Heritage Science

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The semantic conservation of architectural heritage: the missing values

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Abstract

The conservation of the architectural heritage has enjoyed a long course of development over the recent decades. Conservation practice is based on the values offered by the architectural heritage resources for different individuals, groups, societies, and governments. Since there is no serious and comprehensive research on the semantic values, the present study was conducted to identify all the influential semantic values in the architectural conservation process and to determine the importance of each value based on the published literature. To this end, more than 100 scientific documents, statements, and charters were analyzed and then, 40 semantic values were identified. The snowball sampling method was used to select the papers. In this study, the qualitative content analysis was used to evaluate the relationship between the architectural heritage and conservation, and the quantitative content analysis was used to assess the relationship between the semantic values and conservation. According to the results of the content analysis, it can be concluded that the conservation of architectural heritage can be investigated and analyzed at three levels: people, experts, and governments, and the holistic conservation of the architectural heritage can be achieved only by the joint cooperation among all the three levels. Also, the results showed that the cultural value, economic value, historical value, and identity greatly influence the semantic conservation of the architectural heritage.

Keywords: Architectural heritage, Architectural conservation, Value assessment, Semantic values, Content analysis

Introduction

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has classified the cultural heritage into two categories: tangible and intangible (Fig. 1). Tangible cultural heritage is divided into immovable heritage and movable heritage. Immovable heritage includes the historical buildings, monuments, and archeological sites [1].
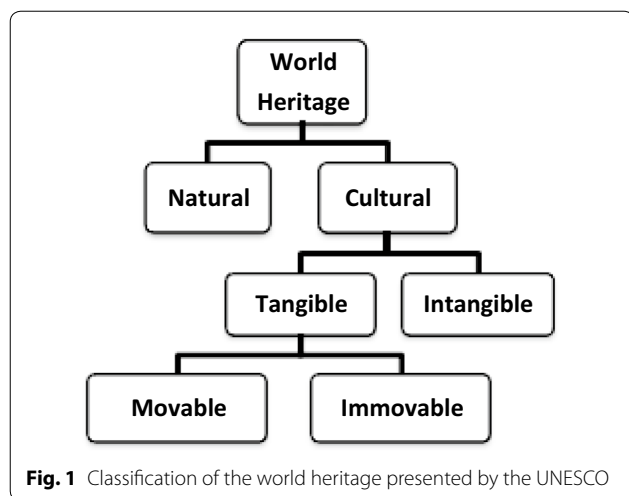
Architectural heritage

The expression of "architectural heritage" shall be considered to comprise the following permanent properties:

– Monuments: They are referred to all the buildings and structures of conspicuous historical, archaeological, artistic, scientific, social, or technical interest including their fixtures and fittings;
– Groups of buildings: The homogeneous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social, or technical interest, which are sufficiently coherent to form the topographically definable units;
– Sites: They are referred to the combined works of man and nature, the areas, which are partially built upon and sufficiently distinctive and homogeneous to be topographically definable and are of conspicuous historical, archaeological, artistic, scientific, social, or technical interest [2].

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Fig. 1 Classification of the world heritage presented by the UNESCO

Architectural conservation

Regarding conserving the heritage to have an embodied reality for its interpretation, it has been attempted to understand and interpret the heritage in order to show how the world was like before us [3]. Conservation means protection and maintenance [4]. Architectural conservation means to conserve the valuable architectures or architectural values. Since the formation of architecture, its conservation and restoration have been considered as a principle. In the ancient Greece, damaged monuments were repaired such that, the original shape of the building was preserved. In the past, there have been several methods for repairing the buildings (mostly religious buildings) [5]. Prior to the eighteenth century, in most cases of religious buildings, conservation measures were based on the religious beliefs, and in some cases, on logical foundations where the maintenance and repair were less costly than the replacement and reconstruction [6]. Studying the experiences regarding conservation of the architectural heritage carried out prior to the nineteenth century shows that the conservation was primarily concerned with a set of measures to eliminate the erosive factors and improve the physical condition of the architectural heritage and in some cases, paying attention to the artistic, aesthetic and symbolic aspects of them. Since the nineteenth century, although the conservation theorists and architects have had different interpretations about the concept of conservation, in all the cases, more attention has been paid to the tangible and visible aspects of the heritage than its sensory and intangible categories. In the several decades ago, with the introduction of some concepts related to the environment, psychology, and human behavior in the fields of science, philosophy, and environmental sciences, perspectives on the qualitative and semantic aspects of spaces have been developed and

their intangible dimensions have been considered. Such a change in the attitudes has also influenced the issue of conservation of architectural heritage, prompting the researchers and experts to consider the conservation not only as an attempt to optimize and preserve the physical aspects of the buildings, but also as a process dealing with the semantic aspects of the architectural heritage. In general, conservation is classified into two levels: conservation of the physical aspects and semantic aspects [7].

