

**PROCEEDINGS**

**HELSINKI | 2017**

**ICNTAD CONFERENCE**

**3rd INTERNATIONAL CONFERENCE ON NEW TRENDS IN  
ARCHITECTURE AND INTERIOR DESIGN**

**3<sup>rd</sup> International Conference on New  
Trends in Architecture and Interior Design**

HELSINKI | 2017

# **ICNTAD** CONFERENCE

**3rd INTERNATIONAL CONFERENCE ON NEW TRENDS IN  
ARCHITECTURE AND INTERIOR DESIGN**

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*Dear Colleagues,*

I am honored to invite and send you this call for papers on behalf of Conference Organization Board of “*3rd International Conference on New Trends in Architecture and Interior Design*”, to be held at Helsinki between April 28-30, 2017

A limited number of Papers with the below mentioned topics will be accepted for our conference:

- Criticism of sustainability / Unsustainability
- Philosophy of architecture / Architecture without philosophy
- Professional settlement of interior architecture
- Spatial organizations by furniture design
- Intangible skin of space: lighting design
- Tangible skin of space: material
- Ideology in architecture / Ideology of architecture
- Spaces without space: 3D virtual spaces
- Math of space: spatial analysis and parametric design
- Artistic value of space
- Architecture without architect
- Cultural codes in architecture
- Flexibility in design
- New trends in spatial design education

One of the successful papers presented at the 3rd ICNTAD 2017 will be chosen by the reviewer committee to be published on Beykent University Journal of Science And Engineering BUJSE (ISSN: 1307-3818 <http://dergipark.ulakbim.gov.tr/bujse/>) after necessary revisions pointed out by the reviewer committee are met. Main but not limited criteria for this selection will be the originality of the paper, academic quality of the study, suitability of the methodology used, presented results' and conclusion's potential to cause an interdisciplinary discussion.

We kindly wait for your attendance to our conference to be held on April 28-30, 2017, with a hope to realize a satisfactory conference with its social activities as well as the scientific ones and leaving a trace on your memories.

*Regards*

**Prof. Dr. Burçin Cem ARABACIOĞLU**  
*Mimar Sinan Fine Arts University – Turkey*  
**Conference Chair**

## SCIENTIFIC PROGRAM

### 27 APRIL 2017

15:00 – 18:00 : REGISTRATION

### 28 APRIL 2017

08:30-17:00 : REGISTRATION

### MAIN HALL : GRAND OPENING CEREMONY

09:20 – 10:00 : CONCERT / Live Performance by Young Musicians

10:00 – 10:20	<b>COFFEE / TEA BREAK</b>
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### HALL 1

10:20 – 11:20

Welcome Speech : Prof. Dr. Burçin Cem ARABACIOĞLU / Mimar Sinan Fine Arts University

### *Conference Chair*

KEYNOTE SPEAKER :Hüseyin YANAR, Architect, Ph D

**Title: What Kind of Architecture! What Kind of Design!**

11:20 – 11:40	<b>COFFEE / TEA BREAK</b>
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## HALL 1 / SESSION A

SESSION CHAIR	Prof. Dr. Burcin Cem ARABACIOGLU	
TIME	TITLE	PRESENTER
11:40 – 12:00	BEING PARTICIPANT AS A USER AT THE CONTEMPORARY FURNITURE DESIGN	<b>Müge Göker Paktaş</b>
12:00 – 12:20	EFFECTS OF NEW TECHNOLOGIES ON FLEXIBILITY OF OFFICE FURNITURE	<b>Didem Beduk Tuncel</b> Hande Zeynep Kayan
12:20 – 12:40	THE EFFECTS OF GLOBALISATION ON INTERIOR ARCHITECTURE EDUCATION IN TURKEY	Gulay Usta <b>Armagan Secil Melikoglu Eke</b>
12:40 – 13:00	A SUSTAINABLE APPROACH TO REUSE OF INDUSTRIAL HERITAGE	<b>Begum Bayraktaroglu</b> Pinar Arabacioglu

13:00 – 14:00	<b>LUNCH</b>
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## HALL 1 / SESSION B

SESSION CHAIR	Assoc. Prof. Dr. Pinar ARABACIOGLU	
TIME	TITLE	PRESENTER
14:00 – 14:20	EXPERIENCING ARCHITECTURE: BAYRAMPASA PRISON	<b>Huma Bakır Doğru</b> Müge Belek Fialho Leandro A Teixeira
14:20 – 14:40	A NEW DESIGN APPROACH TO TV NEWS BROADCASTING STUDIOS: NTV NEWS STUDIO	<b>Gözde Altıparmakoglu</b>
14:40 – 15:00	PREDICTIVE VALIDITY OF THE STUDENT SELECTION AND PLACEMENT SYSTEM FOR ACADEMIC PERFORMANCE OF FIRST-YEAR INTERIOR DESIGN STUDENTS	<b>Kenan Eren Şansal</b>
15:00 – 15:20	DETERMINATION OF COLOR HUE PREFERENCES ON GENERATING HARMONY IN THE CASE OF INTERIOR ARCHITECTURE STUDENTS	<b>Kemal Sakarya</b> Tülay Özdemir Canbolat
15:20 – 15:40	A MODEL PROPOSAL FOR PARAMETRIC TRAWLER YACHT EXTERIOR STYLING AND INTERIOR DESIGN	<b>Seval Özgel Felek</b> Burçin Cem Arabacioglu

15:40 – 16:00	<b>COFFEE / TEA BREAK</b>
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## HALL 1 / SESSION C

SESSION CHAIR	Assoc. Prof. Dr. Müge GÖKER PAKTAŞ	
TIME	TITLE	PRESENTER
16:00 – 16:20	AN EXPERIMENTAL STUDY PERFORMED WITH STUDENTS: STAGE DESIGN FOR A THEATRE PLAY	<b>Nur Yılmaz</b> Özlem Şenyiğit
16:20 – 16:40	CONCEPTUAL APPROACHES IN DESIGN PROCESS	<b>Banu Apaydın</b>
16:40 – 17:00	SPATIAL SPEECH & SHOPPING & EXPERIENTIAL MARKETING	<b>Saadet Aytis</b>
17:00 – 17:20	MIMESIS AND CULTUREL CODES IN ARCHITECTURAL DESIGN PROSES	<b>Özgür Hasançebi Demirkan</b> Ayhan Usta
17:20 – 17:40	A VARIETY OF APPROACHES TO EQUIPMENT OF SPACE AND ITS EFFECTS ON THE PERCEPTION OF SPACE	<b>Seçil Satır</b> Hüma Bakır Doğru

## 29 APRIL 2017

09:00-17:00 : REGISTRATION

## HALL 1 / SESSION D

SESSION CHAIR	Assoc. Prof. Dr. Pinar ARABACIOGLU	
TIME	TITLE	PRESENTER
09:20 – 09:40	HALLUCINATIVE PERCEPTION IN ARCHITECTURE AND EFFECTS OF HOLOGRAPHIC PLATFORM ON DESIGN PROCESS	<b>Halil Sevim</b> Özlem Demirkan
09:40 – 10:00	THE ROLE OF “TECHNIZENS” IN SUSTAINABLE ARCHITECTURE: CHANGING USERS' BEHAVIOR FOR BETTER SUSTAINABILITY	<b>Bengü Uluengin</b> Zeynep Ceylanlı
10:00 – 10:20	BIM IMPLEMENTATION FOR INTEGRATED INTERIOR DESIGN SOLUTIONS	<b>Emrah Türkyılmaz</b>
10:20 – 10:40	THE VISUALIZATION OF THIRD SPACE THROUGH MARCUS HARTEL'S STREET SHOOTS IN NYC	<b>Ozlem Demirkan</b> Halil Sevim
10:40 – 11:00	MINDFULNESS AND ARCHITECTURE: HOW MINDFUL DESIGN CAN ENHANCE CREATIVITY AND ENGENDER HUMILITY	<b>Bengü Uluengin</b> Zeynep Ceylanlı

## HALL 2 / SESSION E

SESSION CHAIR	Assoc. Prof. Dr. Ebru ERDONMEZ	
TIME	TITLE	PRESENTER
09:20 – 09:40	THE CONCEPT OF CHANGE IN GARDENS WITH HISTORICAL PROCESS: EDIRNE CASE STUDY	<b>Rukiye Duygu Çay</b> Deniz Gözde Ertin
09:40 – 10:00	THE LIFE CENTER UNIT DESIGN FOR INCLUSIVE EDUCATION SCHOOLS: CASE OF GÖKKUŞAĞI PRIMARY SCHOOL IN TURKEY	<b>Simge Gülbahar</b> Özge Cordan
10:00 – 10:20	PUBLIC PLACES FROM PAST TO FUTURE, BERLIN: PARISER PLATZ & POTSDAMER PLATZ ISTANBUL USKUDAR SQUARE EXAMPLES	<b>Can Turan</b> Ebru Erdönmez
10:20 – 10:40	EXAMINING THE USE OF VORONOI DIAGRAMS IN ARCHITECTURE ON A STUDENT PROJECT	<b>Ali Şahin</b> Betül Hatipoğlu Şahin
10:40 – 11:00	RE-FUNCTIONING IN HISTORICAL STRUCTURE: AN EVALUATION UNDER THE SCOPE OF STUDENT PROJECTS	<b>Özlem Şenyiğit</b> Reyhan Merve Delibaş
11:00 – 11:20	<b>COFFEE / TEA BREAK</b>	

## HALL 1 / SESSION F

SESSION CHAIR	Assoc. Prof. Dr. Cigdem CANBAY TURKYILMAZ	
TIME	TITLE	PRESENTER
11:20 – 11:40	NEW OFFICES OF GENERATION Y: COWORKING SPACES IN ISTANBUL	<b>Suzan Girginkaya Akdağ</b>
11:40 – 12:00	HOUSING DEVELOPMENT IN TURKEY SINCE THE REPUBLIC'S ANNOUNCEMENT	<b>Fatma Nur Bacak</b>
12:00 – 12:20	ENERGY EFFICIENCY OF BUILDING SKIN OF REGIONAL HOUSES IN RIZE	<b>Seda Nur Alkan</b> Fatih Yazıcıoğlu
12:20 – 12:40	READING CULTURAL CODES: A COMPARISON OF TRADITIONAL TURKISH HOUSES-TRADITIONAL JAPANESE HOUSES	<b>Sinem Tapkı</b>

## HALL 2 / SESSION G

SESSION CHAIR	Assoc. Prof. Dr. Banu APAYDIN	
TIME	TITLE	PRESENTER
11:20 – 11:40	SPATIAL ANALYSIS OF SEYFİ ARKAN'S EARLY HOUSING DESIGN	<b>Berfin Eren</b> Ayhan Bekleyen
11:40 – 12:00	AN EXPERIMENT FOR MEASURING THE EFFECT OF ARCHITECTURE EDUCATION ON SPACE PERCEPTION	<b>Betül Hatipoğlu Şahin</b> Ali Şahin
12:00 – 12:20	19-20. TH. CENTURIES NEW IDEOLOGIES OF ARCHITECTURE AND REFLECTIONS TO THE ISTANBUL AND END OF THE IDEOLOGIES OF AFTER THE 1950'S	<b>Hülya Coşkun</b>
12:20 – 12:40	IMPORTANCE OF SOCIAL SUSTAINABILITY AT THE MASS HOUSING PROJECTS	<b>Aysegül Tereci</b>
12:40 – 13:00	A NEW APPROACH TO LIBRARY CONCEPT: LIBRARY-ON-DUTY	<b>Gamze Atay</b> Nur Yılmaz

13:00 – 14:00	<b>LUNCH</b>
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## HALL 1 / SESSION H

SESSION CHAIR	Assoc. Prof. Dr. Kunter MANISA	
TIME	TITLE	PRESENTER
14:00 – 14:20	SUSTAINABLE DESIGN PRINCIPLES FOR HOUSING ESTATE AND APARTMENT BLOCK GARDENS	<b>Fatma Aşılıoğlu</b>
14:20 – 14:40	USING IMITATION AS A DESIGN PARAMETER IN GATED COMMUNITIES: THE CASE OF ISTANBUL	<b>Ahmet Gün</b>
14:40 – 15:00	REVISITING OTTOMAN ARCHITECTURAL WRITINGS: THOUGHTS ON OTHER FORMS OF KNOWLEDGE ON ARCHITECTURE	Belkis Uluoğlu <b>Burçin Başyazıcı</b> Önen Günöz Semra Tigrel
15:00 – 15:20	REALITY OR UNREALITY, PREDICTION OF ARCHITECTURE DREAMS	<b>Amir Imani</b> Ali Asgary
15:20 – 15:40	ARCHITECTURE WITH ACCESSIBILITY: A STUDY OF ACCESSIBILITY AT ISTANBUL METRO STATIONS	<b>Evren Burak Enginöz</b> Hilal Savlı Yasemin Keskin Enginöz

## HALL 2 / SESSION I

SESSION CHAIR	Asst. Prof. Dr. Emrah TURKYILMAZ	
TIME	TITLE	PRESENTER
14:00 – 14:20	GALLERIA AS HYPERREALITY	<b>Ece Ceylan Baba</b>
14:20 – 14:40	THE CHANGES OF POST-WAR ARCHITECTURAL MEMORIALIZATION IN BOSNIA AND HERZEGOVINA	<b>Ahmed Jahic</b> Özen Eyüce
14:40 – 15:00	RESILIENT MATERIALS AND STRUCTURES EMULATING NATURAL ORGANISMS	<b>Aliye Rahşan Karabetça</b>
15:00 – 15:20	EXAMPLES OF ARCHITECTURE WITHOUT AN ARCHITECT IN APARTMENT BUILDINGS TRANSFORMED TO CAFES	<b>Tuğçe Utku</b>
15:20 – 15:40	FROM SLOW FOOD TO CITTA SLOW: THE SEARCH FOR A SLOW ARCHITECTURE	<b>Yasemin Burcu Baloğlu</b> Ela Kacel
15:40 – 16:00	<b>COFFEE / TEA BREAK</b>	

## HALL 1 / SESSION J

SESSION CHAIR	Assoc. Prof. Dr. Evren Burak ENGINOZ	
TIME	TITLE	PRESENTER
16:00 – 16:20	SECRET LIVES OF DINING TABLES	<b>Esra Bici Nasır</b> Şebnem Timur Öğüt
16:20 – 16:40	BEHIND THE SPIRITUAL CITY WALLS OF THE MEDINA OF TUNIS; BETWEEN MODERNITY AND AUTHENTIC TRADITIONALISM	Yasmine Tira <b>Çiğdem Canbay Türkyılmaz</b>
16:40 – 17:00	USE OF THE WATER ELEMENT AS A CULTURAL SYMBOL AND HAGIA SOPHIA ROXELANA (HASEKİ HÜRREM SULTAN) BATH	Didem Erten Bilgiç
17:00 – 17:20	STREET ART AS A SPATIAL COMPONENT	<b>Kunter Manisa</b> - Didem Telli

## HALL 2 / SESSION K

<b>SESSION CHAIR</b>	Asst. Prof. Dr. Hande Zeynep KAYAN	
<b>TIME</b>	<b>TITLE</b>	<b>PRESENTER</b>
16:00 – 16:20	INTEGRATION OF NEW VISUAL TECHNOLOGY EXPERIENCES INTO MUSEUM INTERIORS	<b>Gamze Karayılanoğlu</b> Burçin Cem Arabacıoğlu
16:20 – 16:40	A TRIAL ON STUDENT'S BELONGING OF DESIGN STUDIOS IN ARCHITECTURAL EDUCATION	<b>Altay Çolak</b> Tolga Uzun
16:40 – 17:00	VIDEO AS A TOOL FOR LEARNING FROM CITIES: STROLLING THROUGH İSTANBUL'S NEIGHBORHOODS	<b>Emine Ümran Topçu</b>
17:00 – 17:20	CREATIVE AND FUNCTIONAL SOLUTIONS IN MOSQUE INTERIOR LIGHTING DESIGN	<b>Aysegül Durukan</b>

17:50 – 20:30	<b>CITY TOUR</b>
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## 30 APRIL 2017

09:00-14:00 : REGISTRATION

## HALL 1 / SESSION L

<b>SESSION CHAIR</b>	Prof. Dr. Burcin Cem ARABACIOGLU	
<b>TIME</b>	<b>TITLE</b>	<b>PRESENTER</b>
09:20 – 09:40	SUSTAINABLE TRADITIONAL ARCHITECTURE IN DESERT CITIES OF IRAN	<b>Zahra Poursafar</b> Elaheh Ebrahimzadeh Koshiani Melika Lahootieshkevari Rezvaneh Shadmanmehr
09:40 – 10:00	ORDINARY IS THE NEW WEIRD, OLD IS THE NEW AVANT GARDE: AD-HOC STRATEGIES AND EXPERIENCES IN DESIGN STUDIO	<b>Tuğba Erdil Polat</b>
10:00 – 10:20	URBAN TRANSFORMATIONS: DEFINITIONS AND DEVELOPMENT PROCESS	<b>Burcu Tan</b> Pınar Arabacıoğlu
10:20 – 10:40	FORMAL ALGORITHMS IN A RULE-BASED BASIC DESIGN STUDIO	<b>Pelin Sarıoğlu Erdoğan</b> Betül Orbey
10:40 – 11:00	USING NFC TECHNOLOGY AS ONE OF THE SMART HOME SOLUTIONS	<b>Esra Bayır</b>

11:00 – 11:20	<b>COFFEE/TEA BREAK</b>
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## HALL 1 / SESSION M

<b>SESSION CHAIR</b>	Asst. Prof. Dr. Didem TUNCEL	
<b>TIME</b>	<b>TITLE</b>	<b>PRESENTER</b>
11:20 – 11:40	MARKS THAT THE FURNITURE CARRIES	<b>Işıl Özcam</b>
11:40 – 12:00	REPRESENTATION AS A THRESHOLD: 3D MAPPING	<b>Hande Asar</b> Saime Gümüştaş
12:00 – 12:20	THE CONCEPT OF HARIM IN KASHAN TRADITIONAL ARCHITECTURE, KASHAN, IRAN.	<b>Zahra Poursafar</b> Shaghayegh Gharagozloo Sonia Sobhani
12:20 – 12:40	AUDITORY SPATIAL AWARENESS IN ARCHITECTURAL EDUCATION	<b>Dilara Demir</b> Nurgün Tamer Bayazit

13:00 – 14:00	<b>LUNCH</b>
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## WHAT KIND OF ARCHITECTURE? WHAT KIND OF DESIGN?

*Hüseyin Yanar*

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What makes a building beautiful, important, meaningful, or even unforgettable? Is it the form, the details, the structure, the decoration, the age, or the style that changes from one period to another? Maybe this depends on what kind of architecture or what kind of design you like. This also may depend on your architectural background, any kind of background, or your own world view. Clearly, the “atmosphere” of a space is very essential. We can see the existence of a special “atmosphere” in Istanbul’s Hagia Sophia, which is the heart of the city. When you are there, suddenly time stops and you begin to think and find your own story. I believe that “timelessness” or “agelessness” plays an important role in that architecture. We see this phenomenon of “atmosphere” not only in special buildings but also in the planning of some public squares, bazaars, landscape designs, urban projects, town plans, interior designs, or any kind and any scale of designed objects. Furthermore we also follow and identify similar kinds of attitudes not only in perfectly done design projects, but also in the spontaneous and accidental design of man-made and nature-made places and spaces.

Another thing is that the designer generally disappears after completing his/her design. Then the door opens to everyone. All the users, inhabitants, and visitors appear on the scene. They begin to feel and gradually mark and touch the scene. And the scene touches and marks them in return. People make the space, create the atmosphere, and interpret their own lives and their own stories in response to what kind of architecture and what kind of design they experience.

The following article is a summary that experience. A visitor and a photographer are approaching and entering a building. They each interpret the space according to their own feelings and memories. It is a dialog between a space, a photographer, and myself. Each of us begins his own journey of observation.

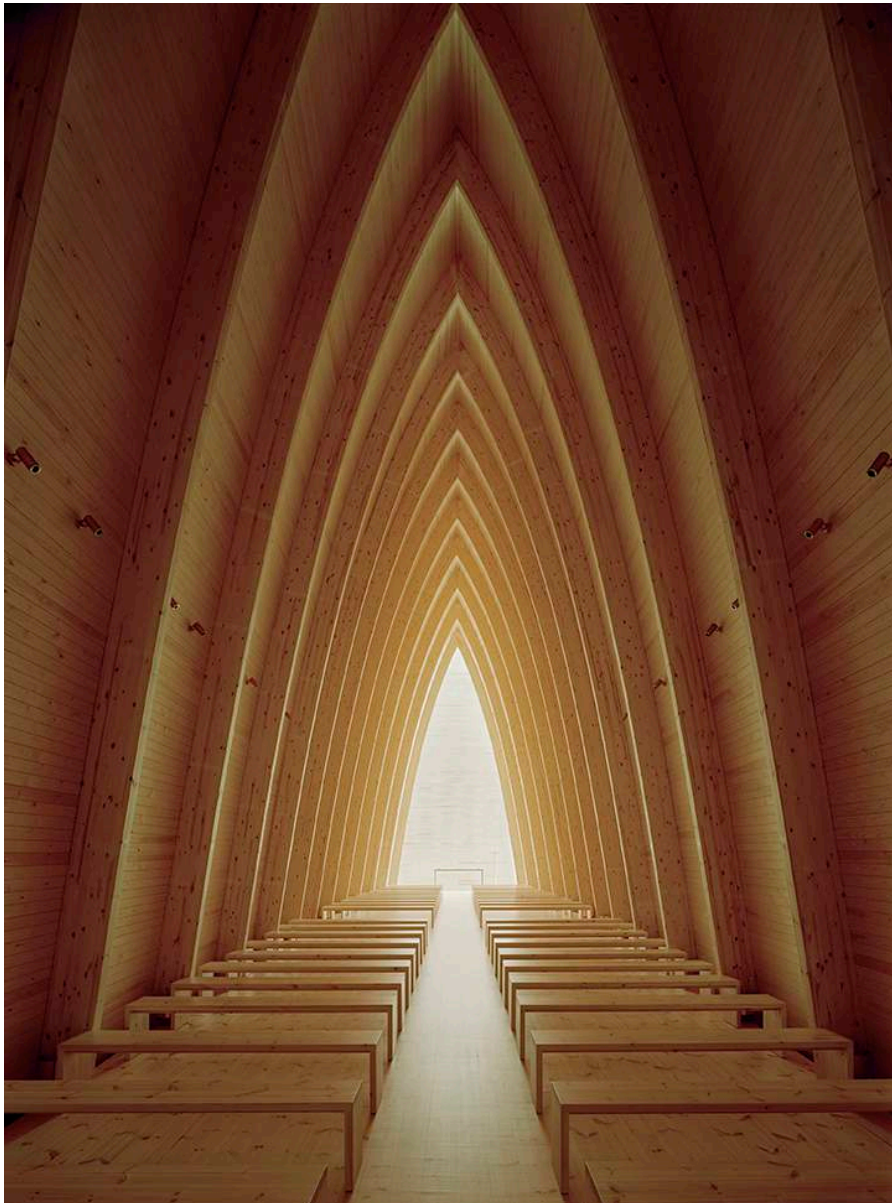
### **Story of the Upturned Caicque**

“From the angle at which I first saw it, the chapel resembled a massive upturned caicque, despite the fact that it is referred to as ‘The Fish’ (in Greek, ‘Ichthys’). It was as though an unexpected deluge had broken out, heaving together rain, earth, sky, forests, and boulders, and when the waters eventually subsided, everything settled into place and silence reigned. In this scenario,

the caicque and its cargo came to rest on a mossy knoll that rose up among what were once old islands, settling with an air of freedom in that topography. Step by step I approached the building.

