRY’S SIEGE MONUMENT (146/162)
Gehan Selim, Mohamed Gamal Abdelmonem, Sabah Mushataf, Abdulaziz Almogren
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1407

WALKABILITY IN HISTORIC URBAN SPACES: TESTING THE SAFETY AND SECURITY IN MARTYRS’ SQUARE IN TRIPOLI (163/177)
Khairi M. A. Abdulla, Mohamed Gamal Abdelmonem, Gehan Selim
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1378

MODERNIST ARCHITECTURE, CONFLICT, HERITAGE AND RESILIENCE: THE CASE OF THE HISTORICAL MUSEUM OF BOSNIA AND HERZEGOVINA (178/192)
Selma Harrington, Branka Dimitrijevic, Ashraf M. Salama
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1330

ORNAMENTAL ART AND SYMBOLISM: ACTIVATORS OF HISTORICAL REGENERATION FOR KAZAKHSTAN’S LANDSCAPE ARCHITECTURE (193/213)
Akmaral Yussupova, Liu Songfu, Ardasher Namazbay, Farzad Pour Rahimian, Ahad Nejad Ebrahimi
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1358

EVALUATION OF AUTHENTICITY ON THE BASIS OF THE NARA GRID IN ADAPTIVE REUSE OF MANOCEHRI HISTORICAL HOUSE KASHAN, IRAN (214/230)
Parasluu Estrati, Somayeh Fadaei Nezhad Bahramjerdi, Samaneh Eftekhar Mahabadi, Mitra Azad
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1276
International Journal of Architectural Research
An international fully refereed journal published three times a year-
http://www.archnet-ijar.net  |  https://archnet.org/collections/34

Volume (11) - Issue (3) - November 2017

Contents

Review Articles

BOOK REVIEW: UNIFIED ARCHITECTURAL THEORY: FORM, LANGUAGE, COMPLEXITY, NIKOS A. SALINGAROS (231/236)
Farzad Pour Rahimian
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1394

BOOK REVIEW: COMPLEX HOUSING. DESIGNING FOR DENSITY, JULIA WILLIAMS ROBINSON (237/240)
Ombretta Romice
DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1412
EVALUATION OF AUTHENTICITY ON THE BASIS OF THE NARA GRID IN ADAPTIVE REUSE OF MANOCHEHRI HISTORICAL HOUSE KASHAN, IRAN

DOI: http://dx.doi.org/10.26687/archnet-ijar.v11i3.1276

Abstract
Since it is highly desirable in the reuse of historic monuments not only to maintain their values but to promote them in contemporary life, authenticity is considered one of the measures of success in adaptive reuse projects. Nara Grid, which is designed concerning authenticity, is used as a tool to assess the authenticity of cultural heritage. This paper investigates authenticity in the adaptive reuse of Manouchehri House in Kashan based on the Nara Grid. The importance of this house lies in the fact that it is one of the first which has been reused by the private sector in this city and also has managed to encourage private sector partnership in the reuse of houses in this city and other historic cities of Iran. It has also been able to increase government trust, which shifts from top-down to a bottom-up approach in the field of cultural heritage, in the private sector. In this research, using Statistical Analysis methods, it is determined within the adaptive reuse of this house which ‘Dimensions’ and ‘Aspects’ of authenticity have received more attention and which ones received less; and also significant differences among individual’s viewpoints according to their gender, field, education, and age were investigated.

Keywords
authenticity; adaptive reuse; Manouchehri house; Kashan; Iran
INTRODUCTION

Historic cities can play a role as the main core of sustainable development processes and the engine of economic development (Bandarin & Oers, 2012; English Heritage, 2007). This has affected views about urban conservation and has paid special attention to adaptability and reuse of historic buildings to achieve sustainability by integrating conservation and development policies. (Bullen & Love, 2011; Cohen, 1999; Steinberg, 2007; UNESCO World Heritage Centre, 2007; Aydin, Yaldiz & Büyüksahin Siramkaya, 2015; Haddad & Fakhoury, 2016).

Iran is a developing country which has envisioned to lead toward sustainable development. This country is one of the oldest civilizations of the world and has embraced a lot of historic buildings from different time periods. These buildings are one of Iran's potential economic resources that have received less attention than other resources. Perhaps, one of the main reasons of this negligence is the oil-based economy. However, recently as a result of the increase in sanctions against Iran, fluctuations in oil prices, and its impacts on Iran’s domestic economy, more considerations have been given to non-oil economic resources like cultural tourism, and adaptability and reuse of historic buildings for providing facilities for domestic and foreign tourists (World Travel & Tourism Council, 2015; Ghalayini, 2011; Musai, 2013). Also, due to the serious effects of climate change and drought in Iran, there has been a decrease in income making of the agricultural sector. As a result, most of the cities have changed their policies toward the tourism-based economy. Another factor, which led to more attention of adaptive reuse of historic buildings, was the ending of the construction revolution period. In this period, the need for extensive reconstruction after the Iran-Iraq 8-year war made the government increase the share of construction projects budget considerably (Izadi, 2008), but a small amount of this budget was spent on the historical areas of cities. By the end of this period, the share of civil projects dropped. Consequently, public and private sectors devoted more attention to historic cities and adaptive reuse of historic buildings to provide sustainable ways to revenues from the building industry.