Conservation of the physical aspects related to the "profession and knowledge of the restoration" is a set of measures that rely on improving the tangible conditions, whether through a direct intervention leading to the manipulation of the physics and materials or through an indirect intervention leading to manipulation of the surroundings or changing the influential factors of the historic building [8]. According to the New Zealand Charter, there are various degrees of intervention including (i) preservation, through stabilization, maintenance, or repair; (ii) restoration, through reassembly, reinstatement, or removal; (iii) reconstruction; and (iv) adaptation. Also, any intervention reducing or compromising the value of the architectural heritage is undesirable and should not occur [9].

According to the Nara Charter, conservation of the semantic aspects is rooted in the identification of the introduced heritage values, the conservation of which depends on the ability to understand the intangible values [10]. According to the 1999 Burra Charter, conservation is a set of measures enabling a person to achieve the values, meanings, messages, and concepts latent in the heritage spaces [11].

Value assessment

Value assessment plays a key role in all the architectural heritage-related measures; as Fielden points out, the first step in the conservation process is setting a goal and then prioritizing the values in the building to understand and convey the message of the work [8]. Today, recognition and expression of the values latent in the work are of special importance in the conservation of architectural heritage, [12, 13] and value is one of the determinants of validity and importance in the special topics related to the science of conservation [12, 14] playing a very important role in developing the conservation policies. In general, any conservation activity takes place when an object or place is valuable and therefore, decision-making on treatment and intervention in the work depends on these values [12]. Some values take precedence over the others in making a decision about the thing or aspect that needs to conserved. For example, Nara Temples in Japan are demolished and rebuilt every 20 years. As a result, it is not possible to preserve the values by conserving the

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materials, and preserving the craft skills and intangible values must be considered. There is a deliberately cyclic relationship between the conservation and value, in which the materials and physical aspects undergo the complete changes and are destroyed to preserve a particular type of intangible values [4].

The first step in the conservation process of the built heritage is identifying and prioritizing the existing values [15]. Regarding the prioritization of the architectural heritage values, two general cases can be considered: (1) Works have one or two values and it is very easy to prioritize them and (2) Works have multiple and varied values and prioritizing the values will become a necessity. Del and Tabrizi categorized the values into two groups: physical and semantic. In their studies, they addressed only the physical values influencing the architectural conservation [7], and the values influencing the semantic conservation were not analyzed and discussed. Therefore, the main question of the present study is as follows:

What are the values influencing the semantic conservation of the architectural heritage?

In the scientific research on the architectural heritage, one or more semantic values have been considered and studied as an effective value in the process of semantic conservation. However, in these studies, all the influential values in the semantic conservation process have not been mentioned comprehensively. Therefore, one cannot have a clear understanding of the semantic values involved in the conservation process. Accordingly, the main objective of this study is comprehensively investigating the semantic values determined by the researchers and experts in the field of the architectural heritage conservation.

Methodology

In this study, the qualitative content analysis was used to evaluate the relationship between the architectural heritage and conservation and the quantitative content analysis was used to assess the relationship between the semantic values and conservation (Table 1).

As mentioned, the content analysis was used to systematically study the information of the historical monuments and to reveal the semantic patterns hidden in them or even the systematic and meaningful use of some terms and words. Content analysis is a method used for analyzing the relational, textual, oral, audio, and video messages [17]. This method was first used to analyze the anthems, newspapers, magazines, advertisements, and political speeches in the 19th century [18]. Today, content analysis has a long history in the communications, journalism, sociology, psychology, and business, and has evolved over time through a variety of techniques [19]. According to Holsti, content analysis generally refers to any technique used to systematically and objectively deduce the specific characteristics of the messages [20]. Conventional content analysis, also referred to as the inductive content analysis in the literature is used when the research objective is describing a phenomenon for which there is only limited literature and no existing theory [21]. The attainment of direct information from the study participants without imposing the preconceived categories or theoretical perspectives is among the advantages of this approach [22].

Chelimsky introduced the content analysis as a procedure set used for collecting and organizing the information in a standardized form allowing the researcher to make some analyses in order to deduce the characteristics and meaning of the written or recorded materials. According to him, the content analysis is more about answering the what questions than why ones. In other words, this method is applied when the objectives such as summarizing the written contents, the author's opinion and understanding, or its effect on the audience are followed, while it is better to use other methods to find the causes of a phenomenon [23]. Therefore, the content analysis is basically defined as any procedure used to analyze, summarize, classify, and infer the specific features from the text. This method reveals the meanings hidden in the content and sometimes allows us to compare several texts simultaneously.

