STAGING ARCHITECTURE AS ILLUSION: FROM MIRROR TO DIGITAL HETEROTOPIA

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ABSTRACT

STAGING ARCHITECTURE AS ILLUSION: FROM MIRROR TO DIGITAL HETEROTOPIA

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When Michel Foucault first introduced the notion of heterotopia in 1969, he addressed to real places that separate users from usual time and create imaginary orders in which many fragmentary possible worlds come together in an "impossible place" without being interrupted with the passage and destruction of time. With the development in recent years in augmented reality and new ways of representing and experiencing space, the possibility to transmit architecture into something more have been found. From post-truth to augmented reality there is a wide spectrum of illusion in architecture where the representation of an idea is more important than the idea itself. Thus, formulating and representing architectural space in different formats becomes crucial. This research aims to understand what these ever-changing, multi-layered spaces that are filled with dynamic visual and audial qualities in the era of high-tech information, offer to its dwellers. As the notion of heterotopia is reanalyzed as "digital heterotopia", this research questions what the future holds for the practice and theory of architecture.

Keywords: Heterotopia, Illusion, Information Age, Augmented Space, Augmented Reality

ÖZ

MİMARLIĞI İLÜZYON OLARAK SAHNELEMEK: AYNADAN DİJİTAL HETEROTOPYALARA

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Michel Foucault 1969 yılında heterotopya kavramını kurguladığında, birçok bölük pörçük dünyanın zamanın geçişi ve yokediiciliğinden bağımsız kalarak "imkansız bir yer"de bir araya gelen, kullanıcıyı genel zamanından ayırarak imgesel bir düzen yaratan gerçek yerlere hitap etmişti.Son yıllarda arttırılmış gerçeklik, mekan temsil öyöntemleri ve mekanı deneyimleme şekilleri geliştikçe, mimarlığı bugü olduğundan daha farklı bir konumda taşıma olasılığı doğdu. Bu sebeple mimari mekanı farklı formatlarda tertipleyip temsik etmek byük önem taşımaktadır. Bu çalışmanın amacı, dinamik görel ve işitsel niteliklerle oluşturulan, daima değişen, çok katmanlı mekanların, yüksek teknolojili bilişim toplumu çağında onu oluşturan sakinlerine neler sunduğunu anlamak. Bu bağlamda heterotopya kavramı yeniden analiz edilip 'dijital heterotopya' olark yeniden analiz edilirken, geleceğin mimari pratik ve teorisi için ne getireceği çalışmanın sorusunu oluşturmakta.

Anahtar Kelimeler: heterotopya, ilüzyon, bilişim çağı, arttırılmış mekan, arttırılmış gerçeklik

To the ones who do not fear the unknown,

to the ones who are brave enough to dream.

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TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

CHAPTER 1

INTRODUCTION

1.1 Definition and Contextualization of the Problematic

With the development in recent years in augmented reality and new ways of representing and experiencing space, the possibility to transmit architecture into a space overlaid with contextualized information has been found. From post-truth to augmented reality there is a wide spectrum of illusion in architecture where the representation of an idea becomes more important than the idea itself. Therefore, representing architectural space in different formats becomes crucial. Within an immersive collection of researches and approaches towards understanding, perceiving and formulating a meaning of 'space', this thesis deals with and tries to codify new discussions on 'space' by relating the latter with the notion of heterotopia. Originating from Michel Foucault's concept of heterotopia, the space of representation constitutes the subject of this study. Starting from the 1990s, incorporation of information and communication technologies and their rapid improvements directed many commentators to foresee a correlative change in the society. Computer communications along with online information exchange and data acquisition technologies started to create speculations regarding a shift towards a new society. Rapid growth of Internet and new technologies promoted a mobile user and a brand-new lifestyle that is embedded on screens with constant data flows. Hence, this research aims to investigate possible ways of representing, formulating and understanding architectural space in the era of information and data. It questions the possibility to establish places that are layered with rich data, a place which would take part beyond time by using the virtual and augmented reality tools and using architectural space as an illusion. Acknowledging that heterotopias are places that separate user from usual time and create imaginary orders in which many fragmentary possible worlds come together in an "impossible

place", the research also inquires the possibility of understanding a new type of space - space that becomes multi layered and n-dimensional - realized without being interrupted with the passage and destruction of time where time itself would become just another data thanks to tools of high-tech information society.

Long before the current era is named as 'The Information Society', many scientists and mathematicians were already developing new approaches on automation and computerization to sustain new control systems for military purposes. The very origins of the emphasis on information and communication control systems could be traced back to World War II and the publication of Norbert Weiner's *Cybernetics: Or Control and Communication in the Animal and Machine*.[1] As a professor in the department of Mathematics in the Massachusetts Institute of Technology (MIT), he was working on neurological systems and its relation with information processing and feedback systems.[2] Right after a year of Weiner's publication, Claude Shannon, a mathematician and an electrical engineer in MIT, and Warren Weaver who is a scientist and Director of Natural Sciences at the Rockefeller Institute, published *A Mathematical Theory of Communication*. Starting from the 1960s, when computing was used for data processing and when economics of most advanced industrial nations shifted from manufacturing to services, many theorists accentuated a change of an era and emergence of something new.[3] In 1970, writer and futurist Alvin Toffler, whose work areas included digital revolution and communication technologies with an emphasis on their influences on the cultures, without explicitly referring to the information society, indicated a powerful transformation theory based on the emanation of new technologies. According to Toffler, in recorded history, over time, there have been three impulses of change as waves that altered man in basic ways and shaped the

[1] Robin Marsell, "Volume I: History and Perspectives" in *Information Society*, Ed. Robin Marsell, (Routledge: London, 2009), 1.

[2] Ibid.

[3] Robin Marsell, "Volume I: History and Perspectives" in *Information Society*, Ed. Robin Marsell, (Routledge: London, 2009), 1.

world we're living in.[4] The first wave was the agricultural revolution which surpassed hunter-gatherer cultures. This revolution wave was followed by the industrial revolution as the second wave that started in Western Europe and eventually spread everywhere else. The third wave was the revolution of information and processing technology of the computer.[5] This wave was characterized as a move away from old manufacturing techniques and implementations towards an arrangement of services and information. Technology was changing society. Although Toffler never underlined what kind of society awaited, he put forth that around information, new political and economic relations were arising rapidly as the pace of change accelerated like never been before. According to John Naisbitt, an important American author and academician in the area of future studies, computer technology for information age is as important as mechanization was for the Industrial Revolution Age.[6] Right after the introduction of the personal computer in 1981, an emphasis on the information society received a new haste. Every home started to have a computer which resulted in a rapid growth and restructuring of computer and electronics industry. Such innovations started to influence many scholars and commentators to talk about a new kind of post-industrialism, a 'new society', where the 'information' was a distinguishing feature and knowledge skills and capacity to develop them had outmost importance.

There have been many terms and concepts that dealt with these changes occurring in the society: Daniel Bell called it as *Post-Industrial* society Zygmunt Bauman referred to these changes as *Liquid Modernity;* Manuel Castells tried to explain these new relations by relating the latter to the *Network Society;* and, Frank Webster, summarizing all of the above concepts in his work *Theories of the*

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[4] Ibid.

[5] Frank Webster, "Introduction," in *Theories of the Information Society Third Edition*, (New York: Routledge,2006), 9

[6] Ibid, 11.

Information Society called this era as *New Information Society*. All of the aforementioned concepts carried similar and overlapping meanings: A society that organizes itself around knowledge, where ownership of information is the driving force of development and a society which became dependent on complex electronic information networks. In short, an information society is a society where creation, distribution and manipulation of information is a compelling economic, political and cultural activity.[7] A variety of significant authors, from Robert Reich to Peter Drucker, to Manuel Castells, proposed that the economy of our age is and should be led by individuals whose major distinction is the capacity to manipulate data.[8] Those information workers' area of interest varied from 'knowledge experts' to 'symbolic analyst' but one message remained constant: The movers and shakers of our age are those whose work includes adopting and building information. This introductory chapter, instead of covering all the discussion regarding information society, focuses on theories argued by Daniel Bell, Manuel Castells and Frank Webster.

According to Daniel Bell, the very effect of the change in the society could be traced through the economic changes occurring in society:

"*Here is prima facie evidence for this: in Western Europe, Japan and North America over 70 per cent of the workforce is now found in the service sector of the economy, and white-collar occupations are now a majority. On these grounds alone it would seem plausible to argue that we inhabit an information society, since the 'predominant group of occupations' consists of information workers.*"[9]

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[7] "What is an Information Society Media Essay" UK Essays, accessed October 2, 2019. https://www.ukessays.com/essays/media/what-is-an-information-society-media-essay.php#citethis

[8] Ibid, 15.

[9] Frank Webster, "Introduction," in Theories of the Information Society Third Edition, (New York: Routledge,2006), 14.

As technological changes and innovations occur, so did the pace of change and acceleration of that pace. Starting from the early 1980s, there occurred a simultaneous change in the economic system, culture and the way individuals lived. Although there have been numerous works regarding information society, the major change occurred with the introduction of *Internet* and of *cyberspace*. The Internet we use today, is a widespread information infrastructure. It has a complex history which involves various technological, organizational and community wise aspects. It is an extended and upgraded version of so-called Arpanet that was operated by American engineer and Internet architect Robert Kahn along with Vinton Cerf on October 1972. This was the first public demonstration of a network technology to the public at the International Computer Communication Conference (ICCC).[10] Later on in July of the same year, the first email utility program with the ability to list, read, file, forward and respond was operated as well. Starting from that time, email took off as one of the most important network applications. This was the initial activity of accumulation of the World Wide Web and of Cyberspace, as well as 'people-to-people' traffic. Although the Internet has changed severely since its first public appearance, the large-scale boom and change came on August 6, 1991 exactly when the World Wide Web became publicly available thanks to the works of Tim Berners-Lee. At the time, he was working for Cern, the European Organization of Nuclear Research and he had been searching for ways for physicists around the globe to share information without being compelled to use the same hardware and software.[11] Internet was realized in the era of a change

[10] "Brief History of Internet" Internet Society, accessed October 6, 2019,

https://www.internetsociety.org/wp-content/uploads/2017/09/ISOC-History-of-the-Internet_1997.pdf

[11] "20 years Ago Today World Wide Web opened To The Public" The Next Web, accessed October 6, 2019,

https://thenextweb.com/insider/2011/08/06/20-years-ago-today-the-world-wide-web-opened-to-the-public/

thanks to all the technological innovations and it became a catalyst for the change as well. In 1995, the first official description of Internet was delivered by the Federal Networking Council as follows:

> *""Internet" refers to the global information system that:*
>
> *(i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons;*
>
> *(ii) is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent extensions/ follow-ons, and/or other IP-compatible protocols; and*
>
> *(iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein."*[12]

Starting from 1995, Internet meant and used as a global computer network that has been adapting standardized communication protocols, composed of interconnected networks, sustaining various communication and information facilities. In other words, Internet and its usage by public became officially acclaimed. Subsequently, there occurred culturally sensitive references to 'cyberspace', a 'virtual-reality' no-place that embraced imagination and further invention. Ultimately, the term *cyberspace* was freed from science-fictional uses that have been brought into the academia by American author William Gibson and carried off a brand-new meaning. The term cyberspace was firstly used by Gibson in 1982 as a science-fiction story published in *Omni* magazine, which then turned into a book named as *Neuromancer*. In the book, cyberspace referred to *"a creation of a computer*

[12] "Internet Definitions" Columbia University, accessed October 6, 2019, https://www.cs.columbia.edu/~hgs/internet/definition.html

network that was under control of artificially intelligent beings".[13] Although cyberspace has no definite and standardized definition today, shortly it means the virtual worlds of computers and other electronic devices, an electronic medium used to enhance online communication to create a global computer network. Encyclopedia Britannica, on their web page defines cyberspace as:

> "*Cyberspace, amorphous, supposedly virtual world created by links between computers, Internet-enabled devices, servers, routers, and other components of the Internet's infrastructure. As opposed to the Internet itself, however, cyberspace is the place produced by these links. It exists, in the perspective of some, apart from any particular nation-state."*[14]

It is the unlocatable location, placeless place of people or machines interacting through Internet. Michael Heim, American author and educator also known as *the philosopher of cyberspace*, describes cyberspace as:

"Cyberspace is the juncture of digital information and human perception, the "matrix" of civilization where banks exchange money and information seekers navigate layers of data stored and represented in virtual space. Buildings in cyberspace may have more dimensions than physical buildings do, and cyberspace may reflect different laws of existence."[15]

After the introduction of Internet, Manuel Castells published a three-volume study called as *The Information Age*, between 1996 and 1998.[16] For Castells, the Internet maintains a great amount of connectivity and interactivity as well as highlighting individualization. For him, main characteristic of The Information Age is the

[13] "Cyberspace" Encylopædia Britannica, accessed November 10, 2019, https://www.britannica.com/topic/cyberspace

[14] Ibid.

[15] Michael Heim, "Useful Vocabulary for the Metaphysics of Virtual Reality," in *Metaphysics of Virtual Reality*. (New York: Oxford University Press, 1993) Pg: 150.

[16] Manuel Castells, The Information Age: Economy, Society and Culture, 3 Vols. (Blackwell Publishing: Malden, 1996-2010).

propagation of networks, linking people, institutions and countries.[17] Therefore it implements construction of electronic communities that connect, instead of separating people. According to Castells, '*The Internet will expand as an electronic agora'*, where eventually, each and every individual become a part of, creating an 'interactive society'. He accentuates on the connectedness of parts and their incompatible relationships, stating that their very frictional characters are important contributors of changes occurring in the society. For Castells, Information Age declares a new society that has been realized through development of networks which are enabled by ICTs (Information and Communication Technologies) and which gives primacy to information flows.[18]

In the Information Society, Castells depicts, '*space of places*' were substituted by '*space of flows*' with information flows becoming the central organization of today's society. Different and afar places can easily become part of the international networks. In other words, electronic highways create a new emphasis on the flows of information which leads to a progressive alteration of time-space relation.[19] Geographical '*emplacements*' are no longer significant since now any place becomes accessible through network highways created by information flows. In this new type of flexible non-place, regular time and space constructs are broken, enabling individuals to connect among themselves and other organizations in a freer manner. As Webster, referring to Castells' *Network Society*, suggests;

> "*In a 'network society' constraints of the clock and of distance have been radically relieved, the corporations and even the individual being capable of managing their affairs effectively on a global scale. Academic researchers no longer need to travel from the university to consult the Library of Congress since they can interrogate it on the Internet; the business corporation no longer needs routinely to fly out its managers to*

[17] Ibid.
[18] Frank Webster, "Introduction," in *Theories of the Information Society Third Edition*, (New York: Routledge,2006), 101
[19] Ibid, 17.

find out what is happening in their Far East outlets because computer communications enable systematic surveillance from afar."[20]

As Castells talks about '*space of flows'*, he also introduces the concept of '*timeless-time'* and turns established orders regarding time-space doctrine as he suggests that in a Network Society, the limits of time are pushed further and further back thus create a '*forever universe'*. According to Castells, time alongside with information, constantly undergoes a manipulation to maximize the work efficiency by '*electronically managed global capital markets'*. In addition, he underlines the fact that in a Network Society, individuals gather information in a heartbeat from around the globe thanks to momentary communications. This information, according to Castells "*are delivered to the mobile users in hypermedia forms without offering historical context, so much so that we are exposed to a 'no-time mental landscape'. All comes together in a culture of the 'network society' that induces 'systemic perturbation', a constant instantaneity, lack of continuity and spontaneity.*"[21] By way of explanation, digital technologies enable users to negate sequences of time by processing information in a synchronous or asynchronous manner. Integration of digital and information storage technologies besides real-time communication automation, empowers users to be free of the imprisonment of time hence creating an illusion of articulated time. Despite the fact that this conceptualization of the Information Society is comprehended as rather economic and sociological, at its core it has a geographer's emphasis on space. The major stress is on information networks that join locations therefore, majorly affecting the organization of space and time.

Although Castells argues that regions and localities still matter, individuals of an Information Society experience a 'geographical discontinuity' which overturns the established orders. Individuals are now able to connect with one another and

[20] Frank Webster, "Introduction," in Theories of the Information Society Third Edition, (New York: Routledge,2006), 17
[21] Ibid, 107.

continue real time relationship without physical touch. When Castells' theory is considered, a network is a decentralized system of nodes, each node needed for the system to fully function, yet not all of them are of vital importance. Networks are structures that are open and modular with the ability to augment. These communications that are formed between nodes are n-dimensional and n-directional and do not rely on neither time nor space. Long before Castells' sketch of the Network Society and its space of flows through networks, Michel Foucault had established a new way of understanding space and the relation it builds with the remaining environment: Heterotopia, a term conjoined with the concept of time along with juxtapositions. When by stating "*the present epoch would perhaps rather be the epoch of space. We are in the epoch of simultaneity; we are in the epoch of juxtaposition, the epoch of the near and far, of the side by side, of the dispersed*"[22], Foucault makes a coincidental analogy with Castells. For Foucault, Heterotopias being similar to Networks, are other places (nodes as in the case of Network Society) that play a dominant role in the established orders of the Society, at the same time distort and bend these orders consecutively, creating a relation with the remaining spaces. In other words, Foucault created his own society deduction by connecting dots and traversing points, creating primary construct for the Network Society. Heterotopias are to Foucault as Networks are to Castells, they have been in the society for a long time before their depiction and all the relations within the society, somehow, are realized through these relations. This is because we, as participants of the society, don't live in a void. Rather, "*we live inside a set of relations that alter emplacements that cannot be equated or in any way superimposed*."[23]

This new type of relations conducted within a society, starts to reflect on architectural space as well. Arrival of these new concepts, new laws of existence and new innovations on communication technologies intensified the dispersion of

[22] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 14.
[23] Ibid, 16.

information. Everything, everyone and every kind of information were accessible thanks to these networks both Internet and Cyberspace provided. With the arrival of mobile phones and wireless connections, users became in touch with these networks without interruption. Webster referred to this *placeless connectivity* as:

"*In such accounts a great deal is made of the rapid adoption of Internet technologies, especially those that are broadband-based since this technology can be always on without interrupting normal telephony, though on the horizon is wireless connection whereby the mobile phone becomes the connector to the Internet, something that excites those who foresee a world of 'placeless connectivity'– anywhere, anytime, always the user is 'in touch' with the network.*"[24].

According to Webster, after rapid developments on ICTs and unification of these with information, brought about the agenda of today to "*electronic democracy, virtual relations, interactivity, personalization, cyborgs and online communities*"[25].The opportunity to access permeative networking along with affordable and portable forms of computing and communications such as laptops, PDAs and cellular phones, introduced a new paradigm: Virtuality.

Today, it's possible to talk about a society under the guidance of hyperreality, a society and individual which emulate to the virtual.[26] The term "virtual" and its complexity has been powerfully discussed by Jean Baudrillard in his work *Simulations.* According to Baudrillard, in the new world order that has been formulated by late-capitalism circumstances, reality and its relationships are no longer possible. Real is displaced by virtual. Hence the virtual society undergoes to the reign of modelling, information and simulations. Baudrillard stipulates that real

[24] Frank Webster, "Introduction," in *Theories of the Information Society Third Edition,* (New York: Routledge,2006), 10

[25] Ibid, 3.
[26] Güven Arif Sargın, "Aklın Bir Anlık Durgunluğu: Sanallık ve Mekanı Üzerine Tezler," in *Sanallık ve Mimarlık*, ed. Nuray Togay (İstanbul: Boyut, 2002) 14.

has synthesized itself countlessly that it doesn't have any chance to produce itself anymore. Henceforth, it only leaves room to hyperreal, undergoing to reign of modelling and simulated versions of real.

In such an era, concept of "Real" withers as "Virtual" takes over. For a society that finds new delectation in virtual mediums (such as but not limited to internet, social media, self-surveillance and smart phones), it is inevitable to talk about virtual individuals. As Virtual / Real dichotomy is discussed, Lev Manovich, a leading theorist of digital culture and expert of data science application for analysis of contemporary culture[27] introduced his famous work *Poetics of Augmented Space*. In his work Manovich discusses augmentation of human, human intellect and everyday life as well as augmentation of space. He refers to these augmented spaces as *"Physical space overlaid with dynamic data. A space which is data dense."*[28] He underlines the fact that from the beginning of 21st century, *space dwellers*[29] are surrounded by a physical space which is treated as human-computer interface. When Manovich states that *"We're currently living in a high-tech society in which data flows from physical space and into physical space occur together constantly"*[30], he also suggests that thanks to high-tech computer technologies and information these technologies provide, individuals are living immersed in virtual, yet it became inhabitants' physicality. Manovich argues that in such a society, computation and telecommunication capacities are delivered to a mobile user resulting with individuals being embedded in rapidly changing information (and of course unlimited access to this information). Recalling Henri Lefebvre's theory of space, he advocates that space is a socially constructed entity[31], one can also suggest that in a rapidly changing society, space and perception of space (meaning

[27] "About Lev Manovich," Lev Manovich, accessed December 17,2018, http://manovich.net/index.php/about
[28] Lev, Manovich. "The poetics of augmented space". *Visual Communication* 5, no. 2.(June 2006): 222
[29] A term Manovich formulated, meaning "inhabitants of data dense space". Lev, Manovich. "The poetics of augmented space". *Visual Communication* 5, no. 2.(June 2006), 223.
[30] Ibid, 224.
[31] Henry Lefebvre, *The Production of Space*, (Maiden: Blackwell, 1991), 7-16.

we conduct within a given space) undergo significant changes. These changes occurring in the society foreshadow a correlative change for space dwellers' perceptions related to space.

Especially from the beginning of the mid twentieth century, the rapid and unstoppable development caused by new methods of producing and transferring information, had a correlative projection on architecture. Architects and designers were inevitably forced to search for new technologies to represent new era's aesthetic apprehension as well as how to create a physical space within the information flows, since the traditional methods started to remain inadequate. Information and other digital technologies nominated new tools with new possibilities which were not achieved to this extend before. In such environment and with the help of new image processing and montage techniques, it became possible to explore and examine architecture's rigid rules regarding "*persistent paradigms of order, geometry and organization*"[32], making it easier to decipher out new expansions and dimensions. Such perspective, which is abstracted from the physical concerns of space to some extent, has an ability to *"create an architecture which incorporates the new technologies entails breaking away from the platonic idea of a static world, expressed by the perfect finite object to which nothing can be added or taken away, a concept which has dominated architecture since its beginning."*[33] For as much as digital environment has the ability to bring different data together and to manipulate both the new and the old information, it's possible to procure architectural space in different formats. A new type of flexible, rapid, variable and n-dimensional space is in front of the society with domination of social mechanisms.[34] This new type of space is obtained by overlaying the physical

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[32] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 6.

[33] Richard Rogers, Architecture: A Modern View, (London: Thames & Hudson, 1991), pg: 46.*****

[34] Güven Arif Sargın, "Aklın Bir Anlık Durgunluğu: Sanallık ve Mekanı Üzerine Tezler," in *Sanallık ve Mimarlık*, ed. Nuray Togay (İstanbul: Boyut, 2002) 23.

space with the dynamic data.[35] This kind of architecture is interested in responding to aesthetical and informational demands of the era, re-describing itself within "*dynamic order, movement, transformation, and time, things that only the arrival of cyberspace has made possible to describe, visualize, simulate, and design"*[36]. These new spaces come with a new understanding of space. Therefore, this study deals with what these ever-changing, multi-layered spaces that are filled with dynamic visual and audial qualities in the era of high-tech information, offer to its dwellers. It relates these new spaces with heterotopia, but rather than using the term heterotopia, it calls these new spaces as "digital heterotopia" since now the already existing physical space is layered with dynamic qualities. Acknowledging that ever since its introduction to the academia, the term "heterotopia" has remained as a source of inspiration in architecture theory but it also became a source of ambiguity and confusion.[37] Although, ideas that have been formulated by Foucault over 60 years ago still remain relevant to 21st century, they need to be modified in order to fully represent and cover all the changes that occur in the society. Moreover, the conceptual modification of heterotopia conducted within this study, brings forward a speculative freedom for the construction of this thesis. In the era of information, where every actor of the society becomes a data and alternately data becomes easily accessible by the actors, one can state that these layers of data start to reflect upon architectural space. That's why revisiting the term heterotopia and changing it into *digital heterotopia* could help one to understand very essence of this notion and its relations with the Information Society in a more solid way. As this research predicts the need for redefining the architectural space and what it represents as well as 'reality', it also questions what these new technologies and new

[35] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2.(June 2006): 223

[36] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 3.

[37] Michiene Dehaene, Lieven De Cauter, "Heterotopia in a postcivil Society," in *Heterotopia and The City:Public Space in a Postcivil Society*, ed. Michiene Dehaene, Lieven De Cauter, (Routledge: NY, 2008), 4.

understanding of space perception can promise in terms of fictionalizing the "future" of architecture.

