TIME PERCEPTION IN RELATION TO ARCHITECTURAL SPACE

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Abstract: Time and space are the essential and perpetual themes of architecture. Perception of time influences the built environment with its requirements in our everyday lives. This study underlines that the way of understanding and constructing time alters in parallel to the mechanical and then digital understanding of time. In order to limit the study, clock tower and mobile phone are given as symbolic examples for each period respectively. The effects of time perception are explored in order to clarify the requirements of contemporary "Artificial Intelligence Age" and the new era. Cosmic, public and personal time constructions are specified so as to shed light on the transformation of architectural space. In order to dwell on the changing dynamics of time and its perception, this research is an intention to reveal the substantial importance and direct influence of time perception, to give an insight for architects and designers to grasp the everyday influence of time and temporality.

Keywords: Architectural Design, Architectural Space, Time Perception.

1. INTRODUCTION

The rapid transformation of our environment is affected by our lifestyles and also influences our everyday lives. We can feel this through the transformation in our built environment as well as in every part of our lives. It is obvious that the way of living changes with new technologies, with new scientific inventions, economic developments, cultural transformation, and thus with the perception of time. The habits of life, patterns of thought and values are all altering with these dynamics. Architecture is also in the cycle of life and it is rebuilt to reconstruct the quality after major transformations, which has become a function of time in today's city.

This paper concerns the relationships between the physical form of the urban environment and time perception and it is rather an informative study for designers' improved understanding of time and temporality. It is considered that, different societies may have diverse concerns about time. In this study, time will be cited as a social construct and will be considered more social than natural. Therefore, measurable time, being the standpoint of modernization process, will form the structure of this paper. Personal use of invented objects or contemporary condition of miniaturization will be given an additional emphasis, in order to discuss the subject in relation to the social meaning of time.

In this study, the transformations that entered our lives with the clock tower are exemplified, in the sense of a rupture in the perception of time, to clarify the alteration from natural time to mechanical. Then the alterations in our perceptions, which appeared with the introduction of the mobile phone, are demonstrated hoping to shed light on the transformations in our everyday lives.

1.1 Aim of the Study

Unlike the Modern and Premodern ages, today we are experiencing the digital understanding of time. Therefore, the object of this study has been to describe the condition of the city of the 21st century from the perspective of time, for the consideration of further works of architects and designers.

1.2 Method of the Study

In the present paper, time perception is classified as cosmic, mechanical and digital. Still, cosmic time is not the substantial focus and measurable time is underlined in relation with technological developments. To understand and to conceive the modern notion of time, modern time perception is discussed with its indicator mechanical clock considering natural and digital time perceptions. Then, the indicators are discussed with their reflections on spatial perception and on socio-cultural and urban structures, to gain further insight about this dynamic relationship.

Other than natural occasions, clock towers, pavement clocks, watches, press, radio, television, and today mobile phones can be counted among the mechanical and digital devices that were assigned the obligation to notify time and to communicate. To clarify the changing time perception, and to conceive a collective time perception with the regularization of time, two examples of indicators of time are chosen; clock tower being the first instrument of defining and measuring the abstract time for a society; and mobile phone, being one of the contemporary instruments of delimiting time to a single individual. These two indicators of time are also selected for having radically different spatial returns and having the characteristics of starting the alienation process from nature and transforming the social connotation of time.

To illuminate the transformation of space, the examples are chosen from the field of commerce, which is one of the functional factors that have conditioned the sizes and plans of cities and their physical existences. These two examples, which take place in public spaces, are given to make possible the argument of daily movements of the crowds and attraction zones of cities for the public use. Although many examples could be given to exemplify the subject, clock tower – market place / bazaar and mobile phone – shopping mall couples are given as symbolic examples in this study just to determine the limits. Market place / Bazaar is situated in the town center with the clock tower and shopping malls are the contemporary spaces of public domain. These two examples show contrasts in their spatial and cultural usage.

Clock Tower is one of the indicators of time. This device is mostly attached to the city square, in which daily activities take place. In the spaces like bazaar, coffee-house and worship spaces, clock towers help the identical understanding of time. These dynamic public spaces of daily activities have the power of spreading its own energy. Here, clock tower helps to structure the communication between public and private spaces and to order the physical flowing (Cengizkan, 1999, 97).