Table 1 Methodology

Method goals	Qualitative content analysis [16]	Quantitative content analysis [16]
Purpose	Developing the themes to capture the underlying meanings of data portions (latent meaning-based purpose)	Developing the themes based on the occurrence of the relevant information in the data (frequency-based purpose)
Process	1. Identifying the relevant data 2. Coding by evaluating the text including the context and background 3. Generating the themes to represent the underlying meanings of data 4. Using the themes to address the research question(s)	1. Identifying the relevant data 2. Coding and tallying the easily recognized evidence found in the data 3. Statistically analyzing the quantified codes to address the research question(s)
Product	Credible and context-bound results	Reliable and context-free results

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Content analysis has two general quantitative and qualitative approaches. The quantitative content analysis is applied when the researcher seeks to classify the obvious words of the text and to determine the frequency of certain terms and words in a certain content and intends to report them by the numbers in his/her analysis. In the quantitative content analysis, the appearance of the text and counting of certain words or sentences are intended. In fact, it is assumed that the repetition of certain words in a particular context reflects the relationships or the facts in that context that can be discovered using a structured and systematic study. In other words, in the quantitative content analysis, the written words and phrases include the most important relational ideas, and each of these obtained ideas and concepts is called a "criterion". In the quantitative content analysis, contents are categorized under a single criterion based on the commonalities between them. This phase of content analysis is called the coding [20].

On the other hand, when the researcher tries to infer a specific meaning from the text by categorizing the words and realizing the similarities, differences, and relationships between them, it is more appropriate to apply the qualitative content analysis. Unlike the quantitative content analysis emphasizing the appearance of the content, the frequencies of words, or phrases and quantification, in the qualitative content analysis, more attention is paid to the themes hidden in the text and the inference and extraction of the meaning are considered [24]. "Inferring" is the most important stage of the qualitative content analysis based on which the relationship between the concepts is determined [25]. Theoretical saturation must be achieved to obtain the adequacy of the sample in the content analysis. Theoretical saturation refers to a situation where no further data can be obtained by which the researcher can expand the characteristics of the criteria [26].

The existing literature was reviewed to find a reliable, comprehensive, and detailed set of semantic values. Reviewing the literature to select the values can help us to have a comprehensive and clear set of values [27]. This procedure continued until there were no new values identified in the last 10% of the reviewed materials. To this end, more than one hundred scientific papers, charters, and statements were studied, and the main idea of each was recorded by the quantitative content analysis. These values were the main ideas, whose significance was emphasized or supposed to be measured. Also, the snowball sampling method was used to select the papers. For this purpose, first, some papers were selected as a starting point and clue by the experts in the field of the architectural heritage conservation, then the content of the papers was studied and other relevant papers were

identified and reviewed based on the used references. The snowball sampling method is one of the most well-known forms of non-probability sampling, which is particularly suitable when the population of interest is hard to reach and compiling a list of the population poses the difficulties for the researcher [28, 29]. In this method, future members of the sample are selected through the former ones, and the sample becomes larger and larger like a snowball [30]. For example, in a qualitative study, for studying the literature based on a keyword, first, a few basic papers related to the keyword are selected by consulting with the experts, then the content of the selected papers is reviewed and other papers are identified based on the used references related to the keyword. Other identified papers are reviewed in the same way and newer ones are identified. This process continues until new references can no longer be identified. In this case, the theoretical saturation is successfully achieved and the snowball sampling method has been successfully applied [31].

Literature review

The literature review is presented in two parts. In the first part, the relationship between the architectural heritage and conservation is discussed, and in the second part, semantic values and conservation measures are identified according to the previous studies.

Architectural heritage and conservation

Throsby, in a study introduced the main components of the cultural value, aesthetic value, spiritual value, social value, historical value, symbolic value, and authenticity value. Also, the relationship between the non-economic and economic values of the architectural heritage and the existing rules regarding this heritage was investigated [32]. Conti found that the conservation and maintenance of the historical monuments has led to the creation of a strong and stable cultural identity that has resisted the modernist movements to some extent [33]. Mason studied the relationship between the conservation of historical monuments and the economy. Also, the historic preservation was introduced to sustain and create the cultural values like the historical associations, senses of the place, cultural symbolism, and the aesthetic and artistic qualities of the architecture [34]. Kennedy showed a picture of the building after the end of conservation operation to the building owner, local authorities, and investors by providing photos of a building valuable to be conserved in the current situation and making changes in it using the computer software. After observing the results of conservation, these people decided to start the conservation and restoration operations and started operations in a coordinated and effective manner.