1.2 Aim and Literature Review of the Study

The concept of heterotopia has been adapted, analyzed and used numerous times by many scholars in architectural discourse. Although at times it remains as a source of ambiguity and confusion, it serves as an 'other' way to understand and conduct spatial discussions. Looking from the aperture that Foucault opens, this study aims to use heterotopia to conduct a new approach in order to explore particular spaces. This study is dedicated to 'change' that occurs in the society and its reflections on architectural space. It aims to discover another type of space that could be perceived within the 'reality' of information era through redefining 'reality' in terms of socio-political manifestation with respect to societal needs. It suggests a critical understanding and analysis for new types of spaces that are augmented with data, which could be delivered to users in a virtual manner, hence offering an architectural illusion. It aims to understand the phenomenological experience of being in a new augmented space. It questions the possibility of finding the meanings of these physical built spaces overlaid with virtual layers.

The reason these case studies were selected is to understand what physical space can offer to its dwellers when it is integrated with virtual space, resulting with a new type of space considered as augmented spaces. Heterotopia appears as a useful tool to probe this rupture and to provide new perspective to understand their spatial products. A further inquiry for the term is reestablished as 'digital heterotopia' to comprehend notion of heterotopia in the age of information, hence the meaning of the term in spatial discussions could be maintained.

1.3 Methodology and Structure of Thesis

Following abovementioned objectives, a relational approach is adopted in understanding the new type of architectural space through digital heterotopias.

Therefore, qualitative analysis methods will be applied throughout the research, which enables researcher to observe, analyze and understand the dynamics of the space from its inhabitants' perspective. Moreover, for an elaborative understanding of the cases in the context of augmented spaces, both of the cases are analyzed and important figures who are responsible for creation and retention of Ateliers Des Lumieres and Walt Disney Concert Hall Dreams are interviewed in order to fully comprehend how these cases could be considered within the scope of digital heterotopia.

The thesis is evaluated in three main parts: In the first part, a historical review of Michel Foucault's notion of heterotopia is analyzed. During the subchapters of the first part, an understanding towards Foucault's notion within the scope of architecture and architectural space constructs the key element in which heterotopia is in retrospect with its principles followed by mirror heterotopia. Subsequently, a historical analysis of mirror is constructed with further relation of the latter with illusion of space and contemporary installations that use reflective surfaces as main material.

In the second part of the thesis different forms of perceiving the architectural space is discussed. This discussion starts with analysis of the concept of 'real' in the society of information and its comparison to the term 'virtual' followed by a distinction between virtual reality and augmented reality. Following that, the theories on virtual and augmented spaces is evaluated to understand their significance and to relate these concepts with Edward Soja's spatial trialectics in order to define augmented spaces within the scope of 'other' spaces. Subsequently, transformation of mirror into technological tools such as but not limited to cameras, window displays and finally to screens is appraised as a discovery of specification on new type of society and space is tried to be achieved followed by introduction to 'digital heterotopias', a new type of flexible and multi-layered spaces that are in front of the society with social mechanisms of information and data.

In the third part, case studies are developed in order to achieve an elaborated analysis on the notion of 'digital heterotopia'. Its various relations to define these

augmented spaces as digital heterotopias are conducted. While analyzing and understanding these case studies, in-depth interview with its designers and authorities are used as a research technique.

CHAPTER 2

NOTION OF HETEROTOPIA AND ITS PLACE IN ARCHITECTURE

Ever since its introduction into academia by Michel Foucault, the notion of heterotopia has been discussed not only in the field of architecture but also within cinematic discourse, literature, arts, politics, philosophy and sociology. From Edward Soja to Manfredo Tafuri, numerous scholars referred to the term 'heterotopia' while understanding sociopolitical issues, image of the city or perception of space. The main aim of this chapter is to analyze the notion of heterotopia that was introduced by Foucault in 1966 and understand its place in architectural discourse. However, in order to understand Heterotopic Discourse and where it falls within architectural space, it is of great importance to understand the historical background of heterotopia.

2.1 Origins of Heterotopia

Originally written in French, Heterotopia is a concept introduced by Michel Foucault, initially conducted as a series of lectures to a group of architects in the name of "*Des Espaces Autre*" in 1966. It starts by looking at the historical development of space perception beginning from the middle ages towards the modern emplacement. The relations and layers of information about locations and between locations are fundamental principle of space perception according to Foucault. We, as users, attain different meanings to different types of spaces depending on the relationship we conduct between them, dividing the inner from outer, internal from external. Michel Foucault defines Heterotopia as follows:

"(…) First of all, the utopias. These are arrangements which have no real space. Arrangements which have a general relationship of direct or inverse analogy with the real space of society. They represent society itself brought to perfection, or its reverse, and in any case, utopias are spaces that are by their very essence fundamentally unreal.

There also exist and this is probably true for all cultures and all civilizations, real and effective spaces which are outlined in the very institution of society, but which constitute a sort of counter arrangements that can be found within society, are at one and the same time represented, challenged and overturned: a sort of place that lies outside all places and yet is actually localizable. In contrast to the utopias, these places which are absolutely other with respect to all the arrangements that they reflect and of which they speak might be described as heterotopias."[38]

Although, when Foucault introduced notion of heterotopia, it stood out generally as an instrument for thinking about conditions of social exclusion and spatial formation. The term 'heterotopia' entered architectural discourse during the 1970s through the texts of Demetri Porphyrios, Manfredo Tafuri and Georges Teyssot, among others. In the course of its translation into architecture, heterotopia served to identify formal characteristics that made a building or space different in significant ways. Even the very definition of heterotopia by Foucault opens up a discursive field. Ronald Topinka, in his work "Foucault, Borges, Heterotopia: Producing Knowledge in Other Spaces" states that:

"*As this brief summary shows, Foucault's definition of heterotopia is unwieldly: Foucault does not offer a succinct or unproblematic definition of*

[38] Michel Foucault, "Of Other Spaces: Utopia and Heterotopia." in *Rethinking Architecture: A Reader in Cultural Theory*, Ed. Neil Leach, (New York : Routledge, 1997), 331.

heterotopias. In the preface of The Order of Things, Foucault writes perhaps his most concise descriptions of heterotopias:

> *"Heterotopias are disturbing, probably because they secretly undermine language, because they make it impossible to name this and that. Because they shatter or tangle common names, because they destroy 'syntax' in advance, and not only the syntax which we construct sentences but also that less apparent syntax which causes words and things (next to and also opposite one another) to 'hold together'."*[39]

However, the first official usage of the term "heterotopia" is neither found in sociology nor in the field of architecture, but in medicine. Heidi Sohn, associate professor of architecture theory at TU-Delft, along with numerous scholars, suggests that Foucault borrowed the term heterotopia from medical and biological contexts and inserted the concept into his discourse[40], although it is never explicitly acclaimed by Foucault, and she continues:

> "*Etymologically, heterotopia denotes the contraction of 'hetero' (another, different) and 'topos' (place). Although it is not known with exactitude when this term was applied for the first time in a medical context, the concept of displaced or dystopic tissue can be traced to studies on Meckel's diverticulum in the early twentieth century. From the 1920s onwards, heterotopia increasingly appears in medical literature to describe a phenomenon occurring in an unusual place, or to indicate 'a spatial displacement of normal tissue', but which does not influence the overall functioning and development of the organism. There is no clear consensus on exactly what causes the condition of medical heterotopia, but a common*

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[39] Robert Topinka, "Foucault, Borges, heterotopia: Producing Knowledge in Other Spaces," in *Foucault Studies*, No:9 (September 2010): 58.
[40] Heidi Sohn, "Heterotopia: anamnesis of a medical term" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 41.

understanding is based on the assumption that heterotopia 'usually occurs in organs adjacent to each other or having a close spatial relationship in their evolution.'"[41]

Heterotopia in medicine refers to a tissue that is not located where it should have been, or an organ that has been dislocated: An abnormal location. This dislocation in medical heterotopia occurs for no known reason, but tissues and organs being adjacent or near to each other is assumed to be one of the reasons. In fact, biology, medicine and architecture are comparable disciplines since they all share a common concept of morphology, dealing with very complex structures.[42] Foucault is relating heterotopia with closure as well. He thinks of these heterotopias as outside all the places yet defining themselves with accordance or in contrast to these other spaces thanks to proximity and being side by side. So in Foucault's definition of the concept, heterotopias come to life as spatial constructs or figures of thought to be differentiating with the normal order of things as fractionations in the city that creates illusory, out of place, abnormal places.[43] Yet, there is a difference between a medical heterotopia and Foucault's heterotopia: A medical heterotopia does not affect the functioning of the overall organisms, yet Foucault's heterotopias are meant to invert the established orders, oppose to sameness and emphasize inverse or reverse sides of the society in which it was created in. Returning back to Sohn's comparison between medical and Foucauldian heterotopia, she summarizes the Foucauldian one as:

"*They are the spaces reserved for the abnormal, the other, the deviant. Without this angle, the true meaning of spatial or architectural heterotopia would be lost, since*

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[41] Heidi Sohn, "Heterotopia: anamnesis of a medical term" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 42

[42] Ibid, 43.

[43] Christine Boyer, "The many mirrors of Foucault and their architectural reflections" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 58

it is precisely in the subversion and the challenging of the established order of things that heterotopia acquires its full potential."[44]

The official introduction of heterotopia by Foucault dates back to a radio talk on December 1966, known to be part of a septate series called "*France Culture*" on literature and utopia.[45] At that time, the *Cercle d'etudes Architecturales* (Circle of Architectural Studies) in Paris was directed by Jean Dubuisson and Ionel Schien, two important characters that shaped French Post-war architecture. Schien was the one to invite Foucault for a lecture to the circle, after hearing his radio talk on "*Les Hétérotopies".* On 14 March 1967, the lecture started and all these lectures were noted down by a stenographer which was then distributed to all members of the circle. Although the text was not published until 1984 as "*Des Espaces Autres*" in French journal "*Architecture, Mouvement, Continuité*", the rumors of heterotopia diffused through these notes.[46]

Foucault opened up "*Des Espaces Outres*" by making a comparison between 19th and 20th centuries, stating that the obsession of the nineteenth century was history as well as accumulation of the past and themes of development. However, the present epoch for Foucault was "*the epoch of space, of simultaneity, of juxtaposition, of the near and far, of the side-by-side and of the dispersed*"[47]. In other words, the twentieth century was the epoch of dualities, of contradictions as well as similarities. It was an epoch of heterogeneity. But Foucault himself, noted down that space itself had a history and it is impossible to unsee this intersection of time with space. According to Foucault, there were things that found themselves as placed because they were displaced due to some reasons and conditions, and

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[44] Heidi Sohn, "Heterotopia: anamnesis of a medical term" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 44

[45] Michiel Dehaene, Lieven De Cauter, "Heterotopia in a postcivil osciety" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 15.

[46] Ibid, 13.

[47] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 15.

inversely, places where things found their emplacement in a more natural manner. Hence, Foucault summarized these oppositional, hierarchal intersection of spaces as medieval space, redefining it as "*the space of localization*".[48] For Foucault, Galileo was the one to change this idea of medieval space by his discovery (or rediscovery) of earth revolving around the sun. By this discovery, Galileo actually opened up a new discussion on a new type of space: an infinite and infinitely open one. Contrary to the place perception of the middle ages, the place of a thing was nothing but a point during its movement, just like the rest of the things was actually its movement in an indefinitely slowed manner. As a result, extension of the space supplanted localization of space.[49]

> "*Today the emplacement substitutes extension, which itself had replaced localization... The emplacement is defined by relations of proximity between points or elements; formally, we can describe these relations as series, trees, or grids. Moreover, the importance in contemporary technology of problems of emplacement is well known: the storage of information or of the intermediate results of a calculation in the memory of a machine; the circulation of discrete elements with a random output (automobile traffic is a simple case, or indeed the sounds on a telephone line); the spotting of marked or coded elements inside a set that may be randomly distributed, or may be arranged according to single or to multiple classifications, etc. " [50]*

Back then, Foucault opened up a new discussion regarding emplacement of things and how to do their classifications. He scrutinizes the modern-day space as given in the form of relations between these emplacements. Considering the fact that, this lecture was carried almost 50 years ago, it is of great importance to ask ourselves a similar, yet a more up-to-date question: In today's society, where do we emplace ourselves? Is it the data sets that let us carry out these relations between real and

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[48] Ibid, 15.
[49] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 15.
[50] Ibid,15.

cyber emplacements? Or do we even emplace? To understand these relations Foucault conducted, one needs to dive deeper to "Des Espaces Autres" and understand the concept of heterotopia he introduced to the field by not only looking at what is written in fifteen pages of original work, but also by reading through the line space.

Despite its premises for strong correlations with an intended research, understanding and endogenizing a Foucauldian study is hard. It gets even harder when the rumor of a concept revealed itself before the written documents because this may lead to many fragmented definitions of the latter. That's exactly the case with heterotopia. After its introduction by Foucault, many architectural thinkers translated the term into architectural discourse as how they understood and gave meaning to it. Michiel Dehaene and Lieven De Cauter, editors of *Heterotopia and the City*, introduce the book by acknowledging the terms' confusion:

"*The term 'heterotopia', since it entered architectural and urban theory in the late 1960s – more as a rumor than as a codified concept, for the lecture remained unpublished until 1984 – has been a source of inspiration in urban and architectural theory, but also one of confusion."*[51]

Duygu Simser, referring to the ambiguity of heterotopia, makes an analogy between the term and alien categorization of Chinese Encyclopedia that is mentioned by Foucault in the preface of The Order of Things, states that "*heterotopia is a chameleon constitution which might possess several outlooks. Even the examples Foucault gives do not conform to one another. When consecutively collocated, they remind the bizarre categorization appeared in Chinese Encyclopedia.*"[52] Although Foucault tries to codify a system of explanation for a space to become a heterotopia, his definitions still remain

[51] Michiel Dehaene, Lieven De Cauter, "Heterotopia in a postcivil osciety" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 4.
[52] Duygu Hazal Simser, Unfolding and Reframing Heterotopia Within The Context of Peripheral Consumption Spaces, *METU Thesis*, 2017, 3.

insufficiently lit and is prone to multiple other definitions. It's maybe because the six principles or with Foucault's own words, *systematic descriptions of heterotopology,* starts by looking at the concept as a universally arising phenomenon which is visible in every culture but in different forms as Foucault states "*There is probably not a single culture in the world that does not constitute heterotopia.*"[53] Being related to all the cultures, makes the concept open to exposition. There is no single word that could define heterotopia. According to Peter Johnson, a remarkable architect and a scholar, "*heterotopia not only contrasts but also disrupts utopia. Heterotopias are an attempt to think differently about and uncouple the grip of power relations.*"[54] He defines these spaces as somehow '*different*' as they are disturbing, intense, incompatible, contradictory and transforming. He recalls heterotopias as:

> *"Heterotopias are worlds within worlds, mirroring and yet upsetting what is outside. (...) Heterotopias disturb time, place and our sense of self. They 'reflect', 'represent', 'designate', 'speak about' other sites but at the same time 'suspend', 'neutralize', 'invert', 'contest' and 'contradict' those sites."*[55]

Both Johnsson and Foucault agree that heterotopias relate themselves with other sites but they differ in a way. They both argue that heterotopias *mirror* yet at the same time hide what is outside. They distort our sense of self as well as let us find and define other concepts that are simulations of *the other.* Henry Urbach, curator and architectural theorist, opens up his article "*Writing Architectural Heterotopia*" with this statement:

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[53] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 17.
[54] Robert Topinka, "Foucault, Borges, heterotopia: Producing Knowledge in Other Spaces," in *Foucault Studies*, No:9 (September 2010): 60.
[55] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies,* March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019).

"*It makes you stop and think when you reach for a tool only to find it's not there."*[56] He refers to heterotopia as something that is there, however at the same time not there, just like mirror heterotopia Foucault talks about. Urbach continues to his article as he follows:

> *"I have become aware, however, that the concept of heterotopia has taken a very weird track through architectural discourse. Its many iterations, however varied, share a remarkable degree of depoliticization, far from the charged and dynamic concept of spatial relations that Foucault had in mind."*

As Urbach continues to give examples from architecture, he tries to understand the notion of heterotopia in a spatial and physical manner. He gives examples of architects and scholars who were inspired by Foucault's work, such as Alvar Aalto, Manfredo Tafuri, Demetri Porphyrios. Later on, he refers to Charles Jencks' 1993 book, *Heteropolis,* where Jencks invents the term 'hetero-architecture' and 'heteropolis' to argue the heterogeneity of contemporary Los Angeles architecture. Urbach quotes Jencks as:

"Hetero-architecture suggest a way of using otherness, hybridization and informality as creative responses to what is now an impasse: the conflict of dominant cultures with their subordinate minorities. The love of difference - heterophilia - can lead to strange and beautiful inventions which diffuse strife by eliciting an enjoyment of and wonder at the Other."[57]

Today, in architectural discourse, one can find numerous examples of heterotopia, each with varying assumptions, identifying and praising different works, projects, places. This, however, organizes the very notion of heterotopia by Foucault: an everchanging, transformative, free from all groupings, surprisingly occurring discourse.

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[56] Henry Urbach, "Writing Architectural Heterotopia," in *The Journal of Architecture*. Volume 3 (January 1998), 348.
[57] Ibid, 349.

2.2 Six Principles of Heterotopia

As mentioned in the previous part, ever since its introduction, the notion of heterotopa remained as a source of ambiguity. In order to reduce the vagueness of the concept, Foucault, in his work "*Des Espaces Autres*" defines six principles for heterotopias, referring to this set of rules as '*heterotopology*'.[58] For him, the dynamics of the concept may vary in accordance with the normative codes of the culture, society and history it came into existence in, however, as they consitute of spaces that could be seen as differentiation from other spaces, they could be summarized on a common ground. Foucault's effort to bring about a representation for these other spaces, results with a theoretical and systematic description of the latter.

The *first principle* of heterotopias is that they are universal since every culture in the world creates them but in diverse forms. Foucault defines two types of heterotopias here: *heterotopia of crisis*, which are sacred or forbidden places for people in a state of crisis and he directly gives the example of menstruating women or pregnant women. Foucault relates the heterotopia of crisis to the primitive world.[59] Heterotopia of crisis is represented in spaces for the privileged or sacred conditions. Crisis situation, generally occurs when an individual is in the transition process from one state to another as a social ritual. Foucault considers honeymoon experience that has an ability to exist anywhere as a sacred condition, without being geographically specified, or the boarding schools in which young men encounters the whole adolescence period, creating a crisis condition where the whole school space remains as either forbidden or sacred.[60] The second type of heterotopia are *heterotopia of deviance*, which are as Foucault points out, occurs as a replacement to the heterotopias of crisis in the modern societies. Heterotopia of

[58] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 16.
[59] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 39-40.
[60] Ibid.

deviance represents sites where the actions of people who enter deviate in accordance with the norms or where behavior of individuals necessitate brand new norms inside. Here, Foucault gives example of prisons, psychiatric hospitals, retirement homes and rest homes.[61] In such spaces, deviant behavior could be kept under control with the objective to "*'compensate' codes of these heterotopias while bringing order, to invent scientific standards which will eternally remain the same".*[62]

Second principle of heterotopia is that they mutate with time and have specific operations at different points in history. This principle suggests that a heterotopian space reflects the cultural attributions and rules of its environment. This principle departs from the idea that a society, with accordance to the synchrony of its culture, can change how it operates, refunctionizing the set of rules when required. Here, Foucault gives the example of cemetery. When the cemeteries were located in the city center they represented wealth and status, whereas after their movement, they represent something to stay away from which calls to minds death and illnesses.[63] Until the end of eighteenth century, when immortality of souls and reinvigoration were popular beliefs, cemeteries were placed at the heart of the city next to church for the ones who lost their relatives to connect with the dead. Yet, starting from the nineteenth century, with the loss of ecclesiastical beliefs and rise of atheism, cemeteries' locations were changed, relocating them towards the border of the cities. According to Foucault, it was also due to bourgeois consecration of cemetery with death as an 'illness'.

The *third principle* is that heterotopias has an ability to juxtapose many fragmented, incompatible spatial elements in a single space. For the third principle, Foucault illustrates the space of a theatre which '*brings onto the rectangle of the*

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[61] Robert Topinka, "Foucault, Borges, heterotopia: Producing Knowledge in Other Spaces," in *Foucault Studies*, No:9 (September 2010): 57.
[62] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 40.
[63] Ibid.

stage a whole series of places that are alien to one another'.[64] He suggests that, theater brings about many contradicting and discordant space within its rectangular stage. Then he draws an analogy with cinema, as he refers to the cinema and its rectangular room, arguing that via projections on two-dimensional screen, individuals can experience three-dimensional space. This principle could be regarded as '*one of the most essential points for spatial planning and design in terms of configuration of space'*[65] and could be considered as the fundamental principle for the spaces of the Information Society since it declares that heterotopia has an ability to augment the given environment and manipulate it with projections. Cinemas and theatres where diverse worlds, norms and customs converge on the stage, represents a heterotopia of many spaces combined in one.[66]

Fourth principle of heterotopia is related to time-wise dimensions which is also referred to as '*heterochrony*' by Foucault himself. This principle puts forth that heterotopia encapsulates temporal discontinuity, fleetingness of time or accumulation. According to Foucault, there occurs two types of heterotopias with regards to temporal dimensions. They are linked to slices of time as either time being piled up on and on and accumulated in an infinite manner like in the case of museums and libraries, or time being transitory, flowing and temporary which also separates the visitor from their normal time concerns as in the case of festivals and fairs. In the first case in which the idea of generating a sort of general archive, closing all times in one place and "*constituting a place of all times that is itself outside of time, and inaccessible to its ravages, the project of organizing in this way a sort of perpetual and indefinite accumulation of time in a place that will not move – well, all this belongs to our modernity*"[67] accumulates time in an infinite

[64] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 19.
[65] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 41.
[66] Robert Topinka, "Foucault, Borges, heterotopia: Producing Knowledge in Other Spaces," in *Foucault Studies*, No:9 (September 2010): 57.
[67] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 20.

manner. This idea of accumulating everything in one place has reached its peak especially after the Information Age with the desire of recording human process as well as personal history. The second type, nevertheless, is unquestionably momentary. It is either performed in certain times of the year or there is an end to each performance.

The *fifth principle* is that heterotopia functions with systems of opening and closing that isolate these emplacements from other spaces while still enabling a sense of penetration. They are not accessed like regular public spaces, however, they are not completely private either. The entry to these emplacements are compulsory somehow, as in the case of the barracks or prison, or else, one should realize certain obligations and gestures to enter as in the case of Islamic Hammams which presupposes a purification process. Further examples of such heterotopias could be listed as checkpoints of shopping malls and airports in the city, where to enter these areas one needs to complete certain procedures.[68] Pursuant to this principle, Foucault mentions the heterotopia of illusion, which he describes as *"(...) that look like pure and simple openings, but that, generally, conceal curious exclusions. Everybody can enter into those heterotopian emplacements, but in fact it is only an illusion: one believes to have entered and, by the very fact of entering, one is excluded.*"[69] For the heterotopia of illusion, Foucault gives the example of guest rooms of Brazilian Farmhouses, where the visitors have a feeling of being a part of the house whereas they are only directed to certain areas of the house, dividing the public/private parts of the latter. Heterotopia of illusion could be considered as a place of escape from the *tyranny of production via fantasies of freedom*[70] , containing flexible illusory spaces.

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[68] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 42.
[69] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 20.
[70] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 42.

The *sixth and final principle* of heterotopia is that they find their meaning with accordance to the remaining spaces, as an illusion or a compensation. Foucault indicates that the outermost important trait of heterotopia is that it functions through relationship it conducts with all the other spaces. Foucault explains this last trait of heterotopic spaces with two extreme poles, either as they create a space of illusion, in the case of brothel which dissipates and invalidates societal realities, or else, they create *"as perfect, as meticulous, as well arranged as ours is messy, ill constructed, and jumbled"*[71] compensatory spaces like colonies. These compensatory spaces create a relation with other spaces, however, they remain delusive although they are perfected real versions of other spaces. This last principle underlines the most essential aspect of heterotopia as it indicates that heterotopias are contestations to all the other spaces. It denounces the real to be an illusion in the case of brothel which creates its own norms and realities, showing that heterotopias are real spaces that represents reality as an illusion, or, they are perfected and more rational versions of already existing spaces. Bearing in mind that in Information Age, reality and its relationships are no longer possible and that the reality of today is just an illusion, it could be stated that in today's society, each emplacement, somehow can start to act as a heterotopia.

According to Robert Topinka, the last two principles are what separate heterotopias from utopias. He states that "*Utopias are always imaginary while heterotopias are real. Thus, heterotopias do not exist independently of our existence or our ways of knowing.*"[72]. Outlining very carefully with many examples the principles that define such heterotopias, Foucault conceptualizes the foundation of these different spaces. In short, he summarizes heterotopia as simultaneously represented, contested and inverted spaces which could be considered as *'effectively realized*

[71] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 22.
[72] Robert Topinka, "Foucault, Borges, heterotopia: Producing Knowledge in Other Spaces," in *Foucault Studies*, No:9 (September 2010): 57.

utopias'[73], places that remain outside all places yet being actually localizable. For Foucault, a heterotopia pulls off the users from the usual time, creating imaginary orders in which many fragmentary possible ways come together in a single space.