Mobile phone is another indicator of time in our day. This device has allowed continuous and free communication for more than last ten years. Today mobile phones are not only tools for communication, but also kinds of technological computer. With several properties of a clock, alarm, schedule, organizer, calculator, camera and many

others, they also have the obligations of declaring and even establishing time. For providing continuous and free communication from space, it is possible to state that mobile phone removes the boundaries between public and private space, so that the notion of space disperses. In the temporality, time perception and space construction of 21st century, shopping malls can be referred to as "compact city centers". Replacing the ancient city square, shopping malls became important attraction and interaction zones in the city.

Current study, targets to be a research of reflections onto the transformations and alterations of social, cultural and economical changes in contemporary architectural and urban spaces as well as in human psychology, from clock tower to mobile phone. Therefore it is a research of the themes of time perception and space construction.

2. ABSTRACT TIME PERCEPTION AND THE MECHANICAL CLOCK

Time can be defined as the system of those relations which any event has to any other as past, present, or future; or indefinite continuous duration regarded as that in which events succeed one another; or a particular period considered as distinct from other periods (The New Grolier Webster International Dictionary of the English Language, 1973).

According to Gurevich, social time differs not only among different cultures and societies, but also within each socio-cultural system as a function of its internal structure. There is not one single 'monolithic' time in every society; instead, there exists a whole series of social rhythm governed by the laws of different processes and by the nature of various human groups (Gurevich in Gardet, 1976). The progress of a society and its culture is shaped within the structure of social consciousness. Time perception, being one of the main components of this structure, shows the fundamental trends in a society.

In pre-modern cultures, there was no need to connect the events with time nor to date them; time was usually linked with place. Telling the time without any reference to any social or spatial markers was nearly impossible. But in large and powerful states, in order to share the common sense of time between the individuals, the necessity for determining and organizing time increased.

Mechanical watch is evaluated as the main reason or the base of modern idea of time, almost in every scientific work. It has taken over an ordering role in organizing the social practical with a new cycle. With the invention of the mechanical clock, time perception was altered from cosmic to modern. All technical tools and machines were added to the opportunities of nature before the mechanical clock; nevertheless, this invention either worked with nature's occasions or joined them. By working absolutely in self-regulation without nature, it organized an unusual lifestyle with its own cycle. Therefore, the invention of the mechanical clock caused a separation from space with the virtual understanding of time. With universally accepted, equal intervals of hour and its smaller units, space also became representational, in its own three dimensional reality. This distinction is considered to start the process of modern time and modern

space – time concepts. Hence, mechanical time determined the boundaries of Modern and Premodern ages (Tanyeli in Davidson, 1998).

As McLuhan mentions, the natural needs of man came to arrange themselves to the clock rather than to the organic needs.

As a piece of technology, the clock is a machine that produces uniform seconds, minutes and hours on an assembly-line pattern. Processed in this uniform way, time is separated from the rhythms of human experience. The mechanical clock, in short, helps to create the image of a numerically quantified and mechanically powered universe… Time measured not by the uniqueness of private experience but by abstract uniform units gradually pervades all sense life (McLuhan, 1964, 146).

In relation to that, Elias states that we certainly use mechanical clock to measure something. However, the thing we measure is not that abstract 'time', but something concrete; the so-called, 'the length of a workday', or 'the period of moon eclipse', or 'the speed of a runner in a 100-meter race' (Elias, 2000, 16). Becoming 'as regular as clock-work' (Mumford, 1934, 16), the increasing tempo of civilization required a greater power and in line, power accelerated the tempo. Unlike the irregular regimentation of time in the past, this tempo started to structure the entire World.

Mass production can be considered to be a reason for this process. Specifically, the wide use of cheap watches, which were first produced in Switzerland in the eighteen-fifties served for proliferation (Mumford, 1934, 197). For their individual use, watches are excluded from the focus of the present paper as far as modern time concept is exemplified with clock tower for measuring the abstract time for a society. Still, this modern construction of time had its own spatial patterns, which will be discussed in the next chapter.

3. SPATIAL REFLECTIONS OF TIME

With the ongoing developments in science and technology not only the socio cultural values of societies but also the time and space perceptions changed and transformed. These developments in technology of communication, electronics, industry and nuclear, formed the bases for both opportunities and problems. Values, which shape and order life styles, altered immediately. Architectural culture is also in a process of transformation with all these transforming dynamics. In the rapid period of transformation, reflections to architecture can be mentioned as the demolition of the old and the construction of the new. This took place in such an enormous amount that, a collapse in cultural, historical and social structure was observed. Therefore, the altering time perception is seen influential in transforming and defining the structures of cities, the built environment and the building types by imposing changes on the everyday life.