Furthermore, stimulating pressures to reconsider adaptive reuse, and increasing awareness of experts, politicians, and public to the historic cities were such invoking factors to promote adaptive reuse flow in Iran that governmental policies shifted from the physical development of cities, to recreating historical cities (Izadi, 2014). Compatibility and reuse of historical constructions have been in the spotlight of this policy to attain sustainability in historical environments, and converge conservation and development approaches (Bullen & Love, 2011; Strange & Whitney, 2003; Fakhoury & Haddad, 2017). Also, the vision of the Islamic Republic of Iran has been emphasized on changing cultural guardian policies from centralized, state, and non-cooperative methods to decentralization and community-centeredness (Iran’s 20-Year Vision Plan on the Horizon 1404, 2003) which has provided ground for more participation of the private sector in the reuse of historic buildings.

In spite of this policy shift (and the emphasis of the 44th Principle of the Islamic Republic of Iran's constitution, and Article 2 of the Third Development Plan of Iran on private sector participation in economic affairs), the governmental organizations do not have enough confidence in the private sector in adaptive reuse of historic buildings (F. Parsi, personal communication, January 10, 2017; R. Feizi, personal communication, January 9, 2017). However, regulations related to land use change codified by Cultural Heritage, Tourism and Handicrafts Organization have a higher supervisory of adaptive reuse of historic buildings in Iran. Preserving authenticity is determined as one of the principles of land use change
weaving of this region included silk, velvet, and brocade which were traded all over the world. Finding spinning and weaving spindles in the Sialk ancient hill of Kashan related to 7500 years ago showed the acquaintance of these people to the textile industry in the Millennia BC (Ghirshman, 1940).

This town has developed in different periods of time; it has been one of the civilized towns during Safavid era. Today's historical area of the town was generally built after the 1778 AD earthquake during the Qajar era (Birashk, 1995). With the arrival of Modernity in Iran, the historic area of the city was neglected like other historical cities of Iran. Migration of wealthy families to other modern cities in Iran and to abroad, and settlement of low-income class of people and Afghan refugees in the historic houses of the area resulted in these houses residents’ lifestyle to be changed, a decrease of adequate care of monuments which consequently made them endangered. Manouchehri house is one of these houses, located in one of the outstanding historical Jewish neighborhoods in Kashan near the bazaar (Society of Iranian Architect and Planner, 2013).

The basic building blocks of the house refer to the Safavid dynasty, about 240 years ago, and was rebuilt after the earthquake ("Kashan, a lesson in authenticity", 2015). In 2007 a female artist bought the partially destroyed house in a government auction and named it after herself. Although it was not registered in the National Cultural Heritage List at the time and the possibility of its destruction existed, the new owner initially decided to restore and reuse it as textile workshops to revive the endangered tradition of textile. However due to the lack of accommodations in the city to attract attention and keep this art alive at that time, she decided to change a part of the house to a hotel (Majidi, 2016) (Figure 1 to 3). Preserving values and authenticity of the house, influencing the surrounding area for the purpose of increasing Kashani’s sense of belonging to the historic city centre, and presenting the experience of the Persian style of living were other goals of this project (S. Manouchehri, personal communication, January 12, 2017).

Adaptive reuse of Manouchehri's house and organizing surrounding passages began by a skilled team of traditional maestros, university professors and consulting engineers in 2008 and was opened as a boutique hotel in 2010 (Figure 4 and 5).

Manouchehri boutique hotel contains eight residential rooms facing the central courtyard and each of them has their own specific decorative features (Figure 6 and 7). Textile workshops have been established in some parts of the house. Some Kashani textile masters, who had been forced to leave their profession due to the economic requirements and had been doing different jobs, were invited to work in the textile workshop to weave exquisite fabrics, silk, velvet and brocade for which they had spent a lifetime to become masters and to educate the younger generation of weavers. Tourists can closely visit the skilled masters working and purchase authentic samples of Kashani textile (Manouchehri house, n.d.; S. Manouchehri, personal communication, January 12, 2017).