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Visualizing the value is effective in the conservation process [35]. Henderson indicated that following the increased importance of business issues in the present age and the expansion of education in the society, along with the increase in the self-confidence of the Singaporeans, their views on the colonial buildings have changed. They have accepted the use of these buildings and have been able to save a large part of them from demolition and restore them by changing the use and name of these buildings [36]. Ricketts investigated the effect of the conserved buildings on the identity [37]. Battilani et al., demonstrated that supporting the unwanted heritage of buildings by those living in a region and development of the facilities attracting the tourists have increased by teaching the critical thinking about history and creating new independent identity and culture [38]. Díaz-Andreu studied the history of research on the social value and its effects on the conserved buildings [39]. Sabri indicated that the society's viewpoint is negative regarding the past architecture, and values of the historical sites are dispraised in the post-colonial period of Cyprus due to the religious and cultural reasons as well as the change in the government system. Thus, only some historical sites have been selected for conservation and restoration [40]. Studies conducted by Ireland have shown that for conservation of an architectural monument, it should be valuable to at least a part of the society. In Australia, these values were introduced both endogenously and exogenously. The endogenous sector was created to form a national identity to prevent the colonization, and the exogenous part was formed due to global attention to the issue of architectural heritage conservation and the formation of organizations such as the UNESCO [41]. Sullivan indicated that in a values-based management system, policies and decisions on the conservation actions taken for historic buildings and cultural heritage are based on identifying all the values in the works. The engagement of all the associated communities and stakeholders is required and necessary in order to succeed in the values-based management of the architectural heritage and to comprehensively identify the values in the works [42]. Karlstrom found that today, in the case of conservation of the historic buildings, preserving the spiritual, historical, and conceptual values of the building is more important and valuable than the preservation of the building itself in its original form [43]. Paganoni showed that using the Internet and social networks to introduce the architectural monuments and create the different groups and associations for attraction of the attention to these monuments has not only formed a new identity but also increased the importance and value of the architectural heritage in Italy. The emergence of these networks has blurred the border between the public and private investments

[44]. Muthuma showed that the conservation of buildings depended on the people's collective memory has been able to revive the collective and national identity in the people [45]. Longworth illustrated that the architectural heritage is an integral part of the development of societies due to its important values and applications in the society, and studied the relationship between the architectural heritage and events such as social and economic changes, natural disasters, political tensions, uncontrolled tourism, and urban development [46]. Fitri and Ahmad demonstrated that the lack of clear and integrated rules for the conservation of historical monuments has led to a lack of development in the conservation of the historical buildings in Indonesia. These rules have been established dispersedly, and each government's ministry takes a part of the responsibilities to conserve the monuments. On the other hand, governmental agencies do not allow the private sector to cooperate in the conservation of the historical monuments and finally, the tourism industry has not developed well [47]. Irons and Armitage stated that although in Australia, historic buildings are conserved with respect to the latest standards, they are conserved with an economic perspective, and all the values are valued regarding the economic issues. They concluded that other aspects such as environmental, identity, and social values can be considered too [48]. Hubbard showed that the conservation of the historic buildings does not only involve the architectural and archeological aspects. It is the meaning, concept of the buildings, daily and continuous life in them that makes them valuable, which must be added to the approaches and strategies for the conservation of the historic buildings [49]. Maeer demonstrated that economically valuing the historic buildings for conservation is very inefficient and frustrating. Thus, great attention should be paid to the aesthetic, social, cultural and human aspects of the building in finding the values [50]. Malheiro found that the medieval monuments in Portugal induce a sense of place, identity, and social structure and enrich the lives of the people living next to these monuments due to their physical and semantic characteristics. According to this study, surroundings, building, landscape, ways, objects, memories, narratives, written documents, festivals, commemorations, rituals, traditional knowledge, values, social textures, colors, and odors are among the constituent elements of a place [51].

Semantic values and conservation
Semantic and intangible values are the most fundamental aspects of the social and intellectual life of the nations, the origin of identities, diversity, and creativity. Although, these values are not of material nature, their materialistic manifestations are perceivable and reviewable; such

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as language, beliefs, thoughts, and customs that are not objective in nature.

In this section, first, a comprehensive list of semantic values was provided with an emphasis on the intangible aspects of the architectural heritage by reviewing the literature. Overall, more than 100 scientific documents, statements, and charters were studied according to the criteria mentioned in the methodology section (quantitative content analysis), and 40 semantic values were identified, and the significance of each value was expressed as the frequency (Fig. 2). The definitions of these semantic values are presented in the following.

1 Cultural value: It represents the identity of every society and people's viewpoint of a phenomenon [52]. Lifestyle, quality of life, rituals and traditions, beliefs, values, norms and finally, the culture of every society are hidden in the cultural value and heritage of that society [53]. Values that are important based on the common traditions, are alive in the society [54]. Cultural significance is a term used by the conservation professionals to summarize the multiple heritage values [55]. In Burra Charter, significance is referred to a collection of aesthetic, historic, scientific, social, and spiritual values for past, present, and future generations [52]. It is the value assigned by the local community [54], based on the culture, identity, spiritual meaning, social wellbeing conserved for the future generations [53]. Interpretation of culture as common values and beliefs combining the groups shows that the social value of a heritage site may be reflected in the way that its presence contributes to

the social stability and consistency. A historical site might influence the people's lives in a society in a way or establish a relationship with it, identify the group values, and change the society into a desirable place for life and work. It is the set of values and notions considered by the society for the place or work [39]. Architectural heritage has a great potential to be used for building or rebuilding the identity, developing the culture, the growth of ethics, and social improvements, this potential makes architectural heritage a social good that can be known as the social wealth [56].

2 Economic value: Since the economics encourages the best allocation of the resources to meet a wide range of needs, the economic value may not be restricted to financial value. In terms of architectural heritage, the economic value may be understood as a value generated by the heritage resource, or conservation action. Economic values have four potential sources of revenue: tourism, commerce, use, and amenities. The mismanagement of any of these sources could lead to the undesirable development or even the destruction of the heritage resources; this is often the case when the profit value is erroneously measured, instead of using a more appropriate collective cost–benefit approach [52]. It is a value created by a historical work for the market [57]. Tourism can generate the income and employ the ancillary industries like hotel, transport, etc. for the heritage sites. This means the commercial value of the site [58].

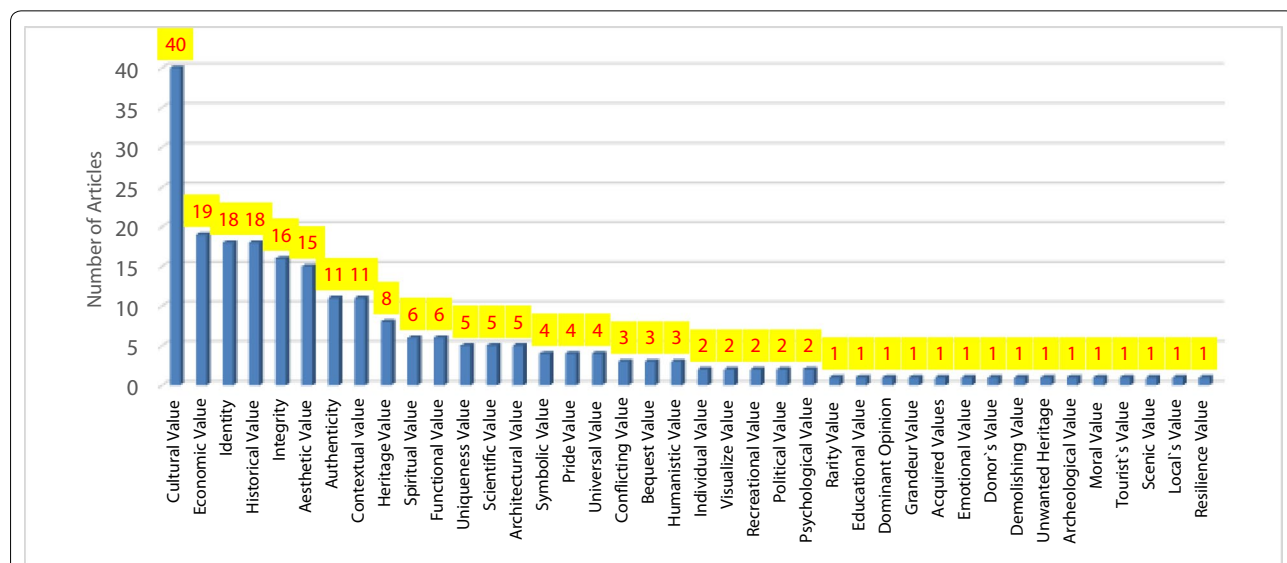3 Identity: It is a mutual subject. So that, on the one hand, the environment is a manifestation of the cul-

Fig. 2 Frequency of the semantic values in the reviewed studies

ture and social values, and on the other hand, part of human identity could be sought for in the urban environment, workplace, or house [59]. Moreover, the place is something more than an abstract location and is consisted of a set of elements together defining the environmental character; something which is considered to be the nature of a place [60]. We can express the collective identity through the historical monuments because they have been made of a common experience. In other words, historical monuments express collective and common memories and experiences [45].

4 Historical value: It is a value created in the course of time. Thus, it disappears by replacing the materials of a building with new ones [61]. Agedness by itself is considered to be a value for the works. In fact, the historical nature of the work, regardless of everything else, creates a sense of respect in the people, catches their attention, and spurs the visitor's curiosity [62]. In the modern era, "age value" is the primary value of the monument. It is a value created by the increase in the age of a monument or a heritage building [63].

5 Integrity: The concept of integrity implies the wholeness, intactness, and purity and refers to a state where a monument includes all its constituents and is materially free from all the essential damage or shortcoming [64]. In the process of selection of the architectural heritage for inclusion in the World Heritage List, such sites are assessed in terms of their integrity, and in association with various notions like the structural integrity, applied integrity, and finally visual integrity. This concept can be considered as the foundation of the development for conservation management [65]. In general, architectural values are related to the integrity of the monuments and this integrity weakens when too many modifications and interventions occur [66]. Moreover, integrity is among the preconditions that must be met for registration of the whole works in the domain of World Heritage [67].

6 Aesthetic value: The site may possess and display the beauty in some fundamental sense, whether that quality is somehow intrinsic or it only emerges through its use by the visitor. Under the general heading of the aesthetic value, we might also include the relationship of the site with the landscape where it is situated, i.e., all the environmental qualities relevant to the site and its surroundings [32]. Beauty in this context is not considered to be a relative notion and it is studied technically, which can be assessed based on three scales of volume, façade, and design. Creative design, innovativeness, lack of repetition, functionality (addressing the needs of the user), and

more importantly, attractiveness are considered as the measures of the beauty of a historical work [62].

7 Authenticity: Authenticity is a crucial aspect in the assessment of the heritage resources. Generally speaking, authenticity is ascribed to a historic building that is materially original or genuine as it has been constructed before. Being authentic can be understood in relation to the creative process during which it was produced as a genuine product of its time and includes the effects by the passage through the historic time [52].

1 Authenticity in design: The intention for designing is an architect's way of responding to the requirement, which has led to the creation of that artwork [66]. The course of historical development and extensions added to a historic building, if performed in a correct manner; does not harm the authenticity of a design. An example of this concept is the Jameh Mosque of Isfahan that can be distinguished from every historical period however; its authenticity has never diminished.

2 Authenticity in materials: It is measured by the degree of the intactness of the primary materials. It should be noted that, if the historical interventions have the values related to their own era, they will add to the value of the work due to their historical narrative. The existence of the original material in the heritage resource is the measurement criterion for the authenticity in material [52]. Notably, the historic interventions can add to the value of the heritage if they can exhibit the features unique to their own era.

3 Authenticity in construction: It shows the use of techniques and skills of the era when the resource was built.

4 Authenticity in the quality of setting: It measures the value of a building, regarding its way of location in the settings, as well as the level of its harmony with the place or complex where the monument is located [68]. In other words, it is referred to the level the monument influences or is influenced (being in harmony with the environment) by the surroundings (environmental harmony).

8 Contextual value: It is a set of values like the sense of place, sense of civic involvement; sense of worth, sense of connection and so on created by positioning in a particular place and is assigned to a building or a part of city [69]. For example, position of a historic building in the body of a historical street considered in an improvement and revitalization plan can make

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the added value for both the building and the street [68]. Phenomenologically, it refers to the reality and essence of a place indicating the importance of the meanings and messages in the place. People decipher and understand these meanings based on the roles, expectations, motivations, and other factors [70]. Accordingly, understanding and judgment taking form in an individual's mind based on deciphering these meanings lead to the creation of a sense of place [71].

9 Heritage value: This refers to the meanings and values bestowed by the individuals or groups of people on the heritage [39].

10 Spiritual value: Every architectural body representing the manifestation of the religious beliefs, supernatural (spiritual) beliefs, or reminding a significant and symbolic event or figure from the historical past of a nation (ranging from natural symbols to temples) is considered to be of spiritual value. The spiritual value conveyed by the historical monument may contribute to the sense of identity in the society as a whole [32].

11 Functional value: This value is rooted in the historical record regarding the function of the work and the way that the man takes advantage of it in the course of time. The possibility of continuation of this functional potentiality until the present time is considered the positive aspect of the functionality of the work [68]. This value is acquired by a heritage resource through being used, such as direct reuse, or being opened for the public visit [72]. It is a satisfying feeling created by allowing the people to directly use the monuments [58].

12 Uniqueness value: Uniqueness (as an intrinsic character) should be distinguished from the rarity (an acquired feature) according to which the resource will remain unique not only in the present era but also in the future eras. In a heritage site, its type, style, builder, period, region, or a combination of some of these factors can define the uniqueness of the resource [52]. They represent those values born by the creation of a work and can be evaluated in the present time including all the existential aspects of the work, such as the aesthetics, primary use, cultural and functional identity, the technology of construction, etc. [62]. The sense of pride created by the heritage in the individuals is the intrinsic value of the work [58].

13 Scientific value: A wide range of the sciences including the heritage conservation, archaeology, history, human sciences, and sociology rely on the correct understanding of these values. Sometimes we can understand the people's traditions, worldview, scientific and technological developments, and the causes of their decline or progress based on the remnants and ruins of their historical heritage [53].

14 Architectural value: This value is a function of the importance of the elements and architectural factors, innovation, and authenticity of the architectural motives.

15 Symbolic value: A historical monument can be useful in conveying the meaning and information that can help the society to interpret its cultural identity and character. The value of historical monument, as the representative of meaning can be important in terms of educational function not just for the youth rather for the development of knowledge and level of understanding as a whole [32].

16 Pride value: It is created by the presence of a monument in the society accompanied with a sense of pride and honor in the individuals [58].

17 Universal value: A heritage resource has different values for different groups, in other words, the values of a heritage site are not understood in the same way by those inside and outside of the society where it is located. The value possessed by a heritage site for the people outside of its society is known as the universal value [73].

18 Conflicting values: These are the values due to which some groups refuse to handle the conservation operation. For example, a group of people who care about the conservation of historical monuments of a specific culture may refuse to protect other monuments due to the lack of certain values [74].

19 Bequest value: The efforts of a generation to conserve a historical heritage for the future generations are of a specific value that is known as the bequest value [58]. Conservation of the historical heritage for the future generations allows this heritage to be used and enjoyed again creating a new value [58].

20 Humanistic value: They are important in terms of the human nature and philanthropic issues [75].

21 Individual value: It is an aspect of an architectural heritage that is valuable for a single person, not for any group or society [53].

