

The Role of Information Technology in Creating the Sense of Place

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Abstract: In the modern age, Information Technology (IT) plays a major role in all social, economic and cultural spheres. The purpose of this study is providing suitable solutions for the future planning of architects and planners. In this study, the concept of sense of place is discussed through the factors which shape it and the role that IT plays in these factors is investigated. This study is an analytical-descriptive study which reviews different views on the subject and the result has been achieved through content analysis. The impacts of this technology can be observed in the physical and spatial changes of cities. These changes lead to the evolution of public perception to the environment and also change the senses of place. Here, the role and importance of attention to the changes due to new technology, future urban planning and the new architectural model expression is expressed with an emphasis on the necessity of establishing the sense of place.

Key words: Sense of place, IT, levels of sense of place, network environment, perceptual factors

INTRODUCTION

Information and Communications Technology (ICT) is considered the prevailing technology of the present century that beside the impacts on human communities, it has created changes in the cities as well. The development of telecommunication networks, data radio systems, mobile audio and video, cable networks and satellite systems, Internet and data network, Geographic Information Systems (GIS), Global Positioning System (GPS), have transformed the spatial, movement and management concepts in the cities and continues to exert great influence on urban affairs (Brenner and Keil; 2006). This technology by transforming the accepted ideas on the nature of space deemphasizes the historical importance of time and place (Ziari *et al.*, 2010).

In line with these developments, architecture has the difficulties ahead for finding its particular place because it is facing the transitional societies that are experiencing the latest network flows. A concept that has been significantly changed in these evolutions is the sense of place in the urban and architectural spaces. These areas affected by the new information and communication technologies that have undergone many cognitive and perceptual changes and as well as physical changes have transformed the sense of place. In this regard, the present study tries to examine the role of information technology in urban and architectural structure and its impact on physical and cognitive factors to express the role of technology in creating the sense of place.

Given the above, the questions that are raised include what are the factors shaping the sense of place? How IT impacts these factors? The aim of this study is to answer these questions and provide suitable solutions for the future planning of architects and planners. Therefore, it is assumed that IT requires numerous changes in the design and implementation of spaces and it seems that proper planning and appropriate infrastructure in the use of these technologies can prevent the construction of lifeless and still spaces in the future.

Literature review: (Lombard and Ditton, 1997) believed that different technologies lead to different experiences of space and presence. This attention to spatial changes is also observed in other early writers such as (Barbatsis *et al.*, 1999) when he says: space as a metaphor of our mentality, whether consciously or not will change in the realm of the digital world” (Rabiee and Bemanian, 2009). In this respect, Falahat in the year 2006 in an study entitled “the concept of sense of place and the factors shaping it” investigates this issue in 5 contemporary mosques and restates the factors in 2 groups of cognitive-perceptual factors and the physical (Falahat, 2006).

Rabiee and Bemanian (2009) review the physical transformations of city in the age of information technology and address the role of IT in these transformations (Rabiee and Bemanian, 2009). Eslami and Ebrahimi (2008) conduct a study titled “Iranian urban development and planning in the transition era” and

investigate the urban evolution under the effect of IT providing that without planning and future infrastructures, the technology will destroy the identity of the city and the future society (Ebrahimi and Eslami, 2010). Through reviewing the previous research it was thought that new information technology is an important and unavoidable factor in urban development and the destruction of sense and identity of place in the cities can be prevented through proper planning. Also, with the use of technology a new identity can be given to cities.

Research significance: In contemporary era, the human society is advancing rapidly and the human had always tried to add speed and quality to his life through new technologies. IT is a technology that has become the dominant technology in such communities. In addition to amenities, this technology also creates problems. Among these problems is how people feel about the environment.

Therefore, attention to the mental aspect and sense of people is important. These dimensions are realized through perception and understanding of environment and is directly associated with the person's behavior. In this study, the dimensions which are called sense of place are examined.

MATERIALS AND METHODS

This study is based on descriptive analytical method. Accordingly, the related literature on IT and the concept of sense of place are reviewed; first, the factors shaping the sense of place and definitions of IT and the position of technology in architecture and urban planning are provided and second, its effects on the cognitive and perceptual factors and its role in shaping the physical skeleton and space of city are investigated. Finally, the research results were obtained by analyzing data.