Also, the former cistern of the house was transformed into a movie theatre and the lobby was turned into an art gallery. Other spaces of this boutique hotel include handicraft shops and a restaurant. This house is not registered on the Iran’s National Heritage List and therefore it was not mandatory to consider the principals of Iran’s adaptive reuse handbook. This gave the opportunity to the owner to introduce various functions to the house. (Figure 8 and 11).
which should be considered in all processes of planning, design, and implementation (Zia Shahabi & Imani, 2013), and the private sector is also obliged to observe this principle. Even the new use for a building should be adopted according to the suggestions of Iran’s reuse handbook (Revitalization and Utilization Fund for Historic Places [RUFHP], 2012). However, there are still concerns about private sector actions in adaptive reuse due to the lack of knowledge and the desire for greater economic productivity that can result in distortion to the authenticity of heritage.

Although several researchers have been dealing with the issue of authenticity in cultural heritage (Araoz, 2008; Fadaei Nezhad, Esrati and Esrati, 2015a; Fadaei Nezhad, Esrati & Esrati, 2015b; Inaba, 2009; Jokilehto, 2006; Rossler, 2008; Stovel, 1995; Stovel, 2007; Van Balen, 2008) and adaptive reuse of historic buildings (Shipley, Utz & Parsons, 2006; Sarmento & Kazemi, 2014; Haddad, 2007; Mine, 2013; Shehada, Bin Ahmad, Naziaty & Keumala, 2015), few researchers have examined the relationship between these two with some exceptions (Van Balen, 2008; Korumaz, Korumaz & Canan, 2012; Gregory, 2008; Philokyprou, 2014). In Iran, many scholars have written about adaptive reuse of Iranian historic buildings (Majedi, Amjadi & Bahmanpour, 2014; Mohammad Moradi & Parhizkari, 2013; Zia Shahabi, Imani, 2013; Sarmento & Kazemi, 2014) but there is not any disquisition that directly evaluates authenticity investigations of Adaptive reuse of historic buildings. This theoretical void sometimes causes disagreements between Cultural Heritage, Tourism, and Handicrafts Organization and private beneficiaries of historic buildings (F. Parsi, personal communication, January 10, 2017). This paper investigates authenticity evaluation in adaptive reuse of a historic building done by the private sector. This building, which won numerous national awards and has been nominated for Agha Khan Award in 2016, is a historic house in Kashan which is turned into a Boutique Hotel. This house is of special national concern because of its role in mainstreaming of land use change in historical houses of Kashan private section (A.A. Helli, personal communication, January 4, 2015; A. Talebi Nezhad, personal communication, December 23, 2016; M.S. Izadi, personal communication, January 6, 2017; R. Feizi, personal communication, January 9, 2017; Majidi, 2016).

AUTHENTICITY

The concept of authenticity could be defined as the ability of heritage to convey the importance of its cultural significance (UNESCO World Heritage Centre, 2005). Van Balen considered authenticity as a layered concept which is used to recognize the values of heritage (Van Balen, 2008). Authenticity is not a value itself (Stovel, 2003) but it is “the essential qualifying factor concerning values” which its understanding “plays a fundamental role in all scientific studies of the cultural heritage, in conservation and restoration planning” (ICOMOS, 1994, Article 10). Today, Iran’s Cultural Heritage, Tourism and Handicrafts Organization considers authenticity as one of the fundamental criteria for evaluating conservation measures in the process of adaptive reuse of historic buildings. Authenticity’s qualitative and relative nature (Stovel, 2007) make its evaluation complex.

In the first step of authenticity conservation, it is necessary to determine its definition and categories. Nowadays authenticity is known as a concept by which the total tangible and intangible values of heritage are manifested; it is suggested that heritage values must be “truthfully and credibly expressed through a variety of attributes” in order to maintain authenticity (UNESCO World Heritage Centre, 2008, Article 82). However, this definition puts emphasis on conservation of both tangible and intangible values but from the Venice Charter (ICOMOS, 1964) - which is the first international document about authenticity- and the Bergen Conference in 1994, the pressure was only on tangible values. Nara Document
on Authenticity (ICOMOS, 1994) is the result of the conference and the first document which emphasizes the intangible dimension of authenticity and the concepts of cultural diversity and indigenous culture. This document, with an emphasis on the concept of authenticity in the Venice Charter, states that conservation of cultural heritage is rooted in the values of heritage. Our ability in recognizing these values depends on how their sources remain credible or truthful (ICOMOS, 1994). According to the 13th article of this document, aspects of the sources that should be considered may include “form and design, materials and substance, use and function, traditions and techniques, location and setting, and spirit and feeling, and other internal and external factors. The use of these sources permits elaboration of the specific artistic, historic, social and scientific dimensions of the cultural heritage being examined” (ICOMOS, 1994).

After the Nara document, emphasis on both tangible and intangible values were considered in other international documents (ICOMOS, 1994; Australia ICOMOS, 1999; ICOMOS, 1999) and approved by the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO World Heritage Centre, 2003), which accordingly states preserving intangible heritage is a guarantee for continuing creativity (Mitchell, Rossler & Tricaud, 2009). The results of these documents led to revising the UNESCO Operational Guidelines for the Implementation of the World Heritage Convention in 2005. So the ‘test of authenticity’ was referred to four tangible parameters: design, material, workmanship and setting which turn to the ‘conditions of authenticity’ evaluation to include tangible parameters in addition to intangible ones (UNESCO World Heritage Centre, 2005).

