

Urban Lighting Developments From Lighting Supply to Creating an Artistic Text

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Abstract | Light as an incorporeal element of urban landscape plays a significant role in the city activities during the night as well as the formation of the city's nightscape. Urban lighting in developed countries is considered as an interdisciplinary knowledge of the technical, engineering, humanities and art fields, which calls for joint co-operation among specialists.

The formation and quality of social interaction and have been a popular topic, widely discussed in the civil societies. Since urban lighting is a special effort to facilitate the survival of urban social life, it is necessary to pay more attention to this issue, as the developed countries have benefited from its potentials.

The current study argues that urban lighting has undergone dramatic changes since the arrival of the new era internationally. Based on the formation aims and the citizens's role as the target audiences, it can be divided into four categories: 1) Functional- Supplying light 2) Decorating and symbolizing 3) Creating artworks 4) Creating artistic texts In addition the role of citizens from the consumers and passive spectator has been changed to the producers, actors and active users. Thus, it can be concluded that the potentials of urban lighting have been promoted from a merely functional to an interactive art that is capable to satisfy social interactions which one of the main goals of urbanization. This paper is mainly focused to draw the attentions of managers, specialists and artists of the country to this new area. this may lead to make the advantages of the available potentials. Considering the global experiences it may also lead to the improvement of urban night landscape qualities by the application of the aesthetic and artistic approaches and renovation of the disconnected social relations and interactions arisen from the modern era. it may also give an insight to the healing the landscape system of our cities.

Keywords | Urban lighting, Artwork, Artistic text, Audience, Social interactions.

Introduction | City as the most civilized achievement have been formed responding to the human being social interaction needs. In the recent centuries, the requirements of cities have been orientated to the fact that urbanization should not be confined just to a day life but living and social activity has to be continued at night as well. In this regard, the proper lighting is a mean that can make it happen. Due to the fact that in developed countries urban lighting is regarded as an interdisciplinary field, and its success depends on the cooperation of experts, engineers, designers and artists, this

article tries to draw the attention of managers and executives of the country to the importance of the subject and partly inform them about the status of this discipline in the world today.

Since the night life and persuading people to participate in urban spaces have been considered very important internationally, the main question arises here is that how the urban lighting have been altered from the beginning to the present and how the role citizens as the target population have been changed gradually?

In order to answer this question, the study has taken into account the available documents, reports and literature. By the application of an analytical descriptive approach it

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intends to present a classified summary of this process with an emphasis on the scale that has not been addressed in the previous research and scholarly works previously.

Research Hypothesis

In order to provide a social life, urban lighting has gone through an evolutionary process from mere functional to artistic texts and from the mere consumers to the producers in term of the citizens, which citizens here as the target audiences.

Literature Review

Urban lighting is a new knowledge that very little has been addressed in the Persian academic circles. By reviewing the available resources with regard to its position among professionals and experts, it seems that most of the related topics are the concern of urban planners, landscape specialists and also the organizations and the institutions are responsible for this category in the city. Considering that in today's world this category is regarded as interdisciplinary knowledge and demanding the co-operation of engineers, planners, architects, designers and artists, the main focus is to draw the attention of artists and researchers to this new category.

Referring to the resources available in Iran, the most important research achievements can be mainly pointed to as the proceedings of the first conference and the International Exhibition of Urban Lighting (2008), the Urban Lighting Projection (The Scientific Journal of MANZAR, 2012) and the research works of Tehran Beautification Organization, including the booklets on urban beautification subject under the title of Lighting Square (2013), the research project of determining the utility criteria of urban views in Tehran's nightlife scene (2013) and the translation of the Urban Area Lighting (2013) written by Crystal Santen.

Generally, it can be said that all these study resources deal with urban lighting from the viewpoint of urban and landscape designers, which the related achievements will be mentioned in the section ahead under the title of urban lighting.