2.3 Mirror Heterotopia and Perception of Illusion: From Painting to Contemporary Installations

As Foucault continues on his definition of heterotopia, he gives the example of mirror, which he both sees as a utopia and a heterotopia:

> "*(...) Between these two, I would then set that sort of mixed experience which partakes of the qualities of both types of location, the mirror. It is,, after all, a utopia, in that it is a place without a place.*"[74]

Foucault sees mirror as an extraordinary tool with an ability to be both different and same at once. However, before Foucault addresses to mirror in Des Espaces Autres , he impaled himself in the illusional space of the mirror back in 1966 when he introduced "Les Mots et Les Choses". he was already questioning the place (or placeless place) of the mirror and how important it is for mankind, art and history of thought in the Introduction of the book as he analyzes Las Meninas, a famous painting by Diego Velazquez. Most especially, this Introduction part in *Les Mots et les Choses* strikes a chord to Foucault's interest to the central role of the mirror in the painting as he considers the turbidity of mirror as one of the key components of object/subject duality and he relates them with his overall theory of 'the history of subject'.

The painting at first glance provides no information regarding its meaning. The painter being represented within is in fact Diego Velasquez. It however is not a self-portrait. Instead the masterpiece depicts the royal family including the young

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[73] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 17.
[74] Michel Foucault, "Of Other Spaces: Utopia and Heterotopia." in *Rethinking Architecture: A Reader in Cultural Theory*, Ed. Neil Leach, (New York : Routledge, 1997), 331.

daughter of King Philip IV and Queen Mariana of Austria at the center. The royal couple is also present in the painting, yet as a reflection through mirror.

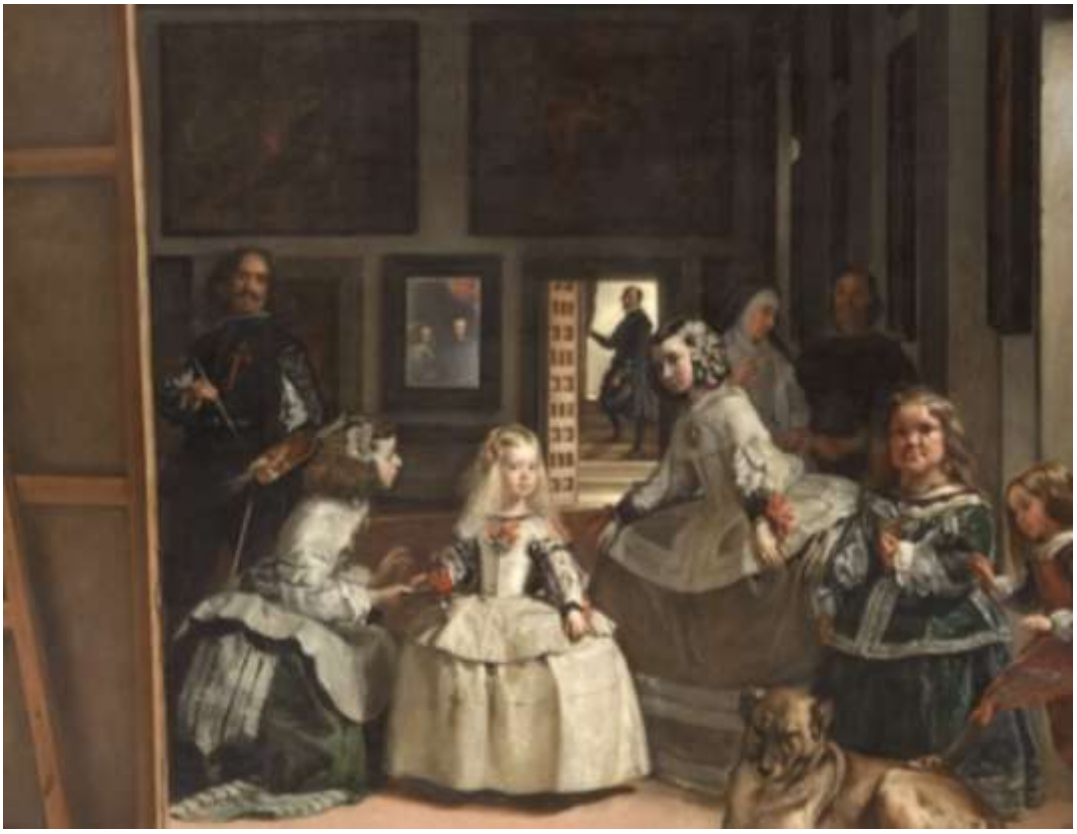

Figure 2.3.1: Diego Velasquez, *Las Meninas*, 1656, canvas, 281.5 x 320.5, Museo Del Prado, Madrid, https://www.museodelprado.es/en/the-collection/art-work/las-meninas/9fdc7800-9ade-48b0-ab8b-edee94ea877f

The first thing one sees at the first glance is the little girl, Margareta Teresa, or the mirror showing the images of King and Queen. Six of the nine characters that could be depicted in the painting are staring beyond the picture plane and actually looking at the spectator who is looking at the painting. In the painting there's a significance of the mirror although what exactly is reflecting becomes ambiguous. Number of critics have seen it as the reflection of actual king and queen standing beyond the picture plane putting the viewer in the shoes of royalty. There are other critiques who used mathematical formulas to establish that mirror was not reflecting the actual king and queen rather it depicts a portrait of the King and Queen. In other words, according to them, the King and Queen were not actually in

the room. However, the closer examination of this one-point perspective of the image represents something else. Las Meninas is a paradox that defies classical representation and therefore can not be a representation of classical representation. This contestation is claiming that Las Meninas is a representation of Velasquez as he is in the act of representing Las Meninas, so the mirror is actually in front of Las Meninas, and the royal family thought to be reflecting from the mirror, is actually a painting Velasquez had done before. Other critiques stated that, the evanishing point of the painting is not the mirror, but the open hallway. So the mirror does not reflect directly back at the gaze its spectator puts on it, rather, it reflects at an angle, an angle that puts its image on another unseen aspect of Las Meninas: The canvas Velasquez is working on placing the King and the Queen in an unknown location yet through the painting Velasquez is doing, they are present in the picture plane.

Foucault depicts a void in this representation, suggesting that vanishing of the objects the painter is trying represent, the painting can only act as a resemblance, never as an accurate reflection. For Foucault, what is represented in the painting doesn't take place in the mirror or what is depicted in the mirror could not be seen in the painting. The painter, along with Margareta Teresa , is looking at a space outside the picture plane, a space that is being hold by both us, the spectators - the subject, as well as the object he is painting -The King and Queen. We cannot see the object he is painting as spectators. We can only see the back of Velazquez's canvas. Rather, it is the mirror that shows us this object and reflects what is lying outside the view. It is only by mirror that this work by Velazquez finds its way through the representational space, since we the spectators examine it as a realistic representation of what we actually see. It is the spectator who 'turns the mirror of resemblance into a mirror of representation'.[75] In his Las Meninas examination, Foucault breaks Subject/object relations because Velazquez is effusing out of the painting, comes eye to eye with the spectator that is looking at the painting -who

[75] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies*, March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019)., (Heterotopia and City, syf 55)

with Velazquez's gaze becomes momentarily a spectacle and then returns spectating the art. Painter, starts to become the object, the subject and at the same time represented. Mirror on the other hand, enables spectator to see King Philip IV and Mariana yet disable to localize them within the representational space, thought to be representing the context where it takes place yet, since we cannot see the object, it also acts as an illusory tool. But what is it with mirror that makes it so special and unique? Is it only a simple reflective object to make us see ourselves?

Throughout history, mirror had various imputations and epithets: tool of the devil, item of wealth, optical device, apparatus of vanity and so on. Humans have been interested in this riveting tool since prehistoric times. While the first mirror , unquestionably, being a still body of water as the legend of Narcissus dictates, the first official man-made mirror dates almost back to 6200 BCE to Çatalhöyük, Turkey.[76] From ancient Egyptians to Mayans, Incas and Aztecs, almost all cultures utilized this reflective tool for diverse purposes. In tibetan Oracle culture, priests used the magical mirror to predict the future. In tribes near Congo River it is used to look back at past and explore misfortunes, then to make good decisions regarding the future. In Ayahusca Shamans' culture it is used to escape from the physical world and go beyond what is seen with the eye through reflections. It was as well used by Indians and Egyptians as a tool to hold the soul and to ward off evil spirits. Mirror, back then, could be made out of any reflective surface. Egyptians and Sumerians created metal mirrors starting from copper, then bronze, gold and silver respectively whereas the Olmecs executed it from anthracite, pryte and obsidian. [77] Through middle ages, mirrors were seen as the tools of sorcerers with an ability to reveal secret augury. As the available technology and tools to accomplish better way of living evolved, so did the material and purpose of mirror. When mirrors were rare, expensive, metal reflective surfaces, they were generally

[76] Mark Pendergrast, "Mirror mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 3.
[77] Ibid.

regarded as symbols of either divinity or the devil. However, with the introduction of glass mirror on 19th century, mirrors became more common place with the usage of mirrors as decoration accessories in interior design and began to lose their magnificence hence started to reflect everyday reality, placing themselves as common objects even in the poorest houses.[78] They have been used by architects to expand the given space and enabled artists to create self portraits. Mirrors have been used for scientific applications as well. As Mark Pendergrast, an American author and scholar, states *"Today, huge mirrors permit us to peer into ever-more distant regions of space, and light-weight gossamer optics will allow us to delve even farther.*" [79] Mirrors arised in the earliest civilizations, yet today they enable us to peer into the future as in the case of Hubble Space Telescope allowing astronomers to see the happenings in the universe. Mirrors have been used to both reveal and hide reality and we as human beings used this reflective surface to understand our own contradictory nature.

Yet, in its most basic form, it has a tendency to take someone looking at its reflection and make them peer beneath its surface. However, mirrors don't connote anything unless someone looks into them. Pendergrast states that "*History of the mirror is really the history of looking, and what we perceive in these magical surfaces can tell us a great deal about ourselves—whence we have come, what we imagine, how we think, and what we yearn for. The mirror appears throughout the human drama as a means of self-knowledge or self-delusion."*[80] Mirrors not only enables us to see ourselves, it also helps us to perceive our surrounding in different manners. It gains its meaning through gaze. Peter Johnsson on the other hand,

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[78] Mark Pendergrast, "Mirror Mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 4.
[79] Mark Pendergrast, "Mirror mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 4.
[80] Mark Pendergrast, "Mirror mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 1.

before peering beneath mirror's surface, lingers on the idea of reflection as he tries to understand the etymologic definition of 'reflect':

"Reflection – from reflectere - means to bend, or to turn back, or backward as well as to bring back. Thomas Aquinas offered early etymological link between specula (mirror) and the modern meaning of speculation:

> *...to see something by means of a mirror is to see a cause in its effect wherein likeness is reflected, and we see that speculation leads back to meditation."*[81]

Not only there is a bound between reflection and speculation, but there's a very underrated link between mirror (spec) and spectator. "Looking", "Seeing", "Watching", refers to the "gaze" which constructs the "Spectator". Without the spectator, the gaze, the essence of creating a meaning through looking, could not be achieved. For anything to be realized, someone looking is fundamental. Nevertheless, when there is a factor of spectator then there must be a factor of "spectacle", which is a different concept. Amy Hughes in her work *Spectacles of Reform,* outlines the spectacle as "*The spec in spectacle suggests that visuality is its defining feature: it is something we see, something we watch. However visual terms do not alone make the spectacle; rather , spectacles are defined relationally, taking their measure from human scale and capacity.*"[82] In other words, although we might define the spectacle as something worth looking at, it is of great importance to point out what makes something "worth to look at" . Hughes, makes this distinction as she explains in her book:

"*How something is presented and perceived, rather than what is presented and perceived constitutes spectacle. I contend that our sense of the spectacular relies*

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[81] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies*, March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019).
[82] Amy E. Hughes, *Spectacles of Reform: Theater and Activism in Nineteenth-Century America*, (Michigan: University of Michigan Press), 2012, 14

on relations rather than Essentials. Sensationalism springs from the cultural norms that are jarred, destabilized, and exceeded in the process of representation. The sensational, in a word, exceptional."[83]

For something to be regarded as a spectacle, it must exceed the spec's expectation. Hughes talks about three factors effecting the spectacle. She identifies "Scale" as "the most obvious matrix by which we perceive spectacle."[84] For an act of performance to be counted as a spectacle, it should be beyond the scale and number of human proportion and more than the ability of the spectator by which way it exceeds the spectators' norms and identifies a brand new possibility. Furthermore, Hughes talks about another defining quality of spectacle: Intensity. She outlines that "Like scale, intensity also exists only in relation. An event or experience is described as intense when it exceeds the expected or the routine."[85] Again, Hughes is talking about something beyond the expectation and norm defying acts. As she sorts out scale and intensity as the key elements that define spectacle, she continues towards a third element, which has been one of the main factor for a priori elements: Excess. Hughes defines excess as "A Word invoking both superabundance and superfluity- is another of spectacle's characteristics."[86] What is more than expected, what makes the "spectator" shiver with dread, happiness or amusement etc., what is beyond the normative human capacity could become a spectacle. However, the spectator has a paradoxical attraction-repulsion with the spectacle. It is curiosity and contempt at the same instant.

Although, the dynamics of the spectacle-spectator relationships seem like the sides are always explicit and unchangeable, mirror shows us quite the opposite. In front of the mirror, all these spectacle/spectator relationships are altered. Eric Bentley

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[83] Hughes, *Spectacles of Reform*, 15
[84] Hughes, *Spectacles of Reform*, 16
[85] Ibid
[86] Hughes, *Spectacles of Reform*, 17

defines theatre in his simple formula as "A impersonates B, while C looks on."[87] However, McAuley continues as:

"But it seems that for Bentley, the relationship between A and B, the actor and the character, the fiction and the reality holds a greater importance since he immediately writes C out of the formula:

> *"That very histrionic object, the mirror, enables any actor to watch himself and thereby become the C, the audience. And the mirror on the wall is only one: the mirrors in the mind are very" (1965,50). I would argue that thus transforming the spectator into an abstraction and indeed in removing the theatrical act from real space, Bentley moves into a domain beyond theater."*[88]

Not only Bentley converts the spectator to an abstraction as McAuley claimed, but he also transforms the spectacle into the spectator with an "instant gaze" and the spectacle, as he sees himself, becomes rays of incident, a reflection. Mirror let us be both the subject and the object at the same time and through the act of looking at it, we become funambulists, going back and forth continuously as we trying to codify its nature. Miranda Anderson relates the complexity of mirror with the liminal space it occupies as "*being neither entirely subject nor entirely object: the mirror is potentially revelatory of the interior world of the self and yet conversely figures the objectified self within the external world."*

In a series of psychology tests which were carried out in 1964 by Arthur Traub, subjects of the test were placed seven feet from a plexi-glass reflective surface that could be adjusted as a concave or convex mirror. The subjects saw themselves first as "tall, with pin head, large elongated body and legs tapering to tiny feet," then as "short with enormous horned head and tapering legs."[89] When the subjects were

[87] McAuley, *Space in Performance*, 1
[88] McAuley, *Space in Performance*, 2
[89] Ibid, 6.

asked to readjust the mirror until they looked 'normal', they had difficulties because they have forgotten how they actually looked like. Mirrors make us understand, become aware and accept another kind of reality of our physicality. As facing them, we are exposed to an altered, reversed version of ourselves. However, with a glance, we accept the version of ourselves standing across that virtual point. Mirror has a tendency to bend, convert, distort and mislead in term of physicality. One thing that seems near can be further away in the case of a concave mirror, and even in some cases, something you see in the mirror may not even be present in that physical boundaries, rather its reflection is presented to you through the rays of light as in the case of Las Meninas. Peter Johnsson, quoting Lefebvre, argues that '*the mirror's ambiguity is immediately on display. Nothing is more unlike the thing than its image, its other in the mirror*'.[90] Johnsson continues as stating that mirrors have the ability to create another space by "*altering or confirming a sense of self or place, and through deception, illusion, and reflection provide a luminous space for contemplation.*"[91] It is, in Jorge Luis Borges' words, an '*impossible space of reflections*', with an ability to extend human subjectivity beyond the physical boundaries. With its adequacy to both reflect and distort, represent and reproduce through fragments, it let us see ourselves as well as let us see our exterior. we both decipher the depths of space and understand our very intrinsic nature thanks to this very histrionic object.

The image from a mirror is a utopia: It's an unreal, virtual space yet the mirror act as a heterotopia because it really does exist. Perhaps this ambiguous nature of mirror being localizable as an object yet being unlocalizable as the reflection it represents – subject, was what made Foucault to consider it as both an utopia and heterotopia for it has a characteristic to take the looker into some other places,

[90] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies*, March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019)., 3.
[91] Ibid.

towards a non-existing space - a space of reflection. Turning back to Foucault's depiction of mirror as both a utopia and a heterotopia, he follows as:

> *"(...) In it, I see myself where I am not, in an unreal space that opens up potentially beyond its surface; there I am down there where I am not, a sort of shadow that makes any appearance visible to myself, allowing me to look at myself where I do not exist: utopia of the mirror. At the same time, we are dealing with a heterotopia. The mirror really exists and has a kind of comeback effect on the place that I occupy: starting from it, in fact, I find myself absent from the place where I am, in that I see myself there. Starting from that gaze which to some extent is brought to bear on me, from the depths of that virtual space which is on the other side of the mirror. I turn back on myself, beginning to turn my eyes on myself and reconstitute myself where i am in reality. Hence the mirror functions as a heterotopia since it makes the place that I occupy, whenever I look at myself in the glass, both absolutely real – it in fact linked to all the surrounding space – and absolutely unreal, for in order to be perceived it has of necessity to pass that virtual point that is situated down there.*"[92]

Peter Johnsson, referring to both mirror as in the case of Las Meninas and mirror heterotopia, makes a strong depiction for the mirror and the imaginary displacement it creates:

> "*It is not about a mirror of resemblance, one that abets the entanglement of vision with representation, but a mirror that authorizes and manipulates representation and opens up questions of how the mind conjures up imaginary worlds. The mirror redoubles the incompatibility of vision and*

[92] Michel Foucault, "Of Other Spaces: Utopia and Heterotopia." in *Rethinking Architecture: A Reader in Cultural Theory*, Ed. Neil Leach, (New York : Routledge, 1997), 331.

representation, allowing the spectator to comprehend the imaginary experience of the gaze via its imaginary displacement."[93]

Yet as Foucault continues, it is a heterotopia, an existing real space for the user is standing in front of it, being able to look at the mirror, and come back from the space of reflection to the space of incident- where mirror is located. When looked, mirror surrounds all the physical space the inhabitant occupies. It's a heterotopia in that sense because it is in relation with all the space it surrounds. The inhabitant understand that mirror is 'real'. However, it is also unreal since in order to be perceived, it has to go through that virtual point, which is over there. When Foucault looks at the mirror, he can see his head. It has two windows -eyes, by them he can see things that take place outside of his party. By looking at the mirror, seeing himself, he then enters into his head -the mind, which captures all the illusions. With that illusions that are created by that virtual representation of the body, utopia springs. Yet, the body is absolutely visible. It could be gazed by another from stem to stern, at the same time, body is invisible. Foucault can touch the back of his head, he can view his body but only in fragments.[94] This fragmented representation of mirror describes a range of disparate space-time relations. Mirror is considered as a heterotopia because it presents an 'I am there and yet I am not' perception through its reflection, or like in the case of brothel example Foucault gives while defining principles of heterotopia, it demonstrates that 'I am another'. Mirror reflects the context I am in yet simultaneously it interposes it, creating a non-exiting space. All of the examples Foucault gives in defining heterotopias, like mirror, shares common concerns: They are both real and illusory, compensatory 'other' spaces which contest and at the same time convert the remaining counter-sites, dispelling the body with illusions and re-representing it through an imaginary model.

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[93] Ibid, 62.
[94] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies*, March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019)., 3 (heterotopia and the city, 55)

Defining mirroring effect both as seeing oneself, duplicating other, peeking into a non-existing space and displacing self, one can create illusions in the given physical space by usage of multiple mirrors. In contemporary art and architecture, mirrors play a dominant role for altering space-time relations, letting one observe themselves in a non-existing space. One of the most fundamental artists that deal with perception of space is perhaps Olafur Eliasson. Eliasson is a Danish Icelandic artist whose work focuses on reflections, light and color and how these three can impact someone in terms of spatial perception and sense of self. In his work *Take Your Time* that went public in MoMA in 2008, he placed a giant circular mirror, fixated at angle to the ceiling. The mirror on the ceiling through usage of motor disks, rotate very slowly as it destabilizes the spectator's perception of space and turning him into an active co-producer of the work. It turns the image of the flow upside down hence enabling a shift on spectators' perceptual standing points as it slowly revolves around their bodies. Christina Albu in her work *Mirror Affect: Seeing Self, Observing Others in Contemporary Art* considers Eliasson's work as a space altering installation and argues "*Envisioned as a space of encounter with otherness inherent in ourselves and the world we inhabit, the installation space constantly altered, as reflections of changing participatory responses rotated on the mirror disk."*[95] Eliasson experimenting with the spatial depth the spectators conduct, extends the physical space that is in front of the mirror into a swirling, fluid, reflective space that creates its own visual and spatial logic.[96]

[95] Christina Albu, "Mirror Intervals: Prolonged Encounters with Others," in Mirror Affect: Seeing Self, Observing Others in Contemporary Art, (University of Minesota Press: Mineapolis, 2016), 200.
[96] Ibid, 193.

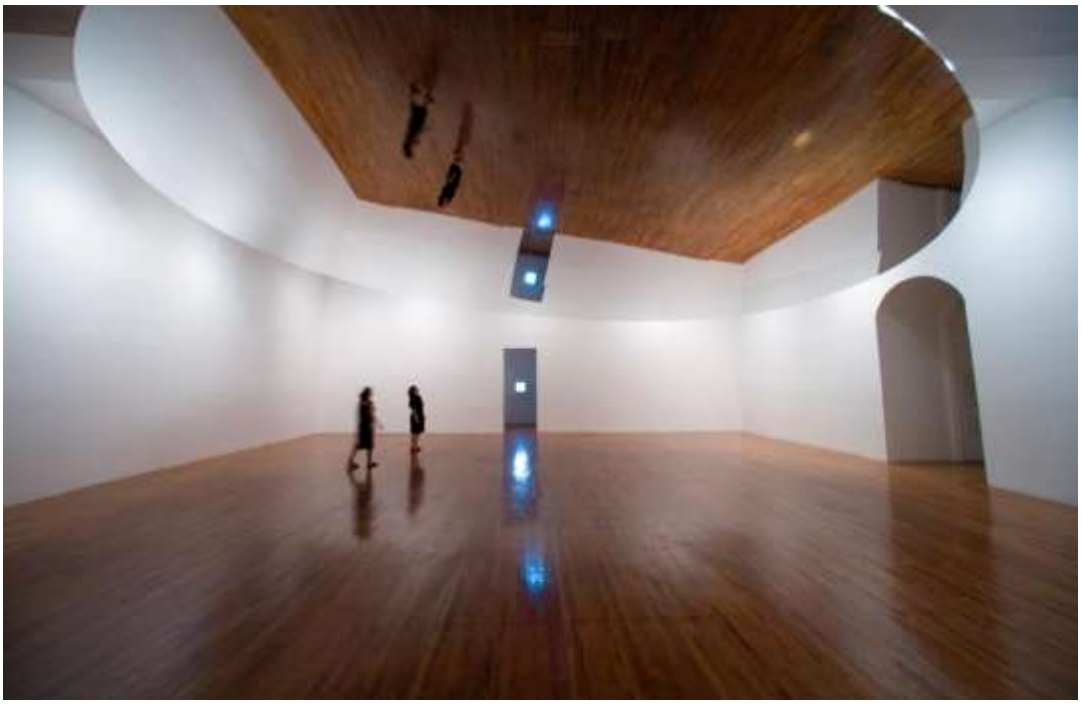

Figure 2.3.2 Olafur Eliasson, *Take Your Time*, 2008, Foil mirror, Aliminum, Steel, unknown, MoMA PS1, Long Island City New York, https://olafureliasson.net/archive/artwork/WEK100351/take-your-time#slideshow.

Although different in context and aesthetization of the reflective surfaces, another significant artist Anish Kapoor's Cloud Gate installation could be considered as a bewildering spatio-temporal work. Kapoor, whose works include reflective surfaces to make the spectators find a relation between themselves and their surroundings, is a London based Indian artist that focuses on phenomenology of perception and plasticity of identity. His fundamental work, *The Cloud Gate,* also known publicly as *Bean*, is a representation of fluid self and altered space-time relations. The Cloud Gate is a ten meter tall sculpture with a base of twenty to thirteen meters. With the help of mirror-like metalic surfaces and their place on the installation, Kapoor distinguishes a new space as he deciphers what lays behind and around the spectator. The installation is located on the AT&T Plaza in Chicago, acts as an important landmark for Chicago's Millenium Park.

The mirrored installation is in dialogue with the landscape and skyscrapers of the city of Chicago, allowing the spectators to play with the virtual image reflected to the surface of the latter. The Cloud gate, in its most basic form could be considered like a giant mirror that comes together with different curves and viewing angles, enabling spectators to create distortions and reconstruction to the image of the city and formulating their own personal reflections. The work offers two distinct roles as in the case of becoming a transitory space for locals and offering a site of spectacle, an iconic landmark for tourists visiting the city. It serves as a public passage that connects different parts of the city through virtual images it formulates. With the ability to reflect sky, buildings and spectators consecutively, it conducts a spatio-temporal discontinuity creating a non-place that reflects all of the surrounding elements and hiding behind all these reflections. However, it also acts like an important landmark, a site accomplished by repeated transitions of spectator's gaze. For a moment, through instant gaze, spectators actually become sculptors of their own environment like in the case of Eliasson's work Take Your Time.