Public spaces that are created by societies in time reflect the public and private values. As Madanipour mentions, in pre-modern urban settings, public spaces such as urban squares and market places played the role of arenas for public communication and these were places where the social interaction of people took place. The squares which were fronted by town halls, religious buildings and together with commerce became natural meeting grounds for the masses (Madanipour, 1996).

Being an indicator of time, clock tower took the obligations of declaring and establishing time, from the bell towers of churches or minarets of mosques of that period. Clock tower was usually situated at the city center, at such a distance that its bell could be heard from the periphery and structuring the space with its visual and auditorial character (Cengizkan, 1999, 97). It had a mission of announcing the time to the public, not to a single individual like the mobile phone does today. Bazaar / market place took place in relation to the clock tower. Both were in the center of daily movements, where the individuals meet. Announcing the time to regularize it for the society, clock tower had a property of being delimited by place and structuring the space. The bazaar, which took place in this structure, had a light, temporary spatiality.

With the new possibilities of technology and new materials, new kinds of buildings were introduced: airports, hotels, exhibition halls, shopping malls and etc. surrounded the cities. As middle class and working class have mostly moved to the suburbs, their way of living and use of public space changed. Shopping centers have replaced downtown as a setting for communal life and disseminated as the new center of city. These new kind of public spaces are constructed usually out of the city, with their own temporality and architecture. Constructed on the idea of the automobilized life, shopping malls are built in their hugeness and various colors, which can be realized from a far distance and be recognized at momentary experiences. Therefore, the style of contact started to be ordered by the speed of car.

Swift communication and simultaneity that were introduced with such technological improvements can be assumed weakening the characteristics of societies and transforming the space. Mobile phone played a key role in this process of rapid communication. It is appropriate to illustrate it for annihilating the public space with its personal use. In our age, people also use mobile phones, to grasp time. Naturally, unlike the clock tower, mobile phone declares time to a single individual only. In contrast with the clock tower, mobile phone has a spatial aspect independent from place, and thus dispersing the sense of place.

4. URBAN TRANSFORMATION IN RELATION TO TIME

With the ongoing developments, technology enters human affairs with the change of pace or pattern. The variations and speed, which appear firstly with mechanical and then digital understanding of time, create artificial needs and new kinds of specializations in private and public life. These inventions accelerate and enlarge the scale of previous human functions and create totally new kinds of cities with new kinds of work and leisure (McLuhan, 1964, 8). The new spatial and social organizations influenced our relations with cities as well. Elements of the past and the present are placed simultaneously in today's city. As Rajchman mentions, 'There are many cities at the same time and other cities in the city every time' (Rajchman in Davidson, 1998, 163). With the changing economy, ideology, technology, scientific inventions, therefore transportation, communication, mass culture and activities; it is obvious to observe the altering urban forms, public spaces, building types and façades, materials, techniques, applications and interpretation of building programs of today's cities.

In this chapter, urban transformation and developments in building processes will be discussed in relation to Artificial Intelligence Age, in which time is perceived more personal than social.

4.1. Transportation – Communication – Mass Culture

Transport and transmission played key roles in transforming the urban space in the sense of time perception. In the nineteenth century, the development of railway transportation accelerated the birth of the suburb. The railway caused a rupture from the city center but the new settlements were ordered towards the railway and massed around the stations.

These alterations in and with technology of transport in the city center caused a transformation in the urban form. While previously urban objects and space were formed by everyday life and through human praxis, the style of contact started to be organized with the order of car speed. Just for the mobilized life, the facades facing the roads were turned to new boundaries, which were formed and meant to be signs. As Virilio mentions, the speed of the city increases through automobile traffic and also through telecommunications (Virilio, in Armitage, 2001, 63). Just like the automobile increasing the capacity and the ability of movement of human beings, vehicles redefined the human capacity and allowed a freedom on space. This caused growth of not only the cities, but also the problems of urban life. The identity of a city has close ties to its inhabitants' experiences. But in limited time, perceptions and also experiences are insufficient. Therefore the identity of receiving-perceiving person and variety of evaluations are required to be integrated into the field of architecture even in the simultaneous city of the 21st century.

4.2. Public Space

As it is always suggested, the recent public space is essentially taking new forms. The expansion in the number and types of public spaces seen today, including new commercial spaces, displays how our ways of living continue to shape the design and management of places. Built on an area of nearly a city citadel, shopping malls not only contain shopping activity, but also many other activities which take place in a city centre (coffees, restaurants, hairdressers, cinema complexes, drycleaners, and so on). Therefore, they act like a city centre and become a focus of attraction.