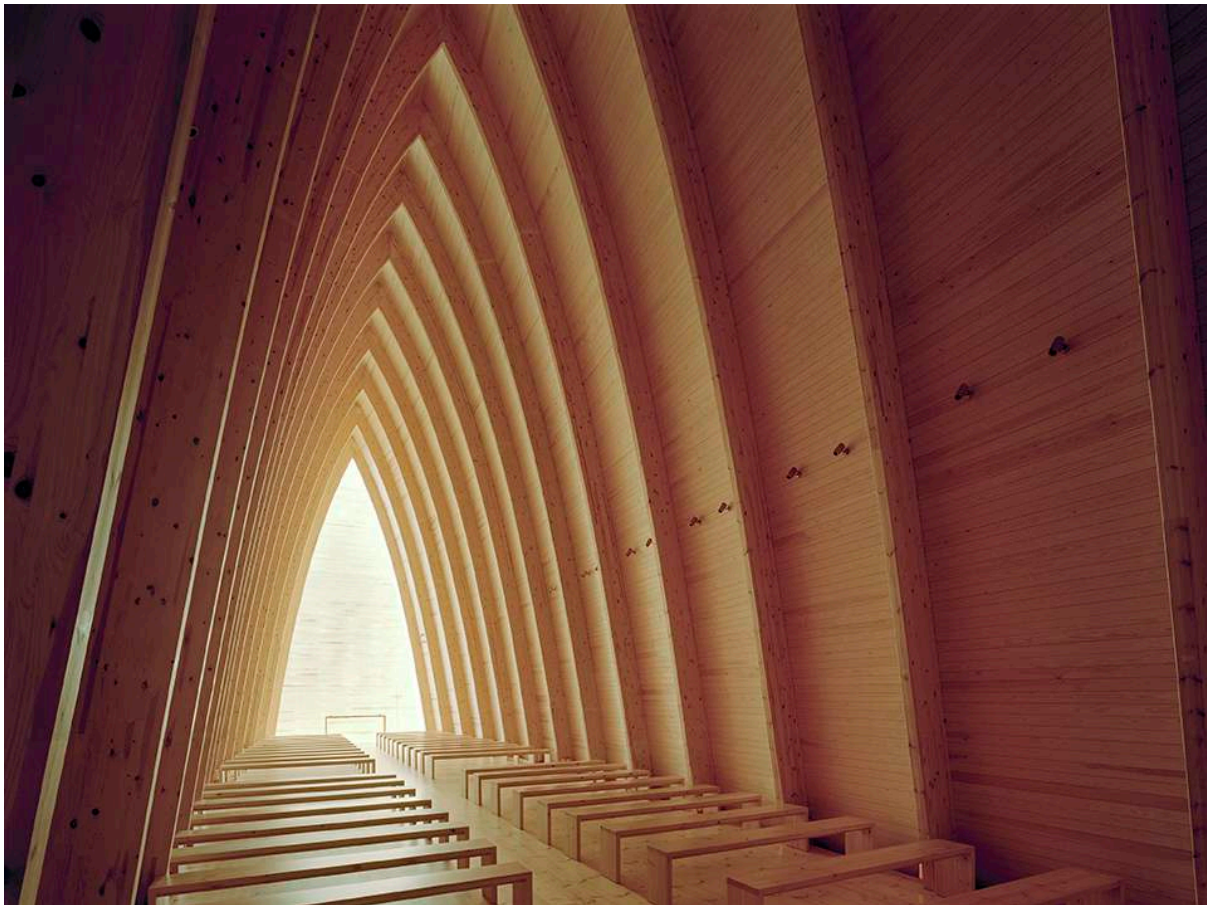


I neared the entrance, which is located at the rear, and as I turned towards the door, the chapel seemed somehow smaller. Everything about it had changed, and it no longer resembled a capsized caicque or hull. The massive space was utterly transformed. Seen from the rear, the chapel bore the air of an ancient temple that had been founded on the promontory of an age-old city. As the scale appeared to diminish, the volume of the space pulled into itself, becoming more modest. I opened the unadorned door, gently pulling on the long narrow handle which ran vertically down at a slight angle. To my surprise, however, a lofty space opened up before me, illuminated by light spilling down from above, a light that whispered of mysteries. A long, narrow corridor led forward, flanked by walls that rose slightly along the length of the space, and on each side of this passageway, which pulled me further into the interior, there were service rooms. I began walking into that holy grotto, the other extremity of which was bathed in light.

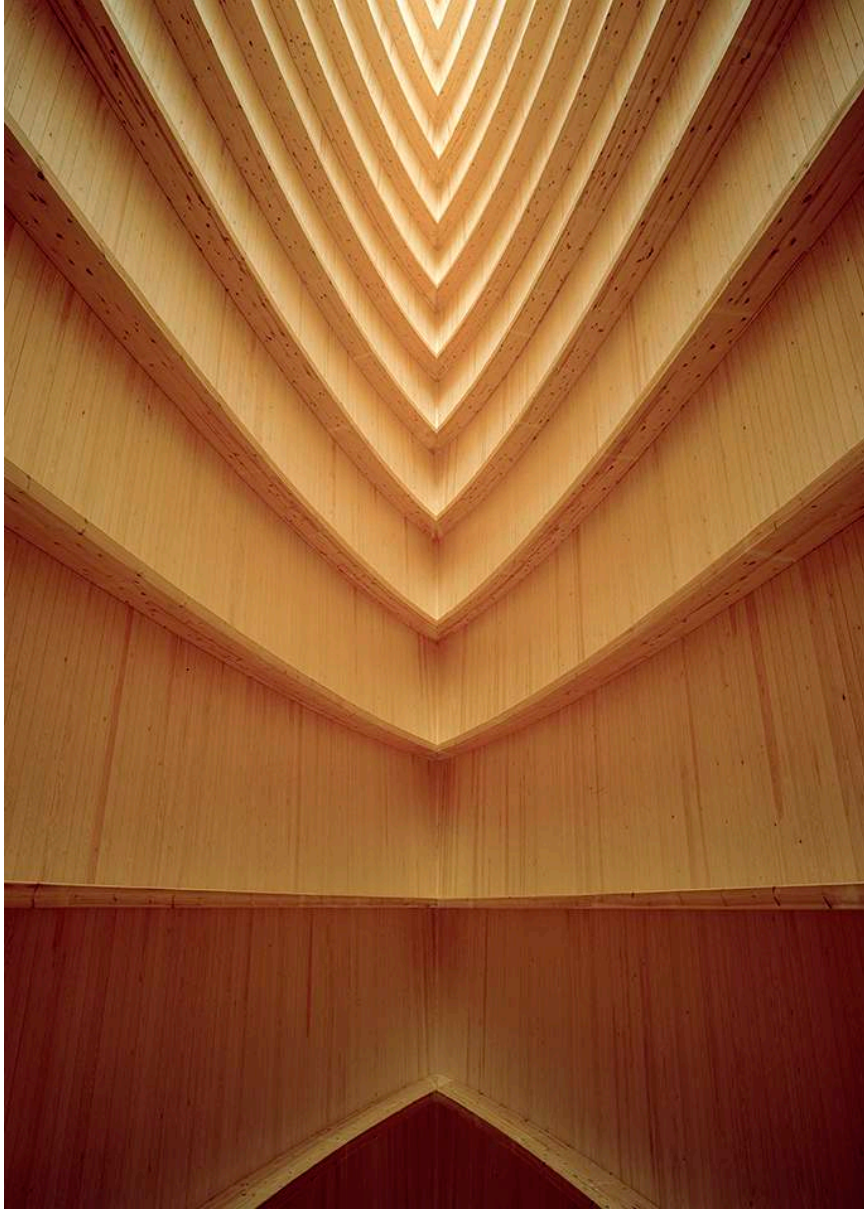




I felt as though I was in a Gothic tunnel, but one that had been designed in the most modern idiom imaginable. The space seemed to pull into itself from end to end. Everything was wood: the arches drawing upward, the facing of the walls, the floor, the ceiling which came to a point above. As I walked forward beneath that hull, I was suddenly struck by the feeling that this long mystical space built of timber frame resembled the palms of hands; above there were hundreds of interlaced fingers pointing upwards, spanning the length of the entire interior. The arches were like hands lined up, one after the other. And these hundreds of hands had hundreds of palms, row upon row of them. The hands grew larger and larger, building and building upon one another, gently coming together along the length of the ceiling, and where the fingertips met, that space came into being. At the farthest end, light flowed in from the right and left through glass walls. The altar, located in the embrace of those palms, seemed to be transformed into a painting that changed with the shifting light of day, becoming again and again a singular moment in time. Straight ahead was a holy wall, almost a divine plane facing all who entered the chapel, and as you drew nearer, it loomed higher above. I walked forward. The rows of backless benches, rather simple in design, etched minimalistic lines into the space of the chapel.



Everything was illuminated by the same source of light. The glow at the terminus of the space shone down upon the altar from windows on each side which rose up to the ceiling. Like an echo, the light seemed to reverberate from one end of the chapel to the other, pulsing back and forth. All at once, light was transformed into sound. As sounds were bound up with light and echoes intertwined with sound, that penetrating light at the end of the space brought me back to memories of the call to prayer drifting from minarets that I'd heard in places where I'd previously lived. My thoughts were swept to the Golden Horn in the heart of Istanbul, to the Galata Bridge stretching between Karaköy and Eminönü, and I was brought back to memories of the evening call to prayer. Spread before my mind's eye I could see the ancient panorama of the city spanning thousands of years with its mosques, churches and towers, from Topkapı Palace to Hagia Sofia, Sultanahmet to Saint Irene, Yeni Cami to Süleymaniye, Rüstem Paşa to Fatih, Mihrimah Sultan to Sokullu, and Sokullu to Galata. I turned towards the Golden Horn and, in the heart of the metropolis, began listening to the sounds of the city. And suddenly the cacophonous roar of the city's thousand noises vanished, as if everyone and everything had been waiting for that moment and all fell silent, including the cars, ferries, and people crossing the bridge. Then, the first sounds of the call to prayer could be heard as the voice of a muezzin echoed across the water, and then there was another call to prayer, and then another and another. The Golden Horn had been transformed into an open air theatre, an amphitheatre of orchestras. The sounds seemed to bind everything together, rising up from all the shades and colours of the city, interweaving and brushing against one another. Just as the arches of the chapel in Turku soar upwards to join at the top, the entire city had been transformed into a veritable holy space, a shrine. Churches, synagogues, mosques, all places of worship, are like links in a chain, the perpetuation of every echoing sound.



Again I gazed at the altar at the end of the chapel and the light filtering through the windows that flanked it, noting how the light had changed. Then it changed yet again. After watching this play of light for a long while, I left the chapel; my thoughts, however, kept going back to that space. I could still see in my mind's eye the interior and exterior of the chapel, its ancient character, what could even be called its coarseness. It seemed utterly cut off from any style, belonging to no particular time or historical period. It was a building that created its own moment. Simple, but poignant. It was far from the polished perfection I'd seen in photographs; in fact, it was far rougher. Just when I was thinking that perhaps such a building should be more accessible, I realized that the chapel didn't have the air of monumentality it seemed to possess in the pictures I'd seen in magazines. In fact, the chapel was quite modest in scale and bearing. In reality, it was anything but untouchable; indeed, it was very human. It combined the

traditional and modern, and as such was timeless, dating from no particular era. In a single sweep, along a single axis, the space and project came together. There was nothing pretentious about the chapel. It was succinct, like a bullet fired from a gun. A single spine, a single passageway, a single light under a single inversion, a single voice. The arches soaring upward interwove the light, sound, and space as they stretched out in rows. And in every chapter of this story there were people there among the repetitions of hundreds of hands and the massive divine palms and fingers. My thoughts drifted to the frame of the roof before it had been clad with metal, the tens upon tens of cambered arches that resembled multiple doors leading to yet more doors guiding you down the length of the chapel, and the utterly empty, sculptural nature of the building itself. After a while, I descended the side road. At one point, I stopped and looked back from a distance, gazing at the chapel's steep sides, the greenish metal cladding covering it from top to bottom, and the shadows and glimmers of nearby trees reflected in a small window high up on the side.



On my way back, I could still hear the calls to prayer echoing, one after the other, over the bridge spanning the Golden Horn as I pondered over the space of the chapel, thinking on its light and atmosphere. I went and returned, surrounded by the sounds of the north and south.”

\* *“Story of Upturn Caicque” was one of the article for the exhibition of “Two Paths to Silence”. The exhibition was a joint event featuring two personal interpretations of contemporary Finnish Church Architecture. In this show architect/writer Hüseyin Yanar and photographer Jussi Tiainen took part. Yanar’s articles and Tiainen’s photos came together. There were eleven churches in the exhibition. St Henry’s Ecumenical Art Chapel in Turku, designed by architect Matti & Pirjo Sanaksenaho was one of them. “Two Paths to Silence” opened in Museum of Finnish Architecture in Helsinki in 9<sup>th</sup> of April 2014. The designer of the exhibition was Hannu Hellman, English and Finnish translators were Mark Wyers and Maija Kasvio*

## THE CHANGES OF POST-WAR ARCHITECTURAL MEMORIALIZATION IN BOSNIA AND HERZEGOVINA

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### Abstract

The paper will focus on monuments and memorials, the two being the main architectural agents of social and individual remembrance. The aim of the paper is to see how and to what extent did the changes in society, its perspective on memory, and who or what is being remembered affect form, scale, shape, spatial organization, symbols, materials and other important aspects of post-war architectural memorialization. While the ideas of grandeur and glory from the imperial age have been replaced with democracy, the archetypal form of monuments and memorials, once celebrating heroes and rulers in highly representative forms done in marble and bronze, are nearly abandoned today. Their place has been taken by abstract forms, designed rather as site-specific, landscape, urban, spatial and artistic solutions inviting visitors on reflection, inciting discourse on the past through present and warning for the future while not claiming to understand or represent the suffering of others since no art can compensate for human trauma. Our modern obsession with forgetting also made us question and eventually completely overturn the long-standing concept of memory as a database of information of the past. Bosnia and Herzegovina, with its turbulent past, having been through different forms of government, from imperial to socialist and finally democratic, is a fertile ground for researching the changes in memorialization practices in all of these periods and their overlapping. However, in order to identify these changes, using historical interpretative and descriptive analysis a framework consisting of historical development of theories of memory and identification of most prominent works of architectural commemoration before WWI, between wars, after WW2 and contemporary examples needs to be set up. The parameters for analysis of the monuments and memorials in relation to the memory, structure and viewer/user set in the framework will be applied to representative examples of intentional monuments belonging to architectural commemorative practices in Bosnia and Herzegovina from the Austro-Hungarian Empire, Kingdom of Yugoslavia, Socialist Federal Republic of Yugoslavia, and present day Bosnia and Herzegovina. Establishing the major turning point and paradigm shifts in both of the subjects, the paper aims to identify if and how did the changes in society affect the form of the monuments and memorials in different periods and what happens when they overlap.

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**Key Words:** *monument; memorials; memory; architecture; memorialization)*

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### 1. Introduction

Throughout the centuries, in many various societies wars have played a very significant role in memory, individual as well as collective. War is such a severe interruption of experience that can cause memory shock, making it hard to integrate these interruptions in the established narrative and collective memory. This study will before WWI, between wars, after WW2 and contemporary examples. The study focus intentional monuments, works of architectural commemoration and aims to identify if and how did the changes in society affect the form of the monument. Upon defining the terms of monuments and memorials and cross-referencing their definitions from related works, will be branched into four subsections: before WW I, between wars, after WW II, and after 92-95 conflict. Each of these subsections will offer a short description of the period and descriptive analysis of selected examples. The following chapter will include a comparative analysis of monuments and memorials from respected periods and the final chapter will present the discussion on the findings of the previous chapters and hopefully offer a starting point for a discussion on the complexity of the memorial practices in Bosnia and Herzegovina and the direction it might take in the future.

## 2. Monuments and Memorials

The definitions of the words monument and memorials almost overlap, while “monument” corresponds to “a structure or building that is built to honor a special person or event”, “memorial” is defined as “an object, often large and made of stone that has been built to honor a famous person or event”. [1] This means that monuments and memorials can be used as interchangeable forms; however, Struken notices a distinction in intent between them. “Monuments are not generally built to commemorate defeats; the defeated dead are remembered in memorials. Whereas a monument most often signifies victory, a memorial refers to lives sacrificed for a particular set of values. Memorials embody grief, loss, and tribute. Whatever triumph a memorial may refer to, its depiction of victory is always tempered by a foreground of the lives lost”. [2] Nevertheless, boundaries between the two in today’s context of a post-Holocaust world seem ever more blurred. Young, on the contrary, sees a monument only as a subset of memorials. He treats “all memory sites as memorials, the plastic objects within these sites as monuments. A memorial may be a day, a conference or space, but it needs not be a monument. A monument, on the other hand, is always a kind of memorial.” [3] Considering these statements, all monuments and memory sites can become memorials, so in the purpose of this study monuments and memorials sites will be analyzed according to Young’s definition. Winter notes two functions of war remembrance: memory and mourning. Remembering a war is always a part of the official memory policy as a way of creating and upholding a certain collective identity. Additionally, it has to go beyond memory politics and offer a chance for survivors to mourn their losses. We chose durable and noble materials for memorials in order for them to surpass us and resist the nature’s forces but the social frameworks change and what was relevant for us may very well be irrelevant to generations which will follow. Carpo notes this by saying that: “Monuments deal with notions and representations of history and time, and their present programs and functions are challenged by changes that have occurred in contemporary philosophy of history.” [4]

### 2.1. Before World War I

The cult of personality that started in Renaissance continued on, with royalty, generals, poets, writers and philosophers having their monumental tombs luxuriously ornamented and their grandiose statues raised after their deaths. Building tombs and monuments continued to be “the most visible public manifestation of political strategies designed to convert memory into history”. [5] The shape of monuments from this period ranges from equestrian statues, victory columns and obelisks to structures whose forms and compositions take inspirations from Ancient Egypt, Greece or Roman cultures.

Considering the fact that Bosnia and Herzegovina was under Ottoman Rule for more than four hundred years which was organized under Islamic rules, where any representation of human figure is not allowed it is easy to conclude that there are no examples of intentional monuments that can be found in the western society at the time. It is important to mention the institution of *waqf*, an Islamic endowment of property to be held in trust and used for charitable or religious purpose. Waqfs carry the name of their founder and in this way the memory of them is sustained in the society.

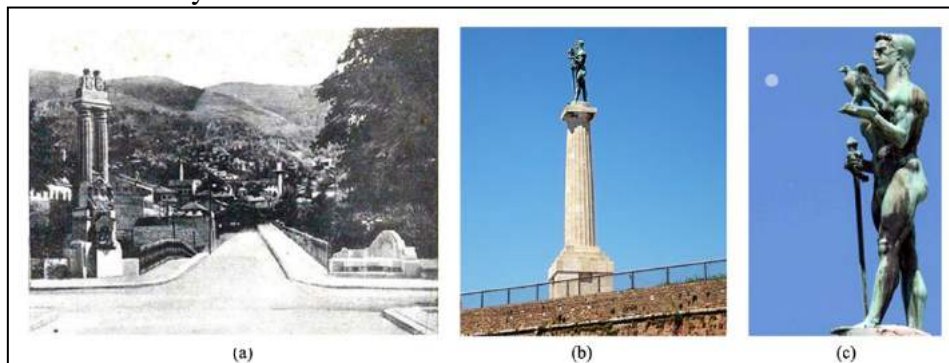


Figure 1. (a) The Atonement Monument; (b) The Victor; (c) The Victor Sculpture

#### 2.1.1 The Atonement Monument, Sarajevo, 1917

The monument commemorating Archduke Franz Ferdinand and his wife Sophie, Duchess of Hohenberg, assassinated in Sarajevo, was designed by Hungarian architect and sculptor Jenő Bory (1879-1959) who was appointed as an official war artist in Sarajevo. (Fig.1. a) The monument was built on the site of the assassination and unveiled at a ceremony on the event's third anniversary, June 28<sup>th</sup>, 1917. Bory had designed the monument in late secessionist style with three parts: the granite pedestal, bronze medallion of the duke and his wife, and two granite columns topped with bronze crowns. The column's total height was 12m. Opposite of the columns, a bench was constructed as a viewing point and unfortunately this is the only part of the monument still standing in its original place. It was totally destroyed by the end of the WWI and in its place two symbolical footprints were placed together with a plaque but this time commemorating Gavrilo Princip, the assassin, as a national hero. The context stayed the same with some changes in the text of the plaque during socialist era. After the 92-95 conflict, the footprints and the plaque were removed and together with the retrieved bronze medallion from the original design are kept in the museum on the opposite side of the street.

### *2.1.1. The Victor, Belgrade, 1928*

Since the lack of representative examples of intentional monuments before the First World War in the confines of modern day Bosnia and Herzegovina, we will be analyzing the monument called *The Victor*, done by a Croatian sculptor Ivan Meštrović. (Fig.1. b) In 1913 it was commissioned by the Belgrade municipality in order to celebrate the victory in the Balkan Wars. The work halted because of the war and being that it was implemented after the war in the Kingdom of Yugoslavia, with Belgrade as its capital, which Bosnia and Herzegovina was a part of until the beginning of the Second World War it does enter the scope of this study. The bronze sculpture stands on top of 17.5 meters high Doric column in the Belgrade's highest point, the Kalemegdan fortress. *The Victor* is portrayed as the mythical hero Hercules, a prototype of the ideal hero, his facial contours are strong, forehead firm and wide, and there is neither expression of grief for his fallen compatriots nor joy caused by victory. (Fig.1. c) At this time ideas of uniting the south Slavic peoples start to arise so from some point it can be seen as a monument to a South Slavic hero. This might explain the sculptor's choice to refer to the classic motives and the lack of national and religious symbols which did trigger some negative critics.