Urban lighting developments

The previous studies suggest that urban lighting is categorized based on different criteria, the the functional goals, semantic objectives and effects and qualities of lighting. The functional goals including: 1) illumination 2) security 3) recreation 4) aesthetic: including beautifying the outer space of the building, urban elements 5) cultural function: one of the cultural activities in the field of architecture and urban planning is to consider the historical and ritual spaces through their night lighting. 6) commercial-advertising function and 7) ritual function (Soltanzadeh, 2008: 53). it's the semantic objectives: identical, functional and aesthetic (permanent and temporary); (Rastak Pouya Tarh (9), 2009 quoted by Soori, 2014: 20), the other classification is based on

the effects and qualities of lighting: 1) Improving the quality of the environment (safety and security, readability, vitality, energy efficiency, sense of time, identity and personality); (2) establishing social justice; (3) exploiting the psychological effects of light; (4) achieving economic value added (EVA) for the cities; (5) reviving night life; (Pakzad & Soori, 2011: 37-39). It should be noted that these categories are mainly made by urban planners and designers.

This paper, according to the available resources and experiences is trying to present a new division of urban lighting development based on the defined objectives as below:

1) Functionality: Illumination 2) Decoration and symbolization 3) Creation of artwork and 4) Creation of artistic text; the focus of this article is more on the last two subjects (3 & 4) which deal with art field and unfortunately, we do not exploit their potential in our country as much as it should be.

Functional: Illumination¹

By reviewing the urban lighting, the first step we face is being able to provide public Illumination for observing the elements in space to assure the sense of security and increasing public surveillance to reduce crime, Path finding, recognition of people and seeing other citizens in the public space. The feeling of safety and security, mentally gives citizens an opportunity of permanent presence in space. Moreover, Illumination assists our perception of space and readability.

The purpose of readability in urban textures is to recognize the components of the texture and be able to interconnect them in mind. In this approach, the purpose of Illumination in public spaces is not to produce an aesthetic element, rather it is merely referring to a functional act (see: Santen, 2014), and citizens as the audiences here are only the passive consumers who do not play a role in the related quality and quality.

Furthermore, Illumination is considered merely as an engineering profession being entrusted to electricians and lighting engineers (Pakzad & Soori, 2012: 1).

Decoration and symbolizing

In this group, lighting goes beyond a merely functional action by admitting an identical territory and focusing on urban physical and constitutional elements, such as street, square and building. In this approach, lighting of hardscapes such as buildings, monuments, bridges, waterfalls and urban fascinating elements is becoming more important and plays a role in beautifying of the urban environment.

In fact, from this section onwards, "lighting" which means the design of a qualitative and artistic light of a building or space, will be dealt with, which depends on the formal and aesthetic aspects.

In this context, lighting is an interdisciplinary concept that

deals with sophisticated concepts and ideas of various types of humanities and arts (Okhovat, 2008: 65).

In this action, the architecture become an important issue and the valuable buildings are targeted to be separated from the other buildings with the support of lighting, emphasizing on and adding value to them.

In fact, this action helps to symbolize and characterize urban elements, which also leads to identity, specification and sense of utility in the city (Figs. 1 & 2). Through lighting the characteristic elements and vitalizing the subjects and urban landscape, a better understanding of the city with an emphasis on the urban structure will take place (Santen, 2014). Lighting in this group is either design-dependent, in which the light of the building or any other element in night is considered during the design, or relays on the post-design process for making indicators, which can provide opportunities for the continuation of building function and its surrounding at night. The purpose of this group is to symbolize, identify elements and provide dignity, while emphasizing and reinforcing their signification can take a step forward in terms of readability and better visual orientation. In addition to building, trying to light on urban aesthetic elements such as paintings, statues, waterfalls and bridges, and reflection of light from them, while emphasizing on beauty, have a profound effect on the surrounding urban environment. This group is the dominant lighting approach of our cities today, which focuses on decorating and applying arrays to urban spaces.

In this action, citizens as audiences, while benefiting from the related effects and readability in an urban space, will be influenced by the aesthetic effects in line with improving the visual quality of elements in urban space. It should be noted that the audiences of this group are merely those whose visual pleasure has been targeted while identifying the city to them.

