An Innovative Method in Implementation of Islamic Decorative Motifs on Sphere[1]

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ABSTRACT

Today, Islamic valuable decorative motifs are not used in new Islamic monuments with global, circular and uncommon domes. This issue indicates the importance of the research on designing decorative motifs on the circular surfaces. The aim is to propose a new style based on the old values. So, feasibility of implementation of these motifs on the globe surface was researched in this article. Offering a practical method was goal of this research. The influence of Islamic decorative motifs drawn on the global structures on Islamic culture and identity of the architecture space with different perspectives concerning to dome were studied.

Dome was important in Islamic architecture spaces relative to other elements and dome decorations were considered by the artists in the past. But decorative elements do not have the same visual value due to different size in the domes. While this issue is not true in circular domes and implementation of decorative motifs on circular and uncommon domes could offer new trend.

For drawing decorative motifs, it is necessary to divide the globe surface into twenty equilateral triangles. By drawing a triangular Islamic node proportionate to division of globe surface into similar sections, the mentioned motif could be implemented on the globe surface. In this style, all repetitive motifs have the same value and the decorative forms are distributed according to fixed rhythm .In addition, the globe has one surface so decorative motifs do not have beginning and ending thus the observer turns the globe surface. So it can be achieved balance in the motifs resulted from Islamic fundamental teaching and obedience of God in centrality of the world by metaphor of globe.

KEY WORDS: Islamic art, decorative motifs, geometrical node, dome, globe

INTRODUCTION

Islam has had significant impact on societies and special artistic forms have been progressed considering unity of God. Islamic art is one of the manifestations of Islam civilization by significant revolution in the primary centuries. The artists tried to transfer religious valuable concepts. In this relation, mosaic has played an important role in Islamic architecture decoration. This kind of art is appropriate context for divine and religious thoughts due to utilization of symbolic motifs. According to Titus Burkhart, the art and architecture are beautiful since they are connected to the main human duties center as connector of sky and earth.

Expression of problem

Islamic decorative motifs are not considered in appropriate way in Islamic countries. Although designing and construction of modern Islamic monuments have been considered by the architects by the help of modern technology but these monuments lack decorative motifs by Islamic art foundations. So research in this scope by offering new methods based on old artistic values is important. In this relation, application of Islamic motifs and drawing on the circular and uncommon surfaces are the research main goals.

Due to importance of originality of motifs and intricateness and complexities of the Islamic decorative motifs it is obvious that without studying the styles and knowledge about drawing it cannot be take an effective step in progress of originality and consider aesthetics aspects of the motifs and more importantly application of them in other fine arts especially in Islamic architecture. For doing so, in order to find roots of decorative motifs some motifs and their frames were analyzed as shaping elements of Islamic geometrical art and a node was drawn in a proportionate frame by dividing a globe into regular sections.

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[1] This article is written from PhD thesis of the latter author research by the title of "research on the nature hidden geometry and its appearance in Islamic art geometrical motifs".

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Following questions have been considered in this article:

Could Islamic decorative motifs be implemented on the circular surfaces?

What are the reasons for inattention of Islamic artists to such issue?

Hypotheses: It seems that geometrical decorations are possible by combination of uncommon and circular forms in modern Islamic architecture. The Islamic decorative elements are meaningful in one hand and application of Islamic decorative motifs on global surfaces impacts directly on propagation of Islamic culture and identity of architecture spaces. So a new philosophy can be offered by drawing of these motifs on the globular surface.

Goals: the aim of this article is to investigate designing and implementation of Islamic decorative motifs on globular surfaces in order to achieve a new style in execution of Islamic decorative motifs. Application of these motifs is innovative aspect of this research.

METHODOLOGY

The data were collected by field study and library method and they were analyzed in descriptive and analytical way. For doing so, at first, the samples were investigated in conformation to Islamic art geometrical motifs then decorative motifs were drawn on a globe.