## *2.2. Between Wars*

It is estimated that around thirteen million men died in the First World War making it the most massive conflict in human history to that point. The sheer size and number brought a new social phenomenon and a shift in ways nations commemorate conflicts. Until then the war dead did not have their separate cemeteries. If buried at all, they were buried in mass graves and commemorated far away by monuments dedicated to their generals and kings and immortalized by poetry and prose. War cemeteries that spread around Europe even before the end of the war were "essentially the result of the unprecedented number of fallen". [6]

The cemeteries were often accompanied by a monument and a new form of memorialization that was on the rise, the Tomb of the Unknown Soldier. As Winter notes: "commemoration was a universal preoccupation after the 1914-1918 war" and indeed countries after the war organized commissions and issued guides concerning war memorials. [7] As in the rest of Europe, in the Kingdom of Serbs, Croats, and Slovenes (The Kingdom of Yugoslavia from 1929) the destruction and the immense loss of human lives in WWI created the need to mourn and commemorate the lost ones. While more than two hundred war memorials and monuments were erected in Serbia there was little to no support for attempts to erect memorials to soldiers fallen on the Habsburg side.[8] Hence, memorialization of war casualties in Croatia and Bosnia and Herzegovina was reduced to a couple of small scale cemetery monuments. In Serbia, however, the most prominent example of post-WWI commemoration is the Monument to the Unknown Hero in Belgrade. (Fig.2. a)

### *2.2.1. The Monument to the Unknown Hero, Belgrade, 1938*

The project was again entrusted to the Croatian sculptor Ivan Meštrović. Conceived as a mausoleum in the classical form of a sarcophagus elevated on a five step pedestal it was inspired



by the tomb of the Persian emperor Cyrus dating to 4th century BC. The tomb's foundations and the core are made of reinforced concrete and covered with black granite from Jablanica, a city in Bosnia and Herzegovina famous for its stone quarries. The remains of an unknown soldier are located in the underground crypt and marked with the dates "1912-1918", representing the duration of the Balkan Wars and World War I. It can be accessed by two entrances

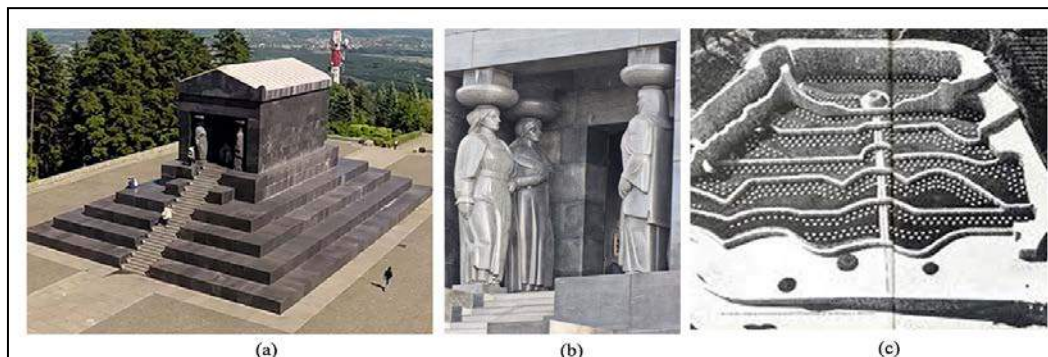


Figure 2. (a) The Monument to the Unknown Hero; (b) The caryatids; (c) Partisan Memorial Cemetery

and on both of them we can find four granite caryatids in national costumes of the Yugoslav peoples. (Fig.2. b) The caryatids are 4 meters high and carved from the same stone as the tomb. They represent Bosnian, Croatian, Dalmatian, Montenegrin, Slovenian, Serbian, Old Serbian and Vojvodina's women symbolizing mothers of the soldiers fallen for the idea of uniting all nationalities in the Kingdom of Yugoslavia.

### 2.3. After WWII

During and after the war cemeteries from WWI were expanded and sites of atrocities such as Nazi labor and death camps were more or less preserved in the state they were found. Now with a great number of civil casualties the old forms of commemoration could not be used. In the beginning priority was given to the destroyed cities in need of restoration while at the same time the discussion arose on how to commemorate something as horrible as Holocaust.

After the war Bosnia and Herzegovina was a part of the Socialist Federative Republic of Yugoslavia in which the "interpretation and writing of history were dominated by Yugoslavia's new Communist regime".[9] Neidhart and Gabrijan state that: "Up to the recent time, the monuments in the West European sense were unknown in Bosnia. After Liberation, however, the problem of building monuments is more and more actual, and that for many comprehensible reasons. First of all, there are great events of the National Fight of Liberation to be pointed out visible by plastic in order to immortalize them. At the same time, it is necessary to render them accessible for large people's masses." [10] We can distinguish two phases in Yugoslavian post-WWII architectural commemoration. The first phase, in the immediate period after the war, from the 1940s to 50s, when many of them were built in local communities, memorials are as simple as plaques listing the dead, busts of National Heroes, and sculptures. The second phase, from the 1960s to 80s marks the emergence of the memorial movement known as Socialist Modernism. Monuments built in this period "are not only modernist but also have a very particular monumental and symbolic typology comprising fists, stars, hands, wings, flowers, and rocks".[11] Čusto however, notices another important point. From the mid-70s, mainly as a way of cutting unnecessary spending, there is a tendency for building more modest monuments with functional character. [12]

#### 2.3.1. Partisan Memorial Cemetery, Mostar, 1965

In 1959, the city of Mostar awarded Bogdan Bogdanović with a commission to build a memorial cemetery for the fallen partisans. (Fig.3. c) Throughout the monument organic, amorphous wall structures are interwoven with greenery and water as the primary element of expression. Gently curved pathways guide the visitors to the central area with grave sites which are also formed in a series of irregularly shaped terraces following the natural slope of the terrain. In his design, Bogdanović uses elements and forms derived from regional vernacular architecture, Illyrian and medieval necropolis located in the vicinity. (Fig.3. a) The stone pebbles used for the cobbling the pathways were extracted from the nearby river. By

incorporating the stone roof cladding from the traditional Mostar houses donated by the citizens in the complex built from white limestone Bogdanović managed to transfer the old city's patina to the new necropolis.

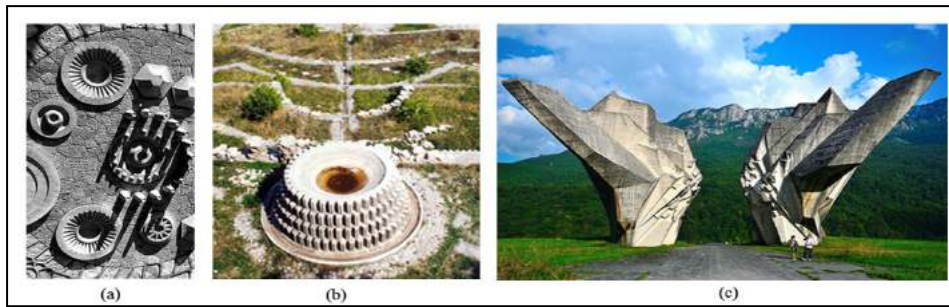


Figure 3. (a) Stonework Detail on the Cemetery; (b) Partisan Memorial Cemetery Today; (c) Tjentište Monument

As a central element of the highest, seventh terrace there is a fountain from which there is a view of the entire complex and the city. From this point one can grasp the desire of the author to present the cemetery as a personification of a “city of the dead antifascist heroes, mostly young men and women” with streets, alleys, houses, terraces, and squares looking over “the city of the living, for which they gave their lives”. [13] The height difference between the entrance and the top terrace is more than 20 meters and the visitor has to walk around 300 meters to get there. There are 810 flower shaped gravestones with the names of partisans killed from every ethnic group in Mostar. The cemetery was intentionally bombed at the beginning of the war in 1992 and its devastation through neglect still continues. It was partially restored and reopened in 2005. (Fig.3. b)

#### 2.3.2. *The Valley of the Heroes Memorial Complex, 1971, Sutjeska*

The battle of Sutjeska marks a turning point in the Yugoslav front in the WWII. Surrounded by Nazi forces in the mountain area on the border between Bosnia and Serbia partisan forces manage to break through with a lot of casualties. Memorial complex called The Valley of the Heroes is located in the Sutjeska National Park and is comprised of 3 main elements: the ossuary, the monument, and the memorial house. (Fig.4. a-c) There are however other, smaller monuments, mostly plaques dedicated to the memory of national heroes at the place of their deaths and a total of 79 of them are scattered throughout the park. [14] The designer of the monument is renowned artists and sculptor Miodrag Živković. (Fig.3. c) The monument consists of two large asymmetrical blocks made of white cement with the maximum height of 19 meters. They symbolize raw space where the battle took place leaving behind deep canyons and river leading to their snowy peaks of mountains to the victory. Depending on the view and the movement of the visitor the formation of the rocks is constantly changing. The arms on the monument symbolize the penetration and the space between is a symbol of freedom, the penetration through the entrapment of the Nazi forces allowing the passage of the units and the rescue of the wounded. Passing through the free space of the monument and continuing on the stone cladded path the visitor is led to an amphitheater shaped element called the Plateau of the Brigades where semicircle marble blocks are inscribed with the names of divisions that participated in the battle against fascism. The Memorial House was designed by the architect Ranko Radović and constructed at the same time as the monument. With its steep roofs, it is highly reminiscent of the typical mountain houses in the region. In the interior, the walls are inscribed with the names of 7,376 fallen partisan soldiers followed with 13 frescoes on the theme of The Battle of Sutjeska by Krsto Hegedušić. In the years after its opening it witnessed large attendance, but after the 92-95 conflict that number has drastically decreased and the park suffered the same fate as many other memorials from this period, though largely thanks to his remote location it wasn't severely damaged in the active fighting

#### 2.4. *After 92-95 Conflict*

While Yugoslavia was ending its WWII architectural memorialization in Europe, especially in Germany, a new movement was on the rise. The counter-monument movement sees monuments as an instrument of

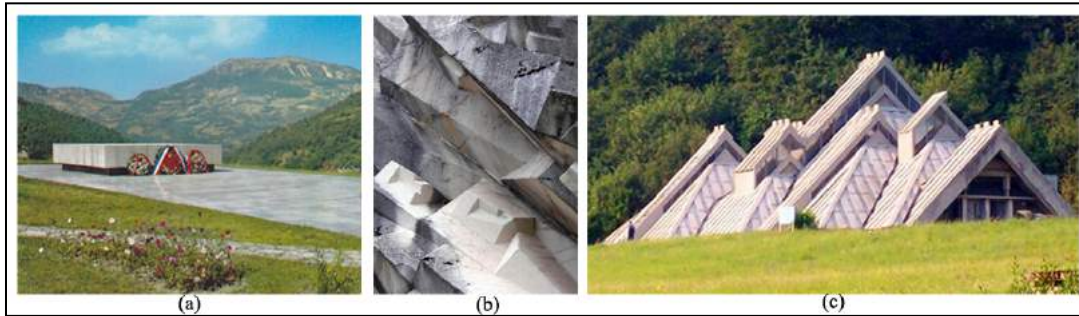


Figure 4.  
 (a) The ossuary;  
 (b) Detail on the  
 the

Monument; (c) Memorial House

regimes and denies the presence of any imposing, authoritative social force in public spaces. Rejecting the traditional forms and reasons for them, they fear that the more we encourage monuments to keep our memory for us the more forgetful we get and that the first impulse to memorialize might be coming from the desire to forget them. Young describes the motives as: “not to console but to provoke; not to remain fixed but to change; not to be everlasting but to disappear; not to be ignored by passers-by but to demand interaction; not to remain pristine but to invite its own violation and desanctification ; not to accept graciously the burden of memory but to throw it back at the town`s feet.” [15]

The complicated nature of the conflict that engulfed most of the Balkan following the dissolution of Yugoslavia left the three nations living in Bosnia and Herzegovina without an official narrative. Since then they have developed their own but almost parallel narratives. A phenomenon that Vinitzky-Seroussi calls “fragmented commemoration” and defines as the existence of “multiple commemorations in various spaces and times where diverse discourses of the past are voiced and aimed at disparate audiences.”[16] Memorials display an array of national and religious symbols and often besides featuring names of the victims include information on the crime and perpetrators. Taking into account the multiethnic structure of Sarajevo and its victims of the 92-95 conflict the examples analyzed in this section, except of Memorial Center Potočari, are located in Sarajevo (Sarajevo Roses, Memorial for the Children Killed During the Sarajevo Siege, and Sarajevo Red Line Memorial) and in a way stand out of the fragmented commemoration phenomena.

#### 2.4.1. Memorial Center Potočari, 2003, Srebrenica

Srebrenica is a small town in eastern Bosnia which was surrounded by Bosnian Serb forces in 92-95 conflict. By a UN resolution it was proclaimed a secure enclave but in July 1995 it was taken by the Serb forces and in the course of 3 days an estimate of 8000 men (from the age 15-70) were executed and their bodies scattered and hidden in mass graves. The memorial center Potocari was built on the site next to UN base (former car battery factory) where some of the execution occurred. (Fig.5. a) It consists of two parts: the cemetery and the base which is preserved a museum. The cemetery plots have a floral shape and the tombstones are standardized and done out of white marble. (Fig.5. b) In the center, there is an open site used for funeral ceremonies and near to it the central memorial stone with names of the victims inscribed. (Fig.5. c) The factory is preserved as it was and is now used as a museum and educational center.



Figure 5. (a) Potočari Memorial; (b) Center Stone; (c) Inscribed Names of the Victims

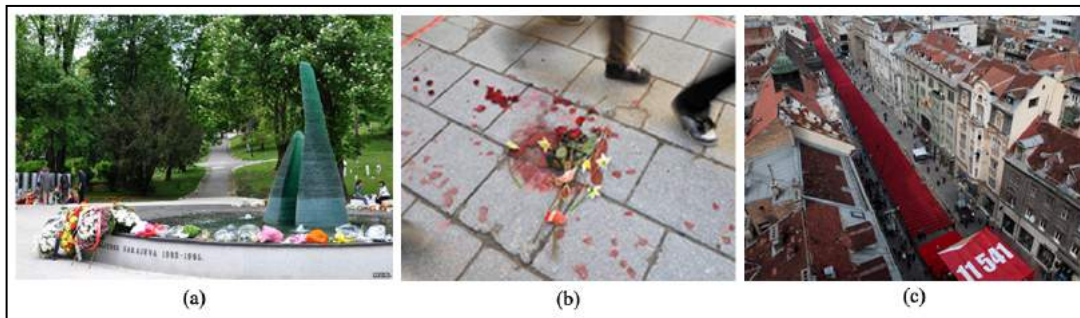


Figure 6. (a) Memorial for the Children Killed During the Sarajevo Siege; (b) Sarajevo Roses; (c) Sarajevo Red Line

#### 2.4.2. *Sarajevo Roses, 1995, Sarajevo*

Lasting 1425 days, the Sarajevo siege is the longest siege of a capital in modern history. During 44 months of siege, an estimate of 50 000 tons of explosives was fired upon the city, leaving 14 011 dead and 46 000 wounded. The shape shrapnel leaves at the spot of the impact on ground resembles a flower. Sarajevo Rosses are these traces filled with red paint. (Fig.6. b) Even though these traces were present and are still visible on some facades of the buildings in the city, only those on the ground are filled with paint and considered as Sarajevo Roses. Technically they are three-dimensional but might appear as two-dimensional as their thickness remains hidden below ground level. They have no text to accompany them, no map pointing to them and no explanation of their origin. Junuzović says that: “making any conclusions on the nature of their sites and messages they communicate can be rather amorphous and may lead to asking more questions than actually offering answers.” [17] They can be found at city’s main market, pedestrian zones, courtyards, squares, around religious buildings, sports courts, and school grounds mapping the life in the city during the siege.

#### 2.4.3. *Sarajevo Red Line Memorial, 2012, Sarajevo*

This was a temporary installation that took place on the 20<sup>th</sup> anniversary of the beginning of the siege of the city and was designed by theater and film director Haris Pašović. He used multiplication of one object in order to dramatize the representation of absence. The installation consisted of 11541 red chairs, arranged in 825 rows. Every chair represents one person killed during the siege while 643 of them were smaller in scale symbolizing the children killed during the siege. (Fig.6. c) The red line formed by the chairs stretched on the main street ending at the WW2 Eternal Flame Memorial, where the stage has been set up. It was the first time that the victims of the siege were commemorated and a concert was to be held for 11541 empty chairs. Giovanucci describes the memorial as: “a strong example of Andreas Huyssen’s conjectures about the evolution of memorials. Huyssen explains that society changes and thus the way society memorializes things should change: “A society’s collective memory is... by no means permanent and always subject to subtle and not too subtle reconstruction.” [18]

#### 2.4.4. *Memorial for the Children Killed During the Sarajevo Siege, 2010, Sarajevo*

The memorial designed by Mensud Kečo aims to preserve the memory of the children killed during the Sarajevo siege. It is located in the main park in the city center and composed out of four elements. (Fig.6. a) The glass sculpture in the middle of the fountain, made out of two

forms symbolizes a mother trying to protect her child. Water symbolizes purity and passing of the time and runs on the bronze ring of the fountain. The bronze ring is imprinted with footprints of children as the only physical evidence. On the left side of the memorial on a stone pedestal, seven rotating, stainless steel cylinders contain inscribed names of the children.

### 3. Comparative Analysis

#### 3.1. Before WWI

Examining the Atonement Monument in Sarajevo and The Victor in Belgrade several similarities with monuments built in Europe at the same period can be noticed. Both are raised from the ground, expropriating it from the street and feature plenty of symbolical and representational elements. The usage of classical order columns with pedestals together with vertical monumentality can be observed in the practice of building victory columns across Europe. As a means of unifying several nations under one collective, the sculptor Ivan Meštrović avoids national symbols and draws inspiration from the prototype of the ideal hero, Hercules.

#### 3.2. Between Wars

Serbia commissioned many post-WWI monuments in Belgrade. The grandest, following the trend in Europe, is the Tomb of an Unknown Soldier on Mount Avala overlooking the capital Belgrade. Persian inspired crypt, done in black granite is elevated on a five-step pedestal. However, the usage of symbols of all the nationalities living in the Kingdom through the caryatids supporting the structure's roof, the monument can be seen as "an attempt to re-create First World War memory as a shared Yugoslav, rather than an exclusively Serbian national myth." [19] We can see that the focus of commemoration has shifted from heroes to regular soldiers and that unprecedented scale of casualties demanded the emergence of new types of memorials. War cemeteries sprouted on battlefields all over Europe with each nation given the prerogative of designing and up keeping. The design is mostly in established styles although abstraction and simplification are beginning to be used. Keeping in mind different nation and ethnic backgrounds slight avoidance of religious and national symbols can be observed. Monuments and mausoleums built in rural areas tend to dominate the scenery while Tombs of Unknown Soldiers are being built in prominent public spaces or incorporated in the existing prominent monuments. Noble materials as granite, limestone, marble, and bronze are still being used.

#### 3.3. After WWII

An estimated number of more than 60 million people died in WW II, with civilian casualty ratio being 60% (40% in WWI). Aside from human casualties, war laid waste and destruction all over Europe. With fallen ideologies, borders redrawn and cities in ruins, this time there was no mass construction of memorials for the dead after the war. Initially, the war cemeteries from the WWI were expanded, a similar situation can be observed with Tombs of Unknown Heroes. As the modernity progressed, the years that followed were not keen on intentional monuments. Used by the Nazi and Fascist regimes to promote nationalism and invoke militarism the public grew suspicious towards monuments and their construction. The horrors and the shock that Holocaust left behind can be sensed in Theodor W. Adorno's often quoted statement that writing poetry after Auschwitz would be barbaric. To normalize everything and repeat the mass memorialization of WWI was seen as dangerous and potentially allowing fascism to continue in some other form. Monuments analyzed in this section portray a couple of similarities. With the ratio of civilian casualties larger than military ones and realizing that no one is victorious in such a war, memorials refrain from glorifying soldiers and their focus is shifted to the innocent victims. One of the biggest shifts was in materials used in the memorials, especially abandonment of stone and usage of concrete. Abandonment of stone can be related to its political connotations and its usage in monuments of Fascist and Nazi regimes. Forty offers two valid explanations on how did concrete become main building material in monuments. One is the dual nature of concrete, liberation, and destruction meaning that its structural qualities opened up an array of possibilities but at the same time causing loss of established routines and relationships, which was the mark of modernity. The other one is the anonymity and muteness of concrete making it ideal for reflection and projection. [20]

WWII memorialization in socialist Yugoslavia was very important for celebrating the victory and liberation by the Partisans and in building the new society with various national and religious backgrounds. Most of the monuments were built on former battlegrounds locating them outside cities and in the open landscape as is the case with Valley of the Heroes in Sutjeska, Jasenovac (Croatia, 1967), Kozara (Bosnia and Herzegovina, 1972), Kosmaj (Serbia, 1971) and others. All of them include a massive monument built in the spirit of Socialist Modernism. These monumental structures, dominating the landscape are often accompanied by historical, educational or leisure activities infrastructure. Avoiding any national and religious symbols they are mainly abstract forms that refer to a modern future of freedom, equality, and independence that is possibly only because of the ultimate sacrifice of the Partisan fighters. The abstract forms leave some openness that allows self-reflection and as Burghardt and Kirn notice “it allows for an appropriation of meaning that bypasses the official narrative, making the monuments accessible to even those who disagree with the official political line.”

### *3.4. After 92-95 Conflict*

Memorials done after the 90s conflict in Bosnia and Herzegovina reflect its convoluted nature. Except for Srebrenica, examples studied in this section are mostly located in Sarajevo due to its multiethnic composition. Srebrenica is the site of the biggest massacre on European soil since WW II. If their remains are found the memorial center is planned to be the final resting point of all the 8732 victims of genocide and since some of the killings occurred at the former UN Base, following the examples of Nazi death camps it is kept in the state it has been found and has been transformed into an educational and exhibition space. The crosses do not impose a particular narrative, they are silent and anonymous and this silence allow multiple narratives to coexist and paves a way for the possibility of reconciliation. This anonymity together with the negative form of Sarajevo Crosses, and using repetition of an everyday object, such as chairs, to represent absence in the Sarajevo Red Line Memorial, can attribute them characteristics of counter-monument movement and map the route for future projects.