Figure 2.3.3. Anish Kapoor, *Cloud Gate*, 2004, Stainless Steel, 10 x 20 x 12.8 meters, Millenium Park, Chicago, https://theconversation.com/anish-kapoors-cloud-gate-playing-with-light-and-returning-to-earth-our-finite-world-102272.

Both of Eliasson's and Kapoor's works establish a site of transition as well as alteration to the spectator's physical space by offering multiple reflections of the given environment. As mentioned by Albu they '*show the fluidity of spatial and temporal coordinates which vary with the movement of visitors whose images are temporarily encompassed in the reflective screens.*'[97] They challenge the distinctions between flatness of the environment and open up the space to intersubjective interpretations, formulating a heterotopic moment where the spectators are detached from their environment with a glance and are directed to a virtual point represented through the surface of the work. Such mirror installations make spectators to question the space their body envelops and different temporalities within a given moment. Moreover as stated by Albu referring to both of the artists;

"*Their artworks expose the unpredictability of lived experience, the contingency of subject and objects of perception, and the potential for the individual transformation subsistent in spatiotemporal intervals that disrupt the quotidian flow of information."*[98]

Pursuant to Foucault's mirror heterotopia, these works trigger multi-sensory engagement through reflections, altering the real/virtual relationship as they reveal the actuality of things to be distorted when they undergo significant changes. The works reveal out the common concern of mirroring which is when looked from different perspectives, real and virtual overlaps each other creating a mixed condition for otherness.

The puzzling, destructive incident of the mirror produces a 'placeless place'. By referring to mirror, Foucault juggles with space of conjuration, analogy, fragmented self-reflection and disruption. On the one hand, we use this magical

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[97] Christina Albu, "Mirror Intervals: Prolonged Encounters with Others," in Mirror Affect: Seeing Self, Observing Others in Contemporary Art, (University of Minesota Press: Mineapolis, 2016), 201.
[98] Ibid, 193-194.

tool to see the things as they really are yet on the other hand we crave for mysteries of imagination and of illusion. On the one hand we want to learn and practice more to have a better sense of self and of future, on the other hand we seek pleasure and an escape from our own reality. Ultimately, as Johnsson puts it "*What we see in them depends on what we bring to them*."[99] With the ability to ravel out dark interiors, delating hidden and often troubling point of views, mirrors grant artists to create self-portraits and allows individuals to reconsider the notion of self and image as well as establishing an in-between place among real and virtual space. Mirror imagery Foucault constructs in "Of Other Spaces" help us to ask a new question in the high-tech information society: What happens if these two terms real / virtual overlap each other and can't be torn apart in the perceived space?

[99] Mark Pendergrast, "Mirror Mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 4.

CHAPTER 3

ILLUSION TO AUGMENTATION: DIFFERENT MODES OF UNDERSTANDING ARCHITECTURAL SPACE IN THE AGE OF INFORMATION

3.1 Real / Virtual Dichotomy

If we are to acknowledge different approaches to understand informational trends and their projections on architectural space, we need to scrutinize the definitions that are brought into academia by scholars. Through this chapter, definitions of virtual, real, virtual reality, augmented reality and immersion are analyzed within the scope of Information Age. The new status of image under the hegemony of digitalization and its reflections on architectural space is discussed with a further emphasis on the concept of heterotopia in the Information Age.

The term 'virtual' along with 'cyberspace' became one of the most mentioned terms of the last two decades. Numerous authors and scholars referred to 'virtualization' to understand the new ways of living in the Information Age, comprehend new media culture and new techniques of conceptualizing information through digital mediums. Lev Manovich in his *work Poetics of Augmented Space* refers to prominence of the virtual as follows:

"The 1990s were about the virtual. We were fascinated by the new virtual spaces made possible by computer technologies. Images of an escape into a virtual space that leaves physical space useless, and of cyberspace – a virtual world that exists in

parallel to our world – dominated the decade. This phenomenon started with the media obsession with Virtual Reality (VR).”[100]

According to Manovich, the term virtual has entered into academia after the domestication of computer technologies and starting from 1990s it dominated the academia. The term ‘virtual’ connotes numerous meanings depending on the context it is used. In the Oxford Dictionary the term ‘virtual’ is regarded as an adjective meaning “*Almost or nearly as described, but not completely or according to strict definition*”.[101] Oliver Grau, author of *Virtual Art: From Illusion to Immersion* regards ‘virtual’ as an essential relationship of humans to images and explains the virtual phenomenon with regards to illusion it creates whereas Pierre Levy in his work *Becoming Virtual: Reality in the Digital Age* explains ‘virtuality’ through the relationship the term constructs between ‘real’ and ‘actual’, arguing that ‘virtual’ is that which has potential rather than actual. Etymologically, the word ‘virtual’ is derived from Latin ‘virtualis’ which is reproduced from ‘virtus’ meaning strength or power.[102] Perhaps one of the most acknowledged work that covers virtuality and its effects on the society is Baudrillard’s *Simulacra and Simulations* where Baudrillard considers ‘virtuality’ as an antonym of the ‘real’. According to Baudrillard, in the new world order, reality and its relationships are no longer possible and real has yielded its place to the virtual. Due to high density information flows we’re living with, any and all kind of media are delivered to us, creating a media saturated environment where life intrinsically becomes abundant in symbolization in which receiving and exchanging messages about ourselves and others develop into an inescapable chain of events.[103] New media beleaguers us,

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[100] Lev, Manovich. “The poetics of augmented space”. *Visual Communication* 5, no. 2. (June 2006): 220

[101] “Virtual Definition” Oxford Dictionary, accessed November 29, 2019, https://www.lexico.com/en/definition/virtual

[102] Pierre Lévy, The Nature of Virtualization *in Becoming Virtual: Reality in the Digital Age*, trans. Robert Bononno (Plenum Trade: New York, 1998), 23.

[103] Frank Webster, “Introduction,” in *Theories of the Information Society Third Edition*, (New York: Routledge,2006), 20

representing messages from n-dimensions whether we want it or not. As Baudrillard puts it:

"*We live in a world where there is more and more information, and less and less meaning. (...) Or, very much on the contrary, there is a rigorous and necessary correlation between the two, to the extent that information is directly destructive of meaning and signification, or that it neutralizes them. The loss of meaning is directly linked to the dissolving, dissuasive action of information, the media, and the mass media*."[104]

To put it another way, Baudrillard argues that we're in an era where manipulated and simulated information come from so many directions in so many forms, contradicting with one another simultaneously, they no longer need the necessity to be neither meaningful nor real. Their meanings are devoured faster than they can be reinjected, resulting with a loss of their reality and salience. In short "*Signs come from so many directions, and are so diverse, fast-changing and contradictory, that their power to signify is dimmed. Instead they are chaotic and confusing*."[105]

Baudrillard refers to this situation as:

> *"(...) By crossing into a space whose curvature is no longer that of the real, nor that of truth, the era of simulation is inaugurated by a liquidation of all referential - worse: with their artificial resurrection in the systems of signs, a material more malleable than meaning, in that it lends itself to all systems of equivalences, to all binary oppositions, to all combinatory algebra. It is no longer a question of imitation, nor duplication, nor even parody. It is a question of substituting the signs of the real for the real, that is to say of an operation of deterring every real process via its operational double, a*

[104] Jean Baudrillard, "Meaning in Media" in *Simulacra and Simulation*, trans. Sheila Faria Glaser (University of Michigan Press: Ann Arbor, 1994), 2.
[105] Frank Webster, "Introduction," in *Theories of the Information Society Third Edition*, (New York: Routledge,2006), 20

programmatic, metastable, perfectly descriptive machine that offers all the signs of the real and short- circuits all its vicissitudes."[106]

Baudrillard argues that real has synthesized itself so much that it doesn't have any chance to produce itself anymore. Henceforth, it only leaves room to hyperreal, undergoing to reign of modelling and simulated versions of real. However, as Baudrillard points out, simulating is not pretending. When a simulation of something occurs, it actually bears some of the qualities of the latter within. It is still a simulation of what is simulated but it is also not, leaving the binary oppositions intact. When a simulation is considered, the differences between true and false, the real and virtual are blurred. With over and over simulations, the meanings they generate start to lose their significance which results in the whole system becoming weightless. In Baudrillard's words "*It is no longer itself anything but a gigantic simulacrum - not unreal, but a simulacrum, that is to say never exchanged for the real, but exchanged for itself, in an uninterrupted circuit without reference or circumference.*"[107] Nevertheless, this is the reality of the Information age and individuals living in this era appreciate this situation almost naturally:

"*Here it is conceded that people do not hunger for any true signs because they recognize that there are no longer any truths. In these terms we have entered an age of 'spectacle' in which people realize the artificiality of signs they may be sent ('it's only the Prime Minister at his latest photo opportunity', 'it's news manufacture', 'it's Jack playing the tough guy') and in which they also acknowledge the inauthenticity of the signs they use to construct themselves."*[108]

What is argued here is that the notion that signs represent 'reality' apart from themselves start to lose its credibility. Signs become self-referential where they can

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[106] Jean Baudrillard, "Meaning in Media" in *Simulacra and Simulation*, trans. Sheila Faria Glaser (University of Michigan Press: Ann Arbor, 1994), 1.
[107] Jean Baudrillard, "Meaning in Media" in *Simulacra and Simulation*, trans. Sheila Faria Glaser (University of Michigan Press: Ann Arbor, 1994), 6.
[108] Frank Webster, "Introduction," in *Theories of the Information Society Third Edition*, (New York: Routledge,2006), 20

only be considered as simulations or in Baudrillard's words '*hyper-reality'*. In such an era, the real would never have the chance to produce itself again. From the loss of meaning and death of real, hyperreal resurrects: *"It is no longer a question of a false representation of reality but of concealing the fact that the real is no longer real, and thus of saving the reality principle."*[109] Baudrillard, refers to virtualization process of the signs and information by creating a duality between 'real' and 'imaginary' by stating that the world is now constructed through simulations which arised from the binary oppositions between 'real' and the 'imaginary' and 'true' and 'false'. Imaginary –hyperreal, contains no meanings because what constructs its reality and what that reality signifies are no longer available. However, understanding 'virtual' through 'real' is a reductive approach since virtual is not the antonym of the real, but the physical. Apart from the fact that reality is a construct[110] (from an ideological perspective), if the 'real' that is in this case refers to the tangible, material objects then what real deals with is the Euclidean space individuals are living in, which is the construct of the physical. Levy, opposing to Baudrillard's understanding of the virtual advocates that "*the virtual, strictly defined, has little relationship to that which is false, illusory, or imaginary. The virtual is by no means the opposite of the real. On the contrary, it is a fecund and powerful mode of being that expands the process of creation, opens up the future, injects a core of meaning beneath the platitude of immediate physical presence.*"[111] Levy considers the process of 'virtualization' as a way of becoming other, a change of identity by stating that "*Virtualization is not a derealization (the transformation of a reality into a collection of possibles) but a change of identity, a*

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[109] Jean Baudrillard, "The Precession of Simulacra" in Simulacra and Simulation, trans. Sheila Faria Glaser (University of Michigan Press: Ann Arbor, 1994), 10.

[110] "Interestingly, recent findings in neurobiology propose that what we call reality is in fact merely a statement about what we are actually able to observe. Any observation is dependent on our individual physical and mental constraints and our theoretical scientific premises. It is only within this framework that we are able to make observations of that which our cognitive system, dependent on these constraints, allows us to observe." Oliver Grau, Introduction in *Virtual Art: From Illusion to Immersion*, (The MIT Press: Massachusetts, 2003), 3

[111] Pierre Lévy, The Nature of Virtualization *in Becoming Virtual: Reality in the Digital Age*, trans. Robert Bononno (Plenum Trade: New York, 1998), 16.

displacement of the center of ontological gravity of the object considered."[112] Furthermore, Levy suggests that the elements of virtual are nomadic, dispersed and their geographical positions are diminished, it can not be precisely located, therefore virtual is '*not-there'*:

> *"When a person, community, act, or piece of information are virtualized, they are "not-there," they de-territorialize themselves. A kind of clutch mechanism detaches them from conventional physical or geo graphical space and the temporality of the clock or calendar. They are not totally independent of a referential space-time since they must still bond to some physical substrate and become actualized somewhere sooner or later. Yet the process of virtualization has caused them to follow a tangent. They intersect classical space-time intermittently, escaping its "realist" clichés: ubiquity, simultaneity, massively parallel or distributed systems. Virtualization comes as a shock to the traditional narrative, incorporating temporal unity without spatial unity (by means of real-time interactions over electronic networks, live rebroadcasts, telepresence systems), continuity of action coupled with discontinuous time (answering machines and electronic mail, for example). Synchronization replaces spatial unity; interconnection is substituted for temporal unity. Yet the virtual is not imaginary. It produces effects."*[113]

Virtual, breaks the common understanding of spatiotemporal contingencies, creating a reorganization between time and space. From variety of different emplacements (space would be a wrong choice of word) individuals are able to connect with each other. As a result, 'de-territorialization', an escape from the 'here' and 'now' and 'that' would be encountered as one of the main aspects of the 'virtual'. A similar approach could be maintained when 'virtual' in art and

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[112] Ibid, 26.
[113] Pierre Lévy, The Nature of Virtualization *in Becoming Virtual: Reality in the Digital Age*, trans. Robert Bononno (Plenum Trade: New York, 1998), 16.

architecture is considered. Although generally the process of virtualization is associated with synthetic, computer generated world of images and information, it can also denote the illusory place paintings or modern installations propose. However, there is a difference between a space of illusion where the moving spectator is exposed to illusionary impression of physical space by focusing on moving images or objects and the illusion depth of a painting creates which is actually achieved through perception and imagination.[114] The latter is an aesthetic enjoyment of illusion which is created by the conscious submission to what is represented whereas in the first case the distorted or manipulated image intensifies the physical experience through appearance and as Grau suggests "*this can temporarily overwhelm the perception of the difference between mage space and reality*."[115] The power of virtual medium, for a certain amount of time, has the ability to suspend the relationship between subject and object as well as real and virtual. In architecture, these types of virtual environments are considered as either virtual space or cyberspace referring to digital environments created by computer technologies or image processing systems.

Starting from the end of 19th century, right after the invention of photography which sparked off a new era for the representation and simulation of reality, the photograph stills were started to be put in motion, in other words, they were shown to public as films. This flow of images projected on screens in the theaters, represented an incredibly dense information for the public, a type of information that no longer could be sufficiently stemmed by their own sampling and data processing systems (i.e., their brains).[116] At the time, it was a very complex concern for 19th century human intellect to comprehend. According to Işıl Sencar, today, thanks to digital media and cyberspace, individuals who were exposed to

[114] Oliver Grau, Introduction in *Virtual Art: From Illusion to Immersion*, (The MIT Press: Massachusetts, 2003), 16.
[115] Ibid.
[116] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 2.

such dense information back then, became more than just a 'spectator'. They became part of the process.

"*Now, the capabilities and the areas of exploration are at their climax with the introduction of digital media, idea of cyberspace and the introduction of the ordinary user to the process, instead of the classical understanding of public which was not more than a spectator*."[117]

Within the cyberspace -or virtual space, 'reality' is achieved through combining data from different sources and different modes of realities instead of conducting one-to-one correspondence to the physical environment. In this environment, information collected from the environment or created in the computer constructs the raw material. According to Sencar, "*it is the place where architecture of information takes place instead of architecture of physical entities."*[118] Moreover, in the digital environment, the concept of scale, displacement and physical measurements that produce physical environment objects start to change and lose their Euclidean properties. With the capacity of storing, manipulating and transferring any and all kind of media and information to a unique coding system, the virtual space has the ability to reconstruct the links and relationship between different media and different modes of realities. It is a multilayered, hyperlinked environment where the classical physics do not apply anymore and construction of information along with virtual entities involve n-dimensional parameters, resulting with reestablishment of a new conceptualization of space. This is the reason why virtual mediums are always open to change and transitory. Virtual space is abstracted from physical concerns and meditate a new world of information.

Virtual space that is obtained by usage of computer technologies, is often considered as completely synthetic world. However, with the new techniques and advent usage of technology for generating and presenting images, computer

[117] Ibid.
[118] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 3.

technologies has transformed the image and information and now suggests that it is possible to 'enter' that unlocatable space of nets. [119] This is achieved through virtual reality head-mounted displays or augmented reality window displays through usage of screens. These new techniques and technologies offer immersing oneself in the image space where the space is dependent on spectator's gaze. This results with a real experience of the virtual, thus leaving the real/virtual dichotomy intact.

3.1.1 Different Modes of Constructing Reality: Virtual and Augmented Realities

In order to understand what these technological inventions and display techniques add up to architectural space and theory, one needs to understand the very essence and difference between Augmented Reality (AR) and Virtual Reality (VR) and how those tools function through user experience and how they empower the concept of heterotopia. Virtual and Augmented Reality tools have been integrated actively to our daily routine starting from 1990s. With the usage of video surveillance which not only practiced by governments, the military and businesses, but also by individuals through portable cameras and new technology phones, making the VR and AR technology and interfaces connected to daily routines such as looking at maps, making online bookings for a future holiday, face to face connection through cameras. The virtual became domesticated.[120] With usage of media façades in the malls, concert halls, and new projection techniques, endless Wi-Fi connections, it is obvious that the current generations are living with screens integrated to their lives. These screens, ornamented with virtual reality tools and visuals attribute new meanings to the physical space, distorting and bending its qualifications with the usage of new technologies. The Oxford Dictionary describes

[119] Oliver Grau, Introduction in *Virtual Art: From Illusion to Immersion*, (The MIT Press: Massachusetts, 2003), 16.
[120] Ibid, 220

Virtual Reality as "*the computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors.*"[121] In other words, VR is a computer-generated, artificial recreation of a real life environment that stimulates the users' vision and hearing in order to make the user experience a simulated reality. The expression itself constitutes a paradox as being '*an event or entity that is real in effect but not in fact.*'[122] In a more detailed expression, virtual reality is convincing spectators that they are experiencing an environment different than they actually are in, "*by substituting the normal sensory input received, with information produced by a computer."*[123] It is an illusionary occasion that generates an artificial world by simulating physical appearances. The virtual world represented through VR tools such as but not limited to head-mounted displays, oculus or gloves, is either generated in real time by the computer or it is already processed and stored or videographed and modelled. Grau argues that virtual reality proposes a space of possibility or impossibility by addressing to senses in an illusionary manner and by formulating an immersive environment that act '*as if*' it is a real one.[124] The main intention here is to apply an artificial world that renders the image space totally by filling the spectator's entire vision field:

> *"The majority of virtual realities that are experienced almost wholly visually seal off the observer hermetically from external visual impressions, appeal to him or her with plastic objects, expand perspective of real space into illusion space, observe scale and color correspondence, and, like the*

[121] "Virtual Reality Definition" Oxford Dictionary, accessed November 29, 2019, https://www.lexico.com/en/definition/virtual_reality
[122] Michael Heim "From Interface to Cyberspcae," in *The Metaphysics of Virtual Reality*, Ed. Miranda Anderson, (Oxford University Press: New York, 1993), 41.
[123] Ibid, 42.
[124] Oliver Grau, Introduction in *Virtual Art: From Illusion to Immersion*, (The MIT Press: Massachusetts, 2003), 16.

panorama, use indirect light effects to make the image appear as the source of the real."[125]

Apart from virtual reality where the spectators are fully immersed in a completely virtual environment, there is another paradigm that opens up new questions regarding both physical and virtual space: Augmented Reality. As Oxford Dictionary defines, "*Augmented Reality is a technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view*."[126] AR is a technology that layers computer-generated formations atop an existing physical space. AR is developed into apps and used on mobile devices to blend digital components into the real world in such a way that they enhance one another, but can also be torn apart easily. In their book *Spatial Augmented Reality: Merging Real and Virtual Worlds*, Oliver Bimber and Ramesh Raskar introduce AR and VR as follows:

> "*Most of us associate these terms with the technological possibility to dive into a completely synthetic, computer-generated world, sometimes referred to as virtual environment. In virtual environment our senses such as vision, hearing, haptics, smell etc. are controlled by a computer while our actions influence the produced stimuli. So what is AR then? (...) In contrast to traditional VR, in AR the real environment is not completely suppressed, instead it plays a dominant role. Rather than immersing a person into completely synthetic world, AR attempts* to embed synthetic supplements *into real environments*."[127]

AR is often achieved through the usage of hand-held devices such as cell phones and mobile devices similar to PDAs. However, not all AR applications necessitate

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[125] Ibid, 13.
[126] "Augmented Reality Definition" Oxford Dictionary, accessed November 29, 2019, https://www.lexico.com/en/definition/augmented_reality

[127] Oliver Bimber, Ramesh Raskar. *Spatial Augmented Reality: Merging Real and Virtual Worlds* (Massachusetts: A K Peters INC), 2005, 2

mobility. In numerous cases, spatial display techniques and technologies like holograms, mirror beam combiners, screens and video projectors are combined for augmenting the physical space. As a priori mentioned, in AR environments, correct and consistent registration between synthetic world (computer generated image and graphics) and the physical space is one of the most important aspect of augmented reality. Virtual space reflected through screens or projections are as important as the physical environment it takes place in. Both of the realities play an important role without suppressing one another. This leads to a fundamental problem because real environment is more difficult to control when compared to a completely virtual one. Bimber and Raskar, underlining the importance of formulating a strong link between augmentations and physical environment, give the example of TV screen playing a cartoon movie and immediately state that augmentation should include the physical environment to the extent that spectator can no longer distinguish the difference between real and virtual. To maintain the ambiguity, superimposition of real environment with projected image and graphics requires fast and realistic rendering techniques.

For architects and designers, advanced usage of both AR and VR are tools to enrich the spatial experience by using the necessary technologies thus creating an illusion out of the given environment offers numerous capabilities. Spatial qualities that are formulated by the usage of these tools opens up new discussions regarding perception of architectural space. If architecture is about real space, information and telecommunication technologies are pushing the boundaries of the ‘real’ and physical space where the embodiment takes place, with synthetically generated ‘virtual’ space that is located nowhere. Real space constructs a threshold for virtual space to exist as it also contains the virtual space within. Consecutively, boundaries between real and virtual become indistinct. This movement between two spaces, overlapping each other constantly, enhancing an in-between realness; should be considered within an architectural framework in order to understand what today’s place making is about.

3.2 Theories on Augmented Space

3.2.1 Virtual Space as an Augmentation to Built Environment

When the definition of architectural space is considered, the first thing to think of is the 'real space'. According to Mine Thompson, the notion of space and of real space are two concepts that are knitted together:

> "*"Space" is defined eighteen different ways in Cassell's Dictionary and Thesaurus, all different entries are dependent upon where the word "space" used for, such as in mathematics, astronomy, music, printing etc. Defining "real space" depends upon what we, as place-makers, really understand from space. Furthermore, in many other definitions, "space" is simply explained as three-dimensional volume or an empty place which is synonymous with a room.*"[128]

Real space could be considered as the material space we as inhabitants dwell. David Harvey, referring to real space, explain it as absolute space which he regards as a fixed and rigid space where individuals actions take place.

"Absolute space is fixed and we record or plan events within its frame. This is the space of Newton and Descartes and it is usually represented as a pre-existing and immoveable grid amenable to standardized measurement and open to calculation. Geometrically it is the space of Euclid and therefore the space of all manner of cadastral mapping and engineering practices."[129]

Harvey argues that, material space (also known as real space, absolute space or the physical space) constitutes the world of tactile and sensual interactions with materialized objects. It is the space of human experience. The elements, moments

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[128] Emine Mine Thompson, *Is Today's Architecture About Real Space, Virtual or What*?, Northumbria Built and Virtual Environment Working Paper Series, Vol.1, No.2, 2008 Norhumbria University, New Castle Upon Tyne: UK, 3.

[129] David Harvey, Space as a Keyword in *David Harvey: A Critical Reader*, eds. Noel Castree, Derek Gregory (Massachusetts: Blackwell Publishing, 2006) 270-295.

and events in this space are obtained through materiality of stable and finite aspects. Virtual space come out as an antonym for the material (real) space. But as Thompson points out, finding out in which ways virtual space is different from real space eventually leads to shaping and giving it a meaning through conceptualization and design activities.[130] As stated in the previous chapters, virtual space is established through the usage of computer technologies, thus when 'virtual space' is considered, digital environment and cyberspace are regarded as its complimentary concepts. According to David Harvey, the term virtual space amounts to a space built out of "*forms, colors and so on*."[131] Virtual space in fact, is fundamentally and profoundly anti-spatial. It is a non-physical environment established through usage of computer technologies. One can not describe its shape or proportions or there is no physical path that directs to that space. As in the case of cyberspace, it is everywhere and nowhere at once. One cannot get hold of virtual space in the same way the real space is held. It is in Thompson's words "*infinite artificial world where humans navigate in information-based space*."[132] However it is not the world wide web, it should not be mistaken for the net either. Virtual space distinguished itself from other networked technologies by having place characteristics. It is in fact "*a place where some human activities can take place on digital level rather than at the level of pure bodily experience.*"[133] The body works in Euclidean space, the real space where materials find their position. However, it sees in a projective space, it feels in a topological space and communicates in another one. Virtual space occurs as an addition to the real space. It is a virtual entity that is realized through actions of individuals. Virtual bears a whole set of realities in its existence yet it is physically unlocatable. Through bits, codes, images, rendered graphics it constitutes a multi-layered structure that surpass three

[130] Ibid.
[131] David Harvey, Space as a Keyword in *David Harvey: A Critical Reader*, eds. Noel Castree, Derek Gregory (Massachusetts: Blackwell Publishing, 2006) 270-295.
[132] Emine Mine Thompson, *Is Today's Architecture About Real Space, Virtual or What*?, Northumbria Built and Virtual Environment Working Paper Series, Vol.1, No.2, 2008 Norhumbria University, New Castle Upon Tyne: UK, 4.
[133] Ibid.

dimensionality of classical understanding of space. Because of its multi-layered structure, in virtual space the concept of space becomes interrupted and fragmented and start to change its characteristics yet it still establishes a sort of continuity.[134] However as mentioned in the previous chapters, virtual space requires numerous actions and additions in order to be experienced.

