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Effects of Contemporary Information Technologies on Culture and Architectural Space

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Abstract

Changes are inherent and inevitable in any living culture. We live in a fluid, changing world with increasingly blurred boundaries between local and global practices. Due to rapidly escalating technological developments in social interaction technology and digital communication, social contacts between people has changed. These technological developments have changed our habits and gradually our culture. The requirements and needs of the society are evolving and this can be seen on different scales. This new level of connectivity brings important concerns regarding privacy, protection and control. Like in our daily life and through living conditions etc. This in turn results in changes to spatial planning and architecture. Technological advances and cultural changes have increasingly demanded the new definition of space. Today architectural space becomes "the space of all dimensions". This paper aims to investigate this evolution of space on different scales and means that caused by contemporary information technology through cultural and environmental aspects. The implementations of information technology on relations and different scales of interaction based on space will be discussed, and then the change and evolution of architectural concepts on will be addressed.

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1. Introduction

The postmodern trend in contemporary culture can be traced on the changes and transformations in modes of communication in today's many societies, which have given rise to new cultural formations, customs and new modes of interaction both at the material as well as virtual level. Telephone, television, and present day's digital communication nearly embedded to us, have made possible instantaneous exchange of information around the world. As images from around the world from the past, present and future materialize on our smart phone-tablets screens; our sense of history as well as time is altered. From our living room, it is possible to experience the occurrences around the world, even though it is not reality we experience but its representation [1]. Images presented by the media have become an integral part of our world; there is already the blurring of the boundaries between reality and its representation in that representation itself has achieved the reality of its own.

2. Culture, environment and technology

According to Cambridge Online Dictionary [2], culture is the way of life especially the general customs and beliefs of a particular group of people at a particular time. We can generally say that the characteristics and knowledge of a particular group of people defined by everything from language, religion, cuisine and social habits defines culture. So we are a product and result of our culture in the way we sense and express our environment. Eventually every change can and will create an impact on culture then on architecture which is another discipline cannot be separated easily or draw a clean distinction. Every invention in technology will effect our habits causing changes on ways we define ourselves, things we define ours, areas-places we define as ours; causing changes and transformations on culture we belong and environment we live, we create, we design. The main concepts that helps us to understand culture and our environments, which are according to Altman and Chemers [3] are experience and cognition, privacy, personal space, and territorial behavior are transforming with contemporary information technology.

Environmental experiences and cognitions are psychological; we perceive and interpret our environment in a selective manner and generally make incomplete manifestation of it. We receive information about our environment from our senses, we process and organize it in ways that are meaningful to us; the outcome represented and carried about in our minds. The things we describe as meaningful, consistent and appropriate are influenced by our cultural experiences. Our increasingly smart and capable smart phones, GPS navigation –hand held gadgets alter our senses, the way we see our environment and transforms the process of it. When the ways of receiving information changes, our perception evolves with it.

Increasingly smart digital devices make us question our privacy. Privacy regulation permits people to be open to the others on some occasions and to be closed off from interaction at other times. Privacy is therefore a changing process whereby people attempt to regulate their openness-closeness. Along with verbal and non-verbal responses and cultural practices, operate as behavioral mechanisms to facilitate privacy regulation. As Altman [4] stated in the description of privacy is selective control of access to the self, a dynamic process whereby people vary in the degree to which they are accessible to the others. During the process of modernity in a scale from traditional to modern life, it can be seen that different sub-culture groups has developed different privacy levels [5]. Today's modern cultures show different levels and dynamics of privacy. When we pin our location on social interaction technology and applications like Facebook, Foursquare, Instagram or any other site-app., we let ourselves to people (close or generally not so close) open, right to comment on/about it. We show and broadcast what we eat, where we go, what we wear. So the issue of the desired level of privacy had to be reconsidered and need to be discussed on occasions. Every new social network application, that gained popularity bring about new conflicts. Users can be opened to the others on some occasions and to be closed off from interaction at other times by being online-offline in messenger programs for maintaining their privacy. New frameworks and parameters had to set so that people then set in motion the series of behavioral mechanisms to implement their momentary desired level of interaction. We had to alter our accessibility or inaccessibility digitally on the net. This new digital arrangement causes change on cultures because when the variety of customs, rules and norms, which communicate openness or closeness to the others change the culture they live on naturally transform.

Additionally we actively use distance between others and ourselves in every day social relationships. Personal spacing is one of the concepts of culture and environment that people use to regulate their privacy or accessibility to

the others. In social interaction by moving closer to or farther away from others, we make ourselves physically and socially more accessible or less accessible to them [6]. Hall [7] proposes 4 spatial zones of interaction: the intimate zone (close relationships), the personal zone (day to day interaction), the social zone (used in public and ordinary business and impersonal contacts), and the public zone (reserved for high status people and/or public and formal settings). Thus new information technologies bring about some questions, because our close relationships have changes and distances that define them transforms, we Face Time/Skype with our friends and family, have conference call with other time zones-continents. Contemporary technologies transform our interaction with others and our environment profoundly, at schools at hospitals we define ourselves and keep tabs on identity digitally; as a result, it need to reconsider our interaction and re-distance zones.