## **4. Conclusion**

Memorials can act as a public catalyst for people to grieve and mourn their losses and incorporate their individual memory in the collective one. Jay Winter (1998) notes two functions of war remembrance: memory and mourning. [21] Remembering a war is always a part of the official memory policy as a way of creating and upholding a certain collective identity. Additionally, it has to go beyond memory politics and offer a chance for survivors to mourn their losses. Throughout the examined periods answers to two questions were the main instigators of change in the design of architectural memorialization. Who does the society remember and how? Until the late 19th century the society was fostering a cult of heroes which can be traced back to ancient Greece. Imperial age royalty, military figures, and otherwise notable persons were celebrated through poetry, their resting places were adorned in form of glorious structures and had monuments built in their names. Monuments from this period are almost regularly located in prominent locations in the city such as focal points of squares, intersections of main avenues or in front of important edifices. They feature highly representational forms and use a range of didactic elements and symbols. Their structural monumentality is combined with the usage of high quality and “noble” materials. The shock caused by the death toll and destruction of WWI caused a paradigm shift in architectural memorialization. Now it was centred around a soldier with war cemeteries and memorials on battlefields and Tombs of Unknown Heroes in nation’s landmark locations in cities. Relatively smaller structures include representations of brave, young soldiers dying for a nation’s cause. Ensuring equality in their sacrifice their names are inscribed on monuments while emotions of grief and mourning are stimulated through tomb and mausoleum allusions. Horrors of WW2 and Holocaust were another turning point for memorials. The abuse of memory by totalitarian regimes combined with modernism’s stance against it made people grow suspicious to memorials and memories being institutionalized in an object. While Holocaust unrelated memorials were being done in years after the war humanity was still reflecting on how such horrific event can be commemorated. Together with the earlier used forms, the materials mostly used in memorials were abandoned. The design of memorials was being concentrated on experience and the most suitable tool for this was abstraction because unlike representational memorials that resemble the object they represent the abstract memorial not relating to a

specific object or an image is more prone to referencing non-visual aspects like emotions and experience. The search on how the Holocaust should be memorialized, especially in Germany where in the late 80s artists and architects use extremely abstract forms, negative space, voids and everyday objects to represent absence gave way for counter-monument movement. The spirit of the movement is best described in Young's words: "only an unfinished memorial process can guarantee the life of memory". [22] Our perception of memory has also changed drastically. "Today we think of past as memory without borders rather than national history within borders; today memory is understood as a mode of re-presentation and as belonging to the present." [23] This new mode of critical consciousness in democratic societies gave way for new memorials being built as an acknowledgment of inflicted difficult memories, past injustices, and collective traumas across the world as a step towards reconciliation. Memorials are no longer representational, silent and static objects. They are designed rather as site-specific, landscape, urban, spatial and artistic solutions inviting visitors on reflection, inciting discourse on the past through present and warning for the future while not claiming to understand or represent the suffering of others since no art can compensate for human trauma. It is in the interaction of the visitor and the memorial that they are to fulfil their function of dealing with traumatic events and form a process towards understanding on both individual and collective levels. Unfortunately Bosnia and Herzegovina does not just have a problem with post-95 architectural memorialization. WWII monuments and memorials representing newly overturned ideology as a show of impossibility of further coexistence were deliberately targeted and some totally destroyed during the 92-95 conflict. The ones not destroyed are neglected and nearly forgotten. Sculptures and busts were removed to different locations, often gathered in one park as a sort of memory graveyards. The complex nature of the conflict in Bosnia and Herzegovina produced a situation where three constituent ethnic groups have their own narratives which are incompatible with each other. With wounds still fresh and committed crimes being processed in ICTY (International Criminal Tribunal for the former Yugoslavia) and local courts Bosnia and Herzegovina has a long and difficult process of healing and reconciliation ahead. Victims oath to have an inalienable right to recognition of their status and memorialization can be a key component in transitional justice and eventually pave way for reconciliation. As we have seen from the cases of WWI memorials, by intentional misuse a place designed for remembering, grief, and healing, can easily become a place of accusations, not only the perpetrators but bystanders also. That is why a much cautious approach to memorialization is advised so that by the further alienation of the groups it doesn't become an obstacle in the post-war reconciliation process.

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## USING IMITATION AS A DESIGN PARAMETER IN GATED COMMUNITIES: THE CASE OF ISTANBUL

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### Abstract

There are different types of housing settlements that can be classified as planned settlements, squatter prevention areas, urban transformation and social housing projects of Housing Development Administration of Turkey (TOKI) and the luxurious gated communities have spread throughout the cities of Turkey for many years. The number of gated communities is increasing day by day, especially in Istanbul. There are some reasons such as the emergence of new elites and new lifestyles and the demand for physically secured housing settlements trigger this trend. These areas are claimed to propose a new lifestyle which includes distinguished neighbors, excellent social and healthy life. Moreover, advertisers and designers have imitated the historical and natural images of the city as design elements in order to market their projects, especially in the last 10 years.

Sinpaş Bosphorus City, Sinpaş Palaces and Viaport Venezia are some gated community projects which were designed by imitating the original areas or buildings such as Istanbul Bosphorus, Istanbul Palaces and Venice City. The other common feature of these projects is that they are located far from the city center. Developers buy project lands at low prices, then they develop projects with attractive concept by using the natural and historical images of the city and sell houses at high prices. They use this tactic as a market strategy regardless of ethical subjects. They develop new mottos like “Bosphorus come to Halkalı”, “If you have a house in Sinpaş Bosphorus City, you feel as if you live in a house near Istanbul Bosphorus”, “We offer you a Venezia and Venetian lifestyle in European side of Istanbul”.

This study aims to examine using imitation as a design parameter in gated community areas. In this context, Sinpaş Bosphorus City is selected as a case area. Firstly, physical analyses are prepared by making field study and literature reviews. Then, current social image and perception of users are examined by making questionnaires with people who reside in these areas. After all, physical and social values and problems are determined. This study shows that developer of gated communities which use historical and natural images of cities sell only simulacrum of excellent lifestyles so there is a large gap between advertisements’ mottos and reality.

**Key Words:** *Gated communities; Sinpaş Bosphorus; imitation; Istanbul.*

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### 1. Introduction

Gated communities are first formed in America in the 1970s and then it becomes a trend in the rest of the world [1]. These areas define as a housing development which restrict public access through the use of fences, gates and walls. These areas may also employ security staff or CCTV systems in order to monitor mobility [2]. People can find many social facilities such

as golf courses, tennis courts, fitness centers, swimming pools, lakes etc. in gated communities. These areas vary in terms of size from a few homes to a thousands home residential areas such as Leisure World in Orange Country which comprise 21.000 homes [3]. Moreover, gated communities vary in terms of location of the city. They are found everywhere of the city from inner cities to the exurbs and from the richest neighborhood to the poorest neighborhood. The walls and fences of these areas keep out public access to elements and resources such as streets, parks, beaches, rivers, playgrounds. These resources are shared only by all citizens of these areas [4]. That is to say, the members of gated communities belong to the new community as well as citizenship of their country.

There are some factors are effective on increasing the number of gated communities. Emergent middle class acquires local affluence with real or perceived fear of crime and contamination from society. Moreover, today's gated communities protect residences from anxieties about privacy and social integration [5]. Gated communities are not only the part of American or European phenomenon. There are many gated communities in different countries of the world such as Latin America, China, the Philippines, postapartheid South Africa, Indonesia, Germany, France, some urbanized Arab countries like Egypt, Lebanon and touristic centers along the Spanish coastline etc. Gated communities serve different purposes and mean different meanings in each cultural geography. For instance, these residential areas house expatriate workers in Saudi Arabia, provide a secure lifestyle in the extreme poverty areas of Southeast Asia, protect residents from urban violence in South Africa, offer exclusive second home or industry-sponsored housing in Western Europe [6].

Gated communities have some advantages and disadvantages. They provide high life standard with factors such as security, available playgrounds for children, sense of community, private governance, private public service, new employment resources, privacy etc. On the other hand, they are criticized because of some factors such as segregation, no social diversity, private public space, reduction of civil involvement, alienation of residents, displacement of the crime etc. [7].

## **2. Gated Communities in Istanbul**

After the economic and political changes in the 1980s, gated community development in İstanbul started. There are some factors such as neoliberal economy and new emergent middle&upper income groups are effective on increasing the number of these areas. Gated communities started to be constructed in big cities of Turkey, especially in Istanbul. These residential areas emerged in both inner and the outer city and they are close to business district in Istanbul. Göktürk-Kemerburgaz, Zekeriyaköy-Demirciköy located on north and southwest on the European side and near the second Bosphorus Bridge and north (Ömerli) on the Asian side [8].

Although gated communities represent prestigious and quality life areas for upper-income people in beginning, this situation has changed in time. Then, gated communities composed of high-density apartment blocks for middle-income groups in peripheral areas [9]. Nowadays, we can see gated communities everywhere, especially the north of Istanbul within the large green areas (Figure 1).

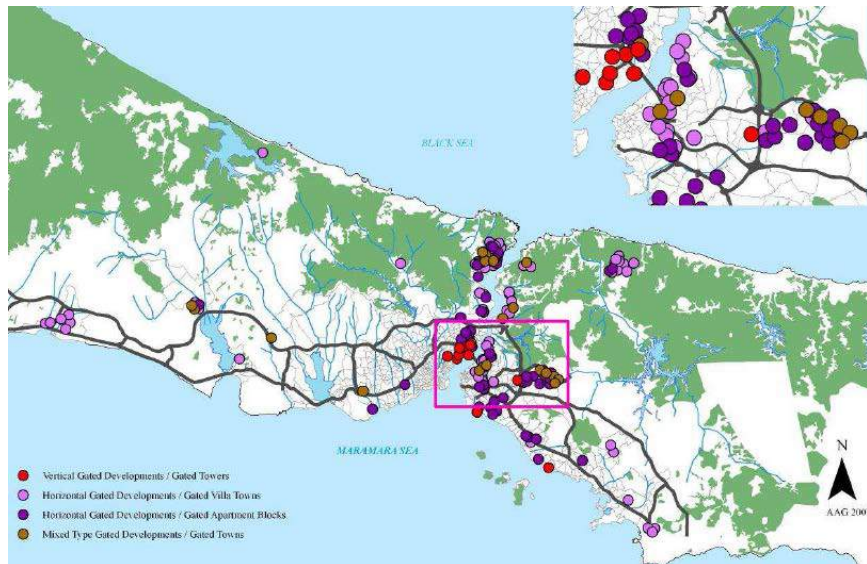


Fig. 1. Distribution of gated communities in İstanbul [10].

According to Baycan Levent and Gülümser (2007), there are four gated community category in İstanbul. This categorization composed of:

- I. Gated towers in the city center that appeal to high-income groups,
- II. Gated villa towns in the periphery that attract high/middle-high income groups,
- III. Gated apartment blocks in the periphery for the high/middle-high/middle-income groups,
- IV. Mixed settlements in the periphery that address high/middle-high/middle-income groups. [11]

On the other hand, there are different discussions about gated communities in recent years. Developers of gated communities use cultural and natural codes of the community. These areas, which are designed with imitated cultural codes, have become advertisement material for real estate developers for earning extra profit. In other words, collective signs and images are used as a market symbol for selling these areas. People who are misled about the reality make choice amongst unreal things which seem as if reality. These things are simulacras. Hyperrealities are produced artificially without atmosphere. People can't produce ideas because they live in hyperreality atmosphere which is beyond mind [12]. This has led to an "aesthetic" hallucination of reality. Dreamlike, hyper-real residential areas offer signs and images according to market demands. The differences between production and reproduction, real and image, temporary and permanent are blurred [13].

Populism is a key factor to market these areas. According to Laclau (2005:77), there are three structural dimensions necessary to elaborate populism's developed concept are:

- I. *The unification of a plurality of demands in an equivalent chain,*
- II. *The constitution of an internal frontier dividing society into two camps,*
- III. *The consolidation of the equivalent chain through the construction of a popular identity which is something qualitatively more than the simple summation of the equivalent links. [14]*

When we examine the structure of gated communities, which include cultural codes for getting populism and increasing market value, these projects overlap abovementioned populism structure. In recent years, many imitation gated community areas have been constructed. Viaport Venezia, Sinpaş Palaces, Sinpaş Bosphorus City and Toscana Valley are some of the gated communities which used imitation as a design parameter. One of the common feature of these project is that they imitate the original area like Venezia, İstanbul Bosphorus, Toscana and other historical areas. Developers select these concepts to attract their clients and sell houses with high prices. The other common feature of these project is that they are generally located far from the city (Figure 2).

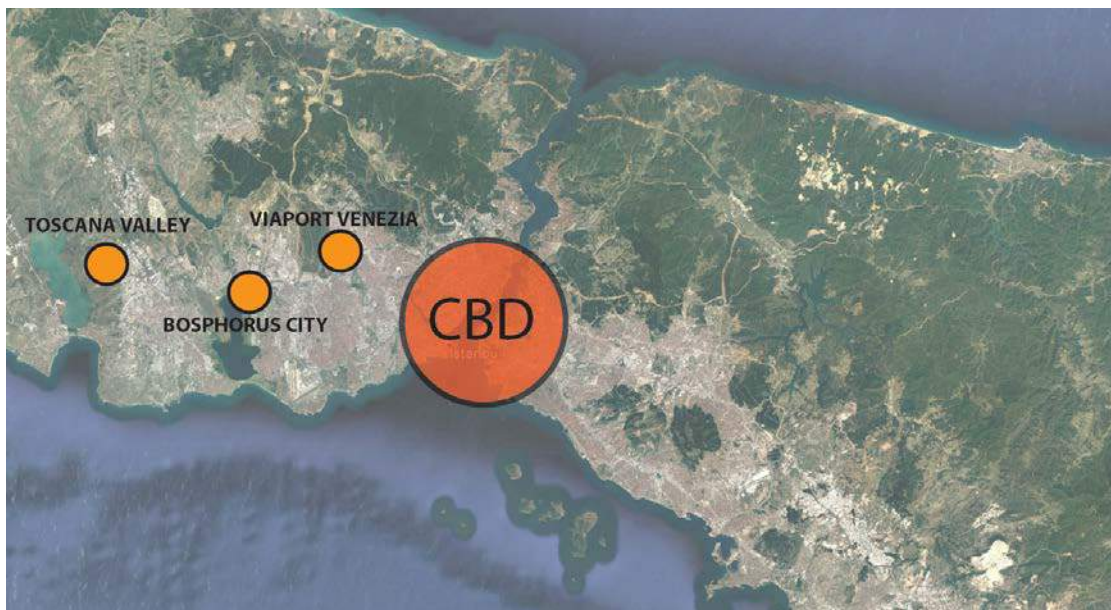


Fig. 2. Imitation-based gated communities' location in Istanbul [15].

When developer buy these lands with low prices, develop them with attractive concept and sell them with high prices. This is the tactic which we can see everywhere. However, the real problem is ethical. For example, Istanbul Bosphorus and Venezia is unique in the world. They have been generated in different periods of history so their uniqueness comes from the historical and cultural value which have been formed by people. On the other hand, this new trend copies the original form and offer these areas to their clients as new historical areas like New Bosphorus, New Venezia. They use new mottos like “Bosphorus come to Halkalı”, “If you have a house in Sinpaş Bosphorus City, you feel in Bosphorus”, “We offer you a Venezia and Venetian life style in Gaziosmanpaşa”, “You will live a Meditterrian fabulous life in Toscana Valley”.

### 3. Imitation of The Real: Sinpaş Bosphorus City

Bosphorus City Project is located on Küçükçekmece, İstanbul (Figure 3). The settlement covers an area of 246,000 m<sup>2</sup> and includes a total of 62 block and 2796 apartments. Project development was started in 2005, and was completed with the collaboration of Sinpaş GYO Executive, local authorities, ODTU Civil Engineering Department, Wergemeinschaft Freiraum Field Architects, Albert Speers & Partners Gmbh and Workshop Mimarlar Ltd Şti. This project has been recognized as the best of Europe in the categories of “The Best Architecture” and “The Best Marketing Management” at ‘European Property Awards 2011’ [16].

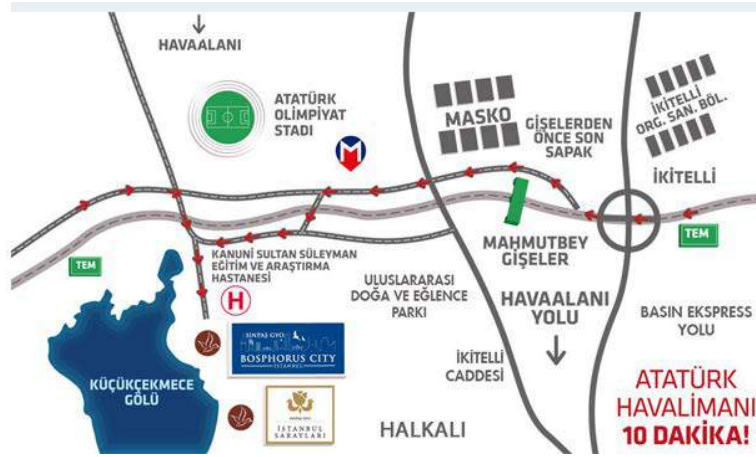


Fig. 3. Location of Sinpaş Bosphorus City [17].

Sinpaş Bosphorus City project has modern and classical architectural styles such as Saraybahçe Houses, Erguvan Houses, Ortaköy Residences, Göküle Residences, Yeditepe Towers and some Yalı (waterfront houses) such as “Boğaziçi Yalıları”, “Yeniköy Yalısı”, “Anadoluhisarı Yalısı”. Moreover, this project has some urban spaces of İstanbul, which names similar to original Bosphorus, such as “İstinye Koyu”, “Bebek Park”, “Yeniköy”, “Paşabahçe”, “Emirgan”, Kanlıca”, “Anadolu Fortress”, Rumeli Fortress”, “Kandilli Squares” and “Çengelköy Squares” (Figure 4) [18].



Fig. 4. Sinpaş Bosphorus City Site Plan [19].

There are some social life activities such as Outdoor and Indoor Swimming Pools, Basketball Pitch, Triple Basketball Pitch, Tennis Court, Squash Pitch, Beach Volley Field, Outdoor Fitness areas, Pilates-Yoga Pitch, Mini Golf, Running Track, Cycling Track, Streetball, Climbing Wall, Skateboarding floor, Chess field, Health Club, traditional Turkish bath and sauna [20]. However, there are not similar feature with original Bosphorus in terms of location (this residential area is located 35 km. far from the original Bosphorus in average), sea, landscape and design. This project has small water channel which is only 1,5 m deep, imitation of Bosphorus' villas, squares and landscapes of the original Bosphorus (Figure 5-6).



Figure 5: (a) Ortaköy Square in Ortaköy; (b) Ortaköy Square in Bosphorus City.



Figure 6: (a) Kandilli Square in Kandilli; (b) Kandilli Square in Bosphorus City.

Developer of this project advertises with phrases like;

- A Privileged Life in Bosphorus City: *“All reinforcing areas are planned together, and the planning was developed at urban scale. Presenting the unmatched beauty of the Bosphorus with a **privileged life**, Bosphorus City has attracted attention since the day it was introduced. Thousands of **distinguished families** have become an owner in the Bosphorus City where the life is going on with full speed.”* [21].
- Landscape: *“**The Landscaping Project** is built on the idea of “**Living Bosphorus**”. All works undertaken aimed at **carrying the beauties of the Bosphorus into the daily life**. The functions defined for this purpose provide for the Bosphorus City tenants with the opportunity of getting the pleasure of the Bosphorus outside the closed areas, too.* [22].

The project aims to use characteristic features of Bosphorus for marketing purpose. However, there is some problem in reality. If you located water channel, which is only 1,5 m. deep, between two imitation house, can it be “the brother of Bosphorus/twins of Bosphorus”? What is the privileged life? Privileged amongst whom? Who are distinguished families? Are they urban rich who have enough money to buy a house from here? How beauties of Bosphorus are carried into the daily life? Most importantly, do residents of Bosphorus City really feel living in a Bosphorus? In this context, these questions are tried to be answered. Thus, the current social image of Sinpaş Bosphorus City is analyzed by questionnaires with people in the following part.

#### 4. Field Work

The questionnaire was taken with participants who live in “Sinpaş Bosphorus City”. There was limited participation (17 people) have been realized to questionnaires because entering to this site and making questionnaire with residents was not allowed by site management. Thus, the questionnaires were taken outside of the housing complex (in front of “gates” of the site) under limited conditions. The questions of questionnaire were prepared in different sections. The evaluation of every question is as follows:

When the participants are evaluated in terms of socio-demographic variables,

- 88% are composed young and young-middle aged people of 18-40 age range, 12% are composed of 41-50 age range,
- 41% of participants live with 4 people, 35% of participants live with 3 people, 17% of participants live with 2 people and 7% of them live with 5 and more people in their house,
- The group with university and graduate education draws attention with the rate of 76%, the primary school rate is 6%, the high school educational background's rate is 17%.

It is concluded that the user profile of this housing complex is composed of middle-income young people who are university student living with their family, married with children or marries who have the potential of having children.

In terms of income;

- %21 of people whose income per month is between 0-2,000 TL, %47 of people is between 2,001-4,000 TL, % 21 of them is between 4,001-6,000 TL, %12 of them 6,001-8,000 TL and the rest of participants' income per month is 8,001+ TL. These figures show that majority of people who live in Bosphorus City is composed of middle-income group.

In terms of where they move from;

- 18% of respondents moved to Sinpaş Bosphorus City from Halkalı which is the neighborhood in which the housing complex is located, 23% from Bakırköy, 12% from Bayrampaşa. 23% moved to this housing complex from other cities. The rest of the respondents moved from nearby Küçükçekmece Municipality, where the project area located on, such as Kağıthane, Fatih, Bahçelievler, Eyüp.

When the reasons to choose this housing complex are considered, %29,4 of respondents selected “Security” choice because they want to keep away from crime threat. The respondents’ other choices as follows;

- Clean, comfortable environment & abundant green areas and clean air: %11,76
- Aesthetic pattern which resembles Bosphorus: %11,76
- A prestigious neighborhood, feeling privileged: %29,4
- Activity areas: %5,88
- The lifestyle in the site: %11,76 (Figure 7).

These figures show us that the developers’ focus points on advertisement are consistent with the reasons of selecting this housing area.

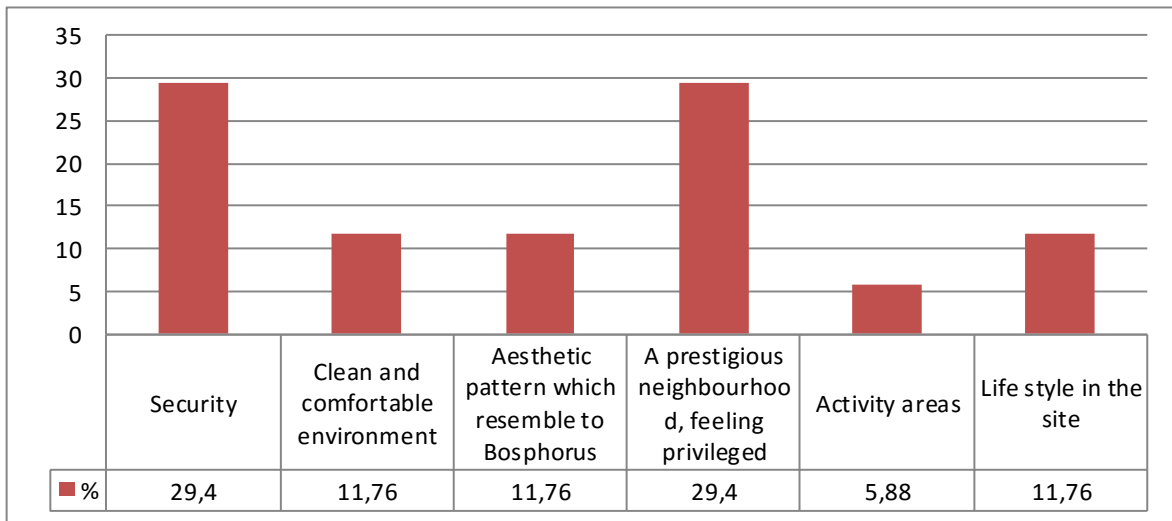


Fig. 7. Reasons to choose Sinpaş Bosphorus City.

The ratio of people who plan to move to another area is %41,2. The reason behind planning to move from this housing complex is mainly because of transportation difficulties. Other reasons are a lack of commercial areas (market, bazaar) and lack of family life atmosphere in this housing complex (Figure 8).