While the town square of the medieval towns formed a public space, the public uses of these malls are still discussed. With their hugeness, shopping malls formed super blocks, competing the city centre. Therefore, road networks in cities are meant to ease the vehicular movement to reach these super blocks, covering the whole city. In time, the bigness of these malls tends to determine the scale of new spaces, without a designed unity.

4.3. Building Types and Facades

As the transport to these new types of buildings is with automobiles in general, it is mostly possible to reach them from the parking lot or the garage. Therefore, façades are not that important anymore; they are simplified just for the building's view from the motorcar and not ornamented as it was done before.

As Virilio emphasizes, in contrast to the previous periods, a building today is not built to last forever throughout these ongoing differences in place perception. In this process of gaining speed, the lifespan of buildings has also shortened due to their early ageing and swift corrosion. As its lifespan is now limited to fifty or hundred years, it has become something of a movement in time, a three-dimensional image that will disappear in time (Virilio, in Armitage, 2001, 58). Therefore, even the facades of buildings are evaluated as time-based images.

4.4. Building Programs

As discussed formerly, with the transforming dynamics, both the building types and space concepts changed. With the altering building types, according to contemporary needs of human beings, also the function of many buildings transformed. Many of these buildings, such as factories, terminals, stations, etc. are reused with various functions. Most of the flats and houses in the city center are left for different sorts of labor, for better standards of living in suburbs. Consequently, it may be appropriate to say that it is not valid to define a fixed program for the frozen time of any building.

4.5. Materials

Mainly with the developments in computer technology, modern societies are more globalized today. Architectural culture is not apart from these tendencies. Design and building processes are more collective than they were in any time. Architects and designers from different countries can work on a common project and any materials from any place of the world can be used in the building process. Locality of the materials is not significant anymore. All the materials, workers, and the project sites can be chosen from different points of the world. Building forms are spread on all over the world and details are ready at hand for any use in any time.

4.6. Flexibility

With the industrial inventions and scientific discoveries, great transformations in social life emerged. Working hours were also modified and enlarged with these transformations. As Lyotard mentions, with the digital form of the machines, it is possible to synthesize the data anywhere and anytime. Therefore, the data also became independent of place and time, reachable at a spatial and temporal expanse (Lyotard, 1991, 50). Virilio mentions this process as the 'Third Revolution', in the realm of speed (Virilio, in Armitage, 2000):

1. Transportation with the invention of the steam engine, the combustion engine, the electrical motor, the jet engine and the rocket.
2. The revolution of transmission, which can still be observed now in electronics, beginning with Marconi; radio and television.
3. The transplantation revolution, which is closely related to the miniaturization of objects.

According to him, with railways, motorways, bridges and large factories, technology is spread over the territory, but in this process of 'Third Revolution', it enters the innards of the human body (Virilio, in Armitage, 2000, 49). Living theory of relativity through mobile phones, through 'live' programs on TV, through the telecommunications media,

through Virtual Reality, through cyber space, through video-conferencing, through supersonic, air travel and so on; he mentions that we have become deterritorialized by the shortening of distances in terms of time (Virilio, in Armitage, 2000, 27). Telecommunications, in dissolving the 'here' and 'now', serve both to break down distance, the 'physical distance', and to create 'psychological distance'. In the realm of mobility and emancipation (Virilio, in Armitage, 2000, 39), with the wide use of Internet, the screen has become the space of interaction.

In this process of evolution, time and space lose their importance. The activities of man may take place at any time and in any place gradually. Also the activities of the societies started to be more digital than physical. The banks, libraries, commercial managements, and many others, have taken place with all their information in the virtual environment of Internet that allows a kind of space for any time. The sense of reality is blurred with the blurring identity, personality or physical characters of the users. In this process of alterations in social and built environment, transformation of time and its perception from public to personal can be mentioned influential.

5. CONCLUSION

The concept of time is interrelated with other concepts like: experience, motion, human actions and consciousness and also space. That is why it is attempted to integrate the element of time into the understanding of designers and architects, in respect of analyzing the social processes involved in the making of space and place.

The perceived, lived and experienced world has gained a new feature with the developments of knowledge and communication technologies. From the years that mechanical clock was invented the speed has increased and time perception has altered throughout new eras. With the effects of technological inventions, time perception, and related with that, the socio-cultural structures of societies change, as well as the spatial properties.

