



Integrity Evaluation in Conservation of Amir-chakhmagh Square in Yazd, Iran*

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ABSTRACT: The concept of integrity, as a factor which sustains values and significance of cultural heritage, is regarded as a key criterion in the process of urban heritage conservation and thus, the need for clarification of its factors has been emphasized in the international conventions, documents and scientific papers. Review and analysis of documents, conventions and theories concerning the role of integrity in urban heritage conservation show that in recent decades, the concept of integrity has attracted worldwide attention in the process of selection, assessment, and codification of the comprehensive conservation and management plan of urban heritage. This paper aims to recognize the aspects of integrity concept and tries to refine the prioritization of integrity aspects in the plans and measures of Amir-chakhmagh Square conservation project in Yazd, Iran. To achieve this aim, firstly the conventions and the scientific papers related to integrity are reviewed; consequently the effective aspects in measuring integrity have been selected in three main categories: 'Structural-historical Integrity', 'Functional-social Integrity', and 'Visual-aesthetic Integrity'. Thereafter, the prioritizing of these aspects in the Amir-chakhmagh Square conservation is analyzed by quantitative research method and correlation strategy. The findings indicate that the 'Functional-social Integrity', 'Structural-historical Integrity' and 'Visual-aesthetic Integrity', in descending order, have the highest to the lowest contribution to explaining the concept of integrity in the measures taken for Amir-chakhmagh Square conservation project. This indicates the measures have been successful in terms of reviving the social vitality of the square and refurbishing the historic buildings around the square by adaptive reuse. Finally, findings from quantitative measurements confirm the theoretical framework of the research which is provided by Jokilehto.

Keywords: Integrity, Conservation, Evaluation, Amir-chakhmagh Square, Yazd, Iran.

INTRODUCTION

"The condition of integrity in relation to heritage sites should be understood in the relevant historic context. Integrity can be referred to visual, structural and functional aspects of a place. It is particularly relevant in relation to cultural landscapes and historic areas, but even a ruin can have its historic integrity in its present state and setting. The visual integrity of a building or an area indicates what is visually relevant to its historically evolved condition in relation its context" (ICCROM, 2007, pp. 55-56).

The concept of integrity has a fundamental role in balancing the plans and measures of historic urban heritage revitalization. Thus, the more consistent the new developments are with the concept of integrity, the more integrated and balanced they will be with conservation. The Authenticity and integrity criteria guide the heritage site managers to the conservation strategies that are appropriate to preserve heritage values (Heike & Hazen, 2010, p. 58).

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The English Heritage (2008, p. 45) is one of those documents that proposed the concept of integrity as a whole; "Integrity (literally "Wholeness, honesty") can apply, for example, to a structural system, a design concept, the way materials or plants are used, the character of a place, artistic creation, or functionality. Decisions about recovering any aspect of integrity that has been compromised, must, like authenticity, depend upon a comprehensive understanding of the values of the place".

Review and analysis of conventions and scientific papers concerning the integrity concept show that in recent decades, the tangible and intangible aspects of integrity have been considered together to evaluate, conserve and manage cultural heritage. Hence, this paper aims to recognize the aspects explaining the concept of integrity in the conservation of historic urban heritage and to prioritize these aspects by reviewing and evaluating conservation measures in Amir-chakhmagh Square of Yazd in Iran. In order to achieve this goal and investigate the integrity aspects, the correlation strategy is used.

INTEGRITY CONCEPT

Study and review of international conventions and scientific papers represent a universal consensus on the importance of integrity in the conservation process of urban heritage. The concept of integrity was considered in correlation with cultural heritage, in particular the urban heritage. The foundations of historic city consideration were first built once the urban or rural spaces were accentuated in the Venice Charter in 1964, whose focus is on structural and visual integrity and does not highlight the other aspects of integrity. In 1987, the Washington Charter highlighted the relation between the city and its surrounding area and referred to tangible and intangible aspects which are significant in assessment of urban heritage integrity. It also directly examined the physical threat of urban development as a consequence of industrialization against the valuable urban areas. Gullino and Larcher emphasize on the significance of maintenance and so, not only consider the concept of integrity in historical sites as a principle over time, but also believe that policies, and economic and social strategies of the protected regions should be consistent with such concept (Gullino & Larcher, 2013, p. 390), so that the possibility of convergence of different conservation and development approaches is realised within the urban heritage boundaries.

Based on Nara Charter, heritage conservation especially the urban heritage in each cultural context

varies and consequently requires a flexible framework. The Nara meeting, on Integrity and Development of Historic Cities (the expert meeting organized by the World Heritage Center in 1999, Nara, Japan), was held in search of how integrity can improve the management of historic cities; even though the achievements of this conference were not reflected in the Operational Guidelines of World Heritage Convention (Yang et al., 2000 cited in Stovel, 2007, p. 27). Moreover, The Vienna Memorandum (2005) with a focus on World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape, examined the integration of modern architecture in historical context and emphasized on the Cultural or Visual Impact Assessment of new development (Pendelbury et al., 2009, p. 352).

The paragraph 88 of UNESCO operational Guidelines of World Heritage Convention, approved in 2005, defined integrity criterion as follows: "Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes". According to this document, reviewing the integrity requires evaluation of:

- 1) All the elements and components necessary for expressing the Outstanding Universal Value;
- 2) The features and processes that convey the Outstanding Universal Value. In other words, the property can adequately convey the features and significance of Place; and
- 3) How much it has been damaged by development, neglect and inattention (UNESCO- WHC, 2005, p. 88).