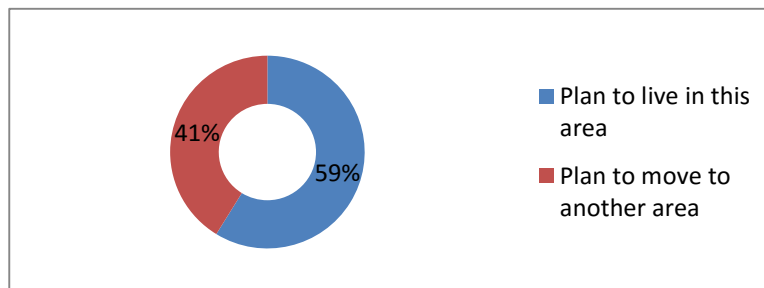


Fig. 8. Residents’ choices about future.



One participant said that: *“There are not the suitable atmosphere for family life because many prostitutes come our site every day. This block which composed of 1+1 apartments is used for prostitution so we are anxious. How can we grow up our children in this place?”*

In terms of transportation;

- %23,5 of participants can access to their workplace/schools in 0-30 minutes. %53 of them access in 30-60 minutes, %17,6 of them access in 60-90 minutes. The rest of them access in 90 and more minutes (Figure 9).

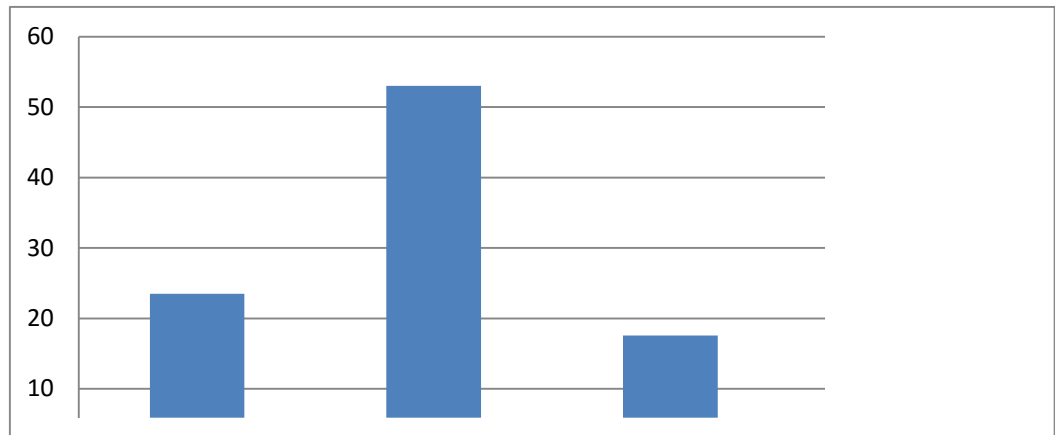


Fig. 9. How many times do participants spend for going workplace/school.

In terms of security;

- %17,6 of participants were witness to criminal activity previously which are mainly theft. %70 of participants find the housing complex secure.

Then, it is asked to participant whether they spend time in this area like a real Bosphorus. While %17,6 of participants selected “I really spend time in “Sinpaş Bosphorus City” like a real Bosphorus”, %53 of participants selected “I know that “Sinpaş Bosphorus City” is an imitation housing complex but I don’t care this reality” and %29,4 of participants selected “Sinpaş Bosphorus City” is an imitation housing complex. We don’t spend time and also don’t live like a Bosphorus atmosphere” (Figure 10).

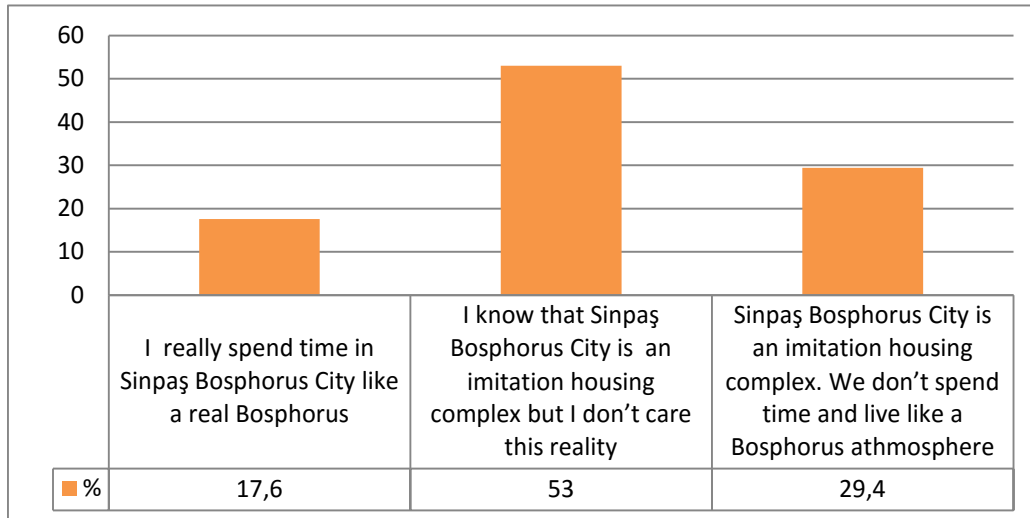


Fig. 10. What resident think about Sinpaş Bosphorus City atmosphere.

The respondents were asked whether they recommend this housing complex to other people. While %58,8 of participant selected “Yes, I recommend”, %41,2 of participants selected “I don’t recommend” because of the reasons like “There are not family life in the site”, “This site is very far from the city center”, “There is only one shopping center and it is very expensive for us”.

According to questionnaire results, while this site offers many social activities, it has some disadvantages. Although the developer of the site uses mottos such as “*Living Bosphorus*”, “*living with distinguished families*”, “*privileged life*”, “*carrying the beauties of the Bosphorus into the daily life*”, only a few participants said to feel and spend time in this site like a Bosphorus. The greater part of participants spend minimum 1 hour per day between their house and their workplace/school. Some participants witness to crime activity previously.

Although these results don’t be generalized for all of gated communities, they give some clues about the future of these settlements. These areas may be used as a place where have potentials to provide secret workplace for criminals or they may become ghettoization where only one social or ethnic class can live. On the other hand, participants complain about confining themselves with the social activities which are contained within gated community because these settlements are segregated from other areas of the city. That is to say, these areas are “city in the city”. It shouldn’t be forgotten that when people buy a house, they also decide who are their neighbours and how is the environment which affect buyers’ personal characteristics and shape their behaviour pattern. Thus, buyers need to estimate their housing environment in advance without promises or mottos of advertisements. Different actors such as government members, buyers, real estate developers and independent agencies should take responsibilities in purchase decision process. These process should have three phase: identify your neighbours, experience environment, decision making.

- **Identify your neighbours:** Buyers need to identify the house and its environment especially in terms of social context because people need to communicate with other people in order to sustain human relations. Thus, some meeting should be arranged amongst people who intend to buy a house in order to identify who are their neighbours and communicate with them before they buy their house. This phase may be helpful for buyers when they decide whether these settlement is suitable or not in terms of human relations.

- **Experience environment:** People have chance to learn the experiences of other people before they book a hotel or car via internet platforms or social media applications. However, people don't have opportunities to learn residents' experiences or ideas about housing units. Thus, there is a need for developing a new solution for solving this problem. People should have chance to experience housing unit and its environment before decision making phase. Government should regulate a new law by making some obligatory to real estate management about this issue so that people have chance to stay and experience one or two days, at least weekends of introductory phase, at reserve area of housing settlements in housing area, especially for newly built housing settlements, before decision making phase.

- **Decision Making:** Although people stay and experience in housing areas, they may still not know what are their needs and expectations and whether these housing unit and its environments meet their expectations. Thus, there is a need for crosschecking between their expectations/needs and spatial and social characteristics of housing unit and its environment. Some independent agencies, which include specialist from different areas such as architect, interior architect, sociologist etc., should give consultancy service to buyers. These agencies should analyse the buyers via some methods or tools such as personas, cognitive maps and mind maps in order to examine whether the features of this housing unit are compatible with needs and expectations of buyers. After this phase, people can examine whether this housing unit is suitable or not and they make sound judgement. If these phases realize, buyers may foreseen their future atmosphere in advance.

## 5. Conclusion

Gated communities have been a new trend of urbanization in Turkey since the 1980s. This trend became a marketing object and another way to target a new social class in this time. Developers of gated communities have used natural and historical values of the community. When we examine the structure of gated communities which use cultural codes for getting populism and increasing market value, these projects constructed on populist mottos and offer an image of reality. In recent years, many gated communities which imitate cultural values of the community have been constructed in Istanbul. Sinpaş Bosphorus City is one of the gated communities which used imitation as a design parameter. This project imitates the original İstanbul Bosphorus and historical Bosphorus villages. The developer of project proposes a new life which includes distinguished neighbors, excellent social and healthy life on advertisements. This study aims to examine whether this projects' proposals are consistent with the real life of Bosphorus City's inhabitants.

According to questionnaire results, only one-sixth of participants feel living in a Bosphorus, nearly half of the participants want to move from this housing complex and one-third of them find this housing complex insecure. This study shows that these projects are grounded on populism and there is a big gap between mottos and real life. Thus, buyers need to estimate their housing environment in advance without promises of advertisements. Different actors such as government members, buyers, real estate developers and independent agencies should take responsibilities in decision process. If people identify their future neighbours and spend time in housing unit and its environment, they can make decision properly.

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## EXAMINING THE USE OF VORONOI DIAGRAMS IN ARCHITECTURE ON A STUDENT PROJECT

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### Abstract

Inspiration from nature in the design process is a very widely used method. Architects and designers take advantages of aesthetic features and structural systems of the objects found in the nature. Voronoi diagrams also known as Voronoi tessellations emerge at different scales in nature's cell structures, honeycomb and animals fur patterns. Architects and designers use this diagram to obtain a more organic looking design, rather than imitate directly from nature.

The Voronoi diagram is a mathematical formula used in many scientific fields and use of that goes as far as Descartes. The Voronoi diagram is a system that divides the space into sub-spaces in an organic way. The diagram uses points to create cells that surround these points. Points can be placed as spontaneously or can be determined in the direction of a certain data and tessellation can be provided accordingly. Use of Voronoi diagram in fields such as architecture and urban design has increased with the widespread of use of parametric design in architecture. Architects use the Voronoi diagram especially to obtain an organic structure and natural pattern in facade designs. In the academic field, new possibilities that use of the Voronoi diagram can provide for urban design and spatial design are being evaluated.

Use of the Voronoi diagram in architecture and its spatial possibilities were investigated in architectural project course. The subject of the project is to design culture street between two faculty buildings within their campus. The project aimed to design a street with a program consisting of 40 teacher rooms, 10 student club rooms, book sales place and seminar hall. The project theme has enabled this diagram to be used both in the urban space and in the architectural project.

This study mainly focuses on the architectural uses of Voronoi diagrams and to explore new opportunities that this diagram can provide. In this context, entire design process which began with site analysis to space organization and facade design the Voronoi diagram is used will be presented. In this study, the use of Voronoi diagrams in the architectural design process has been evaluated through the experience of architectural project course.

**Key Words:** *Voronoi Diagram, Space Organization, Parametric Design, Architecture*

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### 1. Introduction

Using computers by designers provides to explore new opportunities in the design process. Parametric design process presents data for architects and designers and also crucial contributions in order to generate alternatives and solutions via parameters. Voronoi diagrams are a parametric design tool that used often in spatial and urban planning in recent years.

Voronoi diagrams and its general characteristics and usage areas in different disciplines were referred within this study in order to understand the usage of Voronoi diagram in spatial and urban planning. Information about usage area of diagram in architecture and urban design and also design process was represented. The usage of diagram in different concepts was exemplified by reviewing and examining of a research project that performs Voronoi diagrams, a well-known building, an urban design project and a competition project.

Finally, student project process and usage of diagram in this process was illustrated and design process was evaluated with examined examples in the conclusion part of the study.

### 1.1. Definition of Voronoi Diagrams

Voronoi diagrams are widely used in many fields such as anthropology, astronomy, archaeology, biology, cartography, chemistry, computational geometry, crystallography, ecology, forestry, geography, geology, marketing, metallography, meteorology, operations research, physics, physiology, remote sensing, statistics, urban planning and architecture. Voronoi diagrams can be used to understanding the structure of the Universe in astronomy, estimating precipitation process in meteorology, locating public schools in urban planning.[1]

The first use of Voronoi diagram was seen in the disposition of the solar system and its environs written by Descartes in 1644. In 1854, Dr. John Snow used Voronoi diagrams effectively to detect the Broad Street Pump causing the cholera outbreak. Dr. John Snow created zones on the London map according to equal distances between the Broad Street Pump and other pumps, and the death rate from cholera in zone of the Broad Street Pump was much higher.[1]

According to Aurenhammer [2] Voronoi Tessellation is “one of the most fundamental data structures in computational geometry.” Voronoi diagrams are an organizational phenomenon creates unique modular structure that various complicated geometries can be used. [3]

Voronoi diagram is a formula that divides space into the regions according to the specified points. Regions are generated by associating each point with the closest points. These points are defined as Voronoi cells. Voronoi diagram consists of Voronoi cell, Voronoi space that surround Voronoi cell, Voronoi vertex and Voronoi foam. [4]

Delaunay Triangulation or Delaunay Tessellation described as dual graph of Voronoi Diagram. [5] (Fig. 1.) Delaunay Triangulation occurs with the joining of the neighboring points that generates Voronoi cells.

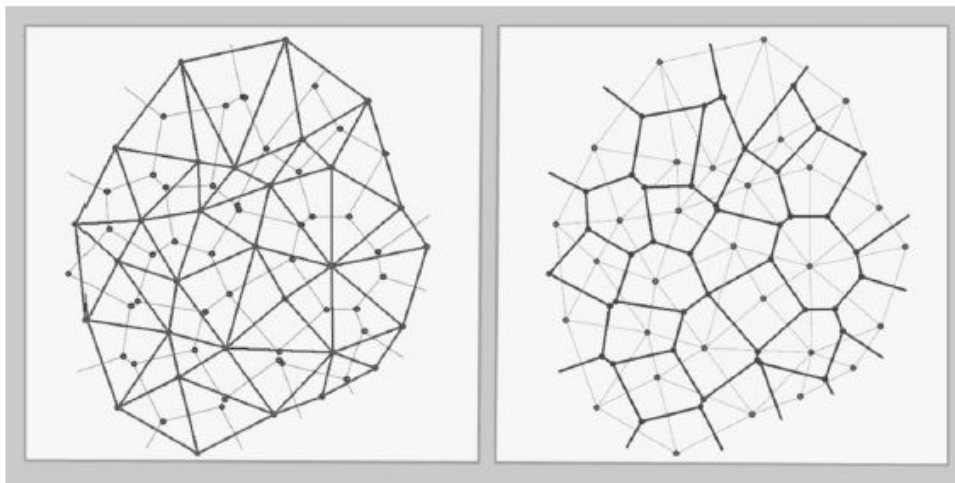


Fig. 1. Delaunay triangulation and Voronoi diagrams [5]

## 2. Use Of Voronoi Diagrams In Architecture

### 2.1. Redevelopment of the Glorieta Juan Carlos I

Esc Studio won the competition for the Redevelopment of the Glorieta Juan Carlos I with a proposal by using software that implements Voronoi diagrams for spatial planning. (Fig. 2.) The software was used throughout public consultations so that people participated in the design process with their proposals. The software was used throughout public consultations. With this software participation of people provided to design process by sharing their opinions. Voronoi diagram was used to divide the square into circulation areas and activity places. These circulation areas connect directly the city and center of square while preserving existing

vegetation. Activity places were formed by a step up of the Voronoi cells. The use of children and elderly people has been considered when designing the activity places. These places enable to perform various activities. [6]

The ESC studio also proposed sustainable climate systems with their project. Air conditioning units supported by photovoltaic cells, lighting and fog units can reduce temperature of the square in summer. [6]

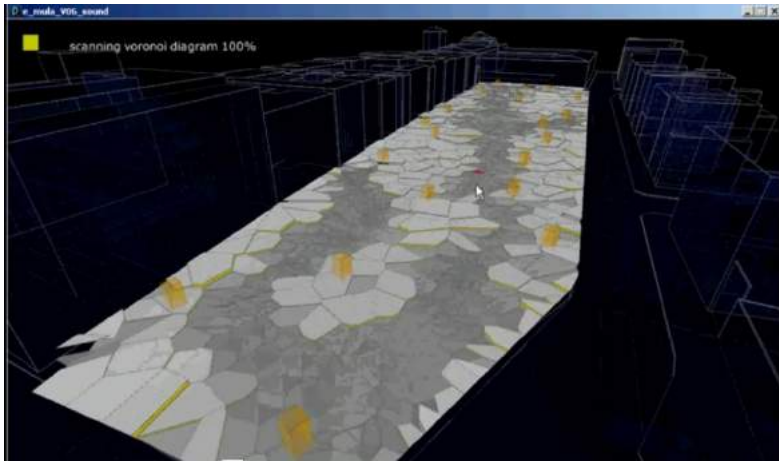


Fig. 2. Esc Studio's proposal[6]

## 2.2. National Kaohsiung Performing Arts Center

In the proposal of Zaha Hadid, it was aimed to build an open green connection considering the locally precious trees, historical buildings, boundaries in the site. Depending on these data, point distributions were generated. A pattern was obtained according to point distribution by using Voronoi diagrams. (Fig. 3.) In this way, It will be able to maintain the current situation of the site and provide strong public connections with the surrounding green areas. [7]

The building was designed by expanding the pattern created in the ground and the Voronoi pattern can be seen on all of the design from landscape to the structural details. Voronoi diagrams were shown in the roof and canopy form, in the all components of façade system and ventilation systems in the roof. [7]

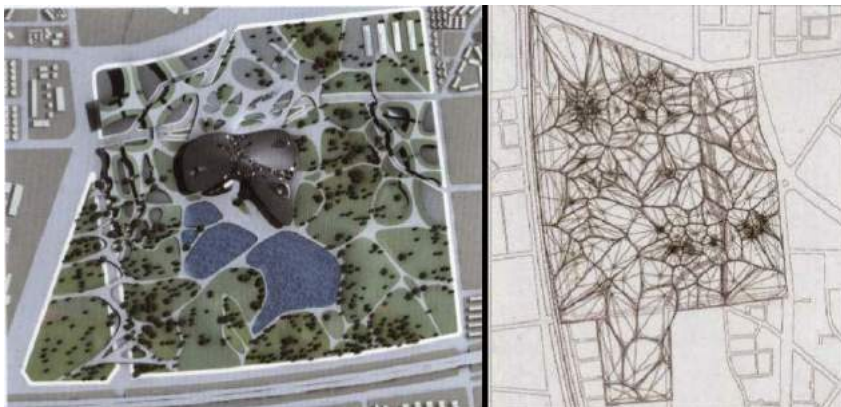


Fig.3. Site plan and Voronoi pattern [8]



### 2.3. Net Lab

NetLab is a research project focused on exploring the possibilities of parametric design architecture. Especially, the project examines how to construct a space from cell structures, according to the determined parameters such as user requirements, various scale and social systems. For this purpose, software which contains representational tool, modeling tool, contextualizing tool, customizing tool and design tool was developed from Voronoi algorithms. [9]

Initially, x,y and z-coordinates of points was defined in the software. These coordinates obtained through analysis of site, user data and program input. The points located at different z-coordinates, represent people in different levels. The areas of the spaces, the number of people and program were defined in the software; volumes, structural networks and surfaces were emerged as a result. The software allows to editing the result product, changing parameters and making adjustments. [9]

Horizontal surfaces are created by using algorithmic adjustments by joining points close together. Circulation among the cells placed according to the hierarchy parameter was formed by offsetting cells, deleting cells, adding curves to cells. The different sized grids formed between cells can be used both as internal walls and façade system. [9]

### 2.4. Water Cube

Beijing National Aquatics Center also called Water Cube was designed for a competition for Beijing 2008 Olympic Games. The consortium formed by PTW Architects has won the competition with their project proposal, which combines the bubble form which symbolizes water and symbolism of square that important in China culture. [10]

The outer shell of the building is designed based on natural structure of the soap bubbles. (Fig. 4) The entire shell consists of 4000 bubbles. The outer shell of the building is designed based on natural structure of the soap bubbles. The entire shell consists of 4000 bubbles. These bubbles keeps inside the energy receives from the sun. Thus it makes enormous contributions to energy efficiency by using natural light for heating the interior space. [10]

Weaire-Phelan foam tessellation was used to generate the soap foam structure. Weaire-Phelan foam is a volume creation, division system based on Voronoi pattern. [11]



Fig. 4. Watercube [10]

### 3. Case Study: Design Process Of A Student Project

The project is a design for a culture street in the space between the buildings in the campus of KTO Karatay University. The objective of the project is to design 40 lecturer rooms, 10 student club rooms, book store and seminar hall with the street concept .

A design experiment of Voronoi diagrams was performed within the architectural project course with a student. Although the student did not have a skill to using parametric design tools, the project was conducted because of his decisive attitude for performing a design with diagrams.

Firstly, the student could find a website via internet browser to form Voronoi cells with javascript applet. [11] There is a divided pattern with predefined Voronoi diagram on the website. This pattern can be regenerated with a click. In the Figure 5, the predefined pattern and divisions occurred by clicking are presented. In this manner, divided cells transform into a pattern that occurs a street texture by becoming more different than undivided.

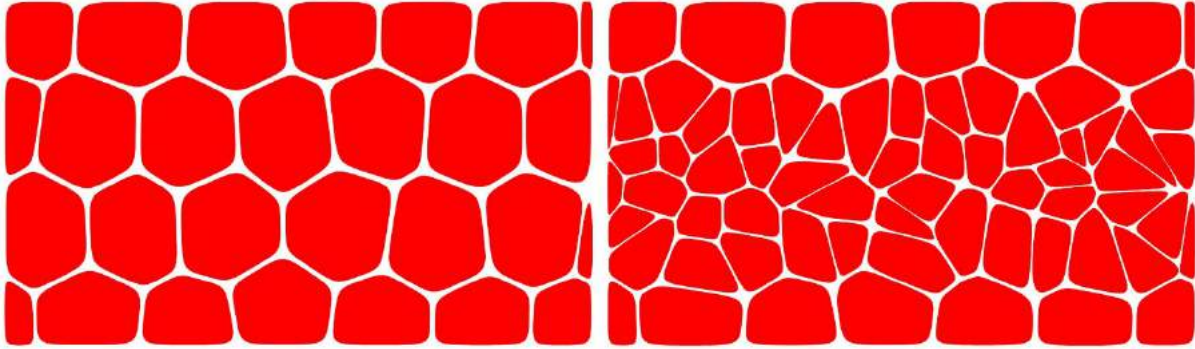


Fig.5. Predefined and modified pattern [12]

At the end of this process, a street texture was occurred with Voronoi cells. Architectural and urban planning is comprised of points that are obtained from environment data of Voronoi cells within the usage of this diagram. However, the student followed a different way in this point. He occurred these pattern via website and save as a image. Then he imported this image into architectural drawing program and he draw Voronoi pattern over the image. He had to perform too many experiments to equalize size of cells to the size in the program.

Street texture produced with the pattern created in the website. Voronoi cells were designed as hard ground, water features and grass depending on space. (Fig. 7) The sitting elements and buildings were formed by elevating the cells. Spaces bigger than Voronoi cells were occurred by compounding Voronoi cells.