RESULTS AND DISCUSSION

The concept of sense of place: The term sense of place is made up of combination of two words sense and place. in the Oxford dictionary, sense has three meanings: one of the faculties of sight, smell, hearing, taste and touch; A feeling, emotion or passion/perceived mental image in psychology, that is, the judgment created in a person to an object after perception of the object that could be nice, attractive or bad; third, the ability to judge an abstract thing, such as sense meaning in the term sense of direction which means individual's ability to find a path or path's ability to show itself to person; and as the general understanding of an object by person (Zarabian and Menam, 2008).

When studying the individuals' link with the place, the main problem the researchers faced was the diversity of views on theoretical and practical levels, along with different definitions provided for this concept. In order to describe the individuals' link with the place, the researchers use a number of terms such as place identity, attachment to place, dependence on place and the concept of place (Low and Altman, 1992). But, the term sense is more commonly used referring to affection, kindness, judgment and general experience of a place or the ability of space to create a sense of belonging in people. From the perspective of environmental psychology, human beings need to emotional and spiritual experiences from the environment they live in. This requires close interaction and a kind of identification with the place s/he resides. This close interaction and identification is called the spirit or sense of place (Falahat, 2006).

In general, sense of place refers to people's subjective perception of the environment and their more or less conscious feelings of their environment in a way that the person is put in internal communication with the environment so that his/her understanding and feelings become associated and integrated with the semantic context of the environment (Zarabian and Menam, 2008).

In other words, the sense of place is the specific experience and perception of a certain location that determines the orientation of person toward a place through feelings of distinction, orientation and spatial perception (NeginTaji, 2011).

Levels of sense of place: Sense of place has several levels. Hummon *et al.* (1992) has introduced five types of sense of place: ideological rootedness, taken for granted rootedness, place relativity, place alienation and placeless (Zarabian and Menam, 2008). Cross (2001) following Hummon defines the sense of place as a combination of the relationship with place and presence in the community. She classifies the relationship with place in biographical, spiritual, ideological, narrative, commodified and dependent categories which by factors such as satisfaction, identity and insidedness defines five different levels of sense of place including rootedness cohesive, rootedness divided, place alienation, relativity and uncommitted placelessness (Cross, 2001). Shamai (1991) suggests 3 main stages of belonging to place, attachment to place and commitment to place at seven levels. These levels of sense of place illustrate the use of sense of place process from indifference to a sense of devotion as shown in order.

Different levels of sense of place

Indifference to place: This level is often not considered in the literature of sense of place but can be used to measure the sense of place (Zarabian and Menam, 2008).

Awareness of a place: This level is when a person knows that he is living in a distinct place and recognizes its symbols but there is no feeling that connects him/her to place. In this case, the person may know that s/he is residing in a place but does not know s/he is a part of it.

Belonging to place: At this level, the person not only knows the name and symbols of place, but also feels a sense of place and a common destiny with the place. In this case the symbols of place are respectable and what happens to the places.

Attachment to a place: At this level, the individual has a complex emotional connection with the place. Place has meaning for him/her, place is the axis of individuality and collective and individual experiences in identity in combination with meanings and symbols give a character to the place. In this case, the uniqueness of place and its difference with other places is emphasized.

Unification with the purposes of place: This level represents the intersection and connection of the individual to the needs of place. In this case, the person identifies the targets of place, comply with them and follow them, there is passion, love, support and devotion to the place in the individual.

Presence at place: This level attends the active role of the individual in society because of a commitment to place. In contrast, all previous levels that had a theoretical basis, this level and the next level are realized from the actual behavior of people.

Devotion for place: This level is the highest level in the sense of place and represents the deepest commitment to place and enormous sacrifices in line with the tendencies, values, freedoms, and well-being in different positions show themselves. In this level, preparation for dropping individual and collective interests for the sake of greater interest toward the places is probable.