Creating an Artwork

The use of light in the creation of artworks first began with galleries and artistic festivals. The artists, by using light, were creating artworks that ranged from a figurative piece to an artistic design of a volume. Nowadays, new techniques and facilities in the field of lighting provide possibility of creating artworks and vitality in the cities. In many cases, a plain surface can be transformed into an artwork piece by lighting. One of the important lighting events with the aim of creating artistic work is the existence of lighting festivals (Pourfatholah, 2013: 38). In this action, we are witnessing the presence of artists in the creation of lighting as an artwork, which is a partnership, not a spontaneous action, and is an imperative action in the Comprehensive Lighting Plan of cities such as Lyon of France, insisting on participation of artists and the art departments to address this issue. In two previous events in which the readability of space and the enhancement of its reading elements were considered, the definition of space was presented with light as an artwork (Fig. 3).

Another example of similar activity is the “Aceh”² project over the old streets of Rotterdam, Holland; in 2007, the city's



Fig 1: Lighting the Eiffel Tower as a landmark for the City of Paris.

Source: <http://www.macqel.be/en/traffic/achievements/lighting-in-the-city-of-paris-france>



Fig 2: Milad Tower Lighting with Symbolic Approach. Source: <http://shahriziba.blogfa.com/>

municipality sought to renovate urban spaces with new ideas of street lighting. Rudolf Teunissen, a lighting designer and visual artist, presented the idea of “broken light” for the street according to the advices of Philip Stemuller, a lighting researcher.

Teunissen believes: In response to space perception, we seek the meaning of light to form our experience of a space. He considers imaginative and artistic solutions both to meet practical and physical needs and to create beautiful images. Hence, Tennyson, with an artistic vision of light and urban lighting, pays attention to the meta-functional dimensions of light, and this kind of special look seems to have led to his success in the project. Tennyson uses the term of “social sculpture” for this project which interacts with passers-by through its all views. What you see in public spaces along the street is the turning on of functional paths, without any accent or language, and provoking a certain experience or identity, he mentioned while addressing the differences with other lighting in public spaces.

In other words, he considers this street as a combination of “light, identity and experience” (Jamshidian, 2012); (Fig. 4).

In this action, citizens encounter lighting projects as an artwork, but they still play the role of spectators that subject of author (artist) is imposed on them; by adopting from “Roland Barthes” words in “from work to text”, it can be said that lighting artworks as a “reality”, are displayed to the audiences. In this action, lighting projects, although considered as artwork, but are kind of artworks that have been circulated

around an obvious signified, in which the artwork in fact has become the subject of lighting, and their understanding is confined to the interpretation of citizens.

Moreover, in this category, lighting is relied on monologism, as in the Aceh project, the goal was to achieve the meaning of light.

In other words, the role of artists in this group as authors has its own dignity. The lighting works in this group, as depicted by Roland Barthes, is the subject or object that is being used by citizens who exploit reading, as this action of consumption-based of citizens does not fully appeal to the audiences but merely let them to benefit from the enjoyment of consumption. In general, the audience, although in this action is still a consumer, but is faced with an artwork. The lack of such an approach is felt strongly in our cities, to be used on ceremonies, festivals and mourning days and to promote both the level of citizens’ literacy and their visual enjoyment.

- Creating an artistic text

It can be said that the fourth action was followed in consequence of events that was formed in the field of art and stunning evolution of communication technologies; the expansion of the new media, and the issue of interaction was introduced as one of the tools in digital media. It should be noted that the word of interaction has evolved over time; from the ideology of responding to stimuli and sharing experiences to technology-based activities. This transition is heavily influenced by social-cultural changes, and the purpose of



Fig 3: Lighting in Lyon Festival of Paris as an artwork.
Source: <http://www.breitbart.com/national-security/10/12/2014/french-christians-bring-lyon-s-festival-of-lights-to-erbil-in-solidarity-with-iraqi-christians/>



Fig. 4: Lighting the Avenue of Aceh in Notre Dame as an artwork.
Source: Jamshidian, 2012.

human interaction with space is to identify himself at a greater scale (Fischer et al., 2012).

With the foundation of sociology as a science in the early 20th century, the idea of interaction was applied to social processes. In Germany, "Georg Simmel" for the first time coined the term of "Wechselwirkung" (interaction) to describe the individual relationships. In the Anglo-Saxon discourse, George Herbert Mead and Edward Alsworth Ross talked about the "social interaction" and "human interaction"; Herbert Mead's student in 1937 applied the term of "symbolic interaction" in contrast to stimulus-response theory; and based on that, social interaction is essentially a communication process in which people share their experiences in contrast to a return-and-forth game of stimulation and response (Sommerer et al., 2008).