The content of the operational guidelines of the World Heritage Convention (2005) reflects the materialistic and tangible aspects of integrity, while many experts emphasize on the importance of intangible dimensions of integrity, and the significance of being attentive to cultural context. Examples include Jokilehto (2006) for providing three-dimensional structure of integrity, and Stovel (2007) for confirming the proposed structure by Jokilehto and Clavir. Clavir (1994) believes that the notion of integrity goes beyond the boundaries of tangible heritage, and the cultural context on which the heritage has been formed should be considered in the process of assessing the integrity (Clavir, 1994, p. 53 cited in Zancheti & Hidake, 2011, p. 5). Moreover, Zancheti and Hidake simultaneously focus on the study of historical and contemporary contexts, as tools for cognition and assessment of integrity (2011, p. 5). The Vienna Memorandum (2005) is also one of the most recent documents which emphasises on keeping the integrity of living historic cities, in the encounter with the modern developments (UNESCO WHC, 2005).



Following that, some of the documents published by the Quebec ICOMOS (2008), by developing the concept of integrity in conservation process and emphasizing on the sense and significance of Place, have expanded the scope of heritage to “cultural routes”. Emphasizing the concept of “Spirit of place” in evaluating the concept of integrity implies attention to intangible dimensions and significance of heritage (Declaration of Quebec, 2008). With respect to the definitions provided for “spirit of place”; it can be concluded that, in recent years, the concept of integrity has moved beyond the physical, objective and tangible dimensions of heritage and has been proposed as social and mental structures. In other words, apart from tangible dimensions integration, the intangible dimensions integration is emphasized as well.

Jokilehto (2006) and Stovel (2007) state that in the process of integrity evaluation, tangible and intangible criteria of the heritage should be measured conjointly. The subject of cultural, religious, and in general, intangible values have now, more than ever, drawn the attention of specialists and technical institutions (Wang et al., 2015, pp. 1472-1471). Moreover, the conservation scientific community have a consensus on the fact that the concept of integrity is not solely based on historical interpretation of the heritage and related to the built heritage, but is also considered as an essential criterion in the conservation of the natural heritage. Implementation of this measure by the UNESCO and the International Union for Conservation of Nature (IUCN) is a proof of this claim. Such concept leads to conservation of the heritage site in compliance with its degree of adaptability to the changes and evolution with time (Vizzari, 2011 cited in Gullino & Larcher, 2013, p. 390). Therefore, in addition to its tangible and intangible aspects, the concept of integrity also consists of the natural and built aspects of the heritage.

Review and analysis of scientific papers and conventions represents the consideration of different factors of integrity, including ‘Structural-historical Integrity’, ‘Socio-cultural Integrity’ and integration of function of historic spaces and buildings over the time. One of the other factors considered for this concept is the ‘Visual-aesthetic Integrity’ which has been threatened due to new developments especially in urban areas.

Stovel (2007, p. 25) believes that “The push to introduce integrity within the evaluation of WH cultural heritage sites derives in particular from the 1998 WH expert meeting in Amsterdam.” The World Heritage Committee, in recent years, has focused on the negative impacts on the visual integrity of historic cities and regions due to proposed developments. “Is the

integrity weakened by the intrusion of discordant and/or abundant elements or buildings that are unrelated to the significance and detract from the visual unity of the place?” (National park service, 2006 cited in Stovel, 2007, p. 29). Reviewing the recent years Operational Guidelines of World Heritage, indicates special attention to ‘Visual-aesthetic Integrity’ in cities, in particular the large ones because of globalization. The other aspects of integrity, including ‘Historical-structural’ and ‘Social-functional Integrity’ have been considered along with the visual integrity. Jokilehto (2006) has developed the integrity concept comprehensively in three categories of structural, functional and visual integrity and emphasized the importance of tangible and intangible aspects of integrity in the assessment of conservation measures in accordance with the 1972 World Heritage Convention. Therefore, integrity in historic environments, based on Jokilehto’s opinion, which is also confirmed by Stovel (2007), can be measured by three main factors (Jokilehto 2006 cited in Fadaei Nezhad et al., 2015, p.100).

- 1) Social-functional Integrity;
- 2) Visual-aesthetic Integrity; and
- 3) Historical-structural Integrity. (Table 1)

Since 2005, integrity criterion has been introduced as an implicit quality for many cultural properties (ICUN 2010 cited in Gullino & Larcher 2012, p. 2). Besides, Rossler (2008) debated the integrity, particularly in cultural landscapes and highlighted importance of the two criteria of integrity and authenticity simultaneously in the process of conservation and evaluation of cultural landscapes as examples of large-scale heritage. In addition, he referred to the Operational Guidelines of the World Cultural and Natural heritage approved in 2005 and pointed the linkage between authenticity and integrity in expressing the Outstanding Universal Value.

Generally, the experts in this topic such as Jokilehto (2006), Stovel (2007), Rossler (2008), Zancheti & Hidake (2011) and Wang (2015) have offered various definitions and classifications for effective components in the process of recognition, assessments and conservation of integrity of heritage places (Fadaei Nezhad et al., 2015, p. 100). Meanwhile, Jokilehto (2006) presented a new classification for defining, evaluating and managing both tangible and intangible aspects as well as cultural and natural dimension of heritage with an emphasis on the importance of ‘Social-functional Integrity’, ‘Visual-aesthetic Integrity’, and ‘Historical-structural Integrity’. Jokilehto’s classification has been more highlighted by Stovel (2007), which is applied as a theoretical framework in this paper (Table 1).