22 Visualization value: Words alone cannot express the values of the cultural heritage and historical sites. The actual and visible presence of the tangible cultural heritage can well depict the values [35].

23 Recreational value: Recreational value is referred to the utility obtained from visiting the site by the current and future generations [58]. We can estimate the demand function for the site and calculate the consumer surplus, by measuring the extent of decrease in the rate of visits with the increase in the travel costs representing the value of recreational use [76].

24 Political value: It is a kind of value or social power created by the architectural heritage and used by the political authorities and individuals for their interests [77].

25 Psychological value: It is referred to a value the perception of which has psychological aspects involving other values [49]. For instance, place belonging is a psychological concept originating from the idea that the place identity is assumed as the human identity [78].

26 Rarity value: In fact, this value refers to those buildings that are among the few survivors of a specific historical style or era. A high rarity value may reinforce the significance of the qualities that have outstanding universal value and therefore, strengthening the possibility of being listed as a World Heritage site [52].

27 Educational value: The educational value of a heritage resource includes its potential for cultural tourism and the awareness regarding the culture and history. It is promoted as a means of integrating the historic resources in the present-day life. The appropriate integration of the World Heritage sites into the educational programs is essential. This value can be created by a historical monument through participation in the education of the citizens [54].

28 Dominant opinion: This value is also considered as an indicator in the field of cultural heritage, which can be observed in the handcrafts, arts, folklore, and traditional architecture. For instance, in a study, Ettinghausen and Grabar [79] introduced the construction of the Great Mosque of Damascus on the place of the church as a sign of the religious and political transformation of that era.

29 Grandeur value: Grandeur is a common concept in the monument buildings that can be sensed by the visitors through the perception of a combination of physical elements. This value is used in the palaces, mosques, mausoleums, and other administrative buildings [80]. Some volumetric constructions in the architectural design are used to show the grandeur. This value can be usually understood from the construction of great monuments [80].

30 Acquired values: Each piece of art has a variety of values acquired gradually during the entire period of its existence [81]. Historical building contributes to the collective memories including the important historical events, and its engagement and harmony with the environment can make the potential for the acquired values [82].

31 Emotional value: Those values that can give rise to a certain emotion in the visitor [81]. This sense can remind the national magnificence and pride and bring the human communities closer to each other through creation of a sense of nationalism and tribal relations or attachment to the past [83].

32 Donor's value: In conservation of the historical buildings, costs of each project can be paid by a donor that may have its own set of values to pay the costs for the project and this set of values can confront or be in line with the system of values in the project [74].

33 Demolishing value: It is a value acquired through destruction of the architectural heritage and selling its valuable materials or historical parts to the museums or collections [72].

34 Unwanted heritage: Historical monuments and valuable heritage representing the decline of a society, or are related to an evildoer or notorious leader can bother or embarrass the people of that society [38].

35 Archeological value: It is a value given to a historical monument from the point of view of the science of archaeology [41].

36 Moral value: It is a value given to a monument by means of the ethical system governing the society [43].

37 Tourist's value: It is referred to the value acquired by the things that are important to the tourists. Since, the tourists want to get the most out of their trip, particular places and features are important to them, which are not necessarily important for the others [57].

38 Scenic value: Conservation of the particular historical buildings and artifacts can make the picturesque scenes that are desirable for photography and memorization [57].

39 Local's value: This value is given to those things that are important for the locals. This can be a historic fabric, privacy, or opportunity to live normally [57].

40 Resilience value: Resilience is the ability of a system to reduce, prevent, anticipate, absorb and adapt, or recover from the effects of a hazardous event in a timely and efficient manner including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions [46].

Results and discussion

Results and discussion of the findings are presented in two parts. In the first part, the relationship between the conservation and architectural heritage is discussed and in the second part, the values influencing the semantic conservation of the architectural heritage are discussed based on the frequency.

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Architectural heritage and conservation

According to the studies by Longworth [46], Muthuma [45], Glendinning [75], Legnér [74], Ricketts [37], Conti [33], Díaz-Andreu [39], and Malheiro [51], it can be concluded that the presence and conservation of the architectural heritage are necessary for the development of today's societies.

According to the studies by Sullivan [42], Del [7], Breda-Vázquez [15], and Taylor [3], it can be concluded that the conservation policies and decisions are based on identifying all the values in the historical monuments. In the conservation process, it is important to identify the values in the historical buildings before any inspection and diagnosis, determining the degree of intervention, and performing the intervention measures.

Similar to the studies by Maeer [50], Irons [48], Throsby [32], and Mason [34], it can be concluded that only economically evaluating the historic buildings for conservation is insufficient. Thus, non-economic aspects should also be considered in finding and identifying the values influencing the conservation process.

In line with the studies by Hubbard [49], Lamprakos [63], and Karlstrom [43], it can be said that the meaning, concept, and daily life in the buildings makes them valuable.