Adding intangible parameters to authenticity makes it more complicated for assessment. After that several works of research were performed in the field of authenticity in different scales of cultural heritage (Stovel, 2007; Jokilehto, 2006; Zancheti, Lira & Piccolo, 2009; Mitchell, 2008; Andrews & Buggle, 2008; Araoz, 2008; Rossler, 2008; Fadaei Nezhad et al., 2015a & b; Fadaei Nezhad & Eshrati, 2015) and scholars have developed various strategies to deal with the complexity of authenticity (Gregory, 2008).

Considering the quality and relative concept of authenticity and cultural differences all over the world, it seems that choosing a constant measure for authenticity assessments is impossible (Stovel, 2007) and cultural heritage authenticity should be evaluated in its own context (Gregory, 2008), under the experts’ viewpoints of various scientific fields (Stovel, 2003). However, it seems that the Nara document has been successful in presenting a functional basis for authenticity evaluation (Rossler, 2008). This basis is named Nara Grid and was developed based on Article 13 of the Nara Document which developed in the Raymond Lemaire International Centre for Conservation (R.L.I.C.C) at the Katholieke Universiteit Leuven, Belgium. In Nara Grid, there is a column for each category of value (‘Artistic’, ‘Historic’, ‘Social’, and ‘Scientific’), the subgroup includes ‘Design’, ‘Use and Function’, ‘Material and Substance’, ‘Tradition and Techniques’, ‘Location and Setting’, and ‘Spirits and Feeling’. A row is given to the ‘Aspect’. Thus, it can reduce the ambiguity and complexity of the multi-layered concept of authenticity in the evaluation process. Iranian Cultural Heritage, Tourism and Handicrafts Organization as a higher supervisor of reuse projects in Iran has used Nara Grid for evaluation of authenticity (RUFHP, 2012). In this paper, we also used the same method for authenticity evaluation of the case study.

**CASE STUDY: MANOUCHEHRI HOUSE IN KASHAN IRAN**

Kashan is a desert city located between Tehran and Isfahan and its residence history goes back to 9000 years ago. This city once was the centre of Iran's textile art and the unique
Figure 1. Manouchehri house's basement plan
Figure 2. Manouchehri house's first floor plan
(Source: Helli & Nader, 2008).
Figure 3. Manouchehri house's second floor plan

Figure 4. Manouchehri house before restoration (Source: Helli & Nader, 2008).
Figure 5. Manouchehri house after restoration (Source: Helli & Nader, 2008).

Figure 6. (left) courtyard (Source: Shahid Beheshti University Documentation Center [SBUD], 2014).
Figure 7. (right) residential room (Source: Shahid Beheshti University Documentation Center [SBUD], 2014).
Ms. Manouchehri did a lot of promotions to encourage family and friends to purchase, restore and reuse the historic houses in the neighborhood. By the end of the project, more than 100 buildings were purchased by the private sector, both domestic and foreign investors, to be reused. These houses were later turned into hotels, private houses, and cultural centres. This has a great influence on the revival of the neighborhood and the historic context of the city. The waves of this impact made the historic area’s governance and cultural heritage administrations improve the physical condition of passages around houses (Figure 12). Also, with the insistence of Manoucheri’s house managers, ‘tourist police’ were appointed to increase safety and security in the neighborhood. Manouchehr’s house adaptive reuse project influenced the area and significantly reduced the destruction of historic houses by native inhabitants (Majidi, 2016; S. Manouchehri, personal communication, January 12, 2017). In the next section, the importance of conserving authenticity in the adaptive reuse of this house will be investigated.
METHODOLOGY

Research Method
To answer the research question of “how much authenticity is conserved in adaptive reuse of this house”, and to ensure of receiving experts’ comments, a questionnaire with 35 questions was prepared based on Nara Grid. By reviewing Manouchehri's house adaptive reuse, an uneven distribution between 24 cells of Nara Grid and the questions were established. For some cells of the Nara Grid, more than one question was allocated while no question was assigned to some of them due to the lack of relevance to our case study. The five-point Likert Scale is used in this questionnaire in which number one is rated as very low, two as low, three as medium, four as high and five as very high score. For the statistical comparison of different items in Nara Grid, both descriptive methods and hypothesis testing procedures are applied. Also, to detect the influential factors on people’s idea and scores about the ‘Aspects’ and ‘Dimensions’ of Nara Grid for this house, some linear regression models using least squares approach are fitted.