Furthermore the concept of territory affected considerably with new information technologies. The control about the defense of a place can be varying according to scale from rooms to geographic areas. They are often marked or personalized and display the presence of an owner or occupant. Our ownership of our space, room and workplace is now not only physical but also digital either for temporary or permanent basis. Our identity as stated above can be represented without our physical self and we can experience our territory without occupying it.

3. Technology, space and architecture

All cultures employ technologies in such a way that their cultural activity is not intelligibly separate from the utilization of these technologies. What technologies have made explicit is that cultural boundaries have always been more or less permeable and cultural objects both transmit cultural beliefs and practices yet remain indeterminate. Even age-old transitions reproduced through millennia selectively adopt new technologies. It is doubtful that any culture especially nowadays, can never be identifiable simply as what takes place within its spatial limits, however space is a cultural product shaped by human beings, technologies.

As new digital materials and mediums are invented and technological advancements made consequently –as stated above- culture transform and architectural practice embraces these new innovations-transformations and moves from working within the limits of static materials to transform them into dynamic elements.

Products of contemporary information technology: smart materials maintain the ideal tools for providing all the services needed like energy saving to interactive flexible surface that respond to environmental factors and user profiles. With the help of these new systems and materials, architects and designers are making experiments on space; transforming its static elements to dynamic interactive notion which changes and repositions itself according to new environmental conditions and different user profiles.

The construction of dynamic boundaries and experimenting on physical presence of environment eludes into architecture that is more and more formless and haptic. This "new" architecture and concepts are transformed, repositioned and realized with the help of new technologies.

By experimenting on boundaries of physical space by controlling the immaterial elements (light, sound, odor) of space, tactile surfaces, and duration of time by manipulating these elements; architects change classic notion of being in space at a time with dynamic existence of solid space. These changes on the perception of the sensitive stimulants cause transformations on our cognitive processes, our environment and its territory.

The new condition of architectural object, transforms the main concepts of culture and environment (like experience and cognition, privacy, personal space, and territorial behavior), this reciprocal evolution triggered by contemporary information technology are causing the final product: architectural space and the culture around it. This evolution can be observed on various contemporary projects designed by prominent architectural offices.

The visual transformation of architectural object is possible with digital technologies without physical movement. Possibilities for dramatic, instant alterations in the surface image of an architectural object with LED screens can alter our experience and cognition of our environment [8]. The façade of Galleria Mall West in Seoul, South Korea (2004) designed by UN Studio and Arup Lighting, which is wrapped with LED panel, turning façade into a giant programmable screen showing images controlled remotely via Internet; controlling visual stimulants digitally, transforms our experience and cognition processes of our environment. Allianz Arena designed by Herzog-De Meuron (2005) Munich Germany, has a façade changing color depending on which team playing at home, digitally controlled the Led system can also communicate through showing messages and patterns with pulsating moving lights. These

transformations discern the discussions of territoriality of architectural objects and question the properties of it by communicating its users and urban environment visually.

The changed and transformed nature of our communication via contemporary information technologies both as architects and user with our habitat and the object we design is transforming. Sensing of environment and user needs bringing about changes and adaptations can be possible with the aid of new information technology. Early example showing adaptation and responding to individuals by devices they carry in H2O Pavilion (1997) project by NOX, examines the relationship between media, computing and architecture. The H2O projects precedents other designs that examines the potential for more fluid states of inhabitation; blurring the boundaries we put for our privacy and our territory. Projects like Blur Building (2000) by Diller, Scofidio and Renfro, Son-O-House (2004) by NOX or Brisbane Airport kinetic parking garage façade installation project by Ned Kahn and UAP (2012) process information either comes from its user or its environment then transform himself or herself.

Furthermore, the virtual reality applications derived from new information technology showing context related content virtually on our smart devices, about architecture, about events in close proximity, about possible interaction with others transforms our experience and cognition, privacy, personal space, and territorial behavior. Applications like Layar-AR it is possible for us to digitally connect with our physical environment. This connection while pinning us to physical architecture, the nature of interaction -the culture- is transforming.

These technological advancements that generate shifts in space and culture, represents a major theoretical challenge that they force us to reconsider the implicit definition of the architectural discipline [9]. There is an accelerated change occurs and we are in such a period.

4. Conclusions

Technology changes and transforms our daily life. We interpret a new environment, which we surf through Internet or a virtual fantasy world which we play a game that the actions take place. The distance is not anymore meters or miles but seconds that takes to reach or log on to them.

The information technology innovations in a manner; bring about the inquisition of the solid properties, a new condition of architectural object arises and new questions emerges. The "shell" which defines object and space is being main object for new developments. Both from cultural and architectural viewpoints, architectural space is evolving. We can say that the architectural object's interdisciplinary position is being inquired by over growing change of our new digital technologically transforming culture. The architectural object is mutated by information technology and with new digital layers that allow new experiences and perceptions.

All these technological developments lead to change of life and culture. As Lavin [10] stated architecture today is increasingly feeling its disciplinary boundaries pressing up to and being superimposed with the boundaries of other fields. Designers have to follow up all these cultural changes and transformations, to serve the needs.

Furthermore, these technological developments make architects and designers question and rethink their position towards all these progress. By the changing means of space and new definitions of environment, architects have to broaden his/her horizons and take "the brave-big step" to discover his/her limits for designing and creating.

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