Table 1. Theoretical Framework: Aspects Explaining the Concept of Integrity Based on the Definition Provided by Jokilehto 2006

Jokilehto’ Opinion on Integrity in Urban Heritage		
Integrity in Historic Urban Heritage	Historical-structural Integrity	All remained components of the current situation of historic structures remnants are documented. The amount and type of connections between components and historical structures form the meaningful totality are considered.
	Social-functional Integrity	Recognition of functions and processes that have gradually developed the place; for instance, some place functions changed and developed due to social interactions, and being suitable for religious and spiritual issues as well as people’s movements.
	Visual-aesthetic Integrity	The more artistic quality, architectural features and aesthetic values of the property being conserved, the better condition the “visual integrity” would have. In the past, the visual integrity of each region indicated its unique identity.

Documents, conventions and expert view analysis shows the evolution of the concept of integrity in the field of historic urban heritage and the introduction of intangible aspects that have gained superior importance toward tangible aspects. Jokilehto (2006) categorizes recognition and evaluation of heritage places in a continuous process and under three factors of ‘Historical-structural Integrity’, ‘Social-functional Integrity’, and ‘Visual-aesthetic Integrity’. The proposed criteria by Jokilehto refer to the intangible aspects of heritage besides its tangible ones. Stovel (2007) not only endorsed Jokilehto’s opinion, but also introduced integrity as a criterion in order to secure, conserve and sustain the stability and explanatory aspects of value and the significance of heritage. In addition, Zanchati and Hidaka (2011) emphasized the features of the historic and modern context in this process.

The ‘Historical-structural Integrity’ is one of the three main factors in integrity assessment. It refers to all remained components of the current situation of historic structures, and the amount and type of connections between components and historical structures form the meaningful totality. The ‘Social-functional Integrity’ is another factor considered in integrity evaluation; that can be reviewed owing to recognition of functions and processes that have gradually developed the Place. For instance, some place functions changed and developed due to social interactions, and being suitable for religious and spiritual issues as well as people’s movements. The third factor determining integrity concept is ‘Visual-aesthetic Integrity’. For this purpose, the more artistic quality, architectural features and aesthetic values of the property being conserved, the better condition the ‘Visual Integrity’ would have. In the past, the visual integrity of each region indicated its unique identity (Jokilehto, 2006).

In the following sections, to prioritize the key factors of integrity as defined by Jokilehto, the conservation measures of Amir-chakhmagh square in Yazd, Iran is reviewed and evaluated. Due to the comprehensiveness and completeness of Jokilehto’s categorization in comparison with others, in this research Jokilehto’s classification has been used as the theoretical framework.

METHODOLOGY

Research Questions

Generally, this paper focused on answering the following question:

- Which factors of integrity have mostly been taken into account in conservation of Amir-chakhmagh Square?

To answer this question, in addition to studying the aspects and factors explaining the concept of integrity, the actions that have been done in Amir-chakhmagh square of Yazd are reviewed and evaluated and it is clarified which integrity factors are more considered in these measures.

Research Methods

Reviewing research questions indicate that the dominant approach of this paper is quantitative method. Therefore, in the first part of this paper; for recognizing aspects and factors explaining the concept of integrity in historic urban area, the logic reasoning technique and logic tool for explaining and interpreting theories and related documents have been used. Moreover, official structured interview, observation, photography, reading and viewing documents and descriptions have been applied in this research.

In the second part, in order to prioritize the integrity



factors and determine their correlation coefficient; the correlation strategy with multiple investigations method including official structured interview, questionnaires, observation, photography, daily notes, documents and descriptions reviewing have been used (Fig. 1).

Selecting the Case Study of the Amir-chakhmagh Square, Yazd

In the second part of this paper, in order to clarify the concept of integrity, the case study is being reviewed and analyzed. Review and analysis of empirical findings from case study research, approve the internal validity and to some extent the external validity. The case study is one of the distinguished projects in the historical center and near Masjed-e Jāmé and Bazar of Yazd. The most important selection criteria for it can be mentioned as the followings:

- Being a distinguished sample of implementation of strategies, policies and plans of conservation in Iran;
- Capable of being reviewed and analyzed based on integrity factors;
- Availability of information and access to the resources; and
- This article is part of the findings of the author's Ph.D. thesis on the subject of integrated conservation in historic architectural complexes, and Amir-chkhmaq square is one of the most prominent examples of the implementation of policies and conservation programs in the scale of historic architectural complex in Iran.

Sources of Research Information

For case study review and analysis, these tools have been used: 1) Documentary observation and reading, 2) Interviews, and 3) Questionnaires. Using questionnaires and other tools makes a substantial contribution to the clarification of the concept of integrity and enhances its scientific credibility. The proposed questionnaire has been reviewed by managers, planners and designer associated with the project of Amir-chakhmagh Square conservation through face to face interviews. In the next step, the questionnaires were randomly given out to 25 individuals of various fields who mostly have shops around the square and their opinions were received. After some minor changes based on the feedback from