Augmented Space on the other hand, consists of both real and virtual space qualities in its structure. The term "augmented space" is firstly used by Manovich to define "*physical space overlaid with dynamic data*".[135] Manovich uses this terms to understand typologies of physical space ornamented with dynamic image and data.

> *"I derived the term 'augmented space' from the already established term 'augmented reality' (AR). Coined around 1990, the concept of 'augmented reality' is normally opposed to 'virtual reality' (VR). In the case of VR, the user works on a virtual simulation; in the case of AR, the user works on actual things in actual space. Because of this, a typical VR system presents a user with a virtual space that has nothing to do with that user's immediate physical space. In contrast, a typical AR system adds information that is directly related to the user's immediate physical space."*[136]

Although by calling physical space overlaid with dynamic data as 'augmented space' Manovich refers to data flows generated by mobile devices in the physical environment, for the sake of this study, the term is re-derived to understand multilayered structure of physical space after it is augmented with virtual information such as but not limited to projections of images and digitalized

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[134] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 53.
[135] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2. (June 2006): 220
[136] Ibid, 224.

graphics. In other words, for the cause of this thesis, augmented space refers to physical space that is augmented and overlaid with computer generated information, a physical space changed into 'other' real space through usage of virtual elements. Numerous augmentation, monitoring and projection techniques add new dimensions to a three dimensional physical space, making it n-dimensional. Hence, augmented space come forth as a physical space that is 'data dense', containing more dimensions than before. Although Euclidean geometrical dimensions still have the priority since a physical space is needed to experience an augmented space, they are no longer more important than virtually achieved dimensions.[137] Physical space and virtual space come together to coexist creating an augmented physical space. In that physical space, neither the real space nor the virtual space comes forth, instead, the augmented version of the physical space, a hybrid child of virtual and real spaces coming together, starts to dominate space dwellers' conceptualization and experience of space. As Manovich argues "*the layering of dynamic and contextual data over physical space is a particular case of a general aesthetic paradigm: how to combine different spaces together."*[138] It arises as a conceptual problematic, an element of architectural and artistic paradigms. Furthermore, Manovich sees creation of augmented spaces as next step to reconsider a flat wall or a gallery environment:

"For a few decades now, artists have already dealt with the entire space of a gallery: rather than creating an object that a viewer would look at, they placed the viewer inside the object. Now the artists have a new challenge: placing a user inside a space filled with dynamic, contextual data with which the user can interact."[139]

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[137] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2. (June 2006): 223.
[138] Ibid, 226.
[139] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2. (June 2006): 227.

Examples of augmented spaces could be listed as mega size shopping malls, entertainment complexes, museums and art spaces that incorporate dynamic lighting systems, projection screens, mirrors, transparent and translucent surfaces that gather together animated and dynamic virtual space and the physical space where human actions take place.

	PROPERTIES	MODE OF EXPERIENCE	EXAMPLES
Real Space	- Material space where human actions take place. - Fixed and rigid. - Obtained through materiality of stable and finite objects. - Space of Euclidean geometries and classial physics.	**Through human actions**	- Built Environment - Objects that are observed with tactile and sensual interactions
Virtual Space	- Non-physical environment obtained by computer technologies. - Open to change and transition. - Multi-layered, hyper-linked and n-dimensional. - Non Euclidean.	**Head-mounted displays**	- VR Environments - Illusory space paintings/mirror create (Las Meninas, mirror installations)
Augmented Space	- Physical space overlaid with computer generated information. - Consists both real and virtual space qualities. - Data dense. - 'Other' Real Space.	**Screens, mirrors, holograms**	- Shopping malls - Entertainment Complexes - Concert halls - Museums/Galleries

Table 3.2.1.1 Properties of Real, Virtual and Augmented Space

Moreover, usage of video screens and information displays that are used in big cities like Seoul, Hong Kong, Tokyo and New Yok city where information to the public is an important aspect of the city life could also be considered as augmented spaces on public realm. In order to discuss usage of electronic surfaces that carry out virtual space to the physical, Manovich refers to Robert Venturi, who considers the electronic display as the center of architecture of information age rather than an optional addition.

> "*In the 1990s, he articulated the new vision of 'architecture as communication for the Information Age. Venturi wants us to think of 'architecture as an iconographic representation emitting electronic imagery from its surfaces day and night'. Pointing to some of the already mentioned examples of the aggressive incorporation of electronic displays*

in contemporary environments, and arguing that traditional architecture always included ornament, iconography, and visual narratives (for instance, a medieval cathedral with its narrative window mosaics, narrative sculpture covering the facade, and narrative paintings), Venturi proposed that architecture should return to its traditional definition as iconography, i.e. as information surface."[140]

Although messages communicated through traditional architecture ornamentations were static as in the case of a medieval cathedral with window mosaics, a sculpture on the façade of a gothic church or engravings of soviet soldiers on the façade of a soviet hospital; today's augmented spaces that are constructed through usage of electronic displays make it possible for the messages to change constantly. Therefore, augmented spaces also act as potential spaces of contestation and dialog, offering an environment for immaterial virtual space to become materialized in the architectural space. However, Venturi's ideology of '*architecture as iconographic representation*' means to reduce the essence of architecture to flat narrative surfaces if one only concentrates on the information the display technology conveys.

"*If we focus completely on the idea of architecture as information surface, we may forget that traditional architecture communicated messages and narratives not only through flat narrative surfaces but also through the particular articulation of space", therefore a realization of augmented space, physical space holds of great importance since it is actually through the physical space the augmentation is observed. Augmented spaces are realized through the interaction of physical space with virtual information and data."* [141]

[140] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2. (June 2006): 232.
[141] Ibid, 232.

Going back to Venturi's conceptualization of architecture as an information surface however, can offer architects and designers to treat this space that is constructed by layers of data as a material which may lead to embracement of complexity and contradiction in the built environment.[142] In such perspective, virtualization of the built environment manifests itself as neither good nor bad but rather as "*the very process of humanity's "becoming other" – it's heterogeneous.*"[143] In short, virtualization of physical space, or virtualization in general is a process of transformation from one mode of being to another. Augmented spaces are heterogeneous by nature since they include both synthetic computer generated images (virtual space) and real world objects but they also come forth as a way of 'othering', a sort of contestation to other remaining spaces. It opens up the possibility to reconsider elements of architecture of information age: Treating the 'unlocatable', 'unreal' and 'imaginary' space virtual information constructs as a substance rather than just a void.

3.2.2 Augmented Space as 'Othering'

When it comes to define othering, perhaps one of the most acknowledged work is the one of Edward Soja. Soja in his book *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places,* define othering in terms of spatial knowledge in the context of '*thirding*' and analyses works of Lefebvre, Homi Bhabba and Michel Foucault. Soja argues that a spatial knowledge in the sense of creating a '*thread through complexities of the modern world*' is only achievable through constant search to move beyond what is known and he states that no one mode of spatial thinking is better as long as they remain open to recombinations of the '*real-and-*

[142] Lev Manovich, "The poetics of augmented space". *Visual Communication* 5, no. 2. (June 2006): 232.
[143] Pierre Lévy, The Nature of Virtualization *in Becoming Virtual: Reality in the Digital Age*, trans. Robert Bononno (Plenum Trade: New York, 1998), 16.

imagined'.[144] Opposing to any and all kind of binarism in order to constrain the free play of creative spatial imagination, Soja states that reductionism in all of its forms begin with the binarist apprehension of things as either/or grouping:

> *"For Lefebvre, reductionism in all its forms, including Marxist versions, begins with the lure of binarism, the compacting of meaning into a closed either/or opposition between two terms, concepts, or elements. Whenever faced with such binarized categories (subject-object, mental-material, natural-social, bourgeoisie-proletariat, local-global, center-periphery, agency-structure), Lefebvre persistently sought to crack them open by introducing another term, a third possibility or "moment" that partakes of the original pairing but is not just a simple combination or an "in between" position along one all-inclusive continuum. This critical thirding-as-Othering is the first and most important step in transforming the categorical and closed logic of either/or to the dialectically open logic of both/and also..."*[145]

According to Soja, reductionism occurs when there is binarity. When we group things as either/or categorization and do not leave any free areas for imagination to play, or othering to rise, we start to reduce their meanings and other possibilities. Soja argues that as opposed to binary categorization, thirding introduces a critical 'other than' option which is not derived through a simple additional combination of its binary ancestors but rather an 'othering' that speaks through its otherness from a "*disordering, deconstruction, and tentative reconstitution of their presumed totalization producing an open alternative that is both similar and strikingly different"* understanding.[146] To be more specific, thirding produces a cumulative trialectics for spatial knowledge which is radically open to otherness, a continuing

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[144] Edward Soja, The Trialetics of Spatiality in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 57.
[145] Ibid, 60.
[146] Edward Soja, The Trialetics of Spatiality in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 61.

expansion for theory of space. For that purpose, Soja constructs a trialectic spatial knowledge where he addresses to Firstspace, Secondspace and Thirdspace and defines how each space is organized through perception and ways of thinking. Throughout this subchapter, this study analyzes how real space, virtual space and augmented space could be considered within Soja's spatial trialectics and discuss augmented spaces in the context of "thirding-as-othering".

Soja, before moving to explanation of thirdspace, constructs the firstspace epistemologies by relating the latter to Lefebvre's perceived space. According to Soja, firstspace is the dominant accumulation of spatial knowledge, where material and materialized 'physicality' is understood through empirical measurements. Firstspace constructs the spatiality for absolute and relative locations of things, human activities, sites and situations. It is the space of actions that take place in households, buildings, neighborhoods, villages and so on. In other words, first space could be considered as physical, real space (or could be considered as 'absolute space' Harvey discusses) where our bodily actions take place and in which the built environment is experienced. It is the space of material things. Secondspace on the other hand, is made out of formulated representations of space and through the spatial workings of the ideational mind.[147] It constructs the conceived space of Lefebvre which is made up of empirical world orders of imagined geographies. There is still material reality since the representations of the firstspace, the absolute space is projected on the secondspace where material reality is comprehended through *res cogito*.[148] Soja refers to second space as follows:

"Secondspace is the interpretive locale of the creative artist and artful architect, visually or literally re-presenting the world in the image of their subjective imaginaries; the utopian urbanist seeking social and spatial justice through the application of better ideas, good intentions, and improved social learning; the

[147] Ibid, 78.
[148] Res Cogito refers to the thought of things. By relating the secondspace to thought of things, Soja makes a distinction between absolute and imagined spaces.

philosophical geographer contemplating the world through the visionary power of scientific epistemologies or the Kantian envisioning of geography as way of thinking or the more imaginative "poetics" of space; the spatial semiologist reconstituting Secondspace as "Symbolic" space, a world of rationally interpretable signification; the design theorist seeking to capture the meanings of spatial form in abstract mental concepts."[149]

Secondspace constitutes the world of image and its subjective modalities where representations of material reality are signified and simulated through the thought of things. If firstspace is the space where material reality of things take place and find their positions in Euclidean geometries, then secondspace could be compared to virtual space where the digitalized realities find their environment. Secondspace could be comprehended as virtual space in two different ways: It acts similar to Foucault's example of mirror, where the mind conjures that the body also exists in the virtual space in the sense of illusion of perception or it could be regarded as any space that does not have the ability to become materialized as in the case of cyberspace and the virtual space of networks. An analogy between secondspace and virtual space is immediately on display hence it holds the ground for the unlocatable space of data, information and virtual images. Moreover, secondspace should not be considered as an unreal entity since it tends to become the 'real' with the image and representation coming to define and order reality. This situation of secondspace constructs another similarity between virtual space because virtual space is often misinterpreted as 'unreal' space although it is real however, not physical. Furthermore, experience of second space can only be achieved through a passage from the firstspace, which is similar to the condition of experiencing virtual space by being present in the real space.

After the description and analysis of firstspace-secondspace epistemologies with respect to their relations to virtual-real duality, thirdspace epistemologies can now

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[149] Edward Soja, The Trialetics of Spatiality in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 79

be briefly understood through the examples of thirding-as-Othering. According to Soja, thirding not only critiques to firstspace and secondspace modes of thought but also rejuvenates a new approach for spatial knowledge that opens up new possibilities heretofore unthought within traditional spatial discussions. In Soja's words "*Thirdspace becomes not only the limitless Aleph but also what Lefebvre once called the city, a "possibilities machine;" or, recasting Proust, a madeleine for a recherche des espaces perdus, a remembrance-rethinking-recovery of spaces lost ... or never sighted at all.*"[150] Consecutively, Soja argues that thirdspace offers an alternation towards spatial envisioning, a radical openness in terms of elaboration for a different type of space and a challenge for all conventional modes of spatiality as he, referring to thirdspace states "*They are not just "other spaces" to be added on to the geographical imagination, they are also "other than" the established ways of thinking spatially. They are meant to detonate, to deconstruct, not to be comfortably poured back into old containers.*"[151] Augmented space, bearing Thirdspace qualities in its essence, starts to act as thirding-as-Othering for spatial thinking in the information age. Augmented space becomes thirdspace - not in the case of space created by head-mounted displays or the virtual space through VR combinations, but rather a heterogeneous space that carries the properties of firstspace , the physical and material space where human activities take place in the built environment in which Euclidean measurements are used and as secondspace, the virtual space that is generated by computer technologies through the usage of graphics and images of synthetic environment. However, thirdspace similar to augmented space, acts as a different entity. Both augmented space and thirdspace epistemologies are not only achieved as a mixture bearing firstspace (physical space) and secondspace (virtual space) qualities but also act as a different entity which generates its own coding systems for spatial consideration. Notion of

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[150] Edward Soja, The Trialetics of Spatiality in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 81.
[151] Edward Soja, Heterotopologies: Foucault and the Geohistory of Otherness in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 163

augmented space arouses as a new type of space which is constructed by overlaying the physical space with dynamic data, including both virtual and real space in its existence. Rather than acting as an in-between space where virtual space meets the physical, augmented spaces start to create a destruction of what constructs its entity and offers a contestation, a dialogue between physical and virtual as it starts to act as a different form of space where space is defined in an illusory manner. In augmented spaces, it is the physical space that becomes n-dimensional, bearing virtual space qualities in its continuation hence it becomes an 'other' form of conducting spatial knowledge.

Furthermore, Soja referring to "Of Other Spaces" by Foucault, makes an analogy between notion of heterotopia and thirdspace epistemologies by stating that there are resemblances between two concepts in terms of spatial thinking. Soja considers heterotopology as an appreciation of both seeing spatiality entirely as a dematerialized mental space in the sense of conceived representations and seeing spatiality as empirically definable spatial practice that is obtained through material and physical objects and the geometrical disposition of things. In the context of critique of this duality, Foucault introduces his search for 'other spaces' and 'other sites' that are in relation to all the remaining spaces but in a distorting manner:

> "*Foucault opens his search for "other spaces" and Other sites,". especially those that "have the curious property of being in relation with all the other sites, but in such a way as to suspect, neutralize, or invert the set of relations that they happen to designate, mirror, or reflect." Here is another example of what I have called a critical thirding-as-Othering.*"[152]

Soja firstly introduces utopia, the sites that are fundamentally unreal which have no real place where society presents itself in a perfected manner or as turned upside down. Compared to utopia Soja argues, there are more real spaces as Foucault

[152] Edward Soja, Heterotopologies: Foucault and the Geohistory of Otherness in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 157.

defines, spaces where utopia find their place, heterotopias: a conceptualization that resonates with geography of thirdspace.[153] Utopias could be considered in the context of virtual space and secondspace epistemologies, which have no real space and generally act as a mirroring representations of society or of material and physical constructs. Heterotopias on the other hand, are micro or site geographies of thirdspace because they arouse as an 'othering', a new way of understanding spatial knowledge since with their subjectifications, objectifications and emplacements they require new avenues to discuss existing spatiality of "*being and becoming, presence and absence, the inside and the outside*."[154] Simser, underlining the real/virtual dichotomies that is carried out by Foucault , explains the otherness of heterotopia as follows:

"*In contrast with utopias, heterotopias are real arrangements; they are 'the other' of normal places which are positioned at the intersection of real/imaginary and normal/other dichotomies. These localizable spaces specify their existence with the relationship they establish with the environment. This relationship might be complicated, contradictory, or reflective.*"[155]

Despite the fact that Soja scrutinizes Foucault's heterotopologies as frustratingly incomplete and inconsistent, he underlines that heterotopias generate "*the marvelous incunabula of another fruitful journey into Thirdspace, into the spaces that difference makes, into the geohistories of otherness.*"[156] However, according to Soja, this in fact creates the intentional ambiguity that makes thirdspace open and inclusive rather than static and securely bordered. Moreover, this ambiguity of

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[153] Ibid.
[154] Edward Soja, Heterotopologies: Foucault and the Geohistory of Otherness in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 158
[155] Duygu Hazal Simser, Unfolding and Reframing Heterotopia Within the Context of Peripheral Consumption Spaces, *METU Thesis*, 2017, 3.
[156] Edward Soja, Heterotopologies: Foucault and the Geohistory of Otherness in *Thirdspace Journeys to Los Angeles and Other Real-and-Imagined Places*, (Blackwell Publishers: Massachusetts, 1996), 162.

heterotopia arises as another quality of the notion which makes it open to discussion and enhances its 'otherness' in the context of thirding-as-Othering.

At this point, formulating an analogy between augmented spaces and heterotopias becomes an inevitable operation, for augmented spaces are already 'other' real spaces that are heterogeneous in essence since they are realized by layering virtual space atop of the physical space. Moreover, as the second principle of heterotopology indicates, heterotopias have the ability to change their functioning mechanisms in time in accordance with the societal needs. This principle suggests that a heterotopian space reflects the cultural attributions and rules of its environment, hence in the age of information, approaching to data dense physical space as augmented spaces is another way of constructing heterotopias, an othering for spatial constructs that occur as refunctioning spatial knowledge. Furthermore, in augmented spaces many fragmented, incompatible spatial elements in the case of gathering synthetic world (computer generated image and graphics) come together to construct the augmentation process in the physical space which results in juxtaposition of virtual and physical spaces in a single space. This quality of augmented spaces corresponds to the third principle of heterotopia, the ability to bring about many contradicting and discordant spaces in one environment.

	PROPERTIES	SOJA'S TRIALECTICS	FOUCAULT'S HETEROTOPIA
Real Space	- Material and materialized 'physical' space. - Fixed and rigid. - Space of human actions and experiences.	**Firstspace**	**Remaining spaces**
Virtual Space	- Unlocatable space made out of formulated representations of material reality. - Real, but not physical. - Constitutes the world of image and creates a sense of illusion.	**Secondspace**	**Utopia (Reflected self from the mirror)**
Augmented Space	- Consists both real (frstspace) and virtual (secondspace) qualities. - Heterogeneous by nature. - Offers an alternation towards spatial envisioning.	**Thirdspace (Other Space)**	**(Digital) Heterotopia**

Table 3.2.2.1 Analysis of Soja's Trialectics and Foucault's Heterotopia

Augmented spaces where diverse norms, worlds and customs converge on the stage, represents a heterotopia of many spaces combined in one. By the same

token, augmented spaces represent a different type of accumulation of time since the reflected images and graphics could either be prerecorded or recreated in a past time through the usage of computer technologies and are on display when spectators are experiencing the augmented space, or the data that is used as projection is obtained in real time through the acts and movements of the spectators who are experiencing the augmented space which correlates with the fourth principle of heterotopia, the ability to create heterochrony through discontinuity or accumulation of time. Lastly, as Foucault indicates heterotopias function through relationships they conduct with all the remaining spaces. This relationship finds its meaning through illusion or compensation that dissipate and invalidate societal realities. Augmented spaces come forth as a source of illusion because they are realized virtual spaces and they convey the real/virtual dichotomy as a materialized entity towards architectural space and they break common understanding of space perception by altering a different type of space experience. In other words, an augmented space could be regarded as heterotopia since through bits, codes, images, rendered graphics it constitutes a multi-layered structure that surpass three dimensionality of classical understanding of space and occurs as an othering to classical real space/virtual space dichotomy. Augmented spaces are multi-layered, interrupted and fragmented spaces that break the common understanding of spatiotemporal contingencies and offer a thirding, an othering for the remaining spaces they have relations with.

3.3 From Mirror To Screen: Heterotopia Revisited

There are several ways to layer dynamic and contextual synthetic information of images and graphics over physical space to obtain augmented spaces. Few examples could be listed as dynamic lighting systems, projection screens, mirrors, transparent and translucent surfaces, video screens and information displays. In most of the cases, however, video screens, projection screens and information displays are used because of their cost efficiency, convenience for installation and ability to be generated in bigger scales. Throughout this chapter, a comparison

between mirror metaphor Foucault conducts in "Of Other Spaces" and screen in terms offering a display interface for augmented spaces would be analyzed in the context of heterotopia.

As mentioned in the previous chapters, mirror is the ideal instrument for manipulation of space and creation of ambiguities, and it is also the perfect tool for the analysis of self. What we see in them actually resides in what we want to see. The most essential feature of mirror's usage is unquestionably to reflect the physical condition of the looker. From the ancient times until now, we as spectators have used it to reflect our abnormal nature to understand ourselves and see what others see when they look at us. Earliest civilizations believed that mirror showed an image of the soul, in medieval Europe it was a symbol of wealth and sensual pleasure. Mirror as well is considered as a medium of self-recognition and self-perception. Perhaps, mirror by its nature is a perfect tool which creates ambiguities and as well make the spectators understand their own ambiguities as well. However, after the industrial revolution, which resulted in exploration of different materials such as but not limited to iron, steel and different kinds of industrialized glass, many other surfaces that has the ability to reflect started to be used in both art and architecture. Moreover, especially after the introduction of cinema screen followed by development of personal computers starting from 1948, enabled mirroring effect to be achieved through electronic mediums. There are several similarities that could be conducted between mirror and screen however, they are also very different from one another. Perhaps, the most basic difference between mirror and screen could be maintained by looking at two tools as the meaning they generate etymologically.

According to the *Oxford Dictionary*, mirror in its noun form refers to '*a surface typically of glass coated with a metal amalgam, which reflects a clear image'* or '*a*

thing regarded as accurately representing something else'.[157] Whereas, the numerous definitions of the word 'screen' presented by Oxford Dictionary could be categorized under two definitions. In the first definition, screen is described as '*a fixed or movable upright partition used to divide a room, give shelter from draughts, heat, or light, or to provide concealment or privacy*'[158] which could be regarded as a protection for an object or in its opaque form, it could be considered as a separation tool which excludes or limitates physical and/or abstract spaces. However, it is the second definition of screen this thesis deals with, which is described as '*a flat panel or area on an electronic device such as a television, computer, or smartphone, on which images and data are displayed*' or '*a blank surface on which a film or photographic image is projected.*'[159] In this second definition, screen is regarded as a medium through which light or set of images (or videos) pass either sustaining their unity or mediating and being manipulated depending on the data that has been formulated. When the definitions of these two tools, mirror and screen, are considered, one can state that both of them include ray of lights acting on them and being reflected alternately.

Although both mirror and screen could be regarded as similar tools with regards to light acting through them like a wave or particle, their working mechanisms differ from one another. A mirror, is a surface that creates specular reflection of arriving incident ray whereas a screen performs as a source of diffuse rays. Mirrors generally produce the image not on the surface, but rather on a point that is behind or in front of its surface. It does not have the ability to produce the light rays which are responsible for image reflection whereas, the screen acts as the light source which originate from the screen and the image it displays is visible on the surface of the latter. Another difference between mirror and screen in terms of working

[157] "Mirror Definition" Oxford Dictionary, accessed November 25, 2019, https://www.lexico.com/en/definition/mirror

[158] "Screen Definition" Oxford Dictionary, accessed November 25, 2019, https://www.lexico.com/en/definition/screen

[159] "Screen Definition" Oxford Dictionary, accessed November 25, 2019, https://www.lexico.com/en/definition/screen

principles is that, the image reflected from the mirror can only be perfectly visible from one angle. Since mirrors work by specular reflection, the angle of the incident ray that is acting on the mirror is equal to the angle reflected ray makes. That is why mirror let's spectators see only in fragments. A screen, on the other hand, works through diffuse rays either rays originate from the screen or are acting on the screen as reflection, granting ability to be seen equally from all point of views as soon as the screen is in eyesight. The images reflected from mirror and screen can look identical however, light rays from a screen actually originates on the screen and expand through the surface diffusely whereas light rays from a mirror act on the surface on the mirror thus reflected from a virtual point behind it specularly. In short, a mirror is a tool that has reflections occurring through its surface but a screen is the actual place where the images are presented to a spectator.