Lecturer rooms that have single area were formed as raising ground texture. Generated organic form did not affect the usage of space adversely. However, the same fact was not discussed for seminar hall, which was shaped by compounding and raising Voronoi cells. The pattern occurred by Voronoi diagrams was used for also in the façades. Some areas were covered by eaves and holes were poked on the eaves through Voronoi diagrams.

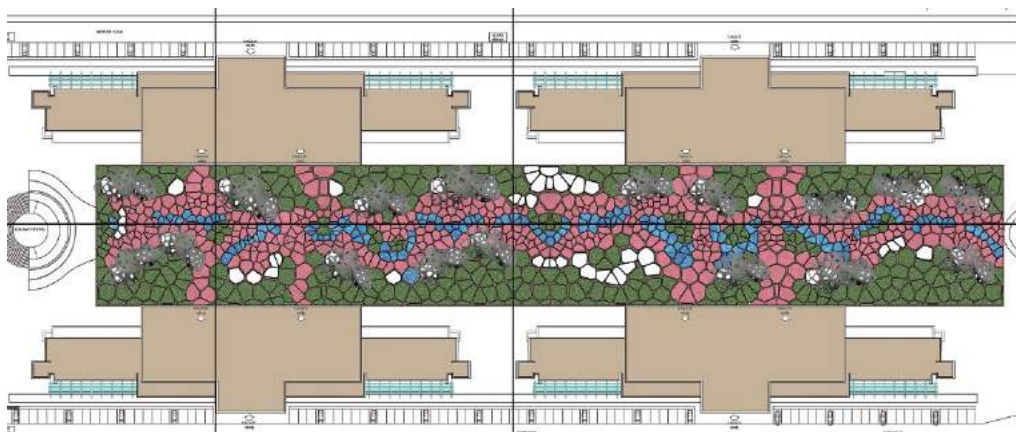


Fig.7. Site plan of student project

#### 4. Conclusion

Voronoi diagrams are confronted as a parametric design tool, which is used often by architects and urban planners in the recent years. The usage of the pattern that is organic and non-droning and formed by Voronoi diagrams, occurs a great effect on this diagram. Besides, this diagram provides many advantages for architecture because of its opportunities by coding points and coordinates that obtained from space, requirements or program and then doing space planning. Also, tridimensional structures can be designed not only two- dimensional structure. In this context, it was proved with a NetLab research project that volumetric design can be shaped by using this diagram. Cellular structure system, which is designed as tridimensional, on Water Cube facade and roof allowed to use energy effectively with appropriate lining material and cultural refers.

This student project design process was conducted different from parametric design processes. However, similarities between final product and designs formed by algorithms were presented. Ground pattern is not based on certain parameters unlike examined projects. Voronoi diagrams provide flexible and alternative production opportunity for space arrangement, despite of occurring as randomly.

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## RESILIENT MATERIALS AND STRUCTURES EMULATING NATURAL ORGANISMS

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### **Abstract**

Materials always reflect the physical effects of a space; they are skins of spaces both internal and external. Materials are not only used for gaining visual characteristics of a space but also to create healthy environments, which means air quality, lighting quality, or ergonomics of a spaces. Structures that create these spaces are important elements of defining tangible skins of spaces such as wall, floor and roof coverings. On the other hand, they have a high impact on energy consumption, carbon footprint and indoor air quality due to production and usage processes. Thus, a need for producing resilient materials and structures has developed. However, emulating such materials and structures need a sustainable approach such as biomimicry. Biomimicry is a new field of science that embraces strategies, ideas and solutions from living or nonliving organisms of nature, and aims to use them to solve challenges in human life, manage them successfully, and create sustainable environments. Since the existing condition of the earth is not healthy in terms of carbon footprint, energy consumption, and environmental pollution; then it means there is a necessity for flexible materials and structures to minimise, perhaps prevent, these negative impacts. Nowadays, architects research to develop materials that are more flexible, self-healing, growing, and decomposing just like organisms in nature [1]. Besides, engineers and architects are working on structures inspired by nature that could make buildings more resilient and durable. As it is known that the construction industry is one of the largest fields that has a negative impact on earth, therefore it must be reduced to create better sustainable environments for future generations.

This paper analyses some of the most important resilient materials and structures derived from nature and evaluates their physical effects on architecture, indoor environment and structural behaviour of buildings. It also emphasises and describes how principles of biomimicry have led the way on emulation of these materials and structures. Additionally, the paper draws attention to importance of how nature's genius can help to save the earth.

**Key Words:** *resilient; nature; biomimicry; structure; physical effect.*

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### **1. Introduction**

Spaces may leave either a positive or negative impression on users when they are constructed with various materials. This not only affects the psychological behaviors of users but also the environmental conditions both inside and outside. When it is mentioned as inside, it means the indoor air quality of a space and when it is outside, it means the environmental pollution including carbon footprint, air pollution, etc. Walls, floors and ceilings –including

surfaces of furnishings- are tangible skins of a space. They are supposed to be designed as healthy architectural elements. However, large group of materials that are to be used when designing these spaces, are not completely harmless. These materials are either less harmful or more chemically produced; either ways are bad. William McDonough writes “*Less is not good*” in his book *Cradle to Cradle*, to clarify that producing materials that are less harmful or less chemical are not helping earth to heal [2]. He emphasizes the importance of producing materials with zero waste or become raw materials for other goods at the end of their life cycle. This is the fact that the construction industry should seriously consider this issue when producing materials.

As architecture is defined as the widespread profession which focuses on designing built environments; it rather stands for the material and structure that define space and enable interaction [3]. Structures are other important elements of architecture. They are materials in big sizes which bear the load and create a shell to enclose spaces in different shapes and forms. Nature is full of ideas that help to find ways for designing resilient structures. Resilient structures are structures that can response to weather, loads or forms of shells which need to change in size or height.

Before starting to design resilient materials and structures, it is important to consider sustainable and eco effective approaches. Although there are some design approaches that are used by architects, the most effective one is biomimicry, which is applied for emerging ideas from nature into designing eco-effective and sustainable products. It is also used to get inspirational ideas from nature to solve human challenges, not only in architecture but also in different fields, such as medicine, business, technology, etc.

### *1.1 Biomimetic approach in designing resilient products*

Biomimicry, known as the design tool for ecologically efficient and sustainable designs, is also taken as the most effective approach in design. It is a fresh field of science that helps to understand organisms and learn their functions and then combine these useful functions to solve human’s challenges. The main aim of biomimicry is to help designers comprehend that there are better solutions in nature which have evolved in millions of years. Biomimicry teaches them how to integrate those sustainable solutions in to their designs. It is also a multi-disciplinary science involving many fields, such as architecture, engineering, biology, business, education, etc.

There are principles of nature which designers should follow while thinking, designing and applying their designs:

- Nature runs on sunlight
- Nature uses only the energy it needs,
- Nature fits form to function
- Nature recycles everything,
- Nature rewards cooperation,
- Nature banks on diversity,
- Nature demands local experience,
- Nature curbs excesses from within,
- Nature taps the power of limits [4].

Natural processes build upon unique geometry and material properties [5]. These are two basic criteria that make shapes and materials resilient in nature. Resilient materials are ones that can resist inconvenient conditions in nature. Furthermore, some of these materials can resist man made world. Here biomimicry, in collaboration with biology, can be used as design approach firstly to discover these organisms and their abilities then apply them in to designs.

There are two approaches that can be used in design; *looking to biology and biology influencing design* [6]. Both approaches are fundamentals of biomimetic design; in the first one designer looks to nature for ideas and in the second one, designer reveals a challenge and tries to find its solution in the nature. Although they look the same, the procedure differs from each other.

When pondering over a good and sustainable design, it is important to create a design that lasts, a material that recycles in to something else when it is done, a structure that can reshape for another use, a building that can function just like a tree. These ideas are not too far. During application of such ideas from nature, designers should learn to work with biologists, include biological paradigm in to architectural design process. Taking ideas from nature has a deep meaning because organisms in nature have evolved during their life cycles; encountered with many conditions and they know how to resist against those conditions.

### 1.2 Examples of resilient materials

Traditional materials require and include high embodied energy, and they also depend on natural resources which are limited. Production techniques and systems require reform. Most of global carbon dioxide emissions are directly related to construction industry [7]. Production process is as important as the production of resilient materials. However, there are materials which are designed with inspirations from nature. But, these materials are not enough to decrease the negative impacts on earth; carbon levels, environmental pollution, air pollution etc. On the other hand, there are good developments that take place in different parts of the world. For example, one of the most commonly used material is brick, and its production process is very harmful; %70 of brick production is made in Far East. Some young researchers developed a brick called “*biobrick*” which requires no embodied energy that results no CO2 emissions and can be made on site [Fig.1] [7-8].



Fig. 1. Biobrick after manufacturing, [7].

Biobrick is produced with the help of bacteria called *sporosarcina pesteurii* [Fig.2]. This organism helps sand to melt into the particles which the process ends with a tough and durable solid shape. The result is fascinating. This brick is stronger and more durable in comparison to traditional brick which are used today and it is produced with zero carbon emission. Thus, producing a material with no waste, zero carbon emission, etc. is as important as producing a sustainable and resilient material.



Fig. 2. Bacterially cemented aggregate, [8].

The process is a combination of microorganisms with sand which results as calcium chloride and urea to start the microbial-induced calcite precipitation (MICP). This is where bacteria start to stick grains and sand together to form stone [8]. Although this process works slowly, producing such brick requires a week due to its natural process, it is very promising and is under production and development. This material, beside its zero waste and no carbon emission, has some other advantages; such as product adaptation, ability to cast on site and increased insulation [7-8].

Achieving the required material with series of successful engineering process and appropriate combination of ingredients with a good selection of organism ends up with materials like biobricks. Natural materials have impressive criteria and privileges. However, nature and technology work for different constraints [9]. Therefore, nature must be studied in terms of its processes and materials to identify what it can offer for useful and sustainable solutions.

### 1.3 Examples of resilient structures

How does nature build resilient structures? It has many different processes ending up with structures that have high resistance against loads. There are plenty of examples in nature that can be taken as inspirational ideas to build flexible and more durable structures; for example, bamboo a renewable and fast growing (*Bambusa balcoa*) reed that can grow up to 25 m high and resists lateral loads of tsunami effectively and efficiently [10-11]. Bamboo, due to its geometric proportions and natural structural properties, has become an inspiration for the design of China World Trade Center 3B, the second tallest building in Beijing. It is made of culm or stem that contains nodes and internodes which mark the location of new growth. In every new growth, the diameter of the stem changes where internodes become hollow. This hollow creates an inner cavity that culm walls surround it. The maximum bending resistance occur at the point where material in the culm is located at the very end of the point from the neutral axis of the stem [11]. This load bearing process and bending resistance of the bamboo were ideal for designing a resilient structure for a tall building that could resist multidirectional loads. Architects of SOM, an architectural firm, have studied the geometrical proportions of bamboo and applied them to the structure of China World Trade Center 3B [Fig.3].



Fig. 3. (a) Bamboo [12]; (b) China World Trade Center 3B [13].

The structure of tower works just like the bamboo stem or culm; building is divided in to multiple segments in vertical direction. The bottom of the tower is shorter than the rest, due to the maximum demand for lateral loads at the bottom [11].

Following up the biomimetic approach, in the structural design of this tower, results with more flexible and resistant structure. However, the manufacturing of this structure does not have any sustainable implementation technique. When one talks about the biomimetic design, he/she should not only mention the application of organism's functions in to a design, but also emphasize the importance of construction or manufacturing process of a design. Both processes, design and manufacturing, are as important as each other in terms of their sustainability and resiliency. Everything that functions in nature has a relation with its surroundings; but when they are on their own, they do not function with full capacity. If nature is researched profoundly, it can be easily seen that every organism has reasons for being what they are.

Even though bamboo's structural system has inspired architects and engineers of World Trade Center 3B, it is an ancient but modern material that is used widespread, especially in Southeast Asia. It is a kind of grass that differs in types and sizes. One of the most remarkable examples of bamboo structure is ZERI (Zero Emission Research Initiative) Pavilion which was designed by Simon Vélez for EXPO 2000 in Hannover, Germany (Fig.4.) [14]. This example shows how natural materials can be used for sustainable and resilient structures in architecture. Bamboo structures have ability to fix carbon dioxide almost %40 more than wood and they are very resistant against loads in certain dimensions. If financially supported, such structures can be used for social housing for needy families [15]. The result would be enormous in terms of housing the needy, minimizing carbon foot print and preventing pollution of unrennewable resources; water, air and soil.



Fig. 4. ZERI Pavilion, Hannover, Germany [15].

## 2. Natural functions and processes as prototypes

Nature is full of resilient structures and processes; such as bamboos, trees, bones, shells, horns and eggs, are load bearing or protective structures. They are enhanced by nature to give maximum strength during minimization of energy and materials that are used to create them [16]. When architects work with nature as a model, the separation between material, structure



and surface is no longer valid. This is important for biomimetic approach in architecture.

Nowadays, using smart materials which react to changing weather conditions, is very common in construction industry; easy to clean and self-cleaning surfaces are some of them [17]. Such materials are adapted to different industries like glass and coating industries of construction materials. There are self-healing, self-repair, anti-reflectivity, switchable, transparency, etc. properties that require nano-structural production. These processes are already under development but still there is a need for resilient production of such materials inspired by nature.

### 2.1 Structures

Biological structures which are developed through the evolution, are analyzed by biologists. Obtaining this information from nature requires collaboration with biologists. This evolutionary development is a process that makes organisms multifunctionally adapted and optimized. Transferring these information and processes correctly and adequately in to design is the most important part of the biomimetic process [18]. There are some organisms that are important in terms of their structural features.

One of the most resilient structural materials in nature is the spider web. It is known as the strongest material ever. Man-made materials did not surpass the toughness and strength of the spider web yet. It is waterproof and very elastic (Fig.5). It is also coated with antiseptic agents; therefore, Ancient Geeks used them to cover wounds [16]. But there are more than that about spider webs. Darwin's bark spider absorbs massive kinetic energy before it collapses due to any attack by bigger predators. What makes the spider web resilient is that its material consists of complex mixture of strength and flexibility [19]. Consequently, until scientists discover another material, it is the most suitable material to develop high performance biomimetic fibers that can be used to establish strongest and lightest structural systems in architecture [20]. The content and functional criteria of this material can be used to establish lightweight and tensile structures that could be easy to carry but impossible to collapse,

There are many types of structural systems in nature that work in collaboration with their surroundings; entada gigas (monkey ladder- sea beans) is one of them (Fig.6). This organism is a flowering liana from pea family. It grows almost 15 cm wide and 2 meters high and contains seed that make it buoyant, so it can reach to other lands by collaborating with seas to grow and spread [21].

The functional criteria of this plant can be used to develop earthquake resistant long span structures which architects need to use in their designs for covering the whole with a single roof on top without any colonnade.



Fig. 5. Spider web [20].



Fig. 6. (a) Entada gigas-monkey-ladder, (b) Seeds of entada gigas [21, 22].

There are many types of organisms that can be analyzed for resilient structural designs. The most important step in designing structures that emulate natural organisms is to make a profound research about these organisms and follow up the biomimetic principles.

## 2.2 Materials

Construction industry uses the greatest amount of embodied energy in the production process of materials [17]. Designers should look at nature to get ideas to design materials that decrease the usage of embodied energy. There are materials in nature that can inspire construction industry to produce resilient materials and manufacturing processes. Production processes of these kind of materials are also vital.

There are self-healing organisms like lizards that can restructure their tails or autotomize after releasing, which is a defense mechanism that lizard uses to distract its predator [Fig.7] [23]. This restructuring of tail process, can be used for developing self-healing or self-repairing materials, like paints and plasters. These materials could be self-healing or restructure themselves after exposed to any force or damage, which could result as increase in the lifespan of the material and decrease in the production frequency.



Fig. 7. Lizard while autotomizing its tail [23].

Another natural material that can be studied for resilient material design is the polar bear fur. Polar bear's fur is very effective in terms of balancing bear's thermal comfort. There is highly reflective cylinder inside the follicles and their bases in the dark layer of the skin that fulfill the demands for absorption of energy, producing minimal waste by using conduction, convection and radiation, and free direction of sunlight [Fig.8] [14]. Due to the reflection of ambient light from the dark skin, the fur looks white even it is transparent. The process of insulating polar bear's body can be used to create transparent insulation materials.

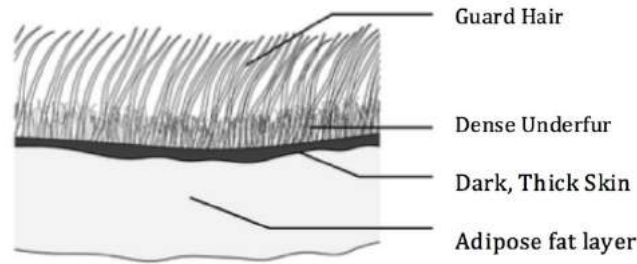


Fig. 8. Polar bear's fur [24].

Construction industry can use two main principles of this system: first, using evolution of inventive transparent insulation materials that absorb direct, scattered and diffused sunlight, and basically transform them into heat radiation with longer wavelength for warmth and balancing heat, and secondly, systems in nature are always complete, they are never individuals or closed elements [14]. Consequently, as many organisms studied, it is much better to start a careful analysis and abstraction of biological processes, materials and structures and apply them in to architecture.

## Conclusion

If buildings become uninhabited due to earthquakes, or other devastating disasters, low carbon emission materials or other green building designing criteria do not matter at all. Therefore, construction industry should establish a research center where all organisms mentioned above can be studied and prototypes can be developed to lead the construction material firms on producing resilient structures and materials. Thus, negative impact of construction industry on earth can be minimized. On the other hand, implementation of these systems requires significant adaptation. But using common engineering knowledge may not guarantee successful solutions. Hereby, new technology systems must be developed, then resilient structures and materials emulating nature can be developed easily and effectively.

As Aristotle says "Nature does nothing uselessly", designers must follow the rules of biomimetic approach to gain the ability to think like nature and act like nature, which will result with resilient usefulness.

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## A TRIAL ON STUDENT'S BELONGING OF DESIGN STUDIOS IN ARCHITECTURAL EDUCATION

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### **Abstract**

The design studios of school of architecture can be described as “Design Creation Places” where solutions are sought for design problems. Design studios are places where students discuss their designs and explain their ideas, and therefore the place of design studios in architectural education is important.

Design studios are the environments where educator and student discuss the design process at the very most. When the time of an ordinary lesson gets over, accordingly the use of that space finishes as well. However, the use of space in design studios spreads over the whole day throughout the education process in design studios. The use of space also continues out of working hours of design.

In this sense, the students' capability for developing themselves artistic and scientifically also depends on the conditions of design studios in this respect. It has been seen in the studies performed that the belongingness of design studios by students reflects on the architectural design process positively. The relation between quality and space in education has been examined and it has been revealed that more effective education is performed with increasing of satisfaction level of spatial conditions.

For this purpose, the students of Çukurova University Department were requested to perform designs in such a way that

- *They can get in contact with,*
- *They can connect, feel belonging,*
- *They can identify with themselves,*
- *They will remember,*
- *They will miss, that will keep their marks in design studios. The aim is to create contexts that will enhance the sense of belonging between design studios and architecture students,*
- *As a result of this work, for example, war-oriented works performed by the students from Syria; colored and texture dominated works performed by African students; architectural-themed works wrapped by technology were exhibited in the areas where students pointed out, in the light of the criticisms made by students.*

**Key Words:** *Belonging, Design Studios, Design Process, Space, Architectural Education*

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### **1. Introduction**

Despite the fact that in the literature, psychological analyses related to the sense of belonging, which plays an important role in identity formation, are often performed, the belonging is not an experience that an individual experiences only and this is also a subject should be investigated sociologically. In this case it is possible to find the source of belonging in group relations and partnership relations that the society provides its members [1]. This

partnership will also increase the sense of trust to the space, sense and solidarity of obligation. Therefore, we can say that a sense of belonging felt for a space also means a part of the society.

In this sense, the design studios of architectural schools are also spaces where common relations are built, solutions for design problems are sought, briefly, senses of belonging must be high [2]. Therefore, these studios must be primarily student-centered. It is only possible by enabling the sense of belonging, for a student who feels himself/herself as a part of the atelier to feel a strong loyalty for his/her atelier and trust it. The sense of belonging in the design studios, the ability of the students to change and transform their own work areas are important factors for revealing their original works.

### *1.1. The Concept of Belonging in The Space*

Space is the environment that surrounds our body, contributes to our modes as comfortable or uncomfortable, happy or unhappy. Human beings are available in various types of spaces from time to time and for different purposes and gain experience.

They like spaces or their some features adopt them and even they comment on good sides of spaces. They might want to go back to the same space or, on the contrary, they feel uneasy, uncomfortable, unsuffocated about these spaces and do not want to go there.

However, a large part of the spaces goes out of existence if does not have much features, positive or negative [3]. The point to be emphasized here is to improve the belonging of the user in spaces and thus to enable her/him to remember, use, protect the space and be happy there.

The word meaning of belonging is 'the state of belonging'. From another point of view, the belonging is the process of articulation, removal, or integration.

It is an attempt to integrate with what is belonged to. In fact, it is the necessity of being human together with some similar feelings such as being included, being consisted [1].

It is seen that individuals who play an active role in the design or arrangement of a space exhibit a positive attitude towards that space [4].

### *1.2. Purpose and Design of Study*

Design studios are places where students discuss their designs and explain their ideas. These studios, which involve many different cultures for education, also reveal the importance of group belonging in order to increase the productivity of the design process. Group belonging can be explained as the intensity of emotion that leads the group to work together.

It has been observed during the studies conducted that the feeling of appropriation of the design studios by students has positive influences on the architectural design process [5].

It is a fact that the more the level of relation between students and the learning environment increases in education, the more effective the education becomes.

Revolutionarily revealing the significance of the sense of belonging, Habraken's idea of "user participation" which is involved in the design process also supported the design of this study. Habraken argued that standard residence productions restrict the users' freedom, and that standardization has detrimental effects on the user [6].

According this approach, Habraken created a new alternative in opposition to standardization of residence, suggesting that users should be involved in the design process of their own living environment. It is thus ensured that the users' senses of belonging to their own residence are enhanced, and they appropriate their own living environment [7].

At this point, the user should be allowed to design the space he/she lives in with his/her own design models. This approach of Habraken is meant to develop the sense of belonging. Although Habraken performed this study on residence, it was assumed that the same approach could be applied to the users of Architectural Workshops.

Therefore, the substructure of the study was established based on the consideration of creating a design studio, with which the students could identify themselves.

### 1.3. Process of Work

For this purpose, each student group was expected to perform a design with a group work in an area belonging to the studio, on the basis of a theme they separately decided upon.

As the workspace, the interior of the architectural design studio, where students are continuously educated, was determined.