the respondents; a questionnaire of 12 multiple choice questions with five options in the range of very low, low, medium, high, very high on the basis of integrity variables was organized. In order to organize the questionnaire, the qualitative components of integrity must have been converted to quantitative and measurable ones. Hence, based on the three factors of integrity, five-choice questions were prepared. To measure 'Structural-historical Integrity' four micro factors and to do so for the 'Functional-social Integrity' six micro factors are determined. For measuring the 'Visual-aesthetic Integrity' two micro factors were considered. In order to elaborate the exact theoretical framework of research, qualitative and in particular quantitative evaluation of the implemented measures have been taken to preserve Amir-chakhmagh historical complex in Yazd, where the defining factors of integrity have turned into micro-factors, towards further clarification of the concept of 'integrity'. The concept of integrity constitutes of three main factors of 'structural-historical integrity', 'functional-social integrity' and 'Visual-aesthetic Integrity'; and, ultimately, nine micro-factors (of 'Historical Values', 'Preservation of spatial and organic structure of the complex', 'Change in functionality of square with time', 'Change in functionality of the monument in a complex with time', 'Influence of religious needs on functionality of square with time', 'impact of the economic needs of inhabitants on functionality of the square', 'Impact of the social needs of inhabitants on functionality of the square', 'functional regeneration', 'Preservation of the landscape and valuable walls of the square and historic monuments of the complex'). Since the factors under consideration are components of qualitative nature, in order to quantify and implement them on a case study, they have been converted into measurable components, based on which, a Likert questionnaire with 5 choices has been prepared (Fig. 1).

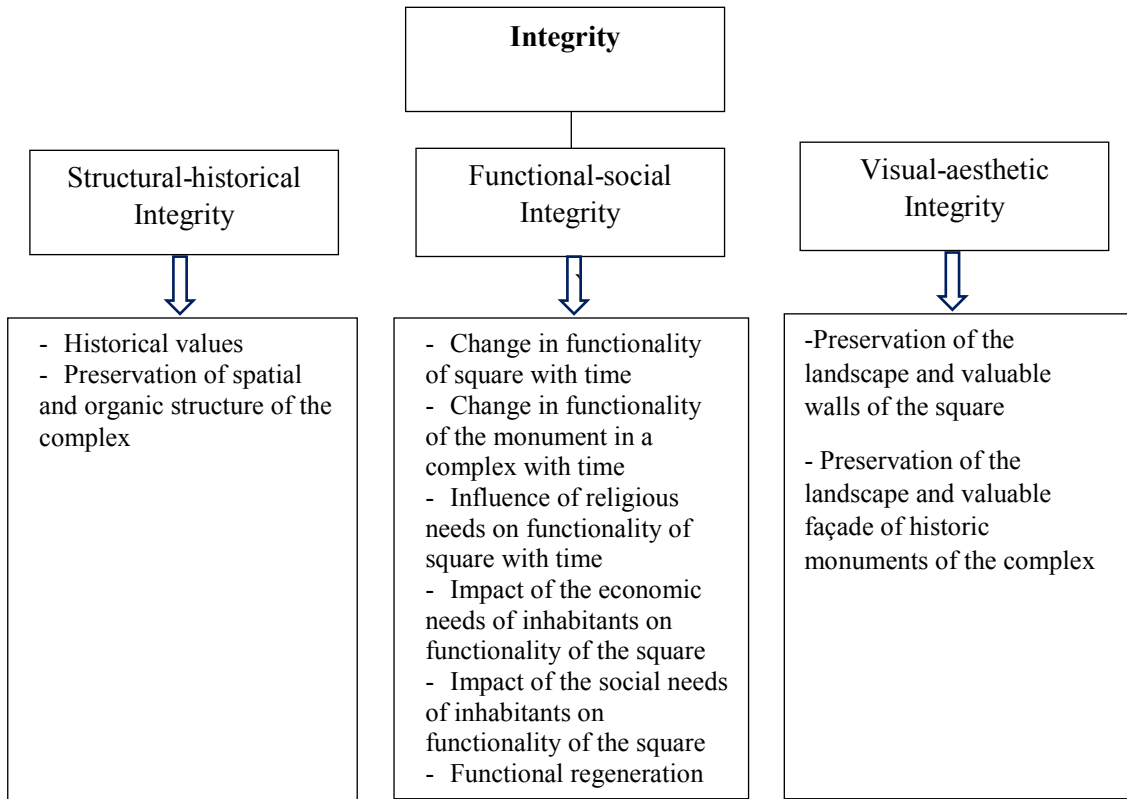


Fig. 1. An Analytical Model to Convert Factors to Micro-factors for Assessing Measures

Questionnaires were distributed randomly among 116 users, who were mostly shop owners around the square for three days between 8:10 A.M. to 5:30 P.M. According to the number of the independent variables, 116 questionnaires have been completed. The cronbach alpha coefficient is measured and equated to 0.84. The number of questionnaires and cronbach alpha coefficient are adequate and thus the results are acceptable and valid (internal validity). However, for the external validity of the findings of the research and the capability of their generalization to a broader level, more case studies need to be examined.

Data Analysis Strategy

To analyze and evaluate information obtained from the questionnaires in this paper, correlation strategy is used. For this purpose, the data obtained were analyzed and interpreted by SPSS software version 17 using 'Spearman's Correlation rho'. Spearman's coefficient is the most popular measurement coefficient in ordinal variables correlation (Heidari, 2014). Nominal and ordinal scales are qualitative measurement scales

(Barati et al., 2012). Since the nature of this research data is qualitative and have ordinal scale; the non-parametric method and Spearman's correlation test is applied for determining the correlations among variables. In addition, the five-point Likert Scale is used in this research.

Data analysis with Spearman's correlation indicates the role of each aspect in explaining the concept of integrity. In this research, integrity is considered as a dependent variable and 'Structural-historical Integrity', 'Functional-social Integrity', and 'Visual-aesthetic Integrity' are as independent variables. Although the generalizability of the findings is limited to the selected case study, in order to expand its generalization to a larger scale, more examples of historic urban complexes in Iran should be examined.