It is obvious that screen is not the same thing with mirror when their working mechanisms and their definitions are considered yet their relations lay behind other analogies. Especially from the beginning of 1990s when computer technologies laid the foundations of the Information Society, screens started to be seen as a contact point between virtual and physical space and spectators started to reconstruct their sense of 'self' through this virtual medium along with augmenting the physical environment. Turning back to Foucault's arguments in "Des Espaces Autres", between non-existing place of utopia where society forms perfected illusory images of itself and heterotopia that is considered as counter-spaces that exist through an axis of relations, he offers a third space, the mirror. Johnsson, referring to Foucault's definition of mirror heterotopia, argues that "*This mirror is a virtual space, or non-place, where I see my image reflected there where I am not, yet my gaze in this mirror is directed back at myself. Thus I turn from this reflected image of myself to reconstitute myself where I am in the likeness I perceive in the mirror.*"[160] Mirror formulates a third space between real and imaginary. It acts like

[160] Peter Johnsson, Karen Browning, "50 Years on Mirror Enchantment, Self-reflection and Disruption," *heterotopiastudies*, March 14, 2017, http://www.heterotopiastudies.com/wp-content/uploads/2017/12/pdf-m.pdf . (April, 12, 2019).

a bridge between two realms in that case, through which the spectators gain the ability of both seeing themselves in a non-existing space and realizing themselves being present in fragments in the physical space. With this quality mirror offers, it could be regarded as an interface. Michael Heim in his work *Metaphysics of Virtual Reality*, brings up term '*prosopon*' that is used in old Greek and related the latter to interface as:

> "*A face facing another face. Two opposite faces make up a mutual relationship. One face reacts to the other, and the other face reacts to the other's reaction, and the other reacts to that reaction, and so on ad infinitum. The relationship then lives on as a third thing or state of being.*"[161]

By its dialectic nature of both revealing and hiding the real, mirror acts as an interface. However, a screen has a similar quality. With its usage, it heralds something that does not exist in physical realm as it actually is. On the screen, one sees something that is not there physically, but just like the imagery of mirror, is present through the mind's eye because its' representation is reflected upon the latter. Thus screen, like mirror, acts as a third space, a bridge between two realms, emblematizing interface. Geometrically, interface is defined as '*surface forming a boundary between two regions*'.[162] It is the intersection area of two different entities, consecutively belonging to both of them, having its own physical formation and limits. It serves as a bridge between virtual and real, offering strange places as being both 'concrete and abstract' simultaneously.[163]

Michael Heim, describes interface as:

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[161] Michael Heim "From Interface to Cyberspcae," in *The Metaphysics of Virtual Reality,* Ed. Miranda Anderson, (Oxford University Press: New York, 1993), 78.
[162] Meredith Bricken, "Virtual Worlds: No Interface to Design" in *Cyberspace: First Steps,* Ed. Michael Benedikt, (MIT Press: Cambridge, 1992), 364.
[163] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 60.

"*Interface refers also to software or to the way we actively alter the computer's operations and consequently alter the world controlled by the computer. Interface denotes a contact point where software links the human user to processors... It is our interaction with software that creates an interface."*[164]

Analogically, in today's society, with the ability to formulate a third space between real and virtual like a mirror and linking users with a non-existing space, screens could be regarded as a contact point between users and hardware/software.

Moreover, another analogy between mirror and screen could be achieved with regards to construction of 'identity' and sense of 'self'. For human perception of 'self, mirrors, undoubtedly, plays a vital role. "Concept of self" as Gordon Gallup[165] states, is one of the features of what differentiates humans from the great apes. In a two-page paper that was published in Science Journal on 1970, he summarizes his self-recognition experiment as "*Recognition of one's own reflection would seem to require a rather advanced form of intellect.*"[166] According to Jacques Lacan, the most important psycho analyst since Freud, speculated that what we think of as our own identity being actually imaginary, or in other words, a construct behind where the real subject dwells. He called this development of self as '*mirror stage'*. According to Lacan, the mirror stage starts to occur in infants from six to eighteen months, as soon as the infant is exposed to a mirror. The moment infant sees itself in the mirror, it starts to develop a sense of self. Before this interaction, the infant can not consider itself as an individual, rather, it exists as a unified subject, regarded as being one with its environment and everything around. Concordantly, the reality of being a whole and unified subject is lost when the infant realizes itself as having an identity through observing itself in the mirror.

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[164] Michael Heim "From Interface to Cyberspcae," in *The Metaphysics of Virtual Reality,* Ed. Miranda Anderson, (Oxford University Press: New York, 1993), 78.
[165] Gordon Gallup Kimdir onu açıkla.
[166] Mark Pendergrast, "Mirror mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 8-9.

Mirror, creates the illusion that the identity and character is whole. However, this is a misconception since the infant sees its fragmented body and assumes itself of being in control over his body which in reality it does not. This self-deception infant perception constructs as it encounters with mirror, is regarded by Lacan as permanent part of psychology of human, affecting the whole process of being. As Mark Pendergrast states, this construction of self through mirrors, helps adults to survive in the modern day:

"The ability to recognize oneself in a mirror correlates with (but does not cause) essential human traits such as logic, creativity, curiosity, the appreciation of beauty, and empathy, leading directly to tool use, scientific experiments, story-telling, poetry, art, theater, law-making, philosophy, religion, and a sense of humor. In other words, as humans evolved, the ability to think— to ponder themselves in mirrors, among other things—helped them to survive."[167]

The attractiveness of this 'mirror stage' theory deducted by Lacan has been interpreted by many cinema authorities. A relationship between the mirror image formulated by infants and a cinematic experience a spectator goes through is constructed by relating the latter to cinema screen. For theorists like Christian Metz and Jean-Louis Bauldry, the cinema screen performs just like a mirror, through which the spectators start to identify themselves in relation to what they see on the screen. This spectatorship is conducted by spectator's identification of camera. Though the spectator is generally considered as a passive viewer for the action taking place on the screen, identification with the camera enables spectators to find themselves in the illusory space the cinematic screen provides. According to Sencar, before cinema got publicly acclaimed, "*simulation was limited to the construction of a fake space inside a real space visible to the viewer,"* just like in

[167] Mark Pendergrast, "Mirror Mirror: A Historical and Psychological Overview" in *The Book of The Mirror: An Interdisciplinary Collection Exploring the Cultural Story of the Mirror,* Ed. Miranda Anderson, (Cambridge Scholars Publishing: New Castle, 2008), 8-9.

the case of panoramas, dioramas and theatre stage.[168] These simulation technologies were realized by corporeality of spectator's body, existing in a definite place in space and time. It is because spectators, instead of experiencing the scene through an interface like a screen, shared the predetermined physicality of the scene. Moreover, camera proposes infinite number of possibilities like zooming in and out, fast forwarding and representation in slow motion, to an extent that limited capacity of human sight would fail to perform. Especially after the introduction of moving-image into cinematic discourse, the ability to simulate and represent spatial experience that is closest to the real one, caused a correlative transmutation in perception of space. Thanks to moving-image and availability of new montage techniques that enabled different images to go on incessantly after each other on the surface of a screen instead of imitating a space in a scene, films started to overcome physical and time-wise limitations.[169] In Sencar's words, "*Through this medium, conventional moving spectator gave its role to the static one, while the static space turned out to be a dynamic image.*"[170]

However, the analogy between mirror and screen is not only limited with the ability to expand the spectator's given physicality. Bauldry and Metz argue that everyday mimesis taking place on the cinema screen is actually reflecting on spectator's perception of self as well as reflecting on spectator's subordinate daily life:

"*The movement of the image, the insistence of the cut, the ex-centricity of the frame, all ensured that cinema not only departed the shores of painting, but*

[168] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 35.
[169] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 35.
[170] Ibid.

unmoored the traditional co-ordinates of mimesis itself, inscribing a new instability in the relation between representation and reality."[171]

In the end, mirror ferrets out a dialectic play of being: Moment of being present and absent. It mimics the reality. With the usage of camera angles and different montage techniques new in-between experience among virtual and real experience was formulated. Screen, as well as mirror, started to mimic reality, representing a sense augmentation. Like Lacan mentions, individuals start to create a sense of self right after their first encounter with mirror. This sheet of light has a dual ability of representing self as both observer and observed, breaking the boundaries between object and subject. It helps one to know about their own physicality, although what one sees in the mirror is its own simularc. In the end, all that there is to see in the mirror is this '*Not being u*s'. Perhaps this ambiguity created by the mirror, throughout history, led many artists to take advantage of this spectacular tool while they were creating self-portraits before the arrival of digital cameras. Creation of self-portraits through mirrors emerged as an important visual genre of the 20th century and mirror shifted from being a subject to becoming the material and object of art. The virtual reflections occurring on the surface stood out as a focal point of philosophical and psychological investigation of 'self'. Artists used mirror to show their own presence both as artist and to expose complicated fragments of their own characters. After the introduction of web, computers and subsequently, information society, individuals apprehended themselves in what Lacan refers to as mirror stage, more often through the surface of electronic devices - screens, than in good old mirror. Today, screens predominate the moment of identification of self. Not only through virtual abilities it serves as an interface of a working electronic device, it also embodies the accurate presence of the spectator in its blank form. As James Reich, an English author specialized in science fiction argues:

[171] Scott McQuire, "Flickering in Eclipses," in *Visions of Modernity: Representation, Memory, Time and Space in the Age of Camera* (SAGE: London, 1998), 72.

> "*There is a moment, before activation, when the device functions more purely as a mirror, before it begins to produce itself, and to produce its user. When the screen, the phone, the television is switched off, there again is the user, the viewer in a dark portrait. Shifting the focus of the eyes, the sibilated image of the viewer returns, in a glass darkly. The infant, child, and adult in our society spends more time reflected in the glossy surfaces of devices than he ever did in the looking glass.*"[172]

Through the surface of the screens, spectators' presence and image is visible. Ubiquity of screens through a computer window, mobile phone screen, facade of a building sustains the mirror stage in a more powerful manner than mirror. Rather than looking at the mirrors, screen of mobile phones is used.

> *"We do not, it is true, carry actual looking glasses with us throughout our work-leisure day, except that we do by analog. We take 'selfies' and you will have seen someone use their active photo screen as a mirror. In its development, the device itself is ever subsumed by its screen, now its edge-to-edge quality, the erosion of borders, the vanishing frame of the mirror.*"[173]

Spectator, who becomes instantly aware of itself where the reflected self becomes ineluctable, finds itself in constant adjustments, adaptations and manipulations. Behind the screen, similar to that virtual point behind mirror, lays many virtual relations -web. Through usage of social media or Internet, self-spectating individuals project multiplied recursions of 'I' in exaggerated, manipulated, distorted formats. This representations of self through screens, instead of referred to as 'self-portrait', are notoriously known as '*selfie*', which was selected as the

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[172] James Reich, "Virtual Lacan: Reflections on the Mirror Stage in Technology," *James Reich Books*, accessed November 9, 2019, https://www.jamesreichbooks.com/virtual-lacan-reflections-on-the-mirror-stage-in-technology/

[173] James Reich, "Virtual Lacan: Reflections on the Mirror Stage in Technology," *James Reich Books*, accessed November 9, 2019, https://www.jamesreichbooks.com/virtual-lacan-reflections-on-the-mirror-stage-in-technology/

Word Of The Year by Oxford Dictionary in 2013.[174] Selfies are a way of elaborating connection in the society. They are, in a way, societal reflections of the way space dwellers present themselves. In a society powered by media and networked technology facilities, capturing and sharing self-portraits with one another becomes an internalized construct. Through camera and screen of a mobile device, a sense of 'self' is created, then projected to other nodes of the network - users of social media. As technology and network capacities evolve so does the representation of self in different formats. Instagram and Snapchat, two dominating social Apps of the world with total amount of monthly active users being more than one billion, enhanced the selfies and momentary information transaction by taking these virtual 'self-portraits' to the next level: Augmented Reality Filters. Through these filters, space dwellers have the ability to manipulate, deconstruct, reconstruct their image of 'self' as well as sharing it with every connection they have on social media. According to Snap Inc. CEO Evan Spiegel, three billion videos and photos are shared on a daily basis through Snapchat. This augmented idea of self, captured by camera on the mobile phone, augmented by the codes and parameters, are reflected back to the device screen, representing something that is actually *unreal*.

What is reflected on the screen is a virtually augmented image that has been realized through face recognition or area recognition systems. Through screens, space dwellers experience a sort of mirror experience, an in-between practice among real self and virtually augmented one, similar to the one Foucault undergoes as he experiences his virtual reflection being him and not being him transiently. What space dwellers experience through the mobile screen, becomes a heterotopia which was constructed with regards to social mechanisms of a society, offering itself through digital mediums: Digital Heterotopia. Individuals of Information

[174] "Oxford Word of The Year 2013" Huffington Post, accessed November 12, 2019, https://www.huffpost.com/entry/word-of-the-year-2013_n_4296009

Society where the only way of conducting business, personal and social relations are through systems of network, find themselves embedded on screens. Waking up with mobile phone, working with computers, watching news on televisions, making appointments online, keeping in touch by video calls, conference calls and finally before going to sleep, one last check on the mobile phone to make sure that the alarm is set and there is no more unanswered notification, individuals live every stage of their lives in between screens, thus in-between real and virtual. However, this comes out as the normalcy of Information Age and as mentioned on the previous chapters, the real withers because it does not sustain its power anymore. Individuals of Information Society are accepting the fact that many relations they conduct can only occur through this virtual point and they agree to be a node on the system of networks where inevitably they become data sets as well as they are exposed to unlimited data and information. These devices such as but not limited to iPhone, iPad, laptops are seldom out of hand and are used constantly for any reason. One aspect of Information Society is to insist on visibility and presence by the usage of networks, to see itself where it is not by manipulation, augmentation and revision and to virtualize itself into spaces of reflection or in other words - Internet.

Turning back to Foucault and his definition of mirror as a heterotopia, he sees heterotopias as the materialized versions of utopias in its function to mirror the latter. It is the virtual space behind the mirror which hides all the uncanny relations and where spectators see themselves in an unreal place that makes mirror a heterotopia. On the other hand, the reflection occurring on the surface of the mirror is actually localizable and real although it is created through all those virtual relations laying behind the mirror. As Ebru Şevik states '*The binary relationship between the real and the virtual space is that what constitutes the heterotopian space that can be interpreted from Foucault's ambiguous definition. In fact, he positions these heterotopias between utopias and other sites, which offer a sort of*

mixed, joint experience.'[175] Screen as well, works through this double logic. It hides all the information and data it contains in the virtual medium and it represents that augmented or virtually ornamented representation of the reality through its screen. Therefore, it acts like a mirror, both being an utopia and heterotopia. However, this concept of virtual is so strong in the Information Society that it actually becomes reality. Christine Boyer summarizes Foucault's consideration of mirror as a utopia as '*The reason why adults create utopias, or so Foucault surmises, is in order to efface the body, to escape to a non-place outside all places, where they can dream of a bodiless body more beautiful, powerful and swift than in reality.*'[176] Mirror, with the gaze acted upon it, let us escape our own reality and reflects our gaze into another reality, that is over there. Similar to mirror, screens are able to make space dwellers escape their own reality and reflect them onto a bodiless body that is more powerful than the reality.

They help space dwellers perceive a space, a non-place outside all physical space and what they can make space dwellers feel better than their own reality. On the other hand, mirror along with screen offers '*a space of comparison between the virtual image in the mirror and the image of the self, comparison between an image of utopia and dystopia, the past and the present, the outline over there and the details up close. Hence the 'in between' becomes a place of haunting, of a shadowy silhouette in which something is missing or repressed, the ghost of an 'other' reality, lurking in the visible that differs.'*[177]

It is actually through this in-betweenness and different types of relations Foucault constructs heterotopias, referring to 'another topos'. They do not contain fixed,

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[175] Ebru Şevik, "Territoriality of Heterotopia: Threshold As A Condition Of Heterotopian Space In the Case of Emek District, Bursa" (Master Thesis, METU 2018), 37.
[176] Christine Boyer, "The many mirrors of Foucault and their architectural reflections" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 63.
[177] Christine Boyer, "The many mirrors of Foucault and their architectural reflections" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 63.

rigid or unchangeable parameters. Rather heterotopias are '*flexible, inconclusive and rather unstable, volatile system or arrangement that adapts to the propensity of the meaning and criteria of normalcy and order to shift and change over time and according to the logic of the society, culture or civilization in question.*'[178]. Succinctly, as Foucault argues;

"*In other words, we do not live in a kind of void, inside which we could place individuals and things. We do not live inside a void that could be colored with diverse shades of light; we live inside a set of relations that delineate emplacements that cannot be equated or in any way superimposed.*"[179]

We live inside a set of relations that somehow generate a network between spaces as they are superimposed and accumulated over time. These spaces are represented through the set of relations they were created by so many times that what is being represented becomes outcompeted by its own representation. The society and technology of today offer a life between screens therefore architecture, inevitably, becomes effected by these changes. However, as Julio Bermudez states in his work *Architectural Visions: Non-Verbal Essays on Cyberspace*;

> "*Designing architecture of screens means to produce architectural artifacts that change their informational content following functional, aesthetic, or contextual demands. By choosing information over matter, the virtual over the real, the changing over the stable, representation over presentation, this vision fundamentally challenges and finally breaks down the solid, static,*

[178] Heidi Sohn, "Heterotopia: anamnesis of a medical term" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 41.
[179] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 16.

enclosing, and semiotic nature of architecture as we have understood it for millennia"[180]

As aforementioned in the previous chapters, mirror act both as a heterotopia because it is located at the physical space the spectators dwell while they are looking at the mirror, and as a utopia because the spectators see themselves in the virtual space where they are actually not located in. Screens installed either on the devices used or on the physical space, produces the way for augmentation to occur. It is through screens virtual space overlays physical space and make it n-dimensional, fragmented and multilayered.

To sum up, digital heterotopias that are constructed through screens offer physical space that is in constant fluxus, which are open to change and manipulation. By the smallest screen on the phone, many alterations to self could be easily made. Usage of big screens in the built environment, on the other hand, offers an alteration for the physical space to become covered with computerized information and images, hence a stronger augmentation could be achieved. If as Foucault argues, heterotopias are spaces that are adaptable to societal needs and that define themselves in accordance to all the relations occurring in the society, then it is just the right time to reconsider term 'heterotopia' and call it 'digital heterotopia' where heterotopia find itself as 'other' in a society under the guidance of hyper real and modelling. This space of 'other' is a space that contests and reverberates the given relation, open to constant change, manipulation and reinterpretation. Digital heterotopia that is constructed by virtual augmentation of the given physical space through screens, offers these features to space dwellers. With the ability to change in accordance with the information channels it is fed by, digital heterotopia undergoes mutations and manipulations constantly, breaking the normative spatial

[180] Julio Bermudez, "Architectural Visions: Non-Verbal Essays on Cyberspace" in *Collected Abstracts of the fourth International Conference on Cyberspace*, (The Banff Centre for Arts: Banff Canada, 1994), 3

knowledge and suggesting a new type of physical space that could be manipulated through the usage of computer technologies and new projection techniques.

CHAPTER 4

DIGITAL HETEROTOPIA: IN DEPTH ANALYSIS OF CASES IN THE CONTEXT OF AUGMENTED SPACE

As aforementioned, ever since the notion of heterotopia entered to academia, there have been many scholars and architectural thinkers who have discussed it in terms of what it can bring into architectural discourse. From Manfredo Tafuri to Philip Johnson, many theoreticians referred to term, whereas some of the scholars (like Charles Jencks) came up with their own versions of understanding heterotopia and relating the latter with architecture. However, with the development in recent years in augmented reality and new ways of representing and experiencing space, the possibility to transmit architecture into something more have been found. In a society that finds new meaning in virtual environments, revisiting the term heterotoia and understanding it within the scope of digital and virtual, enables one to treat 'other' spaces that come together both as virtual and physical entities.

Throughout this chapter, the space of 'other' with the ability to contest, change and overturn established orders is analyzed by focusing on two examples: L'Ateliers Des Lumieres gallery and Walt Disney Concert Hall Dreams installation. Furthermore, in order to generate a deeper understanding of the cases, interviews are designed and conducted with respect to augmented spaces. The reason why these projects are choosen as case subjects is that in both of the cases what come forth is the integration of architectural space in the program of the mapping. In other words, in both of the cases, the design and attribution of the computer generated images depend fully on the architectural space they will be projected in on. These are not surprisingly occurring flat surfaces and the physical space's dimensions play a vital role. Therefore, if one is to suggest that these types of spectacles can easily maintained in any physical space through the usage of mapping technologies, that would be a mistake as well as underrating the

integration of architectural space with virtual images. In both of the cases what is represented is more than a simple projection mapping that is easy to find in the night clubs where the background of DJ performances is mapped with basic graphics.

4.1 L'Ateliers Des Lumieres

L'Ateliers Des Lumieres is a physical gallery that displays reputed artists' works and collections in a digitalized manner. Bruno Monnier, the president of *Culturespaces*, had an idea of creating a Digital Art Centre in Paris. He rented the *Chemin -Vert* cast iron factory in 2014 and after four years of renovations, *Ateliers Des Lumieres* opened its first exhibition on 13 April 2018 with immersive Gustav Klimt exhibition. The monumental exhibitions are based on virtualization of the works of art and high-resolution projections of these works on immense surfaces thanks to digitalization tools. Monnier refers to these exhibitions as:

"People do not learn about culture as they did in the past. The practices are evolving, and the cultural offering must be in step with them. The passive observation of works of art is no longer relevant, and I'm convinced that people are increasingly learning about art through this immersive experience and the emotions they generate. The marriage of art and digital technology is, in my opinion, the future of the dissemination of art among future generation."[181]

It is a physical space, constructed by walls, columns and beams on which montaged works of arts that have been manipulated, exaggerated and put in motion in a computerized environment, are projected. For the sake of this study, L'Ateliers Des Lumieres is observed and two shows, *Van Gogh: Starry Night* and *Dreamed Japan: Images of the Floating World* are attended in order to understand the

[181] "Immersive Art Exhibitions", Ateliers des lumieres, accessed January 5, 2019, https://www.atelier-lumieres.com/en/amiexr-immersive-art-exhibitions

‘othering’ experience virtual paintings that are obtained through the usage of synthetic images create with the physical space. Furthermore, a 14 questions interview is conducted with the tour guide of L’Ateliers Des Lumieres in order to understand how this gallery can be analyzed within the scope of digital heterotopias.

L’Ateliers Des Lumieres stands out as an example for augmented spaces since it constitutes of a physical space that is overlaid with digital and dynamic images through the usage of multiple projectors. When the lights go off and music along with projected images are on display, the physical space starts to become multi – dimensional. Physical works of art are computerized, analyzed and deconstructed to be brought back together in a virtual realm to define a different type of art. It represents an ‘other’ art experience.