History of Islamic decorative motifs on volumes surfaces:

The history of Islamic decorative art dates to Sassanid period. Sassanid art is not a abrupt phenomenon in Iran art and it is not account of Greek art but is is also a collection of art of all periods of Iran by accepting foreign elements (Khozaei,2006:79). Islamic art uses repetitive motifs and drawings of flowers and plants called Islamic drawing. These drawings are employed as symbol of unlimited nature (Madden,1975:423).The Muslims researched on geometry by study of Greek works like Euclid and Apollonius in golden age of Islamic period (Aram,1997:53).It can be referred to researches of the Iranian mathematician and astronomer, Abolfafa Mohammad ben Mohammad Albozjani in 10th century. These researches led to innovation of semi regular volumes in Bozjani geometry (Tavasoli,2004:25). "*Amale Alhendese*" written in late 10th century considers the needs of the experts and craftsmen and artists. The division of a globe into the sections with similar sizes is explained in this book. Mathematics developed gradually and gained attention of the rulers and different pamphlets were written. Since then geometry was developed in different aspects in different governments (Najib Okhlou,2000,180).In spite of progress in early centuries, there is no artistic background proportionate to these requirements.

This article investigates different view points on geometrical forms, dome and geometrical nodes in four chapters and refers to division of the globe into regular sections and finally implementation of geometrical node on the globe.

Different viewpoints on Islamic geometrical forms

Geometrical forms are the main allegorical forms in Islamic art. Islamic nature is the indicator of these motifs that their intricate designing by spiral forms lead to geometrical thinking(Burcohort,1970,27).The property of expansion and moving nature are characteristics of these geometrical forms that indicate two structural and comprehension concepts (Ardalan,2001:1).The structural concept of every form can be considered from different cultures and view points ,while comprehensive concept is accounted in complex and implicit way by different factors like culture of a society, old traditions, group and personal attitudes and context and structural characteristics(Dibaj and Sultan zadeh,1998:10-11).There are different opinions about these attitudes. Titus Burkhart believes that these motifs have non historical, mysticism and thoughtful nature and they represent unity in multiplicity and multiplicity in unity (Burkhart, 1990:134).

"Oluk Grabar" believes that Islamic art lacks spiritual and symbolic aspect and it is only used for visual pleasure. While Maddad pour suggests symbolism as characteristics of Islamic art that it is common aspect of religious arts. According to these characteristics, every symbol achieves reality beyond this world (Maddadpour,2001:386).Najibouglu quoted by Ernest Connell and Allovis Rigel considers Islamic decorative motifs related to Islamic spirituality .It means that the nature is not creature of itself, but it is a creator that manifests himself in events and phenomena. So the artist identifies God with Islamic ideology that converts the natural phenomenon into intricateness and unreal forms and journeys in abstract linear motifs (NajibOulu, 2000:106).Although different viewpoints have been offered but there is consensus about immaterial and impersonal aspect of Islamic art.

It is should be pointed that geometry had divine origin in addition to its practical aspect and it visualizes most of the divine secrets and it is a tool for achieving existence world meaning in the arts.

Dome and its geometrical node

Art has been accompanied by architecture and it has been caused to consideration of ideal forms and creation of different spaces and phenomena. In this case, architectural elements and spaces have been formed based on material, environmental, applied and cultural aspects (Soltan zade,1999:112-113). In this relation, dome plays an important role and it is an element constructed on the circular foundation (Husseini,1997:124)

Dome has significant position in holy places in Islamic civilization and it gains universal meaning in architecture of mosques so that its base and the lower part have square form (static form and symbol of earth) that it is covered by circular element in up and the dome is symbol of sky and exalted place and location of power (Ahmadi Maleki,1997:19).The aesthetics aspect of domes depend on external and internal decorations. So the artists have decorated domes by Islamic geometrical motifs.

Dome has been used frequently in Islamic architecture spaces so the artists have designed decorative drawings accordingly. It can be referred to circular shapes in lower and middle parts and sharp upper part. For this reason, decorative drawings in lower parts of dome are designed in large scale but these drawings are reduced toward upper parts. This state is obvious in decorations of Kerman Mahan mosque dome (figure 1).In implementation of decorative motifs on a dome in onion form, at first, a section of dome is selected for designing and the drawing is repeated by observing reduction of size toward section turning point. Finally, by placing sections besides each other, the designing is completed. So, this trend is used for decorative motifs in inner spaces. In SheikhLotfollah mosque in Isfahan (figure 2), the place confinement in the central part has been caused to utilization of two different motifs in external and internal spaces and Iranian octagon motif has been used in this case.

Although dome is considered as accepted element in Islamic architecture, but it can be referred to following critics:

The decorative elements do not pose the same visual value in dome due to different sizes and the size and quality of the drawings are reduced toward highest point. Thus decorative drawings are reduced in dome highest point according to physical confinement of drawings, while this state is contrasted with dome highest point as the exalted point.

The appearance of Islamic drawings is different in external and inner spaces since the sky is observed in external space, but the center is observed in internal space so the dome indicates two different philosophies.

According to above mentioned subject, implementation of decorative motifs on circular domes could offer new attitude for transferring some concepts. In Islam, circle is only shape that depicts God greatness (Ahmadi Maleki,1997:19).Circular domes are considered in construction of mosques in Islamic countries but due to lack of drawing style in Islamic motifs conformed by globe surface, these domes lack decorative motifs or they have uncommon drawings .Proposing a method for designing and implementation of Islamic motifs on the circular surface could offer originality to circular domes. In this case, division of globe surface into sections with the same size is important.
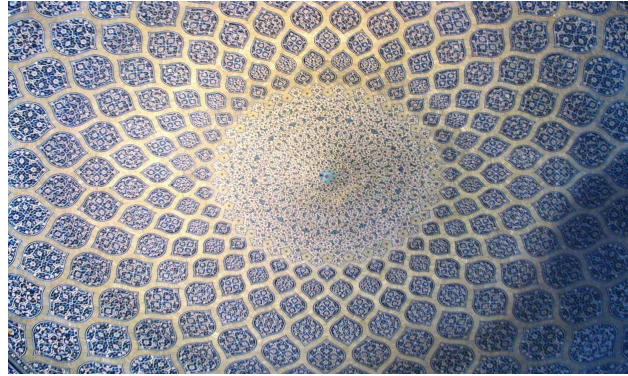

Figure 1: Kerman Mahan mosque dome

Figure 2: decorative motifs under dome of Isfahan shiekhLotfollah mosque (image by author)

Division of the globe into the regular sections

The nature was selected as a resource of divine inspiration and criterion for analysis of geometrical shapes so different manifestations of nature were considered in analysis of these forms. It can be referred to insects combined eyes that the circular surface is divided into small geometrical parts (figure 3)

Figure 3: insects combined eye consisting of simple eyes on circular surface

Regular icosahedron is near to circle compared to other platonic volumes. So this volume is analyzed in next step since this form is conformed on a globe. Figure four depicts regular icosahedrons that it is placed in platonic volumes category.
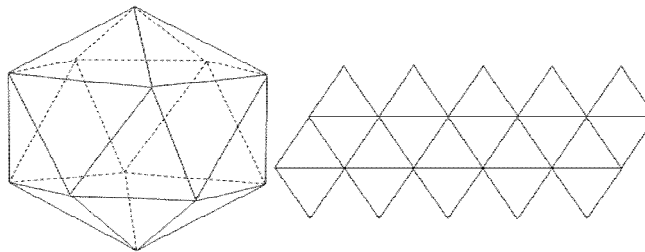

Figure 4: regular icosahedrons consisting twenty equilateral triangles

Albozjani(1990:68) explains division of a circular surface into twenty triangles. The implementation of this method was impossible practically. So in this article, other methods are offered for implementation of geometrical node on circular surface as follows:
-selection of one desired point as a pole of the globe and drawing of a circle with desired radius with centrality of the selected pole (figure 5(a))
-division of the circle into five equal sections by determination of five points on the circle (figure 5(b))
-drawing of arc by connection of the globe pole into defined points on the circle by using a band placed on the globe surface that passes on the poles (figure 5(c))
-drawing of five arcs from pole by the same radius relative to each other (figure 5(d)).
-determination of sections with the same size by using compass (figure 5(e))
-drawing arcs by the connection of two points by using a band on the globe (figure 5 (f))

Other sections are drawn according to figure six by defining arc of triangle by using compass on the globe surface and finally twenty sections with the same size are formed (figure 7).
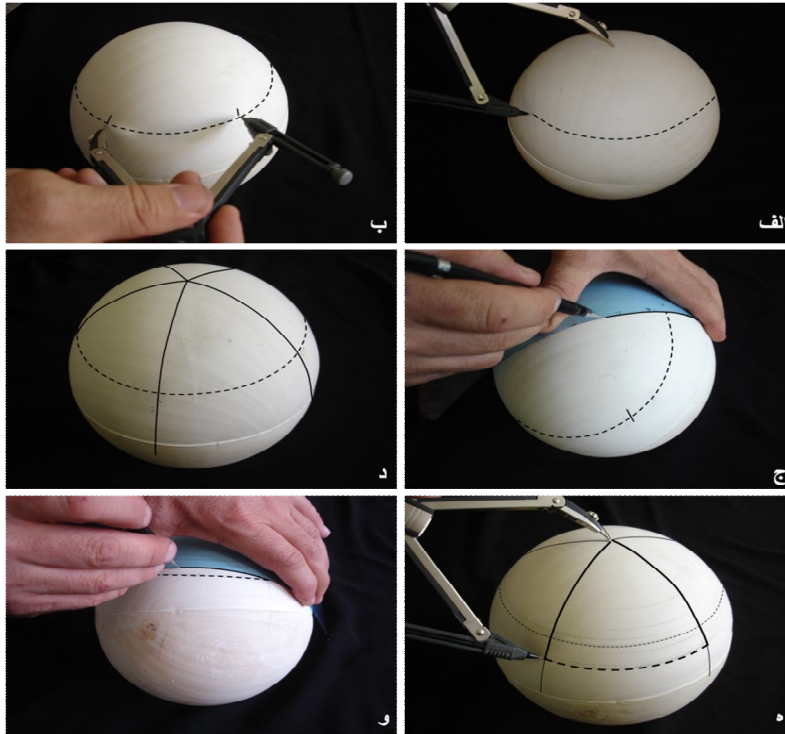

Figure 5: divisions of the globe into twenty the same size triangular sections
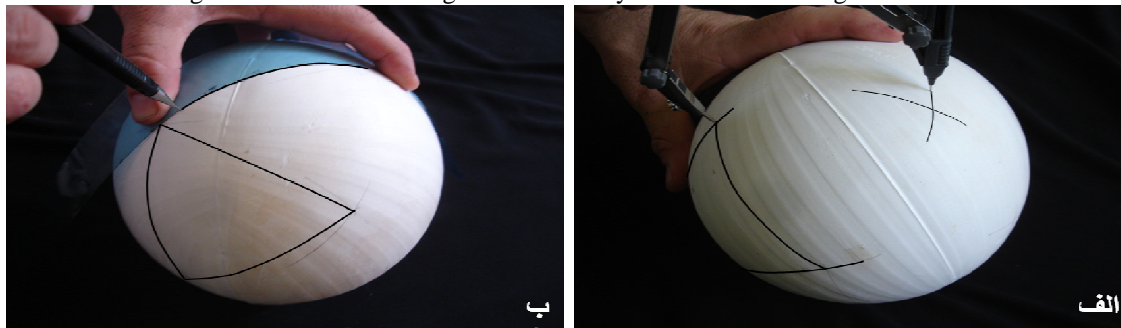

Figure 6: drawing of other triangular sections by using compass (a) the band on the globe surface (b).

Figure 7: drawing of twenty triangular sections on the globe

Geometrical node with triangle frame on the globe surface

The smallest repetitive geometrical or plant motifs for duplication in surface is called Vagireh .Thus it consists of main elements in Islamic art that repetition leads to geometrical node.

Geometrical node is a combination of decorative complex, harmonic and attractive drawings by using straight or curved lines. In creation of a geometrical node, the first step is determination of confines and every motif is drawn in rectangular, square or triangular frame. A special style is used for drawing of these frames.

The geometrical nodes are implemented by division of a globe into triangles. It is necessary to consider repetition from aesthetics perspective by attention to mirror symmetry in drawing of a triangular frame. For doing so, a plant motif was selected for implementation on the globe. After investigation of repetition of the base form, the selected design was implemented on the triangular frame (figure 8).Figures 9 and 10 depicts implementation steps.

Figure 8: sample of Islamic design in triangular frame

Figure 9: implementation of base abstract motif on the globe

Figure 10: Islamic abstract motif on globe surface

Conclusion

The results show that by division of the globe surface into triangular sections, a geometrical node with triangular frame with the same size is formed on globe surface. All repetitive drawings have the similar value since decorative motifs are expanded by regular harmony and there is only one surface so for this reason there is no beginning and ending on the globe and the shapes are continued. Thus the geometrical nodes are depicted on the globe surface without shifting in the node main motif in proposed style. This state shows special complexity in the design and the observer thinks about the drawing. The diversity of these drawings is important and by emphasizing on balance, the observer pays attention to a state originated from content and obedience of God. The center achieves ultimate position in decorative motifs on the globe.

The results respond to the research questions and they show that Islamic decorative motifs can be implemented on the globe surface.

The research goal was achieved by offering the drawing style. The comparison of the decorative drawings on the dome and globe show that different dimensions are the same in the volume and the results confirm identity of the circular domes by Islamic decorative motifs.

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