Data Collection
Data collection for Manouchehri's house of Kashan was performed by literature review, observation, photography, interview with the owner and repairmen, interior architect, and building consultant before, during and after restoration of the building. To fill out the questionnaires, two sets of questionnaires were prepared in hard copy and online. Collected data included 20 experts and 39 students of restoration and interior architecture who were acquainted with Manouchehri’s house. Some of the demographic attributes of the participants in this study are summarized in Table 1. In addition, semi-structured interviews were conducted with 11 experts and 15 students. One limitation during this study was the small number of students and professionals who were familiar with this case study.
Table 1. Sample’s structure according to the design variables (Source: Authors).

<table>
<thead>
<tr>
<th>Position</th>
<th>Gender</th>
<th>Field</th>
<th>Degree</th>
<th>Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Conservation</td>
<td>Architecture</td>
</tr>
<tr>
<td>Expert</td>
<td>13</td>
<td>7</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Student</td>
<td>15</td>
<td>24</td>
<td>27</td>
<td>12</td>
</tr>
</tbody>
</table>

Data Analysis

In the first step, qualitative analysis was performed based on the collected data from field evaluations, interviews and authors personal notes. For data analysis and adjustment, three phases were followed including: 1) data summarization and coding based on Nara Grid scale, 2) data representation based on questionnaire analysis, and 3) conclusion. Table 2 indicates the mean scores given to each cell in Nara Grid along with the mean scores for 6 different aspects and 4 dimensions, respectively given in last column and row. The overall mean score given in the last cell, illustrates the mean score of the Authenticity for this house. Actually the rating of aspects and dimensions, from the lowest to highest mean score is as follows:

A1<A2<A3<A4<A6<A5
D4<D2<D3<D1

Table 2. Average Scores for each Nara Grid cells, Aspects, Dimensions and overall Authenticity (Source: Authors).

<table>
<thead>
<tr>
<th>Dimension (D)</th>
<th>D1: Artistic</th>
<th>D2: Historic</th>
<th>D3: Social</th>
<th>D4: Scientific</th>
<th>Mean Score (Aspects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspects (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1: Form &amp; Design</td>
<td>3.74</td>
<td>3.33</td>
<td>2.88</td>
<td>3.38</td>
<td>3.33</td>
</tr>
<tr>
<td>A2: Material &amp; Substance</td>
<td>3.65</td>
<td>3.37</td>
<td>-</td>
<td>3.03</td>
<td>3.35</td>
</tr>
<tr>
<td>A3: Use &amp; Function</td>
<td>3.94</td>
<td>3.75</td>
<td>3.26</td>
<td>2.97</td>
<td>3.48</td>
</tr>
<tr>
<td>A4: Tradition, Technics, and Workmanship</td>
<td>3.47</td>
<td>3.55</td>
<td>4</td>
<td>3.57</td>
<td>3.65</td>
</tr>
<tr>
<td>A5: Location &amp; Setting</td>
<td>-</td>
<td>4.16</td>
<td>4.45</td>
<td>-</td>
<td>4.31</td>
</tr>
<tr>
<td>A6: Spirit &amp; Feelings</td>
<td>3.94</td>
<td>3.98</td>
<td>4.13</td>
<td>-</td>
<td>4.02</td>
</tr>
<tr>
<td>Mean Score (Dimension)</td>
<td>3.75</td>
<td>3.69</td>
<td>3.75</td>
<td>3.24</td>
<td>Authenticity Score:3.61</td>
</tr>
</tbody>
</table>

According to the results, the highest mean score is given to the Social/ Location & Setting while the lowest average score is given to Social/ Form & Design. Figure 5 also displays the Nara Grid Scores for Manouchehri House via a 3D bar plot where the bar’s height indicates the mean score.

To assess the importance of different aspects based on their mean scores, we will use an ANOVA test followed by Bonferroni method of multiple comparisons. According to the ANOVA test, there are statistically significant differences between 6 mentioned aspects (p-value=0.000) and 4 dimensions (p-value=0.000), where according to the Bonferroni Pairwise comparison tests, the aspects could be grouped in two classes including first four aspects with middle scores and last two one with higher scores. Also the dimensions would be classified to two groups with 4th dimension with middle score and the other dimensions as a high score group.
In addition, the influence of individual’s characteristics is evaluated on their average scores for both aspects and dimensions via linear regression analysis actually the following linear models are assumed:

\[ A_i = \alpha_0 + \alpha_1 \text{Position} + \alpha_2 \text{Gender} + \alpha_3 \text{Field} + \alpha_4 \text{Degree} + \alpha_5 \text{Age} + \varepsilon, \quad i = 1, \ldots, 6 \quad (1) \]

\[ D_j = \beta_0 + \beta_1 \text{Position} + \beta_2 \text{Gender} + \beta_3 \text{Field} + \beta_4 \text{Degree} + \beta_5 \text{Age} + \delta, \quad j = 1, \ldots, 4 \quad (2) \]

where \( A_i \) and \( D_j \) respectively denote the scores given to the \( i \)-th aspect and \( j \)-th dimension.