While the transformation of perception of time formed new spaces, some problems also emerged. Alienation to nature and disregarding human practices are some of the mentioned problems. This study stresses that these altering dynamics break down the 'physical' distance, but create 'psychological' or 'mental' distance. The answers of the questions 'in which way people perceive, what do they feel, what are the particular needs and expectations of every individual' are not the focus of this paper. But it is obvious that, there is not a universal or an average human and also there is not a single public interest. The needs and expectations of every time period are not the same. Building types, forms, facades, the amount and type of open spaces, the types of public spaces can be based on the clarified lifestyle, culture, demographic characteristics and economic circumstances of the population in time.

The focus is that architectural spaces and objects to be 'qualified', is just the obligation of architects and builders. In any case, they should be aware of the dynamics which force the society and the city for a transformation, more than any one else. Increasing the quality of lives of societies by offering well-designed spaces is the essential requirement of architecture and the design world. Since everything in the world is

under construction, actors in the design world, as the supposed genius members of the innovative and creative team, should consistently be searching for spaces which qualify for new times and new philosophies, without neglecting the human experience and the context. Throughout the process of minimizing 'physical' distance, unlike the virtual space, built environment – concrete space – should be designed and produced in relation to 'psychological' expanse.

4. REFERENCES

Arendt, H. 1994, Insanlık Durumu (The Human Condition), İletişim Yayınları, Istanbul

Aristoteles, Augustinus, Heidegger, 1996, Zaman Kavramı, translated by Saffet Babür, İmge Kitabevi Yayınları, Ankara

Armitage, J. (ed.), 2000, Paul Virilio: From Modernism to Hyper Modernism and Beyond, Sage Publications, London, Thousands Oaks, California, London.

Armitage, J. (ed.), 2001, Virilio Live: Selected Interview, Sage Publications, London, Thousands Oaks, New Delhi.

Baudrillard, J. 1975, The Mirror of Production, translated by Mark Poster, Telos Press, St. Louis

Baudrillard, J. 1995, The Gulf War Did Not Take Place, translated by Paul Patton, Indiana University Press, Bloomington, Indianapolis

Baudrillard, J. 1996, The System of Objects, translated by James Benedict, Verso, London, New York

Carr, S., Francis, M., Rivlin, L. G., Stone, A. M., Public Space, Cambridge University Press, Cambridge, New York

Castells, M. 1989, The Informational City, Basil Blackwell Ltd., New York

Cengizkan, A., "Saat Kuleleri ve Kamusal Mekan", Arredamento Mimarlık 100+14 Mayıs 1999, pp. 96-103

Cogito, (2000 Güz), Oto-mobil: Bir Röntgen Denemesi, Yapı Kredi Yayınları, İstanbul

Davidson, Cynthia, C. (ed.), 1998, Anytime Konferans Bildirileri Kitabı (Anytime), Mimarlar Derneği 1927, Ankara

Davis, D. 1966, A History of Shopping, Routledge & Kegan Paul Ltd., London

Elias, N., 2000, Zaman Üzerine (Über die Zeit), Ayrıntı Yayınları, İstanbul

Fraser, J.T., 1978, Time as Conflict, Birkhauser Press, Basel

Gane, M. (ed.), 1993, Baudrillard Live: Selected Interviews, Routledge, London, New York

Giddens, A. 1990, The Consequences of Modernity, T. J. Press Ltd., Padstow, Cornwall

Giddens, A. 1991, Modernity and Self-Identity, Polity Press, Great Britain

Giedion, S. 1954, Space, Time and Architecture, Harvard University Press, Cambridge

Giedion, S. 1958, Architecture, You and Me, Harvard University Press, Cambridge, Massachusetts

Gurevich, A. J., "Time as a Problem of Cultural History", in Gardet, L. (et. al) 1976, Cultures and Time, Unesco Press, Paris

Habermas, J. 1989, The Structural Transformation Of The Public Sphere, Polity Press, Massachusetts Institute of Technology

Harvey, D. 1989, The Condition Of Postmodernity, Oxford, Blackwell

Heidegger, M. 1996, Being and Time, State University of New York, Albany

Heidegger, M., "Building, Dwelling, Thinking", in: Leach, N. (ed.) 1997, Rethinking Architecture: A Reader in Cultural Theory, London ; New York : Routledge

Kaçar, D. 2002, The Effects of Time Perception on the Design and Use of Architectural Space, Unpublished Master's Thesis, Middle East Technical University, Ankara, Advisor, Instructor Dr. A. Cengizkan