The interactive approaches are being developed to redefine social life and people-to-people connections that had been damaged in modern times. In after postmodernism era, as Howard Riley calls it altermodernism, Jacques Rensieux gives notice of the changing discourses and artistic tendencies within this time, which is based on four principles of encounter. Renesis regards it as corresponding to the art of communication mentioned by Nicholas Borio, the theorist of aesthetics of communication, where the artist invites the visitors to activity-And Riley calls it "call together" to be encountered with a type of event, to engage in it, and interact with it in some way (see Riley, 2013).

In the new era, artists have found a great deal of individual and social issues. In other words, the new art is, in fact, a reaction against the innate indifferences and noncommittal essence of modern art, whose final form appeared in the minimal art. The extreme tendency of modern art to technique and artistic concepts stopped it seriously from addressing human and social issues, as much as art was bound only to

itself and nothing more (Smith, 2003: 10). Therefore, the presence of interactive arts in the city was a good place for artists, architects and urban planners to meet the goals of urbanization based on the social interactions, including interactivity of buildings' views with the surrounding area and the people. Today, experts say public spaces at the city level must be able to create opportunities for social interaction and for people's interaction with space and the surrounding environment. Using digital lighting knowledge, urban facades and walls can be used as new art facilities to create the most effective interaction with people, especially with inhabitants of that area, and be able to bring together more diverse urban populations. Interactive lighting will increase both the social dimension of place and the social interactions of people (Pourfathalah, 2013: 41).

The KLIK system is the largest interactive lighting arrangement in Sydney's commercial center, comprising a digital viewfinder that works with features makes lighting design possible and has the variant option with the ability of changing for different people, acting as an interactive view. The visitors and local people are involved in formation of the lighting. On holidays, interactive consoles are located in the park, which allows people to display their digital design on the facade of the building by choosing different colors. The website viewers can also participate in the design of this interactive theme via the Internet (Ibid: 90 - 91); (Fig. 5). The audiences in this approach are encouraged to experience the physical and direct creation of their own light. It might be said that in this group we encounter lighting interventions in a way that lighting does not end up in a building or an urban space, nor even fully address it, but rather it has its own way, provides the situation for different types of public participation in the optical activities of an urban space (see. Okhovat, 1998: 65).

The reason for calling this group as creation of artistic text is because of confirming that the interactive arts and in this case the interactive lighting is an artistic text (for more information, see Rahbarinia and Khairi 2013). The Interactive lighting as an artistic text are of those which are being presented, unlike the previous artwork that were just exhibiting. It means that they are experienced on the basis of a kind of production, which is considered as a paradoxical issue leading to creativity and freedom as the characteristics of civilizations. The purpose of these lighting activities as an artistic text is not to explain their meaning, but rather the audience here faces with kind of delay and deferment of the signified in the process of a language (signage). In this action, according to the number and variety of audiences and their differences, there is variant meaning (polysemantic) which induces a euphoric pleasure to the audiences that can be effective in shaping a perspective of a healing landscape for citizens. As the interactive art from theoretical, phenomenological and experimental aspect is a form of event, and the artist here does not present a “finished artwork”, but rather provides an environment for the activity of the recipients, we can consider the Interactive Lighting as an event which its final form results from the collaborative

behavior of the audiences (Kluszczyński, 2010).

The audiences in such artistic texts are excluding from the domination of artist in a social event, come together in the production and activity context, and helping form a space for their social interactions.

In this kind of text, similar to an interactive art, that is the last statement of “death of the author,” and the interactive artist is only a creator who provides the situation and context, then disappears and the spectator converts to a user, then meaning is created at the moment of interaction (Huhtamo, 1995), in the interactive lighting projects, similarly we do not deal with the dominance idea of an artist like the previous projects. In the new era, the attached of artistic subject to technology can be attributed to the exodus of art from a limited space to a vast space. This exclusion causes objects of art not to be out of the public reach and exclusive, but instead be presented to public at minimum expense and furthermore the public culture can inspire the artwork. In addition, artists can also find direct contact with their audiences. This number of audiences and the way that an artist communicates with the audiences was only possible through new media that never have existed before (Nasri, 2011: 134-141).