Also \((\alpha_3, \ldots, \alpha_5)\) and \((\beta_3, \ldots, \beta_5)\) are the vector of unknown regression coefficients corresponding to the sample’s characteristics. The two variables \( \varepsilon \) and \( \delta \) represent the random error terms for these two models.

To estimate the vectors of unknown regression parameters for model (1) and (2), the least squares method via “lm(.)” function in the R software is applied. Since there are some insignificant parameters for each of these models, we have used stepwise regression procedure to obtain models with just significant parameters involved.

The results of parameter estimation based on stepwise procedure to select the best model with significant parameters are given in Table 3 and 4, respectively for aspects and dimensions. Actually, the variables with reported parameters have significant effects on the corresponding mean score. The goodness of fit for these linear models are assessed using ANOVA test which their \( p \)-values are reported for each model in Tables 3 and 4. According to these \( p \)-values which are all less than 0.1, the appropriateness of the linear regression models for these data are accepted.

One of the key assumptions in the linear regression analysis is the normality of the random error terms \( \varepsilon \) and \( \delta \). To assess the validity of this assumption, the P-values for the well-known Shapiro normality test are reported in the last row of these Tables which are all more than 0.05 and one could accept the key normality assumption in these regression models. Also other assumptions such as constant variance and linearity are checked based on relevant descriptive plots for residuals of these models which are all nearly accepted.
According to the estimation results of Table 3, there is only a significant difference between students and experts in scoring the 5th aspect, where the students have lower scores. Also men have given lower scores to all aspects except the 4th one, where there is no significant difference between their score and females. There are significant differences between conservationists’ and architectures’ viewpoints about the 3rd, 5th and 6th aspects with lower scores given by conservationists. The degree makes a difference just for the first aspect where the lower score are given by PhD experts. Age is slightly an increasing factor for the average scores of four first aspects.

Table 3. Results of Regression Analysis for different Aspects (Source: Authors).

<table>
<thead>
<tr>
<th>Variables</th>
<th>parameter</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (Student)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.23</td>
<td></td>
</tr>
<tr>
<td>Gender (Male)</td>
<td>( \beta_2 )</td>
<td>-0.25</td>
<td>-0.30</td>
<td>-0.45</td>
<td></td>
<td>-0.49</td>
<td>-0.22</td>
</tr>
<tr>
<td>Field (Conservation)</td>
<td>( \beta_4 )</td>
<td></td>
<td></td>
<td>-0.43</td>
<td></td>
<td>-0.45</td>
<td>-0.42</td>
</tr>
<tr>
<td>Degree (PhD)</td>
<td></td>
<td>-0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>( \beta_6 )</td>
<td>0.03</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>2.60</td>
<td>2.92</td>
<td>3.38</td>
<td>3.06</td>
<td>5.13</td>
<td>4.41</td>
</tr>
</tbody>
</table>

ANOVA P-value: 0.00 0.07 0.00 0.05 0.00 0.09
Shapiro-test P-value: 0.47 0.70 0.06 0.08 0.05 0.71

The estimation results of Table 4 indicate no significant difference between experts and students’ scores. Males and conservationists score the first three dimensions less than females and architectures, respectively. Also PhD Experts have lower scores for the last two dimensions. Similar to the previous Table, slightly higher scores are given by older respondents.

Table 4. Results of Regression Analysis for different Dimensions (Source: Authors).

<table>
<thead>
<tr>
<th>Variables</th>
<th>parameter</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (Student)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (Male)</td>
<td>( \beta_2 )</td>
<td>-0.25</td>
<td>-0.32</td>
<td>-0.35</td>
<td></td>
</tr>
<tr>
<td>Field (Conservation)</td>
<td>( \beta_4 )</td>
<td>-0.27</td>
<td>-0.29</td>
<td>-0.28</td>
<td></td>
</tr>
<tr>
<td>Degree (PhD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>( \beta_6 )</td>
<td>0.02</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>3.53</td>
<td>3.59</td>
<td>3.47</td>
<td>2.52</td>
</tr>
</tbody>
</table>

ANOVA P-value: 0.01 0.04 0.00 0.09
Shapiro-test P-value: 0.92 0.49 0.11 0.07

DISCUSSION

Data analysis of questionnaires showed that great attention has been paid to authenticity in the adaptive reuse of this house. Analysis of the interviews proved it too, such that some experts considered this house as one of the best examples of adaptive reuse performed by
the private sector in Iran. Even the lowest mean score to the Form & Design/Social aspect of the Nara Grid the house is higher than average. This fact showed that applied design for interior spaces and furniture failed to represent the lifestyle of the middle class of the Qajar period. According to interviews, the main criticism was about the furniture design and interior spaces of bathrooms. Although Iranian patterns were considered in furniture design; some of them like beds, tables and chairs, and sofas are more similar to European lifestyle rather than being inspired by Iranian historic style of living in which all activities including rest, gathering together, having meals, sleeping were done on the carpet on the ground. Also, luxurious design of toilets and bathrooms with modern equipment to provide comfort for guests is in conflict with their simple historical design.