- *Groups were formed by 6-8 students.*
- *The dimensions of group workspace are 70x100 cm.*
- *The personal workspace within this workspace is approximately 35x33 cm.*
- *The individual works have been brought together to ensure the integrity of the design.*
- *A holistic work on one theme is determined.*
- *Original designs were expected from each work with materials appropriate to the theme determined by the group.*
- *Each group built a holistic design with different themes and different materials with the Habraken approach.*
- *The final presentations of works were exhibited permanently in the interior of the architectural design studio to enhance the sense of belonging.*

### 1.4. Case Studies

The workshop consists of a two- term process. The study was performed by dividing the students in 8 groups in the first term, and it was exhibited in the design studios. The workshop in the second term was set off with 6 groups and its results are examined in this article.

The workshop study which is performed with 6 groups consisting of Architecture Department freshmen within the scope of 2nd term Basic Design course was presented in Table 1 and Table 2. The groups of the students were allowed to identify their specific themes by creating a discussion platform.

The contents of the themes are not restricted in any way. In this context, the themes of the groups are as follows:

Group 1: Urban architecture was designed through the metaphor of “Flow of Life”.

Group 2: Designed by the Syrian students, “War” theme was applied. How the war has affected their lifestyles was emphasized.

Group 3: Starting off with the theme of “fingerprint”, it was attempted to reveal that it is possible to speak the same language and create a whole, even if the cultures are different.

Group 4: They construed a study under the title of “Techno Architecture” which expresses that the architecture of the future could only be created with the help of technology.

Group 5: The theme of “Protection” has been applied to emphasize the tasks of the atrium parapets in the design studio.

Group 6: The diversity of concepts integrated with architecture was attempted to be emphasized with the theme of “Integrity of Architecture”.

### 1.5 Result

Developing common projects for the studio both increases the student's sense of belonging to the environment and improves the student's sense of belonging to a group. From this point forth, the design studios must be student-centered, and the space should not be shaped according to a single approach.

The usage of design studios should be left to the responsibility of the students who use and live in them. Therefore, in the sense of that this approach can produce sense of belonging; it has been observed that students can design their own studios with design elements.

For this purpose, the students of Çukurova University Department of Architecture were requested to perform designs in such a way that:

- They can get in contact with,
- They can connect, feel belonging,
- They can identify with themselves,
- They will remember,
- They will miss, that will keep their marks in design studios. The aim is to create contexts that will enhance the sense of belonging between design studios and architecture students.

As a result, only developing the sense of belonging on the student is not enough to enhance the functioning of design studios. However, with the development of sense of belonging in these studios, it is thought that projects of students will reflect positively to design process, contribute to social approaches and they will take the responsibility of their tasks.



Table 1. Case Studies


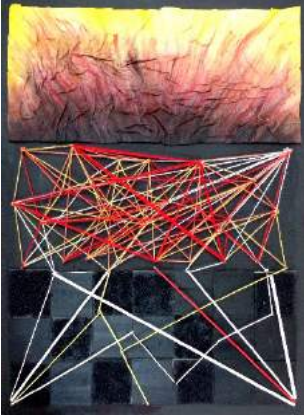



Theme	Project	Student's Explanation
LIFE FLOW		<p>Our purpose was to make a design emphasizing the role of the architecture within the life flow, because city is the life.</p> <p>The choice of materials in the drafts was plain and coloured cardboards. We wanted this choices to reflect changes of the architecture during development process.</p> <p>For better emphasizing the reflection of theme, we changed materials and tries "Wood", "Metal" and "Plastic" variations. While fictionalising our theme of life flow, we represented childhood and adolescence period with a wood material, the maturity period with metal and the death/end with a plastic material.</p> <p>As a result, we wanted to refer to both architecture and the life flow with the city plans.</p> <p>S.D. Cavlak, E. Akman, A. Bilgili, H. Çakıcıoğlu, S. Güven, C. S. Koyuncu</p>
WAR		<p>We, as Syrian students, wanted to deal with the theme of 'war' which, for a while, was a part of our life and changed our way of life.</p> <p>We designed our work in three stages. In the first part, while the problems of everyday life were experienced in the gridal pattern, in the second part, the chaos was represented by the beginning of the war.</p> <p>In the third part, the irregularity, suffering and deterioration caused by the war were tried to be dealt.</p> <p>R.R. Kharouf, N.Allouni, R. Alhammoud, D. Ranneh, M.S. Issa, R. Karabilou</p>
FINGER PRINT		<p>Every person is a part of a whole, even though they have different characters, personalities, thoughts etc.. In order to emphasize this point, we decided upon the theme of 'fingerprint' which is differently available in every human being and constitutes human identity. For this purpose, we started our work by taking fingerprints of each group member and scaling them up the workspace. To demonstrate the difference of each person's structure and architectural character, we made the design with different materials using the colour of grey and its tones.</p> <p>P. Çakalçı, K.Aktaş, A. Aslan, K. Karakaplan, B. Alkış, İ.N. Öksel</p>

Table 2. Case Studies

Theme	Project	Student's Explanation
TECHNO ARCHITECTURE		<p>We, as new architect candidates, will shape the future. The purpose of our work was to reconstruct with the help of technology, terrestrial areas declining due to increasing human population, increasing housing needs and ecological conditions despite the positive impact of technology in the future world.</p> <p>With this point of view, we tried to reflect the computer architecture to the architectural design. We wanted to create colonic structures that use renewable energy, which is intertwined with technology and least harmful to nature, and that can change and evolve.</p> <p>In this work, we see the transformation of these stack colonies to the techno-cities which are now accelerating processes starting from houses.</p>
PROTECTION		<p>The theme was adopted as 'protection' because the workspace is located on the surface of the parapet facing the atrium. Considering that the idea of protecting evoked the idea of wrapping/hugging, we wanted to add dance dynamics to the work. Our purpose was to support the lively aspect of dancing on the floor with figures. The focal point, which is coloured in the center, represents the stage. But the dance and protection spread to the whole area.</p>
HOLISM OF ARCHITECTURE		<p>One of the broad definitions of architecture is that this is the art and science of designing and building structures and physical environment at appropriate measures. Based on this, we tried to present the concepts that architecture integrates with, such as education, together with books, designs, colours, and different construction materials.</p> <p>The head of techniques that bring this whole together is the architect. The human silhouettes in the work represent architects as well.</p>

İ. Uçan, M. Aktay, P. H. Rour, B.A. Turan, E. Yel

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## Reality or Unreality, Prediction of Architecture Dreams

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### Abstract

This paper examines some of the potential capabilities and usefulness of Augmented Reality (AR), in architecture and interior design. Our main objective is to find out the extent and areas that this technology is more useful and favorable for architects and designers using a deductive reasoning in a dialectic way. In particular we focus on Microsoft HoloLens this is one of the latest technology in AR. We argue that augmented reality glasses such as Microsoft HoloLens are able to address a wide range of architectures' and designers' needs. Examples of these areas will be provided in which 3D Studio Max projects are converted to Holographic objects and added to the reality using Microsoft HoloLens. Our preliminary findings show that Augmented Reality (AR) has significant benefits: AR could create flexibility in architecture and interior design; AR can save energy, time and money; AR can be useful in construction and reconstruction projects; AR provides educational opportunities for architecture students; Hologram in scale 1/1 enables the user to walk through the project before the actual construction, we also present some of the existing problems with AR devices such as the HoloLens including potential side effects if used continuously, and that its use by current architecture students may require a sharp learning curve. The paper concludes that AR capabilities in architecture and design could be best achieved through multidisciplinary projects that involve architecture and AR developers.

**Key Words:** *Augmented Reality, Microsoft Hololens, Holographic Architectur , Interior Design, Architecture*

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### 1. Introduction

The first mention of AR is believed to have come in 1901 when L. Frank Baum, author of the "Wizard of Oz" in his novel "The Master Key: An Electrical Fairy Tale" described a set of electronic glasses that provided insight into a person's character. [1] But the real creator of AR is Ivan Sutherland who is created the first Head-mounted display (HMD) system in 1966. The system was suspended from the ceiling. He used computer-generated graphics to show user simple wireframe. The technology used at the time made the invention impractical for mass use. [fig.1],[2] And step by step during the years is become more maturated for example Myron Krueger made In 1975 built an American computer artist developed the first "virtual reality" interface in the form of "Videoplace" which allowed its users to manipulate and interact with virtual objects and to do so in real-time, . [3] Or Steve Mann prof. of Electrical Engineering, and Computer Science in University of Toronto who made, computational photography researcher, gave the world wearable computer in 1980. [4] The term 'Augmented Reality' was coined by Boeing researcher Tom Caudell in 1990, coins the term "Augmented".

"There are many different ways for people to be educated and trained with regard to specific information and skills they need [...]. Augmented Reality (AR) is one technology that

dramatically shifts the location and timing of education and training. This literature review research describes Augmented Reality (AR), how it applies to education and training, and the potential impact on the future of education.” [5]

In 1992 Louis Rosenberg develops Virtual Fixtures, one of the first functioning AR Systems, for the Air Force. This allowed the military to work in remote areas [6] and in 2004 AR finds a way to work with smartphone by different app, and recently we can see new tools of VR or AR for example Oculus 2012 as a VR glass or Google glasses in 2014 or Microsoft HoloLens in 2015 as AR glasses. That could be useful in different fields as Medicine, Air Force, Gaming, Design, Architecture, Education, etc.

The remaining sections of this paper are organized as follows: In section two various definitions and concepts of AR, VR, MR, Holograms are provided to give a common understanding of these technologies and concepts, in section three we present some of the theoretical discussions behind the creation and use of AR technology, section four we will discuss the connection between architecture and AR to answer some of the key questions related to the use of AR, section five concludes the paper with some recommendations of the use of AR in architecture and architecture education.

## 2. New words and new definitions

There are large misconceptions or perhaps misunderstandings about AR, VR, MR, and Hologram technologies in the field of architecture mainly because they define these concepts and technologies since these are not such common terms in the same field or even on a larger scale, which would be an everyday non-technical language.

### 2.1. Virtual reality (VR):

Virtual reality (VR) typically refers to computer technologies that use software to generate the realistic images, sounds and other sensations that replicate a real environment (or create an imaginary setting), and simulate a user's physical presence in this environment. VR has been defined as “[...] a realistic and immersive simulation of a three-dimensional environment, created using interactive software and hardware, and experienced or controlled by movement of the body” [7] in other words is “immersive, interactive experience generated by a computer”. [8] “Virtual reality is becoming increasingly popular, as computer graphics have progressed to a point where the images are often indistinguishable from the real world. However, the computer-generated images, movies, and other media are detached from our physical surroundings”. [9]

VR places a user inside a completely computer-generated environment. In other words the context is virtual.

The best fields of application for VR are: Gaming, Multimedia, Movies, Simulators, Medical, etc., in which everything is created in computers.

### 2.2. Augmented reality (AR)

AR can be understood as an environment in which virtual and real elements appear to coexist. (coexist means in the real space and hologram between them) The users have the real world as the context, which they live in, and have some kind of alternate reality or vision produced by computer or processors on transparent screen in front of their eyes. AR aims to bridge the gap between virtual world and real world. [10]

“It has been argued that AR is in fact an augmentation of our perception (e.g., Normand et al., 2012; Ross, 2005) [11]. In our understanding of AR, this is not the case because the virtual does not relate to our perception but to something that is perceived. Nonetheless, we

can find examples where AR is used to extend our perception as well as examples of sensory extensions that show interesting similarities with AR.[...] we will explore the possibility of “Augmented Perception” and show how it relates to the field of Augmented Reality.” [12]

Relationships between the virtual and the real distinguish AR scenarios from other cases where virtual content coexists on an independent layer, Schraffenberger and van der Heide, said: “relationships between the virtual and real, such as interaction between virtual and real objects, are possible” (Scharffenberger and van der Heide, 2013). However, to the best of our knowledge, they are all based on underlying spatial or content-based relationships.”[13]

The first noted experience of the physical world with computer-generated information occurred in 1960s.Ivan Sutherland’s [14], [Fig.1] created a primary device that is the root of both AR and VR.

He published “ultimate display” (1965, essay) that for the first time talked about the future of computer, display and human.

There are different ideas within philosophers in regards to the concept of the augmented reality but the most notable one is by Milgram and Kishino [15](1994,p. 1322) : “As an operational definition of Augmented Reality, we take the term to refer to any case in which an otherwise real environment is ‘augmented’ by means of virtual (computer graphic) objects [...]”. [9]

Another widely accepted definition of AR was proposed by Likewise, Azuma’s (1997, p. 356) widespread survey of Augmented Reality, which summarizes AR as a field that “allows the user to see the real world, with virtual objects superimposed upon or composited with the real world.” [16]

In his opinion, AR must have the following three characters:

- *Combination of reality and virtual*
- *Interactive in real time*
- *Capable to be registered in 3D*

“This mandate implies that the user and AR display can at least exercise some sort of interactive viewpoint control, and computer-generated augmentation in the display will remain registered to the referenced object in the environment.” [16]

The stronger the AR device is in providing an intense and thoroughly bounding interaction between the user and his sense of sight, hearing hepatics olfactory, or maybe in the future gustatory the more effective device it will be.  
(in ghesmat nazare khodam bode az jae naomade)

### 2.3. Mix reality (MR):

According to Milgram and Kishino (1994) MR is the meaning of the real and virtual worlds it has a wider range in which it includes AR, VR, and AV.[ Fig. 2 ] [15]

Sometimes referred to as hybrid reality is the merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time. [17] Mixed reality takes place not only in the physical world or the virtual world, but is a mix of reality and virtual reality, encompassing both augmented reality and augmented virtuality.[18]

## 2.4. Hologram

Holograms (pronounced HOL-o-gram) are three-dimensional images, created with photographic projections,

Hologram is a combination of Greek words of *holos* (whole) and *gramma* (message). Unlike 3-D or virtual reality on a two-dimensional computer display, a hologram is a truly three-dimensional and free-standing image that does not simulate spatial depth or require a special viewing device. Theoretically, holograms could someday be transmitted electronically to a special display device in your home and business. [19]

## 3. Hololens , Augmented reality and architecture

The German philosopher Heidegger of the mid-20th century affirms the concept of “Existence” considered as the typical and problematic being of man in his individual and particular life. According to Heidegger, in fact, the man is a being in the world (Dasein) and the Ontology is the analysis of the man and his existence. The existence for Heidegger is characterized by the man's ability to go beyond himself towards the world and man is a "being in the world"; in this sense the world is the projects space and actions of man, the place where he lives and uses the objects of the world by understanding them (Phillipse, Heidegger's Philosophy of Being, 1999).

Theorist Manovich (2006, p.219) introduces the more general concept and describes it as “physical space overlaid with dynamically changing information, multimedia in form and localized for each user”. Manovich lists AR as one of the technologies, which already create such augmented spaces. It has been argued that AR is in fact an augmentation. [20]

Architects, Designers, and Artisans have one thing in common; they work in the real world. In other words, the place in which their constructions or artworks are created is in real world and that world has been their only place to create their works. This resource has been used in forms of plan, section, elevation, scale, and perceptive, which are all tools, that could perhaps correlate their artistic ideas to a more scientific standard and structured evaluation of things. Their artistic ideas can be quantified in a scientific manner which has been common rules, scales and dimensions. Plan, section, elevation, scale, and perceptive, which are all tools, that could perhaps correlate their artistic ideas to a more scientific standard and structured evaluation of things. Their artistic ideas can be quantified in scientific manners which have common rules, scales and dimensions. Plan, Section, Elevation as 2D design or 3D sketches on 2D papers are their tools to simplify and help workers, technicians, engineers and clients to find a common language to perceive and have a better dialog about the design, structures, measurements, materials, and details combined. We can see the extraordinary effect of computer technology in architecture most evidently during the past three decades. For example, one of the remarkable technologies as software in Architecture design is “*AutoCAD which has been available on the market since 1982.*” [21] This software has resulted in an immense evolution within this area by giving the user the maximum precision, speed for drawing 2D, 3D design. After eight years Autodesk produced “*3D Studio Max which is a professional 3D computer graphics program for making 3D animations, models, games and images.*” [22] There are many other architecture and design soft wares that we can name which are very useful in architecture or design.

Recently 3D stamping has had big successes as well by revolutionizing the 3D creation methods. Augmented reality is probably the most advanced tool that we can present. Computers, smartphones and other new technologies in the world have created a complete new aspect to our lives. They have affected the way we work and apply our skills, hence the need to adapt with them and use them to improve our productivity and fine-tune the results.

These technologies have opened new windows to the future and particularly if we adapt them in our current. We need the right perception about the architecture space: Steven Holl in “Parallax Architecture and precision said P.13” said: “*Body movement is the connection element between us and architecture when it crosses the prospects overlapping that are formed within the spaces*” [23]

Architecture and design have direct connection with the real world and they have output in the reality in other word a building as a product of architect mind will realize in the real word. The VR is not the appropriate device to be used as a new technology for architecture and design. However, AR will be appropriate to be used since it has a direct contact with the real world and it can be interactive in different users in many ways. Such as the following:

- AR as objects (holograms)
- AR as context or environment
- AR as Augmented information
- AR as Supplement with another app or device such as smartphone
- AR as (mix of 2or 3 of the above)

### 3.1. Microsoft HoloLens

According to the scientific ranking of 2016 [24] Microsoft HoloLens(MH) was found to be the top product since it has specific features which sets it apart from other devices such as Google Glass ,Meta ,Opivent ,Sony Smart Eyeglass .

According to the Microsoft, HoloLens is the first fully self-contained, holographic computer, enabling users to interact with high definition holograms [Fig.3] that is very much different from the existing augmented and mixed reality technologies. Users can wear the 580-gram HoloLens headset that runs Windows 10 to map their environments and display virtual or holographic 2D and 3D objects anchored to that environment. According to Rod Furlan [25] HoloLens results are the best mixed-reality experience to date by a standalone, untethered device. While augmented and mixed reality seem to have great applications and specialized niches in a number of sectors, including manufacturing, transportation, construction, business, public health and medicine, Microsoft has listed architecture and design as some of the HoloLens application areas and encourages research and developments in these areas.

Some of the key features of the MH are:

- Mixed reality: Mixed reality encompasses a wide range of experiences that were previously considered to be only augmented reality or only virtual reality. In mixed reality, people, places, and objects from the physical and virtual worlds merge together in a blended environment which then becomes available to the users.
- Mixed reality for its users: Feeling present in the environment is a key aspect of mixed reality, enabling MH users to move naturally, interact, and explore in three dimensions. Windows 10 will enable this experience for a variety of headsets, from fully self-contained holographic computers like HoloLens to the most innovative and affordable accessories available to consumers.
- Holograms enhance the real world: Interacting with holograms in mixed reality enables its users to visualize and work with the digital content as part of the real world.
- A more natural way to interact: Holograms are responsive to its users and the world around them. Microsoft HoloLens enables the user to interact with content and information in the most natural ways possible.



- Gaze: Built-in sensors let user use their gaze to move the cursor so he or she can select holograms. The cursor will follow the direction where the head is turned.
- Gesture: By using gestures apps can be opened, selected, items can be dragged and resized.
- Voice: By using voice commands the user can navigate, select, open, command, and control the apps.
- Collaborate and communicate: It is easier for the user to show than to tell. By using Skype contacts can overlay sketches and holograms on physical objects within the user's view.
- Create what you imagine: Shape holograms to fine-tune a design, share ideas, and understand your creations in relation to the real world.
- Visualize the final work: It will be much easier to go beyond what a 2D render can do by working in 3D. This will help by making smarter decisions and prototype faster when the user can inspect every vantage point.
- Explore places and ideas by using the holograms from different perspectives if the not physically close to the user's vicinity. [26]

### 3.2. Microsoft HoloLens and Architecture:

Trimler is the main partner of Microsoft in developing construction and architecture programs and apps. In 2017 they presented SketchUp HoloLens (Trimble,2015), which gives architects the ability to experience their project models by having them appear right in front of their eyes. It has benefited the user by being holographically virtualized in physical space. Physical models cost time and money, Mixed reality models in Sketch-Up Viewer can be infinitely reconstructed and rescaled to suit the user's need. The other great aspect of Sketch-Up Viewer is that it can demonstrate the 1:1 scale model for the architect working on his design. It will be much easier to fathom the true scale for the best possible experience of what the design will really feel like. [27-28]

The application includes many of the viewing, navigation, and information tools. There are multiple tools that can be used such as scenes, Tape Measure, Entity Info which can provide quick access to important information about the model being work on.

On other hands are other ways to create an architectural 3D holographic model but it could be a little complicated respect of using SketchUp .3D Unity is the program that as an engine is use by game developers.

We could export 3D Studio Max file with format (.fbx) and open it in 3D Unity and matching some of the Unity setting [...] for example in our case study a House [fig.5] with simple translucent and color materials and precise scale and indicating distance from MH we could found an acceptable result in MH, just need to match some settings that you can find all the information in this link:[29]

To have 3D models visualized interactive in Hololense, “these methods present only the most basic and readily accessible usages: “*For basic and immersive data visualization, preprocessing work was performed in Matlab (R2015b) and 3D data spaces were exported in a 3D XML format (.x3d) using the open-source tool Matlab 3D figure to 3D (X)HTML (Kroon, 2011), available from the Matlab File Exchange, "g2xhtml.m". The resulting file were piped through Blender to convert them to Autodesk Motionbuilder format (.fbx), which is currently the preferred 3D format supported by the Hololens for basic 3D viewing. For visualization of architectural forms, original work from Google Sketch-Up (.skp format) was exported to Collada format (.dae), and again piped through Blender for .fbx conversion. For computational architectural forms, original work was created in Rhinoceros 5 with the Grasshopper plug-in, and imported into a Unity Hololens project. The project was then compiled and deployed onto the Hololens via Microsoft Visual Studio 2016. This work is more involved, but is the most general methodology, and allows for interactive and programmatic content to be developed within Unity and Visual Studio*”. [30](Paul Hockett, Tim Ingleby,2016)

### 3.3. Architecture problems and HoloLens solution:

In this section, we will review some of the obstacles that architects face in their field and examine how AR, particularly Microsoft HoloLens can provide solutions for them.

- AR in scale 1:1 gives architects the ability of physically walking through the project before the construction or viewing the interior or exterior of the final project. This will enable them to find any outstanding flaws or corrections to be made before the final result.
- AR in scale 1:1 can create a real simulation for the client and it can help the architect to have better dialog with his or her client. This will make the decision making, related to the final design, process much smoother for the said client.
- AR in scale 1:1 can also save energy and time for the client, real state and builder. This is done by having a *complete* building in AR for the client to view in the actual scale. This can serve as the model home and it will replace the cost of the actual material, labour and time to have a model home built for the clients to visit so they have an idea of design of the house. All of this can be done as easily as the client standing in his back yard while having an interactive viewing with the AR model.