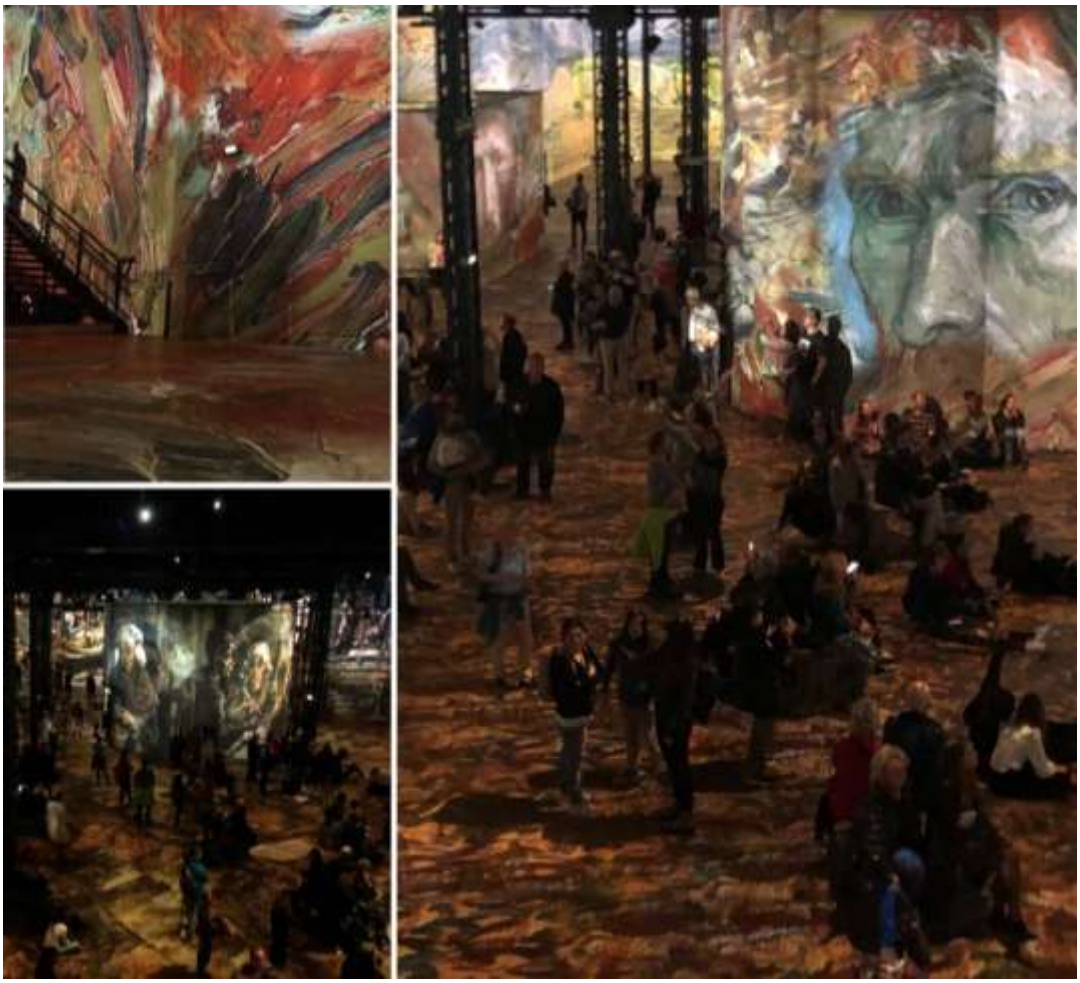

Figure 4.1.1 L'Atelier Des Lumieres Van Gogh Exhibition, *Augmented Gallery Space*, 2019, Iphone Photo, Personal Archive of Gülce Özmen

The main message of the atelier, in interviewer's words is "*to make people appreciate art, in all of it forms. By creating a dynamic art out of static paintings, including a sound design and integrating all of the process with the physical environment actually defines a different type of art, an art created through other art pieces that come together in a virtual environment, then reflected on walls. Which is actually very exciting.*"[182] In the first venue, hyperreal works of Van Gogh could be seen. The gallery, which represents Gogh's works overlapping with each other as they project the works on walls to its visitors, take the dimensions of exhibitionism to something beyond real. In fact, when asked about perception digitalized paintings create as either real or virtual, the interviewer stated that she regards this type of art as 'virtual' other than real, however she underlined the fact that this is an 'other' type of art which includes scenography, music, architecture and technology all together:

"*For me it's more like digital paintings, not a real one. The shows in themselves are actually works of art because they're also creations. It's not Van Gogh art anymore, although the images projected carry Van Gogh's art in it. However, it's still an art because they include creation process. I think about Walter Benjamin and revolution of art, at the time it was about movie and photography. People were questioning whether movies or photographs were art. I think we're at the same place now: Is digital art still art? Well I believe yes. They include scenography, a music, these projections should be integrated in the room, reflected in accordance with the architectural space. It's a combination of several different art forms in a virtual environment but reflected on the walls."*[183]

[182] See Appendix A, question 7.
[183] See Appendix A, question 6.

The pieces of art are detached from their original space and time, decontextualized, reshaped for the new medium and re-established in a new environment, in a new timeframe. With the usage of digital montage technique, the art images come together to create a new mode of reality that gather together different times (both early and late works of Van Gogh) atop different geographic locations (the rural areas of Holland come together in a gallery place that is located in Paris) thus creating an illusion of contiguous space and time, proposing a portal to a non-existent world. It not only provides seeing the art differently, but also seeing a different art – that comes together as layers through the montaged images which represents a new paradigm. Details of the painting such as brush orientations, light works and different strokes, which cannot easily be perceived by looking at the static painting hanging on the gallery wall, becomes alive and dynamic, comes forth and start to project on space dwellers' body.

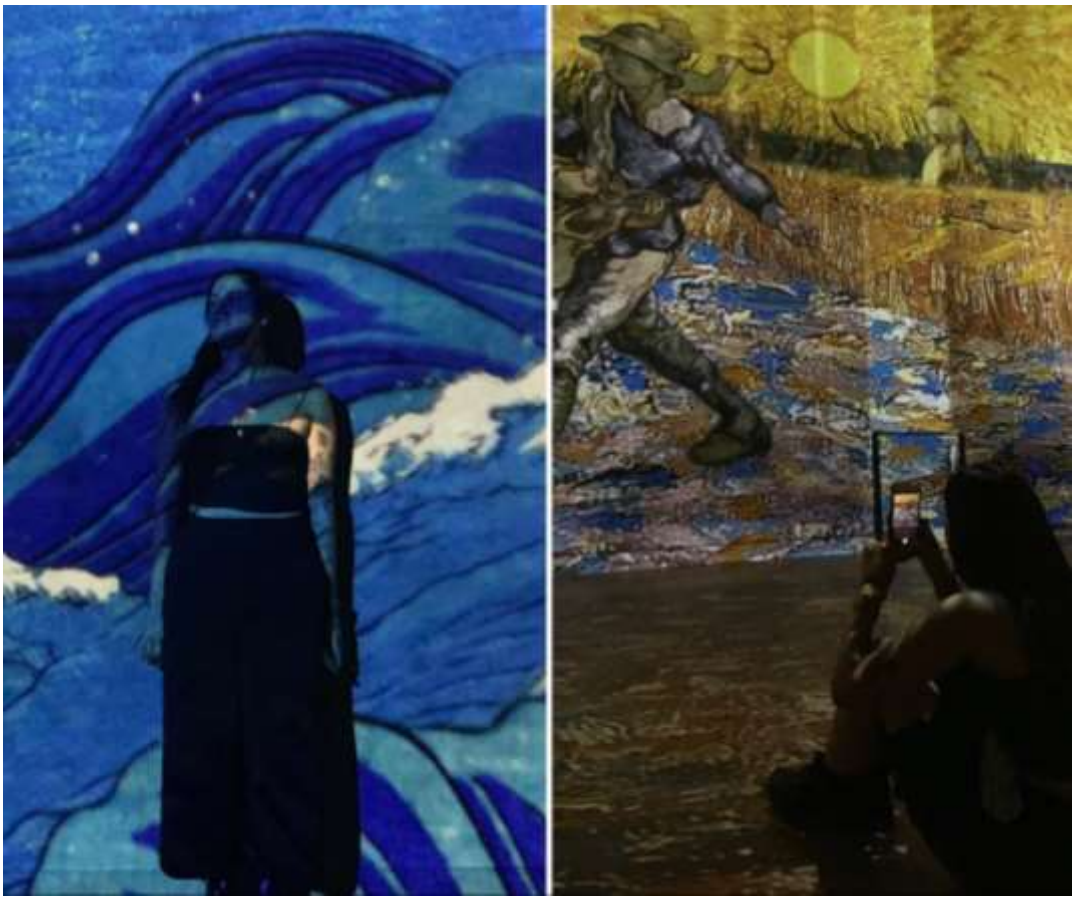

Figure 4.1.2 L'Atelier Des Lumieres Van Gogh Exhibition, *Augmented Body Collage*, 2019, Iphone Photo, Personal Archive of Gülce Özmen

The gallery space consists of five main areas that are connected to each other and which are located in one big space. A cylindrical 'hub' is located in the middle of the gallery space divides the gallery, yet enable any one to see other side by a simple gaze. This is the place space dwellers visit if they want to collect information regarding the art works that are on display. When asked about the problems the team faced during design and construction of the digital venue, the interviewer's reply included the display of information gathered in this concave hub:

"*The information regarding the art pieces' names, history and explanation are projected there and while you're visiting the venue that's the place where you get the real-time information regarding what is being projected on other walls - the non-enclosed areas of the venue. It's difficult to do as well because you need to give as much information as possible in a non-static wall and as the projections change in the venue so does the information regarding that piece of art. Sometimes, we need to give the information of 10 pieces at the same time because some of the projections include a montage of several works, which becomes even harder.*"[184]

Moreover, L'Ateliers Des Lumieres is a good example for understanding augmented spaces because in order to display these digital paintings, space dwellers need to be present in the physical space. In other words, as mentioned in the previous chapters, real space is not suppressed nor is less important. The physical space is as important as the virtual images reflecting on the walls. Bearing in mind that augmented spaces are realized through the interaction of physical space with computerized synthetic information, physical space plays a crucial role to deliver this different type of art to its enthusiasts. In fact, when asked about the

[184] See Appndix A, question 4.

role of the physical space for the exhibitions created, it is understood that physical space is very important for L'Ateliers Des Lumieres since projections, all the images to put on display during the venue, are designed in accordance with physical space's measurements and dimensions:

"*The projectors are placed according to what is planned to be put on display. All the wall pieces are defined in a way for the projectors and all of them reflect something else, but then they come together to define another art piece. In Dream Japan exhibitions, we feel that especially, because that's the exhibition which is designed specifically for this very room.*"[185]

L'Ateliers Des Lumieres stands out as an example for augmented spaces, therefore comes forth as a way of othering to all the remaining spaces and art typologies, especially to conventional museum space. Therefore, by its nature to gather virtual space of dynamic images with static physical space, it generates a specimen for digital heterotopia which represents spaces that come together in a digitalized manner atop of physical space, that are other or deviant with respect to established orders and ways of thinking. Returning back to Sohn's statements about heterotopia, she refers to the latter as the space that is reserved for the abnormal, the other. She argues that it is precisely in the subversion of the established orders of things that heterotopia can deliver its full potential. L'Ateliers des Lumieres occurs as a challenge to established orders of museology and exhibitionism for two reasons. The first is that, the second principle of heterotoplogy suggests that heterotopias mutate with time. This principle suggests that a heterotopian space reflects the cultural and societal attributions and rules of its environment. In L'Ateliers Des Lumieres, although a big collection of art genres or one artist is displayed, there is no real collection, nor a physical painting. What is projected on the walls are computerized information of the works of arts that is digitized to

[185] See Appendix A, Question 9.

represent a different art format, a product of information society. In the venue, the space dwellers penetrate with the vanishing exhibition space as the lights turn off and the projections start to display the works, physical space becomes a weightless container. Therefore, space dwellers have the chance to dive deeper into the works of art and are wondrously float through the dynamic images, experiencing "*not only cinematic but also cinemaesthetic impressions.*"[186] This cinematic experience sustained by the usage of high quality projection and mapping technology, constructs the second reason why L'Ateliers Des Lumieres acts as an othering to already established orders of museology and museum space. According to Manovich, the gallery space has always been the space for refined high taste. It was a space, primarily reserved for static images whereas cinema space provided entertainment for masses who are eager to see moving images. Until the late 1980s this division between cinema and gallery space was so distinct that introduction of projected video installations that take over the gallery space were regarded as an antithetical organism that is against the whole paradigm of modern art:

"Most video installations adopt the same physical interface: a dark enclosed or semi-enclosed rectangular space with a video projector at one end and the projected image appearing on the opposite wall. Therefore, from a space of constant innovation in relation to the physical and software interface of an art object, a gallery space has turned into what was, for almost a century, its ideological enemy – a movie theatre that is characterized by the rigidity of its interface."[187]

With the ability to turn established orders of gallery space, video installations and art that is projected on the physical space gallery holds, L'Ateliers Des Lumiers

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[186] David Harvey, Space as a Keyword in *David Harvey: A Critical Reader*, eds. Noel Castree, Derek Gregory (Massachusetts: Blackwell Publishing, 2006) 270-295.
[187] Lev Manovich. "The poetics of augmented space". *Visual Communication* 5, no. 2, (June 2006), 230.

constructs a digital heterotopia. Moreover, with the ability to turn gallery space into a cinematique experience, L'Ateliers Des Lumieres generates an example for the third principle of heterotopologie. As mentioned in the second chapter, the third principle of heterotopias indicate that "*heterotopia has the ability to juxtapose many fragmented, incompatible spatial elements in a single space*"[188] as in the case of theater and cinema where two-dimensional screen represents three-dimensional space for its spectators. Similar to cinemas and theaters, the venues designed for L'Ateliers Des Lumieres represent a heterotopia of many spaces combined in one, where diverse worlds, norms and customs converge on the stage.

Moreover, museum space is already considered as a heterotopia by Foucault because it has the ability to "juxtapose in a single real space, several spaces, several sites that are in themselves incompatible" and they create heterochrony, other time, where "*time piles up, heaping up on top of its own summit.*"[189] In the case of L'Ateliers Des Lumieres, although the interviewer underlined the fact that L'Ateliers Des Lumieres is not a museum because they do not display collections in the conventional manner[190], the gallery space remains as a temporary virtual storage of art works it presents. In the gallery, the team collect, rearrange and display objects that actually do not belong to the space they are presented in. Through projection of multi-layered images, past is accumulated in a digitalized environment and transferred atop physical space, articulating a continuity between artist's past time and venue's present time. In this particular example, its space-dwellers not only find themselves as agents of an encapsulated time, they also find the possibility to experience works of art as they find the possibility to orient themselves in the art object. As interviewer states:

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[188] Michel Foucault, "Of Other Spaces (1967)" in Heterotopia and The City: Public space in a Postcivil Society Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 19
[189] *Michel Foucault, "Of Other Spaces * (1967)," in Heterotopia and The City: Public Space in a Postcivil Society,* ed. Michiel Dehaene, Lieven De Cauter, (Routledge: NY, 2008), 20.
[190] See Appendix A, Question 11.

"*When the reflections are all around, people feel like they're lost in a space. The sense of x-y-z space is lost because reflections are everywhere, under your feet, above your head, on the walls (...) Some people are just astonished because they haven't experienced Van Gogh this way. Presenting a display that way is both an appreciation to the artist, his movement while he's painting, as well as his art. I know some people cried inside. You really feel the movement of the images in your body.*"[191]

The paintings are not there, but also there thanks to AR and VR tools, moving screens and moving images. Referring to Urbach's introduction for *Writing Architectural Heterotopia*, "*It makes you stop and think when you reach for a tool only to find it's not there.*"[192] The paintings are not there physically as paintings, yet they are there as projections, just like the imagery of mirror on Foucault's minds. They are presented to space-dwellers as an illusion, letting them experience the art works thoroughly. Furthermore, the sixth principle of heterotopologie states that the outermost important trait of a heterotopia is that heterotopia finds it meaning with accordance to the remaining spaces as an illusion or a compensation. Within that perspective, L'Ateliers Des Lumieres could be regarded as a digital heterotopia since it is artificially constructed and it creates a feeling of illusion as well as an imaginary order, non-existing scenario which evokes the feeling of compensation for its dwellers.

When asked about what the future holds for gallery space in terms of technological changes, the interviewer stated that images and holograms would be dominating the art culture along with 3D printing methodologies:

"*When the technology is more advance, we can maybe enter a virtual environment and enter into the painting. Even in here you actually feel like you are walking in*

[191] Ee Appendix A, Question 8 and 9.
[192] Henry Urbach, "Writing Architectural Heterotopia," in *The Journal of Architecture*. Volume 3 (January 1998), 348.

the painting, as the reflections float under your feet, reflecting on your body, you feel like you are part of the exhibition and art. The next step, I think, is being pushed into the art not in the physical sense but in a mental state and get lost in the art in that virtual space. Like the science fiction movies."[193]

In this sense, L'Ateliers Des Lumieres serves as a new medium both for augmentation of the given space and for new ways of experiencing gallery space, which opens up a new discussion about the notion of digital heterotopia and perception of augmented spaces. It serves as an othering both for the perception of art and image in the Information age as well as a thirding for the established ways of understanding architectural space.

4.2 Walt Disney Concert Hall Dreams

Walt Disney Concert Hall is an architectural masterpiece that was designed and constructed by famous architect Frank Gehry in 2003, located at the center of Downtown Los Angeles. In 2018, Refik Anadol, a Turkish media artist and director who is also a visiting lecturer and researcher in UCLA's Department of Design Media Arts, who is working in the fields of site-specific public art with parametric data sculpture approach, envisioned and projected Walt Disney Concert Hall Dreams (WDCH Dreams) installation project where he has designed a visual projection for the steel exterior of Walt Disney Concert Hall in collaboration with Frank Gehry. Anadol's works explore the space among digital and physical entities by creating a hybrid relationship between architecture and media arts with machine learning intelligence. Anadol, referring to the main aim of the project, states that it' impossible to see the relationship between data and physical space only by looking and he further outlines this invisibility inspired him to create WDCH Dreams:

[193] See Appendix A, Question 14.

"*That's the main aim of the project: how to make visible what's invisible. Data has a space in its structure: a life that is divided between columns, rows etc. When we extract data from time wise concerns, data starts to act in a linear manner, very similar to architectural space: It has a beginning and an end. However, data does not need a physical space to exist therefore its relations to reality do not exist. While the screens constitute of the most primate experience to understand data in a raw manner, it is the art that acts as an intellectual glue which binds architecture and data through algorithms."*[194]

Anadol has been working with AI experts at Google's Artists & Machine Intelligence program to study generative machine learning techniques for audio and video since 2016. The resulting performance, WDCH Dreams, uses multiple machine-learning algorithms to interpret nearly 45 terabytes of data from the LA Phil's digital archives. Kenric McDowell, program lead of Artist & Machine Intelligence sorts out perception of Information society as *"With machine learning, we can understand the massive archives of cultural institutions, and generative techniques allow us to see and sense them in new ways. But it takes artistic vision and collective creativity to turn these perceptions into a collaborative 21st century culture."*[195]

[194] See Appendix B, Question 1.
[195] "WDCH Dreams", Google Arts&Culture, accessed December 17, 2018, https://artsandculture.google.com/exhibit/yQIyh25RSGAtLg

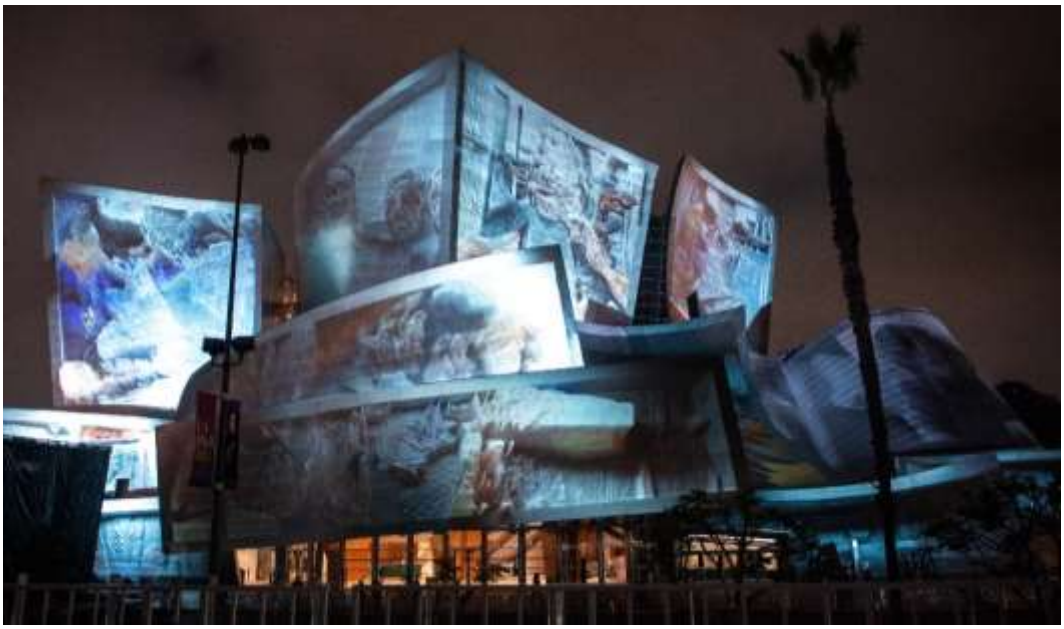

Figure 4.2.1 Anadol, R. Aerial View of Walt Disney Concert Hall down, September, 2018. Google Arts & Culture, LA, December 17, 2018. https://artsandculture.google.com/exhibit/yQIyh25RSGAtLg

The performance uses the exterior of the concert hall as a canvas to visualize all the audial and visual data archived as ‘memory’ of Walt Disney Concert Hall. Chad Smith, Chief Operator of LA Philharmonic described the performance as:

> *“It was a rhetorical question: ‘How could our past not just inform our future but help invent it…?’ And from that, WDCH Dreams was born. Refik has taken our digital archives as his material, and by applying machine intelligence, he’s given us a totally new way of conceiving of our history. And at the heart of it all is Walt Disney Concert Hall. Refik has used the Hall’s exterior as his canvas, and through his projections, he makes it a fluid, moving space with a type of 'consciousness' — full of memories, both of its creator, Frank Gehry, and all the music that's been performed inside."*

Anadol, constructs a new type of space where digitalized information meets with physical entity, where he consecutively fills the physical space with information that has been reduced to color fields, sound and high quality mappings of geometries. It is a temporary 12-minute projection installation that took place on

September 2018. From a Foucauldian perspective, WDCH Dreams stands out as a successful example of digital heterotopia for multiple reasons. As aforementioned, Foucault indicated that heterotopias have the power to gather together in a single place several spaces:

"The third principle. Heterotopia has the power to juxtapose in a single real place several spaces, several emplacements that are in themselves incompatible. Thus the theatre brings onto the rectangle of the stage a whole series of places that are alien to one another; thus the cinema is a very odd rectangular room, at the end of which, on two-dimensional screen, one sees the projection of a three-dimensional space (...)"[196]

A concert hall is similar to a theatre stage. Depending on the performance, it brings onto the eyes of the spectator a whole series of different spaces. Anadol collects the data of all recorded/archived performances, visualize them in different formats and projects in onto the walls of WDCH. He reflects the data of inside on the exterior walls that are "hiding" the performances. The façade of WDCH acts as urban cinema, where the two-dimensional screen is filled with the projection of three-dimensional space's memories, which then becomes visualized data. Moreover, as the fourth principle of heterotopia announces, heterotopias have the ability to accumulate time either in an infinite manner as in the case of museums and libraries, establishing a sort of general archive which encloses all times in one place, or heterotopia functions in a temporary and transitory manner as in the case of festivals. WDCH Dreams creates a heterochrony in two ways. The first is by analyzing and reinterpreting the archived data of WDCH since 2003 and then projecting in on the skin of the building hence accumulating time of the WDCH in an infinite manner similar to what libraries and museums do. The second type of heterochrony is obtained through the temporality of the installation, which only

[196] *Michel Foucault, "Of Other Spaces * (1967)," in Heterotopia and The City: Public Space in a Postcivil Society*, ed. Michiel Dehaene, Lieven De Cauter, (Routledge: NY, 2008), 19.

premiered for 3 days and in 12-minute intervals. Anadol takes advantage of time heaping on top of its own summit as well as representing an ephemeral time-image spectacle. Through Anadol's work, WDCH starts to act as a physical entity that accumulates all times of the building and as a spectacle that shows the fleetingness of time hence creating a heterotopia that bears both infinity and temporality in its existence.

Furthermore, an analogy between WDCH Dreams and heterotopia could be achieved in terms of analyzing the project within the scope of fifth principle of heterotopology. As the fifth principle conducted by Foucault indicates, heterotopia functions with systems of opening and closing that isolate or create imaginary orders while still enabling a sense of penetration. Pursuant to this principle, Foucault mentions the heterotopia of illusion, which he describes as *"(...) that look like pure and simple openings, but that, generally, conceal curious exclusions. Everybody can enter into those heterotopian emplacements, but in fact it is only an illusion: one believes to have entered and, by the very fact of entering, one is excluded.*"[197] by layering different memories of the existing space on top of each other and turning it into a visual data set, Anadol not only through technological tools bends and converts different types of data obtained from the archives of WDCH, but also by the means of projection mapping he reflects the data in a highly visual manner to the screen of a significant building. He breaks the internal/external relations of a given space, the dichotomy of private/public and layer visual data with a physical environment. He uses the 'memories' of WDCH, the past of the physical, and gives a new meaning by covering the façade of the latter with this information today – the now of the physical. Although space dwellers are not located in the inside of the building, they find the chance to experience a montaged version of what took place on the inside of the performance

[197] Michel Foucault, "Of Other Spaces (1967)" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 20.

space and are able to witness all the memories that were archieved and represented by the means of data visualization method. This resulsts in creation of an illusion, which is one of the most fundamental aspects of heterotopia. When asked about the realness or virtualness of the project Anadol answered as:

"*This mixture constituted the pleasure. The data of inside was narrated and projected on the outside. There is a moment when you are no longer able to distinguish the difference between what is inside or outside, which is façade or the performance. That confusion is a spectacular sensation. This is something architecture cannot achieve because architecture is solid. Through very bright projections and well mapped geometries we offered a moment which breaks reality of glass, metal and concrete. Therefore, the illusions were very realistic. This created a joyous chaos. What affected the right neurons of spectators was the distortion and transformation of the reality as well as the ability to generate some questions regarding the reality. Either from an architect, from a cinema enthusiast or from an intellectual, the common feedback was that: It was so real that I could almost touch it.*"

Anadol himself argues that the project constitutes an illusion, making space dwellers question real/virtual and materiality of the established architecture. Moreover as stated by Sohn, heterotopias occur as a differentiation for the cityscape:

"Diagnosis and differences return us to 'heterotopia', a term Foucault borrowed from medical discourse and meaning tissue that is not normal where it is located, or an organ that has been dislocated. Abnormal location, not the internal composition, is the important consideration in a diagnosis. Thus heterotopias, as spatial constructs or figures of thought, are differentiations inserted into the city or

discourse that appear out of place, abnormal or illusory. They contest the normal order of things."[198]

In the case of WDCH Dreams, reestablished orders of WDCH starts to overturn the materiality of the structure, detaching it from being merely solid entity and transforming it into a digital canvas. The duality of insideness and outsideness becomes ambiguous through the data flows which results in elaborating an immediate relationship between people, environment and space thus creating a strong identity and promoting a sense of visual openness within the city context. When asked about the impact WDCH Dreams created in the city scale, Anadol responded that the building started to act like a public sculpture enabling anyone to experience that spectacle:

"*LA Phil is a stupendous building located in Downtown LA, in the middle of four main roads. It was observed from various different locations and it took place on the public realm where anyone could watch. Therefore, the building became a public sculpture. LA Phil is equal to buying tickets. During WDCH Dreams, spectators had the chance to experience this show without buying any tickets. The ability to reach many people was very beautiful.*" [199]

As mentioned by Sencar, the general idea of a city is constructed through perceptual montage of the citizens where "*information from many sources, images, ideas come together and form a concept in the mind, while the architectural experience becomes a way of reading and correlating.*"[200] In this particular case, WDCH Dreams started to create arbitrary relations with regards to interpretations of its space dwellers in terms of city experience. The project constructs an othering both for the cityscape and for the architectural space it represents. Anadol, agreeing

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[198] Heidi Sohn, "Heterotopia: anamnesis of a medical term" in *Heterotopia and The City: Public space in a Postcivil Society* Ed. Michiel Dehaene,Lieven De Cauter, (New York : Routledge, 2008), 58.
[199] See Appendix B, Question 9.
[200] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 32.

that the performance created an otherness for the built environment, stated that the performance brought about a new perception regarding the building typologies and moreover he underlined the fact that the function of the building changes from a static and solid entity towards a dynamic sculpture where interior overflows to the exterior and embracement of change in appearance is achieved.