Devoting the highest mean score to Location & Setting/Social showed the house's success in enhancing security and social levels of the district and being introduced to Kashani people, tourists, and domestic and foreign investors. The increase of security and domestic and foreign investors’ interest in buying and reusing of the houses, has increased the price of houses and has replaced the upper classes instead of non-indigenous refugees and immigrants. Holding national and international cultural and artistic events have caused social vitality of the historical context. Also, the public awareness of the forgotten art of textile has made Kashan gradually regain its importance as the weaving centre of silk, brocade, and velvet fabrics in Iran.

Among the aspects Location & Setting, Sprit & Feelings, Tradition, Technics, and Workmanship, Use & Function, Material & Substance, Form & Design gained respectively highest to lowest mean scores in authenticity. All in all, four aspects of Tradition, Technics, and Workmanship, Use & Function, Material & Substance, Form & Design had a medium score and two aspects of Location & Setting, Sprit & Feelings received a higher rating. The assignment of the highest rating to Location & Setting showed that adaptive reuse of this house could enhance artistic values, historical, social and scientific context of the area. Based on the interviewees’ comments, disproportionate use of new materials with historical materials for structural reinforcement, without doing the necessary scientific experiments like the irreversible combination of mesh coated with a layer of plaster mortar, was one the reasons for the low rating for Material & Substance. However, these materials cannot be seen in the building’s appearance. Also, changing of the spaces to meet the needs of new functions such as adding a door to the water reservoir and turning it into a movie theatre was the other mentioned factors to assign the lowest rating to this aspect.

Among dimensions, Artistic, Historic, Social, Scientific had respectively the highest to the lowest mean scores for authenticity, all of which have above-average score except for Scientific value. The least score for Scientific value according to interviewees’ comments showed academic and administrative weaknesses to this value and how to preserve it in reuse process in Iran. The top rate of artistic values is partly due to the artistic views of the owner that have affected all reusing phases, the new functions selection in particular.

In addition, observations of experts and students were different based on their gender, field, degree and age. Overall, students had the same standpoint in Artistic, Historic, Social, and Scientific aspects as experts; yet have given a lower score in all respects. This strictness might be due to students having less familiarity with the working conditions of adaptive reuse and historic urban contexts problems in Iran. Moreover, results showed that men had stricter views than women: in spite of similar views in Scientific aspect, they have given a lower score to other dimensions; also men have given lower points to all aspects
expect for Location & Setting. This strict view revealed itself by higher education. Doctors gave a relatively lower score to Social and Scientific aspects and also Form and Design attributes. In addition, interviews showed that the doctorate specialists had professional views in the field of harmony and forms of new design with historical pattern and documentation and also creativity in proportions, shape, and color of the new design in interior spaces, furniture, yard, toilets and baths equipment and visible parts of heating and cooling systems and lighting.

Preservationists, in comparison with architects, have given fewer scores to Artistic, Historical, and Social values and also Use & Function, Location & Setting and Spirit & Feelings aspects. Their responses were similar for Scientific values and another aspect of authenticity. This demonstrates the different views of architects and preservationists. Interviews with preservationists showed that generally, because of the focus on technical issues and high sensitivity of coordinating any action with historical documents, creativity in adaptive reuses are paid less attention and sometimes are rejected by them. However, architects believe that this creativity, although in small scale, made the house different and more successful than other reuse projects in Iran. Devoting a low score to Use & Function by preservationists has two interpretations: one is that preservationists expect more functions; and the other one is that they believe repurposing a mono-functional house to a multi-functional space including a boutique hotel, spinning workshop, gallery, restaurant, cinema and arts and Cultural events centre is inconsistent with its character, a stance which was confirmed by interview assessments. In contrast, architects believe that this functional diversity is the positive point of the house reuse which has helped to attract a wide range of audiences.

Age was also another determinant factor in assessment. Old aged people gave a higher score to all dimensions and the first four aspects. Interviews with different ages of people showed that older people regarded these efforts more realistic, generally because they are more familiar with the capacity, academic, and administrative deficiencies of reuse in Iran. Table 5 represents the house authenticity evaluations according to the analysis of questionnaires and interviews.