“The first experience of architectural form by means of AR at true-life scale (or as close as the available space allows) is certainly striking. The ability for the user to navigate freely around and through a design creates something akin to a ‘sandbox’ environment and while such freedom of exploration may be considered equally achievable by means of real-time renderings it is significantly distinguished by both how space is perceived when immersed within the AR environment and by the haptic experience of such. What is also striking, and potentially of great potential for the architect as designer, is how the design itself can be immersed or synthesised within a real-life environment. It is easy to envisage that testing a design against a specific site would enable designs to be accurately adjusted in response to their immediate context as part of an iterative process, or indeed to imagine new workflows and design processes emerging as a result of such ‘live’ testing.”[30]

- AR in scale 1:1 could help architecture student to have real imagination about the architecture monuments in different countries with different architecture styles. For example when we study about Coliseum in architecture history books the impression that is perceived is not in any way comparable to what is in real life. By being there and seeing this structure the viewer can feel the vastness and majestic planning of this structure, which in no way comes across by just going over the plan in architecture books.
- AR in scale 1:1 can help workers, engineers and construction supervisors to reduce the number of errors by viewing the right location of the wall, doors, windows, columns, metal meshes, stairs[...]and in the same time thermal and electrical system all together.
- Ability of rescaling is one of the important capabilities of this technology. It can help architect and designer to think about the project in large and small scale without losing the time and energy. It can provide the Rotation 360° around the project or rotate the hologram by hand command.
- AR in interior design could be a big evolution if we develop a simple app that gives the user the possibility of adding hologram objects from the store or possibility of changing texture of the surfaces.[31]
- AR is an ideal solution for the lack of imagination. In descriptive geometry and perspective or any kind of topic that needs a good imagination; new architecture students face a lot of problems because it is very difficult for them to find the relation between plans, section and perspective with the real world.

- AR will be useful in reconstruction and repairing. For example, when water tube or electric lines are damaged, using AR, the technician could easily find where the issue might be.  
*“As a tool for transformational visualization, however, the HoloLens is quite unique, with the ability to experience a data space not just as an immersive form, but as an immersive form embedded in the real-world, thus transforming the abstract into an experiential architecture in the real world. This tool clearly opens new avenues for any practitioner researcher interested in the use of abstract computational spaces in architecture, or other experiential installations” (e.g. large-scale art installations). [30]*
- Ability of rescaling is one of the important capabilities of this technology. It can help architect and designer to think about the project in large and small scales without losing much time and energy. It can provide the Rotation 360° around the project or rotate the hologram manually
- 

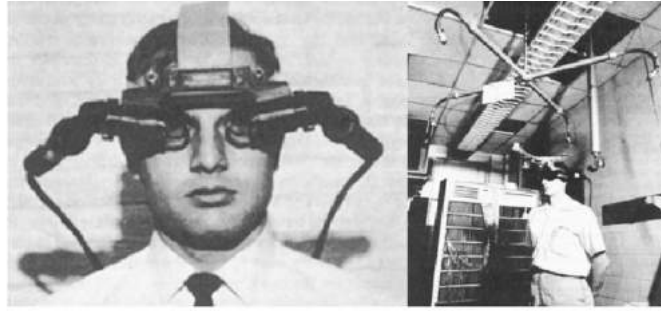
### 3.4. Problems of using Microsoft HoloLens in architecture

Problems of using Microsoft HoloLens in architecture:

- It is true that new technology means spending a lot of money and it's correct that this technology give us a lot of new ability but right now MH cost \$3000 and if we want to add additional Apps such as Sketch-up it will cost another \$1,499.
- It needs more software knowledge in creating the holograms or perhaps we should wait a little more to present new Apps that give us more facilities.
- We can divide AR sets generally in two categories. First category is usually a thin glass as Google glass. This type of glass is usually limited because it has to be used in correlation with another device such as smartphone. The second category is the Head mounted computer with transparent display such as HL, but at their current state they are a little heavy and in long term they may create physical problems to users.
- AR is a young technology which needs time and long exposure to users and different applications to evolve in to fully user friendly program with being highly efficient.

## 4. Conclusion and results

Microsoft HoloLens or any head mounted display(HDM) with the same ability of MH to create AR is in maximum harmony with architecture and architects should absolutely use this technology to have much perception about the projects, and it could create a contemporary dialog between architects, workers and client, for architecture student it could much effective for their perception and memorising the lessons.AR sets are accord with concept of saving energy and green city because it could save lots of human energy, time, fuel and money. Nearly we will see that any building and design will have a AR file more as a official documentation like plans, section and etc. that will be useful for next generation, and new generation of the smart cities



Ivan Sutherland. "Sword of Damocles"

Fig. 1

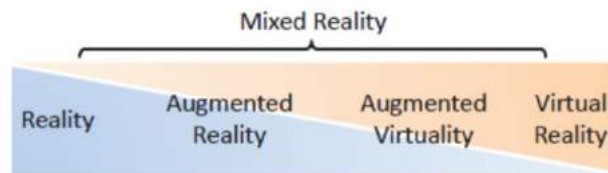


Fig. 2. The MR continuum captures all possible combinations of the real and virtual world



Fig. 3. Microsoft HoloLens



Fig. 4. Use of HoloLens in Architecture.

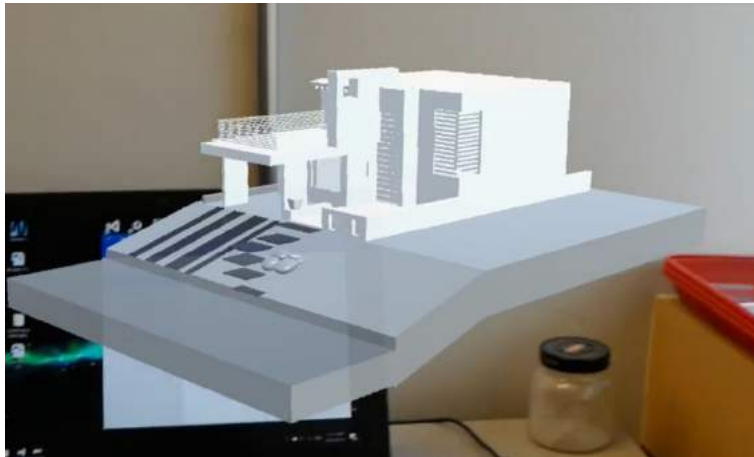


Fig. 5. Sample export from 3dStudio Max in HoloLens by adding simple materials.

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## **Appendix**

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## CREATIVE AND FUNCTIONAL SOLUTIONS IN MOSQUE INTERIOR LIGHTING DESIGN

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### **Abstract**

Mosques are designed to gather the believers of Islam while praying. The philosophy of Islam is embodied within these architectural units. They are considered as the house of “Allah”. For this very reason they are considered as holy spaces. Therefore the design of mosques is intended to reflect the holiness. Islam canalizes the believers to read and envisage the beauty of the creator without using any visual arts. The conceptual design of the mosque is created in accordance with the substance of the religion. Consequently the ideology of Islam tried to be reflected with using geometric patterns in mosque design. Thus the activation of spatial intelligence tried to be evoked in mosque interiors. A strong bound has been set between philosophical approach and architectural form. This connection led to accomplish strong ambiance in mosque design. Respectively to this tendency the lighting design of the mosques is better to be depicted with the same understanding. The core of the design should be the substance of the religion. The design of natural and artificial light is achieved by using windows in domes, colored windows on walls, suspending lighting fixtures from open spaces and applying indirect light sources in hidden places. In order to be in tune with the philosophical approach of the religion, lighting fixtures should be set as if they are part of the interior design. The essential lighting range should be determined according to the functionality and utilization. The use of homogeneous distribution of light at the floor level and projection of directed lights has the qualities to respond these needs. However implementing the ideal ambiance of mosques nowadays getting harder with the compulsory usages of technical devices. Although light has therapeutical effect on human beings and has also power of appealing the abstract perception but the presence of technical devices causes chaotic spaces. The presence of lighting fixtures, speaker, and air conditioning systems can cause destructive impact on design as well. They should be designed in harmony with the concept. But the presence of speaker, air conditioning systems with the lighting fixtures causes disturbance of space. This situation results to loose conceptual impact in the mosque. The use of technologic facilities is required in mosque. Bu there is no doubt that their presence in the mosque damages the requested ambiance of interior. Adapting creative and functional solutions is needed in order to solve this situation. Adding multiple features to lighting fixtures stands as an answer to this situation. The lighting design of Hussein Mosque stands as a solution for this problem.

***Key Words:*** Mosque, Conceptual Design, Interior, Lighting Design, Conceptual Solutions.

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## **1. Designing for Sacred Spaces of Islam**

From the beginning of history, humankind always searched for places to live in. First they need shelter to be protected from weather. These shelters were also served as shields against various animals. With their presence, humankind found their selves a defined territory in which they can be safe. As time passes by human race start to build architectural spaces to dwell in. This improvement allowed him to adapt the world more easily. A safe and defined territory is achieved with manmade buildings. Therefore architectural forms internalized by human beings. For these forms present humanity, protection and comfortable living. In the process of time architectural unities have much more meaning to humanity. With the charm of designing activities the value systems and dreams of humankind started to be implemented on the foundations and walls of buildings. Dreams, identities, characters are reflected within the architectural units.

Beyond the life-sustaining aspect of architecture, it becomes also needed because of sense making and embodying the unknown phenomena. For it serves a permanent area in an unknown, limitless cosmos. Different and various belief systems have been emerged to understand the nature, cause and purpose of the universe. Each called as a religion. The understanding and philosophy of these different religions mainly stands as unique for their cause. Designing spaces to represent the intangible and sensitive beliefs becomes an allegoric, embodying of art.

Representing philosophy by tangible units becomes the most important value of architecture. Understanding the core reason why the particular architectural unit is built stands as the main value of designing activities. Building sensuous architectural units excels this very aim. In order to achieve this goal theme or the concept of the unit must be very well examined. This necessity becomes more important when it comes to design sacred spaces.

Likewise it is substantial to understand the philosophy of Islam before designing sacred spaces for this religion. The sacred spaces of Islam called Mosques. The word of mosque is derived from Arabic word masjid meaning "to bow down in prayer" or "worship" [1]. The religion of Islam motivates the believers to come together during praying or worshipping. Therefore Muslims comes together for prayer as it is called salaah. The imam leads the congregation in prayer. The basis and the theme of Islamic religion are written in a book called Quran. The first words of this book are translated as "read" or "recite" [2]. For this very reason the believers of Islam guided to read in the name of understanding the universe around them and envisage their creators who is named "Allah".

In philosophical approach of Islam the notion of envisaging is motivated. Instead of making use of visual arts, conceiving the notion is encouraged. Conceptual intellect tried to be evoked. Therefore the mosques as architectural presentment of Islam combine numerous symbolic attributes within its design. The substance of Islam is reflected in the conceptual design of mosques. In the name of depicting the philosophy of Islam in mosques spatial and logical intelligence is used both by the designers and the viewers. "Oneness and unity" is emphasized within mosque design. With this way the fundamental message of the religion is embodied in mosques [3]. During the design stage of mosque the substance of Islam is depicted through the architectural form as a whole unit and also with the each details of the building. This tendency helped to reach strong ambiance in mosques. Geometric patterns are used both in architectural forms and in the ornamentations. All of these features are used in representing religions' ideology. Addressing intangible notion with tangible form is achieved with designing processes. Implying the intangible philosophy is much more effective within the lighting design of the architecture. Since lighting has the strong impact to form the intangible skin of space.

## 2. Creating Ambiance with Lighting Design

In the name of achieving sacred ambiance within mosques lighting design always have a certain *je ne sais quoi* that makes whole design charming and effective. It would not be possible to achieve sacred atmosphere with heavenly ambiance without using the benefits of lighting. In order to catch up with these ultimate aims architectural lighting design is intensely used in mosque interiors. Likewise lighting design is used in many of the worshiping spaces. The lighting designer Paolo Urbano who is specialized in lighting design in sacred spaces describes this situation as: Light is foundation of worship [4].

Lighting design of mosques carries more importance beyond the functional necessities. Lighting design has the power of implementing the spirit in a space. This fact gives designer an opportunity of composing the holly atmosphere and depicting the philosophy of the religion. Lighting design of mosques becomes much more important when we examine Islam. The holly book of this religion is Quran composed of 114 chapters, which are called suras. There are many suras in Quran mention about light, oil-lamp, lamp and lighting. The notion of light is used in direct and metaphorical meaning in suras. Some of the examples are mentioned below:

24/NÛR-35: Allah is the Light of the heavens and the earth. The example of His light is like a niche within which is a lamp, the lamp is within glass, the glass as if it were a pearly [white] star [5].

71/NUH-16: And made the moon therein a [reflected] light and made the sun a burning lamp? [6].

78/NEBE-13: And made [therein] a burning lamp [7].

The impression of light is focused in this religion widely. Metaphoric usage of light can also be seen in the prophet Muhammad's sayings/deeds. This fact stands as the clue in the name of designing the sacred places of Islam. Within the spatial design the traces of these suras and the deeds of Muhammad can be seen. The dense usage of a glass form resembling the shape of oil-lamp is chosen because of this fact. Generally the lighting fixtures of mosques are composed of oil-lamp shaped components as a figurative expression (see fig.1).



Fig. 1. State Mosque, Doha, Qatar designed in 2010 [8].

Since the wide sphere of influence of lighting in both functional and metaphoric meaning, the use of lighting design is highly mentioned in mosques. The fundamental effect of both natural and artificial light can be observed. Spatial qualities are determined with designing

light and shadow. Using light and shadow as an atmospheric tool can be achieved by using their presence when they are implemented in the right amount at the right time and place [9]. The right usage of these elements of light and shadow can foster togetherness during prayer time. Moreover this design can evoke the heavenly senses of unity and oneness.

In the name of reaching mystical atmospheric impact in sacred places the advantage of natural has always been the key aspect. The use of natural light in mosques is achieved by maintaining windows in the different layers of the mosque. The atmospheric feeling of weightlessness and heavenly space can be achieved by the use of natural light in the interiors of the structure. Determining multiple light sources from different openings causes to obtain layered spaces in an architectural unit. Natural light can model spaces [10]. In the name of attaining desired appearance of lighting design windows in domes, and windows in different layers of walls and colored windows in lower layers are used. The interior of Sultan Ahmet or so-called Blue mosque can be a good example for this phenomenon ( see fig.2).



Fig. 2. Sultan Ahmet Mosque Interior, 1609-1617, İstanbul, Turkey [11].

Suspending artificial lighting units from open spaces of mosques is used in mosques. These lighting fixtures are accompanied by indirect light sources in hidden places. While designing artificial lighting of mosques, lighting fixtures should be designed as if they are part of the interior design. By this way the atmospheric impact of the mosque can be coherent with the conceptual design.

Lighting has a positive psychological impact on human beings. This fact is proven scientifically. By achieving a proper lighting design in mosques it is possible to touch the feelings of believers. Designing a tangible space, which has the power of appealing the intangible, can be possible with lighting design. It also helps to reflect the values of philosophy of the religion. With this very aim lighting design has a huge effect.

### 3. Lighting Requirements

Significance point in the lighting design of mosques is to maintain necessary lighting level. In order to maintain this information the required activities in a certain place must be examined. The activities held in mosques can be listed as: performing the salaah, educating or reading Quran, Islamic culture and art activities, fraternal activities, social activities.

Table 1. Recommended light levels for these activities

Activity	Illumination (lux, lumen/m <sup>2</sup> )
Performing The Salaat	100-200
Quran Reading	300
Cleaning & Maintenance	70-100
Art Education	300-600
Exhibition	300-600

Human eye responds to wavelengths from about 390 to 700 nm. Lighting fixtures must be designed suitable with physiology of vision in humans. Ideal visualization actualizes when lighting sources are appropriate to ideal wavelengths and chromatic spectrum [12].

Light sources must be chosen according to the need lighting level in a particular space. Oil-lamp is used in mosques till discovery the incandescent lamp of Edison at 19 century. As the technology of electric lamps improve in time: incandescent lamp, fluorescent bulb, mercury vapor lamp, halogen lamp and LED (Light Emitting Diode) respectively are used.

LED Lighting technology allowed many opportunities. Therefore they are used in mosque as well. The opportunities that LED enables can be listed as follows:

LED bulbs and diodes have an outstanding operational lifetime. They can operate 50.000-100.000 hours.

Energy Efficiency - The long operational lifetime helps to achieve even more energy efficiency.

Ecologically Friendly - LED lights contain no toxic materials and are 100% recyclable. LED Lighting features close to no UV emissions.

Durable Quality - LED illumination can withstand rough conditions.

Design Flexibility - LED lighting has powerful flexible design features. This feature of LED allows design to be more appropriate.

Light Dispersement - LED lights achieve higher application efficiency. This feature of LED helps to create dramatic lighting effects. Local lighting possibilities are increases.

Instant Lighting & Frequent Switching - LEDs can be turned on/off many times. This feature diminishes maintenance problems.

Low-Voltage - LED lighting can run on low-voltage power supply.

#### 4. The Problematic Presence of Technical Devices

Taking advantage of technology in terms of studying through lighting design is a beneficial method. However, the use of these systems or modules can cause destruction of conceptual design as a whole. The technological devices are requiring for they gave functional usage. But at the same time they carry inappropriate appearance with the sacred atmosphere. In order to be in tune with the philosophical approach of the religion, lighting fixtures should be set as if they are part of the interior design. This is the reason why all of the lighting fixtures have to be custom designed for each mosque project. Still functionality and utilization must be the main criteria in order to cope with essential lighting range. The use of homogeneous distribution of light at the floor level and projection of directed lights has the qualities to respond these needs.



Fig. 3. Hussein Mosque, Cairo, Egypt [13].

## 5. Analytical Solution

In the name of presenting solution above-mentioned problems the expectations and the potential problems must be listed.

### 5.1 *The Expected Solutions From Mosque Interior Lighting Design*

Homogeneous light distribution at the floor level of mosque. In the name of illuminating reading desk level for prayer purposes.

In the name of using emphasizing the architectural details, ornaments, art works and craft works directed lighting is used (task lighting/spot lighting).

### 5.2. *Mosque Interior Spatial Vision / Perception Solutions*

- Use of chandeliers (~ 2,5-3,5 m) can be used in general lighting. General lighting can be supported by LED sources that are placed in different places as cove lighting. Their placement can only be done by delicate examining of the mosque. Furthermore placement of down light and up light sources in and around the chandelier can be used as well. Directed lights can also placed to sides of the chandeliers.
- Dome service area can be used to combine cove lighting
- Ornamented areas can be illuminated by down light, up light, front lighting, backlighting, spotlighting.
- Illuminations of architectural elements.

In order to achieve atmospheric design it is required to use different lighting sources from different directions and layers. Cove lighting can be used from the edges of dome and from pillars. This system can also be applied to the details of mosque such as stalactite, ornaments, decoration and calligraphic writing.



Fig. 4. State Mosque, Doha, Qatar [14].

*5.3. The criteria that should be examined before starting the lighting design of the mosques:*

- Understanding the architectural design of mosque. The concept of the mosque should be very well examined. Mosques are generally designed in several styles. These styles can be named as: Islamic (Umayyad, Ottoman, Seljuk), Traditional, Ethnic and Modern.
- Identification of the interior of mosque with whole architectural unit.
- Designing lighting fixtures as the component of the interior design. They should be seen as the part of the whole unit.

Lighting fixtures of mosques are made of mainly, brass, aluminum, stainless steel, steel, copper, glass, GRP (glass reinforced plastic) and other composite materials. Titanium, gold and silver are also used in the making of lighting fixtures of mosques but on the rare occasion. These materials are available to be used in a multifunctional lighting fixtures.

*5.4. Integration of Lighting, Speaker of Ventilation System*

Beside beneficial contributions to space lighting, speaker, and air conditioning systems and special warning lights provokes the inconsistency in terms of conceptual design. Coherency in design must be provided despite of their unwanted technic appearances'. They should be designed in harmony with the sacred space. In the name of achieving this goal new fixture, can be designed which combine these four systems altogether in one form. All of them can be placed in lighting fixtures (see fig.5).

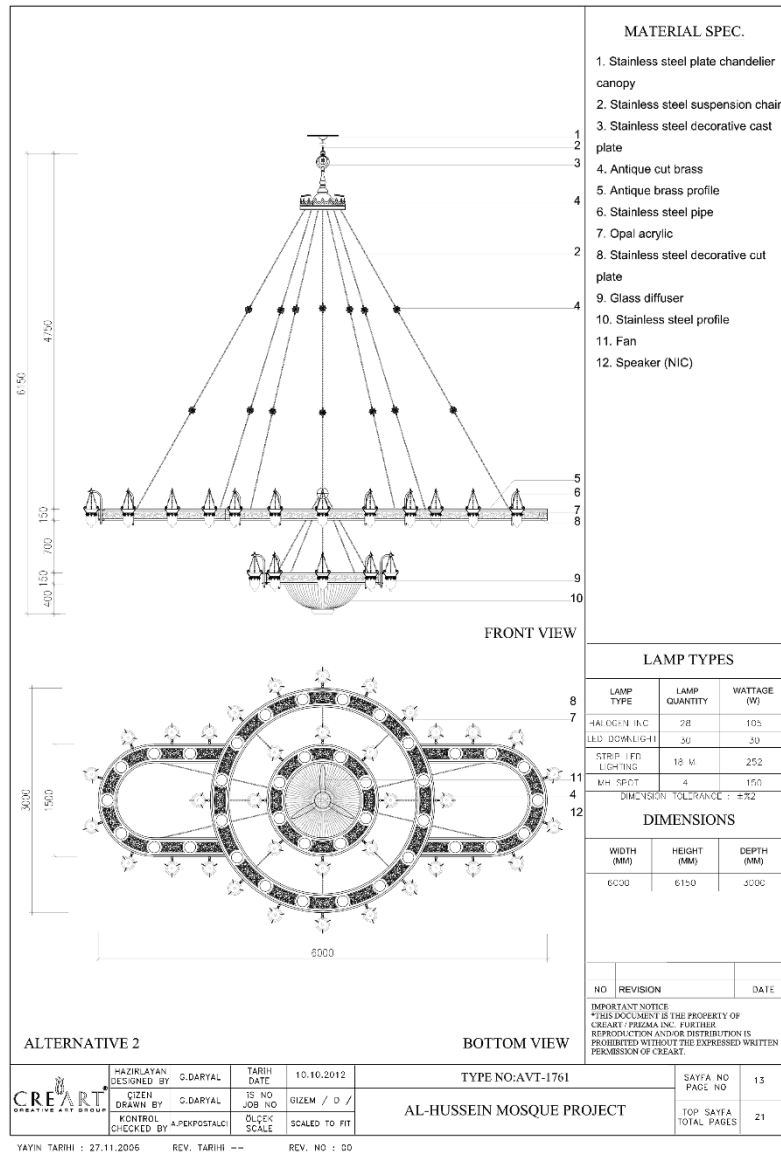


Fig. 5. Al-Hussein Mosque, Cairo, Egypt [15].

Above-mentioned solution helps with the acoustic problems as well. Placing speakers directly to floor creates homogenous acoustic and light distribution in space. Placing these multi functional lighting fixtures at certain intervals also helps with this subject. Moreover echo and reverberation can be inhibited in space, which is a big problem of mosque interiors. In this respect this solution is very beneficial nonetheless the unity of these systems and ceiling designs can be reached in many other ways as well.

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## IMPORTANCE OF SOCIAL SUSTAINABILITY AT THE MASS HOUSING PROJECTS

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### **Abstract**

Migration from rural to urban area has gained acceleration with education and business opportunity in middle of 20th century. Today half of the world population lives in cities and this rapid migration has caused unplanned urbanization and poor quality building stock. Urban transformation projects are kind of solution for illegal housing, buildings on the scrap heap and infrastructure problems of the cities. