

Investigating the Application of the Nature in Interior Design

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ABSTRACT

Nowadays, the interior designers and architects are constructing buildings but with no specific objective and this causes the buildings' value to be decreased. Various designers have been inspired by the nature but there are still missing parts in either of the shape, performance or structure of the designed buildings. Therefore, the best solution for the architects and designers to enhance the optimization of their designing works is more subtly approaching the nature and making efforts for the application of the natural elements in the designing of the projects because, despite the fact that the peripheral environment and the nature have always been influencing the human beings' perceptions, it is felt that the architects are ignoring the concepts of the nature. The present study aims at perceiving the relationship between the nature and the human beings' perception as well as the role the nature has been continuously playing in the interior architecture and design for achieving environment-integrated buildings. Moreover, the study tries directing the architects' attentions to the nature and inspiration by the nature in designing and constructing the various landscapes. This research paper underlines the importance of creating perfect integration between the nature and the buildings' exterior and interior views through the use of a vivid natural concept borrowed from the peripheral environment for resolving the designing problems.

Key words: the nature, concept, metaphor, human being

INTRODUCTION

The nature is a sensational element in the peripheral environment; it is an important aspect enabling to cope with the daily effects on everything in the periphery of the human beings. Human beings have always been in contact with the nature. Since the beginning of the shelters' construction and settlement, the nature has always been utilized as an important and essential part in the maps and designs. Human beings have paid a lot of attention to the nature; to enhanced health and lower stress and disease. Plants and green spaces can contribute to the perfection and safety in the cities and improvement of the social relations and interaction in the residential environments (El-Ghobashy, 2016).

Presence in the cities brought about a modern method of living along in this way that a large part of the employed city-dwellers is globally spent during the day in the workplace, residence place and/or in going back and forth between the two (Ryan et al, 2018). Furthermore, the per capita of being in touch with the green spaces has been reduced for every person to below 30 minutes during a day (United States Department of Labor, 2020). Under such conditions, the maximal enjoyment of the short contact with the nature and its manifestations in three positions of the workplace, residence place and on the route to and from them is of a great importance considering the large deal of the positive effects it can have on the individuals' physical and psychological health.

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Thus, the relationship with the nature and the green space can exert a lot of positive effects on the individuals' health. Most of the sciences have started approaching the nature and being inspired by it; there are also many studies carried out in this way. The idea was proposed in 1998 by Janine Benyus.

Architecture has always been interacting with the nature in the course of history because it has been formed on the grounds of the nature and, due to the same reason, the nature was posited as the foundation and premise of the architectural theories' formation and a pause took place in this process only in the second half of the 20th century in architecture when the modern thinking had reached the peak of its influence (Forty, 2000). Regarding the nature-inspired structural designing, Thomas and Rafael say: "the complex designing problems need new solutions and like many of the other solutions that have been achieved previously in the nature". In addition, Jira Pong believes that the nature can provide the human beings with a lot of great lessons; humans can study and learn from them. The creative use of the masonry and competent structural systems can be a response to various kinds of incongruent climatic and environmental forces (El-Ghobashy, 2016).

Interior architecture is defined as the collection of the relevant knowledge, technique and art that, assisted by the depending elements like form, color, texture and so forth, try optimizing the spaces and achieving proper efficiency and performance along with the beauty of the concepts and meanings. Interior architecture incorporates a vast spectrum of such elements and indicators as form, light, color, texture, floor, roof and ceiling and wall as well as functional and decorative elements and, also, furniture. Now, the effect of architecture on the space addressees and environment users' behaviors and activities is evident and inevitable because the human beings are creatures considered as part of the environment in which they are living with every individual being in need of the appropriate use of the spaces to enhance his or her psychological and physical health (Ra'ayati and Mehrabi, 2017).

Interior Architecture:

Interior design is an applied multidimensional science wherein creative and technical solutions are defined for the achievement of a user-favored environment. This applied solution is accompanied with the enhancement of the residents' quality of life and culture through the enhancement of beauty and attractiveness. The designs are created in response to the internal surfaces' requirements by paying

attention to the projects' physical place and social texture. Designs should also have the sustainability and stability requirements and principles embedded in themselves, as well. The process of the interior designing is systematic and coordinated and it includes research, analysis and blending of the various knowledge sorts in a creative manner so as to supply the clients with their needs and wants and create an interior space suitable for achieving the primary goals of designing (Richards, 2014).

The Evolution Trends of the Architecture-Nature Communication:

Attentions were mostly paid to the source of the universe's genesis in the premodern period and the nature was accordingly expressed as the source and primer by architecture. The mankind's perspectives underwent more metamorphosis during the modern period and industrial revolution and a lot of progresses were brought about in the sciences and techniques. Intellectualism and humanism are the properties of this latter period; the human beings have been recognized as the agent and subject that are separated from the universe and the God. In such a time, the nature was realized in the sense of the entire creatures and as the never-ending resources of the raw materials feeding the development of the industry. In this period, architecture was downgraded to the consideration of the humans' quantitative matters and the physical standards of life and, unlike the ancient architecture that was guiding and in match with the humans' philosophical goals, it only was rendered consistent with the mankind's needs but neglecting the human beings' guidance and education and rearing and found beauty as the ultimate response to the earthly needs of the man. But, it did not last a long time before the environmental crises, human colonialism and lack of identity started capturing the modern society. This period's architecture can be termed "nature-dominating architecture" for the nature of all the things was exclusively and completely monopolized by the humans' thoughts and technology-nature amalgamation appeared in the postmodern era so as to improve the crises stemming from the modern thought. The tech-architecture which is the product of the modern era was developed in this period into echo tech and organitech for the protection of the natural ecosystems. In this period of the nature, attentions were paid to the natural forces, ecosystem and the type of the relationship between the living beings and the environment and the architecture of the time, as well, was influenced by this mindset. In this period, the concept of sustainability was born and

developed in the scientific circles around the globe. The architecture of this period can be called “nature-complying architecture” because attentions are paid to the essence of the things and the natural elements and forces are used properly in the right place (Asghari and Siavashpour, 2015).

Frank Lloyd Wright, a prominent figure in the 20th century, states that “the nature and the natural process are the guiding principles or the primary metaphors of the designing approach”. Wright discovered the principle of order and unity in the nature. These principles include the integration of the space, structure, form, function, materials and natural colors.

Defining Environmental Metaphor in the Architecture:

Metaphor has been differently defined by the architects and designers. It has been defined as the direct comparison between two or several seemingly irrelevant subjects. Charles Jecks confirms that the interpretation of metaphor is easier in architecture than in the discourses because it, in architecture, contains local codes agreed by the society.

Christine Wonoseputro realized metaphor as a process of converting abstract to image or picture. Nezh Ayiran defines metaphor as the “imaginary intellectuality” because, as he says, it seems to be a proper means for solving the problems and also because it unites intellectuality and imagination. Oswald Mathehaus demanded the application of metaphor’s power in architecture so that it can be utilized as a means for creative architecture (Ayiran, 2012).

Kinds and Sources of Metaphor:

There are two types of metaphor. A direct metaphor that provokes form towards things previously seen and acquainted with so as to navigate metaphor’s form towards coordination with the environment as well as with the receiver; direct metaphor is part of the indirect memory and metaphor that plunders the objective principles of the navigator of the environmental combinations (topology). There are various sources for metaphor such as architecture or exterior architecture: literature, religion, environment, art and human beings’ constructs (Nussier, 2013).

Appearance and Importance of Metaphor:

Designs influenced by metaphor emerged in a philosophical story about the myth of Zoroastrian Spock who used to live a solitary life in the mountains. The myth influenced the then

architecture and started being embodied in the works of German expressionist architects. After a while, the European architects were impressed by the maps and began creating a new sort of architecture which was inspired from the shape of the mountains; they also used to extract functions from the designed works (Nussier, 2013). The new designing metaphors were capable of creating new comprehensions hence novel realities. This new environment-integrated architecture also served the meeting of the human beings’ needs and satisfaction; it used to get the building forms closer to the elements existing in the nature so that they can look familiar to them. These designing metaphors are significant and effective means of creativity and they provide the designers with the ability of expressing their ideas and finding several designing alternatives (Casakin, 2007).

The History of Developing Environmental-Architectural Metaphor:

From the beginning of the creation, the human beings have been surrounded by the nature which has been the source of many inspirations in various aspects of human life and can be a reflection of the human beings’ beliefs and wants. Human beings are deemed as part of the peripheral nature and the peripheral environment influences the human beings. The effects of the environment on the mankind take place via reactions stimulated by the emotional nature of him. Literally, the human beings resort to the nature for relaxation, happiness and tranquility for such a reason as the nature and its elements impress the individuals and incite internal cheerfulness (Madden et al, 2000).

Table 1: concepts’ development in architecture

Architecture	Metaphor
Ancient Egypt’s architecture	This is one of the strongest metaphors on the foundation of which the architectural works and designs are rendered persistent. Columns, capitals, cornices, obelisk and stone-made structures. Egypt’s architecture is reflective of a religious society’s beliefs that see the world as repetitive cycles, floods caused by Nile, seasonal alterations, life and death (Harwood et al, 2011).
Islamic architecture	The designing is dynamic and it is specified via continuity which is the very essential attribute of metaphor; the designing is also

influenced by the natural world (Harwood et al, 2011).

Vernacular architecture This architecture encompasses traditions built based on the experiences gained by the mankind and not the architects. It is a sort of applied architecture influenced by the nature and the peripheral environment; it meets the human beings' needs and it is different from a culture to another (Pile, 2005).

Modern architecture It has been inspired by carved statue forms and the living beings. There is unity and coordination with the nature and the human beings in this designing style. The designed works are made familiar with the human beings through various elements. This is a sort of organic designing that stays away from th edges and geometries and it is mostly drawn on the functions to be served. Some of the concepts also serve the technological advancements (Pile, 2005).

Postmodern architecture Postmodern architecture seeks inventing a new designing language consisted of the creative and innovative forms and designs. It discards the complexity of transformation into decoration and history in the designing. Novel technology is essential in the course of the designing process. The architects deny the principle of the international architectural designing styles such as pure form; form obeys the function. They mix symbolic images with their designs which can be hardly rendered legible (Pile, 2005).

The Effect of Metaphor on the Interior Design:

Table 2: the effect of the environmental metaphor-based architectural designing on the interior spaces (El-Ghobashy and Mosaad, 2016)

Traditional revitalization	Reuse and revitalization of the atriums and yards for supplying natural ventilation to the buildings' interiors as a
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reflection of the interior designing. Designers started developing and revitalizing the old architecture and creating new architecture such as patio and yard.

Form development The old forms depend on the tiring traditional repetitions, direct edges and spaces' similarity. The shapes and forms were developed and the architects started curing form through the use of the novel techniques and technologies so as to create a unique design; novel technologies prevent their separation, internal and external forms and construction of new forms.

Spatial development Changes can be brought about in the interior spaces by means of the technological progresses. Numerous studies have been carried out based on these changes and they led to the coinage of the idea of the novel building spaces named the electronic spaces or the spaces of the streams that are integrated with the peripheral environment.

Performance development Changes in the interior spaces' performance were brought about by means of the technological advances; the main reason for the designing of the interior spaces, as said, is the achievement of a proper living place wherein the internal and external environmental principles are taken into account thereby to satisfy the human needs.

Module development Module is a significant part of architecture because it is envisioned as a unit of measurement; therefore, the modules are to consider 3D networks so that they can be utilized as measurement units.

Table 3: the effect of environmental metaphor-based architecture on the interior spaces' elements (El-Ghobashy and Mosaad, 2016)

Floors	The advent of the novel technologies for floor works such as the sensory floor tiles and their reaction in the form of turning the lights on or heating the ground as inspired by the living creatures; the floor tiles are topologically movable as inspired by the movement in the trees' leaves.
Walls	The walls' appearances can be deduced using genetic algorithm and arranged in such a way that they induce the living creatures' tranquility and calmness to the environment; the walls can also be desinged in such a way that they can react to the human beings' needs of elevation and height such as what exhibited by Dorsera Capensis.
Ceiling	New ceilings like metaphoric ceilings can be designed in proportion to the environment such as what is inspired by the shape of the trees; roofs can be also made movable based on such an environmental metaphor as the birds' wings.
Materials	New materials have been constructed such as the gels and LEDs as also inspired by the human beings' body organs.
Furniture	New concepts have appeared in the furniture styles like modern naturalism which has been inspired by the peripheral environment and also multipurpose furniture as inspired by the shape of the earth and genetic architecture inspired by the living beings' body systems and also morphological furniture which is inspired by the plants, insects, sea creatures, planets and so forth.

Architects and Metaphor:

During the early periods, the nature has been the only source of the human beings' ideations; but, considering the technological progresses, the ability of creating new products was expanded. The human beings started to respect the nature to a least degree and they often forgot the nature. In many of the projects, inspiration by the nature is taken into consideration; due to the same reason, designers should blend the conceptual and the nature-based designing. The best projects are the ones paying attention to the various aspects of the nature and Copyrights @Kalahari Journals

inspiration thereby. Some of the architects and designers like Norman Foster, Zaha Hadid, Frank Gary and James Law and others are still influenced by the nature in their designs even with the great many of the today's technological progresses and this revives the hope for the resumption of the designers-nature communication (Vahedi, 2009).

Table 4: comparison between the metaphoric architects

Normal Foster	<ul style="list-style-type: none"> - Thinking about the environment that can reconstruct itself - The use of natural light to achieve the least energy consumption costs - Being impressed by the Islamic architecture and the use of modules in the buildings' designing
Zaha Hadid	<ul style="list-style-type: none"> - Offering a cost-effective building and use of modern constructional materials, shapes and forms and new colors all through being inspired by the nature - Application of art in the designing and discarding of the ordinary and traditional forms
Frank Gary	<ul style="list-style-type: none"> - Use of unfamiliar masonry and furniture - Superior technological knowledge and experience in the choice of the materials, the application of the materials and creation of new sustainable materials in lieu of the sole use of the natural materials
James Law	<ul style="list-style-type: none"> - Creation of more awareness about the healthy and sound living and work environments - Use of technology in the buildings for establishing communication between the constructs and the techniques - Development of the designs in the interior and exterior views of the buildings
Santiago Calatrava	<ul style="list-style-type: none"> - Construction of complex designs and well-organized interior decoration - Being impressed by the skeletal structure that begins with fixed

structure and ends in the movable bones

Table 5: guidelines for environmental metaphor-based interior architectural designing

Concept	<ul style="list-style-type: none">- Extraction of several concepts related to designing issue- Finding the relationship between the metaphoric concept and the problem- Changing the scale of the applied concept for preventing the tiring repetition- Metaphor can include any expression of the metaphorical designing an individual sees or hears or feels- Nature primarily inspires all the designing works of a building, including the exterior space, the interior space and internal elements- The use of a clear-cut concept to prevent criticism- Human being is a part of the nature, and the concept of being inspired by
Designing (architecture-color of the interior materials)	<ul style="list-style-type: none">- Reaching a novel design through a metaphor not existing before so that it can act as an artwork- Getting close to the forms familiar to the visitors- Building culture, the peripheral environment and the history of the place should be studied- Reflection of the human beings' attitudes, behaviors, periphery and technology- Consideration of the human scale and ratio- Blending the interior space with the exterior designs for achieving the continuity- Consideration of the human and functional needs- Designing as inspired and

influenced by the existing colors, materials and culture

- Human beings are the primary element of the designing
- Creation of a new kind of architecture capable of being merged with the different sorts of culture
- Addition of the organic curves and lines for enhancing the beauty of the design
- Use of roof gardens and the creation of a sense of security for the visitors inside the interior spaces
- A house built on a hill should belong thereto
- Use of furniture featuring minimalist beauty, the nature's elements and organic techniques
- Creation of new types of human-related modules; the beauty fractals should be taken into consideration
- Reduction in the ornamental elements and work on the plain designs
- Use of the natural and local materials in the designs

- Revitalization**
- Bioenvironmental revitalization differs according to the building culture
 - Easy and cost-effective achievement of the energy and productivity
 - Revitalization of such internal elements like wall, roof and ceiling and floor
 - Environmental reuse and revitalization

- High technology**
- Technology takes place in the designing
 - Use of nanomaterials and nanosensors
 - Interior spaces are provided along with the advanced technologies such as electronic spaces

Conclusion:

In order to accomplish the study's objective, a review was conducted. In the course of history, the nature has been part of the architecture. Since dwelling in the caves until settling down at the side of the rivers, human beings have been in direct contact with the nature and their periphery hence they have applied the natural elements as constructional materials. After the industrialization, the designs underwent changes in respect to the masonry and new tools and technologies were developed through inspiration by the nature in the architecture. But, this is not all borrowed by the architecture from the nature. A glance at the development of architecture in the course of history indicates that the form, performance and quality of the space as well as some of the primary factors used in the classical architecture have been generally applied in the modern architecture but with novel changes. Therefore, the creation of perfect integration between the exterior and interior views with the nature in the periphery of the building has been carried out through the use of a vivid natural concept inspired by the peripheral environment for solving the designing problems and the use of the solutions on the buildings' forms, shapes, performances, materials, colors, furniture, structures, internal elements, equipment and environmental treatments.

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