By studying the different levels of sense of place we can consider that the intensity of senses to places are varied and have different levels. These levels are formed by a number of factors. Factors affect individuals' perception of the environment and play an important role in creating the sense of place. According to the concept of sense of place in different perspectives and its different levels, the factors which shape it can be.

Factors shaping the sense of place: The factors which shape the sense of place can be categorized into 2 groups: physical and cognitive-perceptual factors (Falahat, 2006), manifested in three forms of spatial (physical), orientation in space and space perception (cognitive-perceptual) differences (Negin, 2011). These factors are discussed in the following: perceptual and cognitive factors; The perceptual-cognitive factors refer to a personal mental process that its formation and maintenance is associated with biological, environmental, psychological and socio-cultural processes and are unmanageable for designers. Tuan (1977) states that space is realized by transforming to place through the definition and meaning (Negin, 2011). What makes the definition of space, leads to recognition and a sense of place. This sense is crystallized in places with distinctive character, in this way constructions become evocative buildings and a sense of recognition is inducted to individuals.

Physical factors: Studies show that understanding human and place relationships involves visualizing the physical and socio-cultural grounds and the place is where senses and place can be expressed and by linking the human and the place, the sense creates a ground for distinction, orientation and spatial perception. Sense of place has 2 dimensions, 1 is rooted in cultural beliefs and practices and relates people with the places that include non-physical elements and has a mental quality; the other dimension is affected by external and physical factors with more emphasis on the physical aspects (Negin, 2011). The definition of space should consider all the elements of ambient, architecture, surroundings and landscape features. Factors contributing to the definition of space include edge and boundary, visual closeness, conflict and diversity of views, input and output, landscaping and labeling.

Information Technology (IT): Information Technology (IT) includes all forms of technology of production, storage, exchange and use of information in various forms: commercial information, voice conversations, still and animated images, multimedia presentations and other forms that have not yet exist (Rasoolinejad and Noori, 2010). IT is a subject that has been adopted by all areas of science and has found its place in any discipline. Architecture and urbanism are among the sciences which are largely influenced by this constantly evolving technology. "Information Technology (IT) has changed people's lifestyles and subsequently, the physical body of life and their surrounding environment" (Ebrahimi and Eslami, 2010).

It's position in architecture and urbanism: Information and Communication Technology (ICT) transforms the experience of architecture and urban planning with features and tools that provides for designing forms and creating public arenas, an attractive and desirable city in competition with other cities.

Thus the public arena experience has moved from still and static spaces into dynamic, flexible areas. Cities in the transition from modern community to networked information society face some factors that will have a direct or indirect impact on urban planning and performance of the society. Presents the factors of information technologies in communities. Transition from modern to networked society, the threats and opportunities ahead (Ebrahimi and Eslami, 2010)

Underlying ground; environment and society

Threats:

- Social abnormalities social mayhem isolation of society retrospection and reactionary inflexible thoughts inadequate infrastructure development
- Opposition of civilizations and cultures
- The lack of correct guidance of information flow lack of understanding the information and communication revolution

Opportunities:

- Entrance to the new world
- Innovation
- Creation of virtual spaces
- Living in cyber space
- Pluralism diversity
- Unity in plurality and diversity
- Simultaneity and time lessness
- The growth of the collective memory
- Dialogue among cultures and civilizations in the networked society

Content architecture

Weak points:

- Imitation without logic
- Superficiality
- Information viruses
- Excessive virtualization
- Crisis in the sense of place
- Crisis in local-native identities

Strong points:

- Collective mind
- Dematerialization of architecture
- Cyberspace as a tool for understanding and design of building global cities
- Electronic house regional

- Global identity
- Simultaneity and timelessness
- Immigrant architecture

According to the subjects listed in the it can be concluded that IT influences history, culture, economy and the social and environmental aspects causing fundamental changes in each; "these fields are the factors which are very effective in shaping the architecture" (Ebrahimi and Eslami, 2010). With the transformation of the body of buildings and the city, public perception of the environment has also changed and consequently the sense of places will change.