Kostof, S. 1991, The City Shaped, Bulfinch Press, Boston, Toronto, London

L. Gardet, A. J. Gurevich, A. Kagame, C. Larre, G.E.R. Lloyd, A. Neher, R. Panikkar, G. Pattaro, P. Picoeur, 1976, Cultures And Time, The Unesco Press, Paris

Le Corbusier, 1970, Towards a New Architecture, Praeger, New York

Lefebvre, H. 1996, Modern Dünyada Gündelik Hayat, Metis Yayınları, İstanbul

Lynch, K. 1972, What Time Is This Place?, The MIT Press, Cambridge, Massachusetts and London, England

Lyotard, J. F. 1991, The Inhuman: Reflections On Time, Translated by Goffrey Bennington and Rachel Bowlby, Stanford University Press, Stanford, California

Madanipour, A. 1996, Design of Urban Space: An Inquiry into a Socio-Spatial Process, University of New Castle, Newcastle upon Tyne, UK

McLuhan, M. 1962, The Gutenberg Galaxy, Routledge & Kegan Paul, London

McLuhan, M. 1964, Understanding Media, McGraw-Hill Book Company, New York, Toronto, London

Mensch, J. R. 1996, After Modernity: Husserlian Reflections on a Philosophical Tradition, State University of New York Press, Albany

Miller, D., Jackson, P., Thrift, N., Holbrook, B. and Rowlands, M. 1998, Shopping, Place and Identity, Routledge, London and New York

Morley, D., Robins, K. 1997, Kimlik Mekanları, Yeni Medya Yeni Olasılıklar, Ayrıntı Yayınları, İstanbul

Mumford, L. 1934, Technics and Civilization, Harcourt, Brace and Company, New York

Mumford, L. 1938, The Culture Of Cities, Harcourt, Brace and Company, New York

Mumford, L. 1961, The City In History, Harcourt Brace Jovanovich, Inc., New York

Mumford, L. 1972, The Transformations of Man, Harper Torchbooks, New York, Evanston, San Francisco, London

Nadolny, S. 1991, Yavaşlığın Keşfi, Kıyı Roman, Istanbul

Newton, W. H. – Smith, 1980, The Structure Of Time, Routledge & Kegan Paul, London

Norberg-Schulz, C. 1985, The Concept Of Dwelling, Rizzoli International Publications, Inc., New York

Norberg-Schulz, C. 1988, Architecture: Meaning and Place, Rizzoli International Publications, Inc., New York

Norberg-Schulz, C. 1965, Intentions in Architecture, M.I.T. Press, Cambridge, Massachusetts

Pelletier, L., Perez – Gomez, A. 1994, Architecture, Ethics, And Technology, McGill-Queen's University Press, Canada

Peters, P. 1977, Fussgangerstadt, Callwey Press, München

Rajchman, J. 1998, Constructions, The MIT Press Cambridge, Massachusetts London, England

Ray, C. 1991, Time, Space and Philosophy, Routledge London and New York

Rubenstein, Harvey M. 1992, Pedestrian Malls, Streetscapes, and Urban Spaces, John Wiley & Sons Inc., New York

Sadler, S. 1998, The Situationist City, The MIT Press Cambridge, Massachusetts, London, England

Schoenauer, N. 1994, Cities, Suburbs, Dwellings, School of Architecture McGill University, Canada

Sennett, R. 1999, Gözün Vicdanı (The Conscience of the Eye: The Design and Social Life of Cities), Ayrıntı Yayınları, İstanbul

Simmel, G., "Metropolis and the Mental Life", in: Leach, N. (ed.) 1997, Rethinking Architecture: A Reader in Cultural Theory, London ; New York : Routledge

Soja, Edward W. 1989, Postmodern Geographies, Verso, London, New York

Soja, Edward W. 1996, Third Space, Blackwell Publishers Ltd, Cambridge, Massachusetts

Tarkovsky, A. 2000, Mühürlenmiş Zaman, AFA, İstanbul

The New Grolier Webster International Dictionary of the English Language, Grolier Incorporated, New York: 1971

Tschumi, B. 1994, Architecture and Disjunction, MIT Press, Cambridge, Massachusetts

Urry, J. 1999, Mekanları Tüketmek (Consuming Places), Ayrıntı Yayınları, Istanbul

Virilio, P. 1986, Speed and Politics, Colombia University Press, New York

Wigley, M. 1995, White Walls, Designer Dresses, MIT Press, Cambridge, Massachusetts