CONCLUSION
Manouchehri house adaptive reuse project has been successful in conserving authenticity as its main objective and has played an important role in the surrounding area beyond the role of one single house. With increased security and investment opportunities in the historical centre of the city, it has influenced authenticity conservation of Kashan and has increased Kashani people’s sense of belonging to their city. Moreover, reviving the forgotten art has helped to pave the path to revive other traditional arts. The project successfully increased the confidence of the government in the private sector; the owner of the house took advantage of knowledge and experience of traditional craftsmen, university professors, and consulting engineers as well as her artistic vision to create a new approach for private investors to conserve authenticity rather that aiming for short-term economic efficiency. Therefore, adaptive reuse of Manouchehri house has established a flow in the construction industry and made the small city of Kashan the leading city of private sector adaptive reuse in Iran.
Table 5. completed Nara Grid for Manouchehri house adaptive reuse (Source: Authors).

<table>
<thead>
<tr>
<th>Dimension &amp; Aspects</th>
<th>Artistic</th>
<th>Historic</th>
<th>Social</th>
<th>Scientific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form &amp; Design</td>
<td>With simplicity and minimal manipulation creatively retained and upgraded Kashani’s house artistic values.</td>
<td>It is an example of a Qajar house which has been refurbished like other contemporary houses based on historical documents and comparative studies.</td>
<td>The house design and decoration represents the middle social class in the Qajar era.</td>
<td>The remains of the building forms and original shapes are the credible scientific source for recognition typology, structure and the idea of creating spaces in the historic Qajar houses of Kashan.</td>
</tr>
<tr>
<td>Material &amp; Substance</td>
<td>Used Original materials generally had a good condition and new materials used in a simple but innovative way in respect to historical values.</td>
<td>Traditional materials have been prepared from the same authentic places of Kashan and its surrounding. Nontraditional materials are generally consistent with historical materials.</td>
<td>Evidence from the material type and how to apply and decorate them in the Qajar historic houses as one of the desert city of Iran is represented.</td>
<td></td>
</tr>
<tr>
<td>Use &amp; Function</td>
<td>Considering the diversity to choose new functions, greater artistic values displayed.</td>
<td>Hotels for temporary residence are selected in accordance with the historical values of the house.</td>
<td>Dedication of cultural functions and supporting craft and theater artists have made it possible for the public to benefit from the formerly private house.</td>
<td>Weaving workshops were scientific evidence to show how to use textile devices.</td>
</tr>
<tr>
<td>Tradition, Technics, and Workmanship</td>
<td>Traditional skill and techniques like frieze and combination of wood and glass are used.</td>
<td>Applied techniques showed the architectural methods of using soil in an arid climate in Iran.</td>
<td>Taking advantage of professional craftsmen with different specialties played an important role in the construction and restoration of a historic house in Kashan. Weaving workshop has revived this art in Kashan.</td>
<td>The principal of scientific techniques and traditional construction process related to the formation period extensively displayed and made it possible to study them and showed traditional textile method to be taught.</td>
</tr>
<tr>
<td>Location &amp; Setting</td>
<td>This work has a role in amplifying spatial organization of the city.</td>
<td>Social and security level of the neighborhood has been increased. Reuse prosperity in Kashan caused job creation in construction industry and services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spirit &amp; Feelings</td>
<td>Helped to display artistic beauty and weaving art in Kashan and made it a desirable place for visitors.</td>
<td>It has revived the sense of a Qajar house in Kashan. Representing textile art caused Kashan people to take pride in their historical art.</td>
<td>Revive the sense of belonging in a forgotten neighborhood.</td>
<td></td>
</tr>
</tbody>
</table>
Results also showed that authenticity evaluators’ characteristics affected scores so it could be suggested that professionals as well as students with different genders, disciplines, educations, and ages, be called upon to consider different dimensions and aspects of authenticity in teamwork reuse of historical construction. Also with facilitating the cooperation between traditional craftsmen and the scientific society of architects and preservationists, it would be possible to revive and promote traditional techniques, train a new generation and increase restoration and the adaptive reuse knowledge in Iran.

Another result of this study is the need to give more freedom to the private sector, review Iran’s handbook of adaptive reuse, and change attitudes form unchangeable museum-like conservation in Iran. Although, according to the current handbook, priorities are determined for a possible new program for reusing historic buildings, the Manouchehri house program is not compatible with the suggested ones in the handbook. Manouchehri house’s creative view in introducing new functions not only did not mar the building authenticity but also promoted the values of the heritage. Preservationists should have closer cooperation with architects and artists and be welcome to creativity in restoration and adaptive reuse, and to revising historic contexts by linking historic buildings to current lifestyle. Despite the success of this project to conserve authenticity, it was not successful enough in considering Scientific values in comparison to other ones. This weakness may be rooted in the novelty of adaptive reuse knowledge in Iran which can be investigated in future research.

REFERENCES


Izadi, M. S. (2008). A Study of city center regeneration: A Comparative analysis of two different approaches to the revitalization of historic city center in Iran (Doctoral dissertation). New Castle University, Faculty of Humanities and Social Science, School of Architecture, Planning and Landscape, New Castle, England.