The impact of IT on perceptual and cognitive factors: New technology have penetrated into users mind so far as mediating the cognition and experience of real life for them and the user can obtain a cognition not innovative and independent though of the environment by analyzed information and images. "Therefore, attempting to transform the way we observe and perceive our space" (Ananda and Schwartz, 2006). Information Technology (IT) provides that a person to be present simultaneously both in reality and virtually" and obtains an understanding of the space beyond the temporal-spatial limits of the place.

For example, a tool equipped with (GPS) 6 technology and wireless internet is in any urban space, provides technical information and images related to the space and the user can realize the space beyond the scope of the physical place (Rabiee and Bemanian, 2009). Knowledge and understanding of the changes caused by the development of Information and Communications Technology (ICT) and the globalization of cities, creates the possibility of adopting new approaches in urban planning tailored to these transformations (Ziari *et al.*, 2010).

In the information world, there are many useless or even harmful beside the useful developing patterns and sometimes due to peculiar features they extend so rapidly that replace the suitable models in the mind of human beings. This information pieces which are harmful or useless can be called information viruses. Information viruses tend to destroy the useful files in the mind of human and replacing with other things, they spread violently, take human away from his spiritual dimension and empty his existence from depth and meaning day by day (Ebrahimi and Eslami, 2010). Due to the fact that the technology has different effects on individuals' perception of the environment, we must be very careful in using it and replace the negative harmful factors with useful agents so that people have no difficulty in perceiving the environment.

The impact of it on physical factors: As the Industrial Revolution led to major changes in city and its texture, ICT infrastructure, also caused an extensive development in the city structure, the legibility of urban space which is analyzed with five operating factors of paths, edges, nodes, landmarks and districts. Decretive states that “spaces are mostly created as they are to be used”. Hence, the IT infrastructure and digital technology create capabilities, needs and new activities that will change the face of city (Rabi’ee and Bemanian, 2009).

In short, the physical transformation of cities can be stated as follows: “social-symbolic performance of field is preferred, urban walls are covered by digital images and the field space will be a cybernetic space consisting of physical dimensions and cyber that provides the ability of simultaneous presence at different space and times. The public spaces will become the field of imposing visual and information data. The new space qualities will affect the aesthetic criteria. The square becomes a space to meet and benefit from digital equipment (Rabiee and Bemanian, 2009).

As the boundaries between public and private space disappear and the urban walls from the current rigid condition turn to permeable and flexible form. Urban non-physical symptoms are added to the cities. The system, the GPS navigation finally removes the fixed urban boards. Urban furniture becomes equipped with a digital system and according to electronic trading system shops become smaller. The streets will again join the territory of pedestrians after the industrial revolution and the age of the car and turns into a live space with notification feature in the local dimension and beyond it (Rabiee and Bemanian, 2009).

CONCLUSION

According to the above, in the modern age societies are experiencing a kind of architecture that is the result of the transition from the traditional to modern society and in the near future architecture will experience transition from modern society to networked society while many communities are not prepared to accept it and have not developed plans for its future. What led to concerns about adverse effects of new technology is due to the unplanned effects which occur in the opposition of reality and virtual space. In such condition, the art and architecture play a major role in redefining identity in modern societies. In this situation, society demands a kind of architecture that shows its own reality rather than mimicking the past, causing the loss of the treasures of the past. Therefore, to identify the cultural transformation, the economic and social impact of IT,

more attention should be paid to these components and not to forget the concepts which are of the main elements of architecture.

On the other hand, the possibilities of this new technology make it as a new infrastructure for the future city. The infrastructure that will change the face of the city while increasing the capabilities of urban environments and defining new functions for the city. Therefore, IT (by creating a new attitude and new life, creates a new space that is the result of contrast of traditional ideas and real space with new technological possibilities and virtual space. Given the relationship between information and communication technology and sense of place, it is necessary to pay attention to the role of technology in urban development and urban planning.

In this way, urban planning can provide new approaches so that to exploit the opportunities provided by IT to solve urban problems and secondly, to respond to the needs arising from environmental changes due to the changing social, economic and spatial organizations and the growing trend of urbanization. To answer this question that what kind of space and physic in the age of IT can meet the needs of the human spirit and sense is the responsibility of architects and urban planners.

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