Consistent with the studies by Paganoni [44] and Kennedy [35], it can be concluded that using the technology, Internet, and virtual networks can enhance the conservation of the architectural heritage. So that, the level of acquaintance of the people with the historical monuments and their motives for the conservation of the architectural heritage has increased through this virtual community.

According to the study by Fitri [47], it can be found that the lack of clear and integrated rules for the conservation of the historical monuments has led to the lack of development in the conservation of the historical buildings. These rules have been established dispersedly, and each governments̄ ministry has separate responsibilities to conserve the historical buildings in the most countries where the conservation of the historical monuments is not carried out properly. There is also a need for the governmental agencies to work with the private companies to achieve comprehensive and principled conservation of the architectural heritage.

In line with the studies by Battilani et al. [38], Henderson [36], Sabri [40], and Ireland [41], it can be concluded that the unwanted heritage can be conserved too by training and developing the critical thinking in the society.

Semantic values and conservation

In general, two kinds of approaches can be identified considering the values according to the studied documents. First, the approach that tries to consider the architectural heritage resources as a valuable artwork and wants to provide the comprehensive conservation. In this approach, the researcher tries to reach a deep and clear understanding of the resource's values and discover the hidden layers of the heritage resources. The second approach deals more with the economic aspects and tries to recognize the economic and market values for the historic buildings. Perhaps, this approach does not seem really transcendental at the first sight; however, each of these approaches will lead to better and holistic conservation of the architectural heritage and can be highly effective.

As shown in Fig. 2, cultural value has been mentioned in 40 papers and has the highest frequency meaning that this value has the highest certainty in the conservation process and has been the main subject of the semantic conservation studies. The outstanding cultural values of the society pave the way for the conservation of the historical buildings. Conserved architectural heritage promotes the identity of the community, and the society with great identity cares about its cultural values and strives to preserve them. In contrast, the demolition of the historical buildings weakens the identity of the society, in the long run so that, a society without identity does not care about its cultural values. Thus, a society without cultural values does not care about or conserve its heritage. The economic value ranked the next with the occurrence frequency of 19 times. On the other hand, the values such as rarity value, educational value, dominant opinion, grandeur value, acquired values, emotional value, donor`s value, demolition value, unwanted heritage, archeological value, moral value, tourist`s value, scenic value, local`s value, and resilience value had the least certainty in the conservation process, with the occurrence frequency of 1 indicating the limited research conducted on these values thus, there may be a potential for finding new aspects in the future research.

Conclusion

Numerous factors threaten the architectural heritage, and if these threats are not responded properly, the development, identity, and the cultural values of the societies will encounter the serious problems. Based on the obtained data, it can be concluded the conservation of the architectural heritage can be investigated and analyzed at three levels: people, experts, and governments, and the holistic conservation of the architectural heritage can be achieved only by the joint cooperation among all the three levels. At the level of experts, the most

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important step in the conservation process of the architectural heritage is identifying and prioritizing the values in the historic building candidate for conservation so as to obtain a complete understanding regarding what needs to be conserved. Since, the values in the architectural heritage are different in terms of importance; it is not possible to introduce a predefined pattern for the conservation of the values. For example, in Nara Temple, it is important to preserve a particular type of the intangible values instead of the conservation of the materials and physics. At the level of people, the most important step in the conservation process of the architectural heritage is raising the public awareness, increasing the public motivation regarding the benefits of the conserved heritage, and recognizing its positive effects on the people's lives. Also, it is possible to create a virtual community aimed at introducing and conserving the historical buildings using the Internet and virtual networks. This virtual community increases the community's acquaintance with the historical buildings and raises their motivation to conserve the buildings through financial, advertising, partnership, and emotional supports. At the level of governments, the existence of clear and integrated rules for the conservation of the historical buildings as well as the cooperation of the governmental agencies with the private companies are the most important factors for developing the conservation of the architectural heritage.

Totally, 40 values were identified in the section related to identifying the semantic values of the architectural heritage. Based on the qualitative and quantitative content analysis, it can be concluded that the researchers are mostly agreed with the effect of the cultural value on the semantic conservation. The next priority belonged to the economic value, indicating that the job-creation and income from the tourism industry are among the most important reasons for the people and governments to conserve the architectural heritage. So that, if in a society people cannot take advantage of the economic opportunities of their architectural heritage, they do not want to conserve it. Historical value and identity were in the third place stating that those communities emphasizing their past and identity conserve their historical buildings because, the architectural heritage is the living evidence of their historical thinking.

Limitations
The notable limitation of the present research was the lack of direct contact with the researchers all around the world to identify the effective semantic values based on oral interviews and their experimental experiences.

Suggestions for further studies
The architectural heritage has different value priorities to conserve according to the function of each historic building. For example, in comparing the historic cathedral values with historic castle values in a conservation process certainly, the physical and semantic values of these two architectural heritage functions will not be the same for conservation process. Accordingly, it is recommended to identify, analyze, and prioritize the physical and semantic values for conservation measures due to the function of each historic building in the future studies.

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