WDCH Dreams project generates an augmentedness for the building itself where synthetically stored and manipulated data overlays the physical space hence turning it into n-dimensional space where virtual space creates a conjuncture with physical space. When asked if Anadol regards the project as an augmented space he replied as follows:

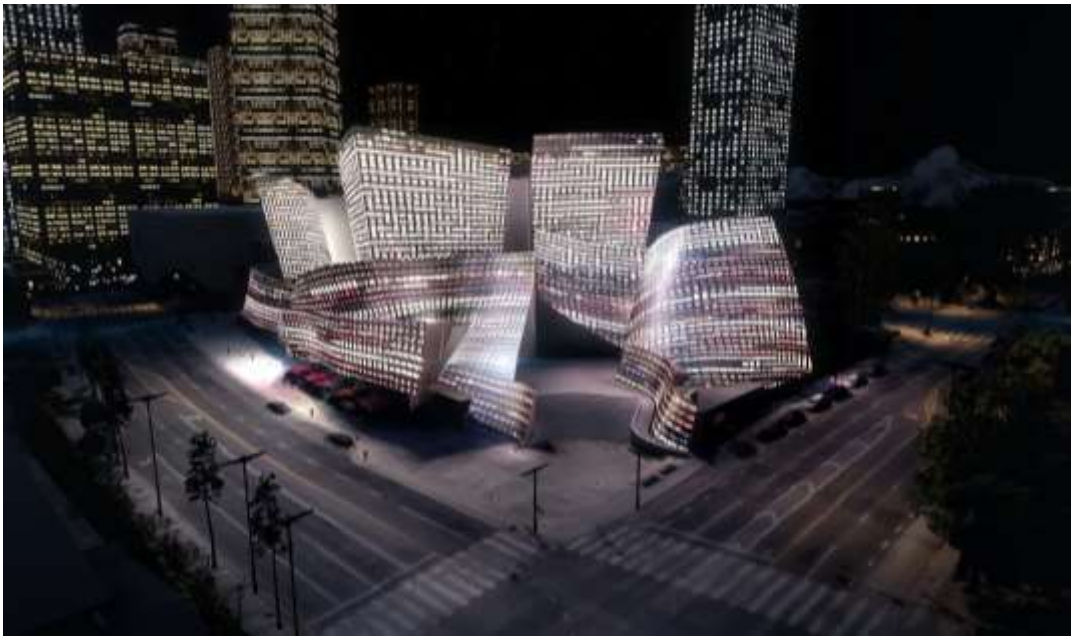

Figure 4.2.2 Anadol, R. Projection Rendering, September, 2018. Google Arts & Culture, LA, December 17, 2018. https://artsandculture.google.com/exhibit/yQIyh25RSGAtLg

"*When the lights go off and the projections are turned on, the building becomes something else. Either from a technical, a philosophical or a contextual perspective, the building changes its form. It is no longer what is used to be. It is an augmented version of that building which has its own augmented reality and*

that reality is no longer perceived thanks to city light but rather, its reality changes in accordance with pixels and algorithms that comes out from a machine's perspective. The building becomes a different space and constitutes a time perception. Maybe one perceives that the building is disappearing or the building is moving or the building is re-borning. Spectators start to reflect their own imagination. The building is already a design that is constructed upon imagination and when you introduce another layer on top, the experience becomes more intense."[201]

WDCH Dreams generates a good example for understanding digital heterotopias in the context of 'thirding-as-othering' since it creates an illusory space out of the given environment by merging virtual and real worlds together and augmenting the given environment. The whole meaning of the project mentioned by Anadol, is to make spectators question this or that through the story and create a realistic experience of a building dreaming about its own past, which is an innovative approach both for understanding the physicality of architectural space and for the art generated as well.

4.3 Reinterpreting Today's Place-Making

Understanding augmented spaces in the context of digital heterotopia allows one to threat multi-layered spaces that come together to formulate a heterogeneous entity as a brand new identity. Both of the cases analysed during this chapter offer an othering for already established dichotomies of architecture which incorporates virtual/physical dualities by implemanting the notion of digital heterotopias that are consturcted by using the architectural elements as a screen. Therefore, with the ability to gather virtual space of computer generated dynamic images with the static physical space, both of the cases embody a specimen for digital heterotopia

[201] See Appendix B, Question 8.

to be analysed. Both of the cases offer a physical space that is open to change and manipulation, which enhances their adaptation to societal needs of the current era. The digital imrpovements and different methods of montaging virtual graphics atop the physical space proposes new dimensions for physical space where "*different kinds of data and different modes of realities from different sources come together, intersect, clash and produce a new kind of totality, a new meaning and a new structure, where the design process becomes programmable and rule-based.*"[202]

Both of the cases add new dimensions to physical space and represent different modes of realities that come together in a digitalized manner therefore enable the void of 'virtual space' to be treated as an entity rather than just an unlocatable imaginary occasion. Moreover, as Foucault draws attention to the necessity for every society to create thrilling spaces that instill imagination, both Ateliers Des Lumieres and WDCH Dreams project offers sensation of illusion as they are turning the established orders of real space theories upside down. Furthermore, architecture obtained through synthetic and dynamic images creates a revolution for spatial discussions regarding architectural space, hence contributing to the development of different mediums in key areas, resulting with a new paradigm for experiencing physical environment.

[202] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 6.

CHAPTER 5

CONCLUSION

During the last century, visual media along with incorporation of information and communication technologies and their rapid improvements directed many commentators to foresee a correlative change in new modes of perceptions, new ways to experience space and most importantly, new spaces to experience. Subsequently, there occurred culturally sensitive references to ‘cyberspace’, a ‘virtual-reality’ no-place that embraced imagination and further invention introducing virtual space alongside with augmented space. These new Technologies opened up discussions regarding architectural space, which becomes multi-layered, multi-dimensional and dynamic thanks to computer generated synthetic imagery. Relating this new typology of space with digital heterotopia within the context of augmented spaces, a deeper understanding for another ‘real’ space is elaborated.

Augmented spaces come forth as a source of illusion because they are realized virtual spaces and they convey the real/virtual dichotomy as a materialized entity towards architectural space and they break common understanding of space perception by altering a different type of space experience. In other words, an augmented space could be regarded as heterotopia since through bits, codes, images, rendered graphics it constitutes a multi-layered structure that surpass three dimensionality of classical understanding of space and occurs as an othering to classical real space/virtual space dichotomy. In this new mode of space, what space dwellers experienced in the course of montaging virtual space atop physical space by temporal relation (the consecutive relation of the frames) has now becomes spatial through the multi-layered structure which not only created through composition of different elements but also different acts, constraints or algorithms.

If we consider the mirror as a heterotopia with an understanding of being at a place where one is not, yet understanding that place also exists in the means of reflections or illusions, then this means that augmented and virtual reality technologies applied into architectural space could somehow open up a new discussion about digital heterotopias, that come together in layers, break the usual time as it distorts the understanding of real and unreal, place and non-place. By relating the mirror heterotopia to architectural space that is used as a screen, this new condition gives the prospect to embed the opportunities and services virtual space offers when integrated with the physical space.

As mentioned by Manovich, one of the most important design problem of digital age is to understand how to combine new functioning of architectural surface as an electronic display that could formulate new typologies for physical environment. Augmented space sustains an opportunity for institutions and architects to treat void of virtual as an entity hence, designing physical spaces that are dynamic. Moreover, as Sencar underlines "*through an understanding of space as an interface where real and virtual interactions and connections come into an inseparable unity, whereas still ready for any sort of modification; there occurs a re- conceptualization of space as a co-existence of elusive, ready to change layers of spatial experience creating its own context of reality in its non- linear formation providing a new territory for understanding architecture."*[203] It is of great importance to understand how we live now, to see where we are heading to so that we might influencer where we can go from there. The organizers and users of this new medium have numerous opportunities and freedom as well as a big responsibility in order to re-conceptualize architectural space that is data dense. As Heim mentions, their task is to materialize 'non physical' and adapt it in accordance with societal needs and expectations:

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[203] Işıl Sencar, The new Montage: Digital Compositing and its generative Role in Architecture, *METU Thesis*, 2007, 79.

"Theirs will be the task of visualizing the intrinsically nonphysical and giving inhabitable visible form to society's most intricate abstractions, processes, and organisms of information. And all the while such designers will be re-realizing in a virtual world many vital aspects of the physical world, in particular those orderings and pleasures that have always belonged to architecture."[204]

To sum up, the notion of heterotopia has been discussed in many fragmented ways by scholars and architects as well as sociologists. It has a background within architectural theory and perception of space. If we are to talk about heterotopias in the society, that come together within layers, divide the user from their ordinary time and create arbitrary orders within a given environment, then we can say that with the help of new technologies these heterotopias could be considered as new digital heterotopias. In the *Ateliers Des Lumieres* case for instance, attributes a new meaning to an already existing historical cast iron factory with digitalized projection of famous work of arts, it breaks the usual time of the space-dweller and relocate them in the art objects. We see works which are not there actually, yet the representation of the works is there thanks to technological tools. In Refik Anadol's virtual WDCH project, space-dwellers see themselves where they are not, as they are experiencing the inside of the building without even entering there. It breaks the limits of a given architectural space and taking the user to the new environments with the help of projection tools. These architectural space acting as a screen, ornamented with virtual images and visuals attribute new meaning to a given space, distorting and bending its qualifications with the usage of new technologies.

Through the integration of data and synthetic information gathered in virtual mediums, digital heterotopias offer a heightened sensory experience and create a sense of dislocation for its dwellers. So as Foucault stated if we can be at a place

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[204] Michael Heim, "From Inteface to Cyberspace", Metaphysics of Virtual Reality. (New York: Oxford University Press, 1993), 80.

where we are not, can we experience a space that is not over there physically but delivered virtually? And can we call them digital heterotopias?

Moreover, augmented spaces generate subjective feelings and sensations for each spectator. For some, it might construct an overwhelming experience where one is filled with numerous emotions. In such cases, as both of the interviewers brought about, the emotion created by the performance becomes so dense that the spectators even cry because of heavy sensations. Some, on the other hand, are not effected at all and define this overall experience as 'dull' due to the fact that the projections for them, cannot come close to real (physical) experience of paintings etc. The feelings and immersion created by augmented spaces rely highly on perception and subjectification of what is being represented, therefore gathering a collective response or a consensus of aesthetic pleasure is unfortunately not possible. Although augmented and virtual realities are along with new ways of perceiving architectural space is available, these are still newly formulated concepts and it is still too early to spot matured concepts and philosophies at this level. Therefore, architecture in 21st century is still concerned with the real space and needs the materiality of the physical to experience virtuality computers are generating. As Anadol states "*architecture is still not concerned with technology but rather the function, unitization of semantic integrity with form and deepening the meaning of the building by attaining more meanings than it already has. However, data and technology may help to architects that are able to think outside the box in terms of materials used. I believe this is what should happen, enhancing the imagination on material. Therefore, architecture needs ideas, stories and functions that can rip it off from the physical solidity of the material. It needs to become non-function or multi-function.*"[205] However, formulating theories based on what data and information generated by computers offer for architectural space is important in order to understand the illusion these tools can generate and take the next step

[205] See Appendix B, Question 12.

towards imagining different ways of ‘othering’ to comprehend spatial theory. This, in fact constitutes the main reasoning of heterotopia, an open to change formulation that cannot be fitted and fixed into any rigid taxonomy which forces one to think in an imaginative manner in order to comprehend all the relations architectural spaces can construct with other remaining spaces.

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APPENDICES

A. L'Atelier Des Lumieres Interview

Date: 25/09/2019
Location: 38 Rue Saint-Maur, Paris 11

1. Name and age?

   Marie, 24

2. Explain briefly your role for the gallery

   Here I'm the guide. The person who explains how it works and I explain the gallery before they enter. If you've already entered, you can see that it's not the same feeling and thing to only walk like you're visiting a normal gallery, it's different so my role is to make visitors understand what and how they should be experiencing space.

3. How do you decide on the exhibition to display? What paths do you take until the premiere of the exhibition?

   That's not my role but directors and designers decide on. They decide to create a new venue and make the contacts for the works of art and images regarding their rights. If it's a big artist, some important legislative processes take place in order to protect the artists' rights.

4. During both design and construction process of the Project, which problems did you face?

   I make decisions about the explanatory part of the venues, which is located in the middle of the gallery space, that is shaped by concave walls. It's kind of an enclosed space, a hub where you can enter as you are floating in the gallery space. The information regarding the art pieces' names, history and explanation are projected there and while you're visiting the venue that's

the place where you get the real-time information regarding what is being projected on other walls - the non-enclosed areas of the venue. It's difficult to do as well because you need to give as much information as possible in a non-static wall and as the projections change in the venue so does the information regarding that piece of art. Sometimes, we need to give the information of 10 pieces at the same time because some of the projections include a montage of several works, which becomes even harder.

5. What is your main aim in transporting paintings to a digital environment?

It's to permit and to allow people to discover art at larger scale, and to democratize the art culture. Not everyone can travel all around the world, going to museums because it's expensive. Moreover, many people are not used to going to museums and the first experience can be overwhelming, like in the case of Louvre which is very big to discover. Here, it's not a museum, it's a new paradigm, it's digital. This offers a more accessible art space and people can experience it in a freer manner.

6. Would you call these paintings as real or virtual? Why?

For me it's more like digital paintings, not a real one. The shows in themselves are actually works of art because they're also creations. It's not Van Gogh art anymore, although the images projected carry Van Gogh's art in it. However, it's still an art because they include creation process. I think about Walter Benjamin and revolution of art, at the time it was about movie and photography. People were questioning whether movies or photographs were art. I think we're at the same place now: Is digital art still art? Well I believe yes. They include scenography, a music, these projections should be integrated in the room, reflected in accordance with the architectural space. It's a combination of several different art forms in a virtual environment but reflected on the walls.

7. Which kinds of messages does Ateliers Des Lumieres include by using digital montage techniques and new Technologies?

The main message is to make people appreciate art, in all of it forms. By creating a dynamic art out of static paintings, including a sound design and integrating all of the process with the physical environment actually defines a different type of art, an art created through other art pieces that come together in a virtual environment, then reflected on walls. Which is actually very exciting.

8. How immersed do you think the visitors feel as they're experiencing a venue in Ateliers Des Lumieres?

Some people are just astonished because they haven't experienced Van Gogh this way. Presenting a display that way is both an appreciation to the artist, his movement while he's painting, as well as his art. I know some people cried inside. You really feel the movement of the images in your body.

9. What is the role of physical space in these exhibitions you create?

I think physical space is very important. The projections are designed according to the space. You enter from a door but then as the show starts, the door just vanishes and gets lost behind the projections. We play with the space because as before when they used the mirrors it opened the space but now it's a different case. When the reflections are all around, people feel like they're lost in a space. The sense of x-y gets lost because reflections are everywhere, under your feet, above your head, on the walls… The projectors are placed according to what is planned to be put on display. All the wall pieces are defined in a way for the projectors and all of them reflect something else, but then they come together to define another art piece. In Dream Japan exhibitions, we feel that especially, because that's the exhibition which is designed specifically for this very room.

10. To what extend would you call this virtually ornamented space as "Augmented Space"?

I don't know that definition so I can't really answer that.

11. Would you call this gallery space as 'other' when compared to other galleries and spaces one experiences?

There are many differences but the main difference is there is no collection here, this is not a museum. The way art is displayed here is very different than other museums. Images of art pieces gather together to form a different kind of art which is derived from Van Gogh's style and pieces. Here we are implementing the idea that art is beautiful and accessible. I've seen Starry night by Van Gogh in NY, the one in Atelier is more sensual and interesting but for me, seeing the original work was a better experience. But this depends on person's experience, what they expect from art so this is a very subjective case.

12. Can you briefly explain your first experience (emotions, senses, immersiveness) of a venue in Ateliers Des Lumieres?

I was expecting a lot but it wasn't what I expected. I felt like it was cool but this can't replace museums. But I was comparing it to conventional museum idea and I really like museums. So again, this first experience depends on what you expect to see, what your past experience of art is and how you feel when art is delivered to you in a different manner.

13. In the case of 'digital heterotopia' , do you think Ateliers Des Lumieres is a space that is ever-changing, open to change and able to overturn society's normative orders?

Maybe yes. This is kind of a place that could deliver art in a more joyful and different form when compared to society's expectations.

14. What do you think the future holds for physical spaces?

Images and holograms would be dominating. Digital art and 3D printing would be very popular for creation of new things. When the technology is more advance, we can maybe enter a virtual environment and enter into the painting. Even in here you actually feel like you are walking in the painting, as the reflections float under your feet, reflecting on your body, you feel like you are part of the exhibition and art. The next step, I think, is being pushed into the art not in the physical sense but in a mental state and get lost in the art in that virtual space. Like the science fiction movies.

B. Walt Disney Concert Hall Dreams: Interview with Refik Anadol

Date: 15/10/2019
Location: Refik Anadol Studio, LA

1. Explain briefly your role for the studio
   Refik Anadol, owner and head designer of Refik Anadol Studio.

2. What relations do you think there are between data and architecture?
   It's not possible to see the relationship between data and physical space only by looking. That's the main aim of the project: how to make visible what's invisible. Data has a space in its structure: a life that is divided between columns, rows etc. When we extract data from time wise concerns, data starts to act in a linear manner, very similar to architectural space: It has a beginning and an end. However, data does not need a physical space to exist therefore its relations to reality do not exist. While the screens constitute of the most primate experience to understand data in a raw manner, it is the art that acts as an intellectual glue which binds architecture and data through algorithms.

3. Can you guide us through the steps of WDCH Dreams? From its start until the day it was performed? (technical)
   Walt Disney Concert Hall was the first building I saw right after my plane landed in LA on 2012. It was almost 2 am, the building was covered in darkness. It was like a nightmare to see a building that I adore in complete darkness, without dimensions and individuals. Similar to the feeling you get when you remember a place only to find out that it isn't the place as you remember it anymore. It all started at that point: Can a building, a structure dream? Since I know the function of the building and its relation to music very well, I thought that if a building can ever have a cognitive capacity, r

ability to dream, the outcome would be music. In 2014 we first started by analyzing the music archive but we surpassed the dreaming phase thanks to AI algorithms. We literally obtained the data processing capacity to make WDCH dream. LA Philharmonic and Frank Gehry supported this idea so it happened.

4. During both design and construction process of the project, which problems did you face?

The hardest obstacle to pass was the projection capacity. The material is a negative material which absorbs the light from certain angles. It' is so shiny, it almost acts as a mirror. Mapping was really hard because the skin of the building is obtained by the usage of compound curves which contained very difficult parameters for mapping. another difficulty was data quantity since WDCH has a huge archive because it was designed and constructed in the digital age which produces performative works and record all the performances that take place in WDCH. Data was too much and it took quite a while to make a meaning out of it.

5. Can you briefly explain your first experience (emotions, senses, immersiveness) of WDCH Dreaming?

It was like a dream. We had 3 days to install everything: 8 km of cables, 42 projectors, 5 projectionists… It was very complex. First day was for the physical installation and the other 2 days were for the coding, computer and light installation. The 4th day however, was amazing. When conducting such projects, you always have a kind of concern, will this idea can find its materiality? What will happen when we pass from dream to reality? All these concerns vanished when I saw the reactions of the spectators. In LA, people do not really applaud for simple things since it is city of stars, they expect a spectacular thing in order to clap. In the night of the premiere,

everyone including Inaritu, Gehry and every spectator clapped, people really liked it.

6. How immersed do you think the spectators feel as they're experiencing WDCH Dreams?

We can not talk about a complete immersion, there is no immersion, rather, the building as a whole undergoes changes. We can talk about sculpturizing, not immersion. Gehry, from a very organic point of view, calls façade as *skin.* With data, skin came to life. Material, through a narrative came to existence. Narrative is quite important. The whole meaning lies beneath the story that is behind the idea, that spectators find themselves in the story, that a spectacular building makes you question this or that… This is what that constructs the point and meaning of the project. The more realistic this is spectated, the better the experience becomes.

7. Would you call these memories you represent of architectural space, as virtual or real?

This mixture constituted the pleasure. The data of inside was narrated and projected on the outside. There is a moment when you are no longer able to distinguish the difference between what is inside or outside, which is façade or the performance. That confusion is a spectacular sensation. This is something architecture cannot achieve because architecture is solid. Through very bright projections and well mapped geometries we offered a moment which breaks reality of glass, metal and concrete. Therefore, the illusions were very realistic. This created a joyous chaos.

What affected the right neurons of spectators was the distortion and transformation of the reality as well as the ability to generate some questions regarding the reality. Either from an architect, from a cinema enthusiast or from an intellectual, the common feedback was that: It was so real that I could almost touch it.

8. To what extend would you call this virtually ornamented space as "*Augmented Space*"?

When the lights go off and the projections are turned on, the building becomes something else. Either from a technical, a philosophical or a contextual perspective, the building changes its form. It is no longer what is used to be. It is an augmented version of that building which has its own augmented reality and that reality is no longer perceived thanks to city light but rather, its reality changes in accordance with pixels and algorithms that comes out from a machine's perspective. The building becomes a different space and constitutes a time perception. Maybe one perceives that the building is disappearing or the building is moving or the building is reforming. Spectators start to reflect their own imagination. The building is already a design that is constructed upon imagination and when you introduce another layer on top, the experience becomes more intense.

9. How was the impact of the installation on the city scale?

LA Phil is a stupendous building located in Downtown LA, in the middle of four main roads. It was observed from various different locations and it took place on the public realm where anyone could watch. Therefore, the building became a public sculpture. LA Phil is equal to buying tickets. During WDCH Dreams, spectators had the chance to experience this show without buying any tickets. The ability to reach many people was very beautiful.

10. Would you call this space as 'other' when compared to your previous experiences in the city? Why?

Of course because it brings about a different perception regarding the building typology. The function of the building changes, the interior overflows to the exterior and the change of the appearance is embraced.

11. How do you foresee the future of data society and the architecture type data brings about?

I don't think that machine intelligence would be a part of architecture in the short run. Maybe through optimizations or modellings but not as a whole. Because I don2t foresee a rapid change for the imagination of the material world. Architecture is still not concerned with technology but rather the function, unitization of semantic integrity with form and deepening the meaning of the building by attaining more meanings than it already has. However, data and technology may help to architects that are able to think outside the box in terms of materials used. I believe this is what should happen, enhancing the imagination on material. I consider light as the perfect material to share an idea on a surface. I really wish brave architects with a concern for new materials can inspire ordinary, a little scared architects so that an architecture that has the ability to make its spectators ask something can exist. This does not necessarily mean that every building should be like this in a performative manner, sometimes some architecture should be able to remain silent, however we also experienced that for some structures this kind of layering strengthens the semantic context of the building. Light is a very democratized material. It's there in the evening it is not there in the morning, it can change, it can vanish… Therefore, it is open to interpretation and it is informative. It's not permanent, it is ephemeral. I really would like to see these kinds of ideas in architecture. In short, in my perspective, architecture should have a concern for becoming temporal and impermanent.

12. Do you think it is possible to obtain a physical space out of screens? What do you see the future of architecture?

It is very easy and highly possible. But the boredom of screen comes from the fact that it has certain dimensions apart from its own concerns. 16:9

screen, a laptop screen, a car screen… These all have resolution concerns which is my biggest problem. How can it be possible to digress traditional screen parameters? That's the moment architecture helps you because the physical space starts to act like a screen. Physical space becomes a TV, a portal that opens up to a brand new world. You cannot achieve this with fabricated screens because a screen is a big unit and a big pixel. Therefore, architecture needs ideas, stories and functions that can rip it off from the physical solidity of the material. It needs to become non-function or multi-function. Maybe light can offer a perfect cleaning for this.