Fig. 5: KLICK lighting system of Sydney is the source of the engagement of citizens without regard for the age group.
Source: <http://www.cardinalspin.com.au/project/luminous-at-darling-quarter>

Only if audience can change the exhibitory aspect of an artwork, it could be considered as an interactive/collaborative lighting. Therefore, what the audience does while encountering with this kind of artwork, that is altering the "exhibition", fundamentally differs from the non-cooperative / interactive lighting (or an artwork), known as the interpretation and explication of the work (adopted from Ghaderi and Merathi, 2014, quoted from Lopes, 2010: 84). In other words, citizens while interacting with the lighting project will recognize the concept and idea dominates it.

Therefore, the "physical and actual" action of the audiences for altering an artwork is of special important. Comprehending the text is subject to interaction with it, in this regard, the involvement of the audiences will be physically and proactively mediated by computer-based interfaces (adopted from Qaderi and Marathi, 2014).

In an interactive lighting, the artist creates an flexible atmosphere for the audience and does not confine his artwork to a predefined form and appearance, but rather by interacting of audience with artwork the final form of is determined, which takes a different shape for each audience (see Hoseingholi, 2012).

The contemporary interactive arts lead to the elimination of the subject or, in other words, to the death of the artist's subject. Generally, in this action, passive spectators become active users and they extrude from their habitual place as an artistic consumer and become an artistic active participant.

Basically an interactive text is kind of text that a person can directly interfere with and is able to alter the observed images and writings. So the audiences of new media, unlike the target audience of visual arts and telecommunication medium or even the readers of a literature text, are called "users" (Javid Sabaghian and Hosnai, 2012: 72).

In general, the major difference between e interactive lighting and static one is the ability of being coordinated with the environmental conditions and the user's request, as it tries continuously to be in concord with what it should be. This coordination let the audience have a special sensuality to lighting, as it can also be known as live or smart lighting (Tavanaii Jabarzadeh, 2013).

Conclusion

The city at night is defined by the human presence so lighting in urban spaces can have many effects on nightlife and urban living. The various potentials of city lighting in the night can rise up the role of citizens from mere consumer and spectator to an actor, user and producer. As outlined in the paper, four evolutionary stages can be considered for lighting developments:

The first is the functional and lighting measurements of the city, which is sought to provide a better security and readability of the city's structure at night; the second action deals with decoration and symbolism issues of a building and also the

physical characteristic elements of a city, with the purpose of characterizing and identifying it. Citizens in these two groups are passive spectators who only use lighting as an object. The subsequent developments were divided into two groups of artistic works and text creation by urban lighting. Following the actions of these two groups, the need for cooperation and participation of artists with other professionals in the field is felt. The artwork audiences are still the consumer citizens who are pursuing the meaning an artist is looking for, but the audience of artistic texts, and here those of interactive lighting are citizens, residents and active spectators who are experiencing urban lighting production while changing their role to target users.

In Iran, lighting is merely focused on the first two aspects including Illumination supply and decorative or symbolic aspects, and unfortunately, the related authorities are unaware of the possibility of creating an artwork and the interactive lighting that can provide an arena for better social interactions of citizens.

According to the body of the paper, we found that the light function in today's world is not merely Illumination and decorating, as it can provide a new perspective in the artistic fields as well; so managers and custodians need to pay special attention to this issue and thus provide a platform for the formation of social interactions and the improvement of people communication.

Another remarkable point here is the interdisciplinary nature of the urban lighting in the new world. According to the resources in Iran, lighting is not merely limited to the field of urban design and architecture, but it is a category that invites the artists to be involved in and through which they can evoke the citizens for interaction to improve the social relations. The created spaces based on these new artistic approaches in the city can continue to its night life in a more lively, healthy and dynamic manner that before.

Endnote

1. Illumination is a quantitative concept that applies to the standard and applicable lighting of a space that is measurable and calculable (Okhovat, 65 :2008).
2. This project has won numerous awards including the 1st International Award for Lighting Designers (IALD) in 2012 and the 2nd prize of City. People. Light prize in 2011.

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