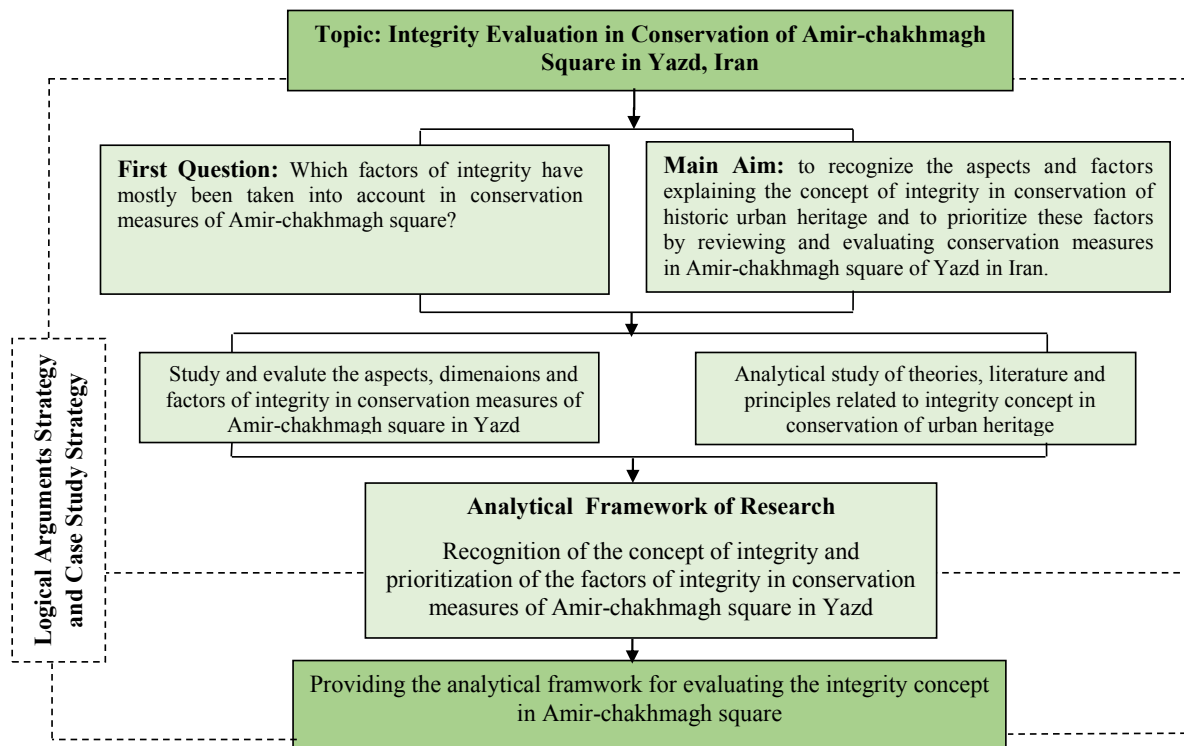


Fig. 2. The Research Design Introduces the Main Stage of the Study, Their Contents, The Relationship and Hierarchy of the Subject

Review and Analysis of the Case Study: The Historic Complex of Amir-chakhmagh Square, Yazd, Iran

The historic center of Yazd has been considered one of the most important Iranian urban heritage, having unique historical and cultural values. The historic center of Yazd has experienced specific historical, political and economic conditions in the process of its historical development and has been faced many changes. In recent decades, due to the deterioration of the urban heritage, the lack of comprehensive, integrated and strategic planning, the lack of facilities and other problems; the historic center of Yazd became more vulnerable in comparison with other areas of this city. In order to solve these problems, various plans and programs have been provided and implemented in recent decades to conserve and revitalize the historic center of Yazd. One of the most important projects is the Conservation Plan of the Historic Complex of Amir-chakhmagh Square (Mandgari, 2012). Obviously, in the process of conservation, in addition to the historical retrospect, the existing problems should be considered in different dimensions.

In this section, the results of the evaluation based on integrity factors are presented. First, the historical background and current status of the square is reviewed by studying documents and reviewing projects and plans. Then, implemented measures are evaluated based on integrity. And the data derived from the questionnaires are analyzed. Based on the findings, it is clarified which aspects and factors have been more effective in the conservation of Amir-chakhmagh Square.

Case Study: Amir-chakhmagh Square

The historic complex of Amir-chakhmagh is one of the most remarkable collection in Yazd which is located next to the historic bazaar of Yazd. This historic complex consists of Amir-chakhmagh mosque, Amir-chakhmagh Tekyeh, the Tomb of Seti Fatima, Haji Qanbar Bazaar, Seti Fatima Water Reservoir and Amir-chakhmagh Water Reservoir (Fig. 3). This collection idatesl back to the 9th century of Hijri Calender; when Amir Jalal-al-Din Chakhmagh, one of the governors of Timurid Shahrukh, became the governor of Yazd and structured this square in cooperation with his wife, Fatima Khatun (Shabestan Consulting Engineers, 2011, p. 91).

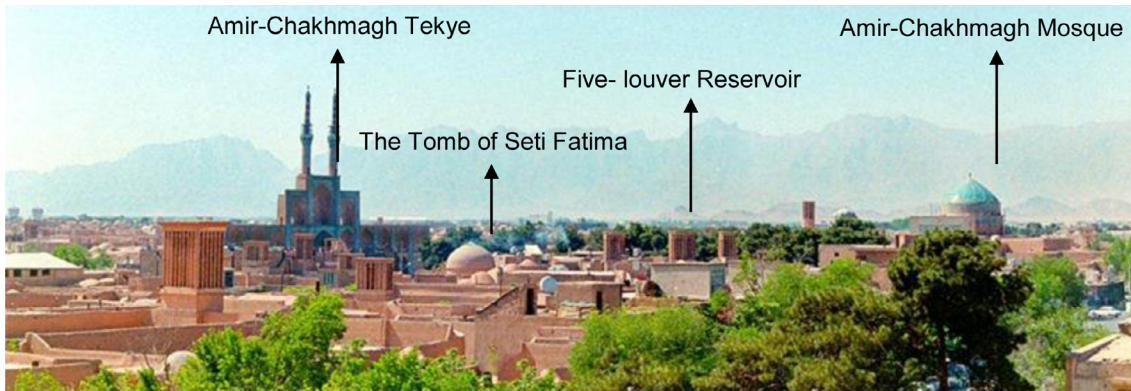


Fig. 3. Historic Monuments Located around Amir-chakhmagh Square, View from West to East,
(Archives of Cultural Heritage and Tourism Organization of Yazd, 1998)

In addition to its antiquity, the other remarkable factors affecting the Square significance are the unique and nice geometric pattern used in design and the public space of the square. However, the layout of the streets implemented

in the Pahlavi period caused a distortion in the structural integrity of this collection and to gradually different kinds of physical, social and functional deterioration prevailed the conditions over this place (Fig. 4).



Fig. 4. Amir-chakhmagh Square and its Surrounding Urban Fabric
(Archives of Cultural Heritage and Tourism Organization of Yazd, 2007)

In order to solve these problems, various plans and programs have been provided and implemented in recent decades to conserve and revitalize the historic center of Yazd. One of the most important projects is Amir-chakhmagh Square conservation plan (Mandgari, 2012). Amir Chakhmagh Square Conservation Plan began in

1995 with the management of the Cultural Heritage Organization of Yazd. About two years took to provide the necessary conditions to implement the project. In order to finance the project, the Urban Development and Revitalization Organization (UDRO) of Yazd began to act. The early actions have been started with this company



with the restoration and reuse of some historical buildings around Amir Chakhmagh square and surrounding areas. By implementing these activities, no significant physical changes have occurred in this area especially around the square. Most of the impacts were on the cultural and social aspects of the surrounding area. The project was stopped during 2007 and 2008 due to a change in management system. In general, all measures taken in the field of the historic complex of Amir-chakhmagh Square realized about 50% of the proposed scheme (Khademzadeh, 2012). In the following, the implemented measures taken in this square in the form of Amir- chakhmagh conservation plan will be discussed.

Analysis of Data Obtained from Observation and Documents Review

The main purpose of Amir-chakhmagh Square Conservation Plan is the highlighting of the historical reference along with the political and religious motivations. One of the most important objectives of the Conservation Plan is the reconstruction of Amir-chakhmagh Tekyeh which was destroyed in Pahlavi period. At the time of Reza Shah, most parts of Amir Chakhmagh Tekyeh had been destroyed because of the streets layout, but its main outdoor appearance had been preserved without any destruction due to the popular resistance. For this purpose, on the basis of Amir-chakhmagh square Conservation Plan, it has been determined to reconstruct the porches besides the square

in two floors. With the reconstruction of the porches, some part of the walls of this site were repaired and reconstructed. Although, the plan tried to act due to the old documents and use forms, proportions, materials and harmonious colors when reconstructing new porches (Fig. 5). it could not create visual integrity due to the lack of completion of the walls completely. These porches, based on the proposed design, should introduce the available porches in the commercial squares in addition to the concept of the Tekyeh; although, the commercial concept of these porches has not been considered. In the reconstruction plan, forms, harmonies, old materials, concrete structures were designed in harmony with outdoor bricks (Mandghari, 2012) indicating 'the historical-evidential values' and 'visual-aesthetic values' referred to the concept of 'integrity' and leading to the conservation of the significance of the historic complex. The use of the concrete structures in the porches of the Tekyeh indicate the attention to new technologies in the restoration and reconstruction of this collection. In addition to the reconstruction of unfinished porches on both sides of Amir-chakhmagh Tekyeh, the bazaar under the Tekyeh has been changed in some parts. In the past, Haji Qanbar, a ruler, built a bazaar under the Tekyeh to boom the economical situation of this city and sell the handicrafts of Yazd in those places (Khademzadeh, 2012). But, now, some part of the handicraft bazaar of Amir-chakhmagh has been transformed to the low level retailers. It indicates the lack of attention to the functional integrity of the Haji Qanbar Bazaar.



Fig. 5. Amir-chakhmagh Square with its Portico



Also, in order to preserve ‘The historical-structural Integrity’ and ‘Social-functional Integrity’ in Amir-chakhmagh Complex, there have been repaired and reused some historical buildings around the square and its surroundings including the restoration and reuse of Haji Qanbar Reservoir to water museum, Five-louver Reservoir to Zoorkhaneh (Fig. 6). restoration and reuse of the historic house in the northern corner of the square to the Urban Development and Revitalization Organization (UDRO) of Yazd, restoration and reuse of the historic house to the Yazd University guesthouse, restoration and reuse of some historic houses to educational centers, art gallery and etc. These actions have partly led to ‘social, functional and physical development’ of Amir-chakhmagh complex and its surrounding areas

while conserving its ‘Structural-historical Integrity’ and ‘Social-functional Integrity’; although, the changes have been performed in the field of ‘functional development’ slowly and implicitly by people and some organizations and the private sector while it could occur by the urban management cooperation on a regular basis and more quickly. For example, the shops around the square could have belonged to some functions leading to draw the attention of people to desirable areas such as the handicrafts of Yazd and some industries of Yazd at the national level (including Yazd carpets, Meiboud tiles, cashmeres, and etc.). As a whole, all taken actions have effective roles in conserving the significance of the complex and its surrounding areas in order to restore and reuse the historic buildings (Fig. 7).



Fig. 6. Five-louver Reservoir Turned into Zorkhaneh (Traditional gymnasium)



Fig. 7. A Historic Building Turned into Traditional Hotel

One of actions taken in order to gain ‘Historic-cultural development’ in Amir-chakhmagh square is the sudden cut of the pine trees within the field. Cutting down the trees in this area has led to creation of suitable space

for the religious meetings and speeches. Consequently, the pedestrian area in the middle of the square has been strengthened and the role of drivers around the square has been reduced. In addition, cutting trees ceased to enhance



'Visual-aesthetic Values' of this place and created a better view to Amir-chakhmagh Tekyeh. In total, the measures taken in the Amir-chakhmagh square were not significantly physical changes, but those measures created some social, cultural and functional changes (Mandegari, 2012) (Table 2). Generally, the proposed actions of the

plan within the surrounding area of the square have been implemented by 50%. Total changes performed in the area surrounding the square have been often included the restoration and adaptive reuse of historic buildings (Mandegari, 2012).

Table 2. Evaluation of the Amir-chakhmagh Square Conservation Measures Based on Integrity
(Based on Interviews and Observations)

Number	The Taken Measures	Integrity Consideration
1	Reconstructing Amir-chakhmagh Tekyeh using forms, harmonies, old materials, concrete structures with outdoor bricks	✘
2	The sudden cut of the pine trees around Amir-chakhmagh square	✓
3	Restoration and adaptive reuse of some historical buildings	✘
4	Changing the function of some shops around the square	✓

In the following, the set of measures implemented to conserve Amir-chakhmagh Square based on integrity are evaluated.

Findings of Analysis of Interviews and Questionnaires

The first step of this paper was to study and review the theoretical concept of integrity and selecting its constituent aspects and factors. The result of the findings of the theoretical part were introduced the 'Structural-historical Integrity', 'Functional-social Integrity' and 'Visual-aesthetic Integrity' as the main factors that explain the integrity concept for evaluation of conservation measures which taken in Amir-chakhmagh Square.

In the second session, findings from the analysis of the

interviews and user questionnaires based on the strategy explained in the methodology are presented.

The findings show to what extent the concept of integrity and its factors are considered in conservation of Amir-chakhmagh Square. Accordingly, it is indicated that the 'Functional-social Integrity', 'Structural-historical Integrity' and 'Visual-aesthetic Integrity', in descending order, have the highest to the lowest contribution in explaining the concept of integrity (Table 3). The overall findings of the Spearman correlation test indicate a relatively high positive correlation of the aspects to the concept of integrity.

Table 3. The Correlation Coefficients of Each Integrity Factor in Amir-chakhmagh Square Conservation

Correlations						
			Social-functional Integrity	Historical-structural Integrity	Visual-aesthetical Integrity	Integrity
Spearman's rho	Social-functional Integrity	Correlation Coefficient	1.000	.299**	.151**	.775**
		Sig. (2-tailed)	.	.001	.105	.000
	Historical-structural Integrity	N	116	116	116	116
		Correlation Coefficient	.299**	1.000	.489**	.764**
	Visual-aesthetical Integrity	Sig. (2-tailed)	.001	.	.000	.000
		N	116	116	116	116
	Integrity	Correlation Coefficient	.151**	.489**	1.000	.508**
		Sig. (2-tailed)	.775**	.764**	.508**	1.000
	N	.000	.000	.000	.	
		116	116	116	116	

** Correlation is significant at the 0/01 level (2-tailed).



To refer to the other findings of observations and interviews with managers, designers and planners, the followings can be mentioned: lack of integrated management, lack of cooperation with the bodies such as education, health and traditional organizations (VAQF). lack of adequate knowledge and appropriate understanding of policy makers and actors towards the integrity factors, and lack of interaction between conservation and development actors in the process of decision making, planning, design and implementation. Hence, integrity recognition and understanding the political forces, designers, planners and actors in the field of conservation and development is a key role in proper conservation and revitalization measures.

CONCLUSION

Conservation of heritage areas in the cities is a major catalyst for urban development plans. All countries have a range of valuable heritage sites whose conserving is very important. Hence, the existence of instruments and framework for measuring and evaluating the performance of conservation actions in urban heritage areas is very necessary. In this paper, having reviewed the theoretical aspects of integrity by revisiting the scientific papers, conventions, theories, and theoretical literature shows the importance of both 'Tangible' and 'Intangible' aspects as well as 'Natural' and cultural dimensions of integrity that facilitate the recognition of the qualities of natural and cultural heritage are important. Integrity can be evaluated by the factors of 'Historical-structural Integrity', 'Social-functional Integrity', and 'Visual-aesthetic Integrity' which are provided by Jokilehto. The category presented by Jokilehto for integrity was selected due to being comprehensive enough in explaining the concept of integrity. After that, the selected factors were evaluated in Amir-chakhmagh Square in Yazd as a case study, using correlation strategy and Confirmatory Factor Analysis method. The findings of analysis and evaluation of Amir-chakhmagh Square conservation measures not only support the integrity factors, but also prioritize them and determine their correlation coefficient. The result of the assessment shows that all factors explaining the concept of integrity, 'Functional-social Integrity', 'Structural-historical Integrity' and 'Visual-aesthetic Integrity', have had effective roles in the conservation measures of Amir-chakhmagh Square as well as their meaningful relationships with integrity in the taken measures. Findings from quantitative measurements in the case study confirm the theoretical framework of the research which is provided by Jokilehto.

Although the overall measures have had some drawbacks; in terms of considering the concept of integrity, the project has been successful. The 'Functional-social Integrity' is considered as the most significant integrity aspect in the measures. This indicates that, to some extent, the measures have been successful in terms of returning the social vitality of the square and revitalizing the open space of the square and returning the functions of the historic buildings around the square by adaptive reuse, such as traditional hotel and Zoorkhaneh. In general, the most factors that have led to the lack of comprehensive and integrated implementation of the objectives of the plan in the executive activities of the historic complex of Amir-chakhmagh square include: lack of coordination of authorities, lack of integrated urban management, lack of funds and sufficient resources to complete the project, and, most importantly, lack of sufficient cognition of participators, who are involved with the integrity components and the "Integrated Conservation" process. Having tested the explanatory factors of integrity criterion by quantitative method, this paper shows how to take the required steps toward understanding integrity and conserving the historic urban heritage integrity in the process of conservation and development measures.



REFERENCES

- Barati, N., Davoudpour, Z., & Montazeri, M. (2012). *Research Method in Environmental Studies*. Tehran: Sakoo, 102-108.
- Declaration of Quebec. (2008). *Declaration on the Preservation of the Spirit of Place*. Available at: <https://whc.unesco.org/uploads/activities/documents/activity-646-2.pdf>, Accessed on May 2010.
- English Heritage. (2008). *Conservation Principles: Policies and Guidance for the Sustainable Management of the Historic Environment*. English Heritage, London.
- Fadaei Nezhad, S., Eshrati, P., & Eshrati, D. (2015). Developing a Conceptual Framework for Integrity in Urban Heritage Conservation. *Armanshahr Journal Architecture & Urban Development*, 9(16), 96-104.
- Gullino, P., & Larcher, F. (2013). Integrity in UNESCO World Heritage Sites. A Comparative Study for Rural Landscapes. *Journal of Cultural Heritage*, 14, 389-395.
- Heidari, Sh. (2014). *An Introduction to Architectural Research*. Tehran: Fekreno Book.
- Heike, C.A., & Hazen, H.D. (2010). Maintaining Authenticity and Integrity at Cultural World Heritage Sites. *Geographical Review*, 100 (1), 56-73.
- ICCROM. (2007). *Sharing, Conservation, Decisions*. Rome, Italy.
- ICOMOS. (1964). *International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter)*. Available at: http://www.international.icomos.org/centre_documentation/chartes_eng.htm. Accessed on May 2008.
- ICOMOS Charter. (1994). *The Nara Conference on Authenticity in Relation to the World Heritage Convention*. Available at: <http://icomos.org/index.php/en/charters-and-texts>, Accessed: May 2010.
- ICOMOS Charter. (2008). *Charter on Cultural Routes*. Available at: <http://www.icomos.org/index.php/en/charters-and-texts>, Accessed: May 2010.
- Jokilehto, J. (2006). Considerations on Authenticity and Integrity in World Heritage Context. *City & Time*, 2(1), 1.
- Khademzadeh, M. (2012). *Oral Interview*. Project Manager of the Amir-chakmagh Square. Place of Interview: University of Tehran.
- Mandeghari, K. (2012). *Oral Interview*. Place of Interview: University of Yazd.
- Pendlebury, J., Short, M., & Aidan W. (2009). Urban World Heritage Sites and the Problem of Authenticity. *Cities*, 26, 349-358.
- Rossler, M. (2008). *Applying Authenticity to Cultural Landscapes*. In Waite, Diana. (Ed.), APT Bulletin, XXXIX (2-3), 47-54. Published by Association for Preservation Technology International.
- Shabestan Consulting Engineers. (2011). *Reorganization Plan of Seyed Mostafa Khomeini Square (Shah Tahmasb, Beasat) of Yazd*. General Studies of the Formation of the Plan; Employer: Yazd Municipality, Department of Planning and Architecture.
- Stovel, H. (2007). Effective Use of Authenticity and Integrity as World Heritage Qualifying Conditions. *City & Time*, 2(3), 3.
- UNESCO World Heritage Centre and City of Vienna. (2005). *Proceedings of the International Conference "World Heritage and Contemporary Architecture – Managing the Historic Urban Landscape"*. Vienna: City of Vienna.
- UNESCO. (2005). *Operational Guidelines for the Implementation of the World Heritage Convention*. World Heritage Committee and World Heritage Centre.
- UNESCO. (2011). *Operational Guidelines for the Implementation of the World Heritage Convention*. Paris: World Heritage Centre.
- UNESCO. (2011). *Recommendation on the Historic Urban Landscape (Draft) Adopted by the General Conference at its 36th Session*. Paris: UNESCO World Heritage Centre.
- Wang, Y., Huang, S., & Kyoungjin, K.A. (2015). Toward a Framework Integrating Authenticity and Integrity in Heritage Tourism. *Journal of Sustainable Tourism*, 23(10), 1468-1481.
- Zancheti, S.M., & Hidaka, L.T.F. (2011). Measuring Urban Heritage Conservation: Theory and Structure. *Journal of Cultural Heritage Management and Sustainable Development*, 1(2).

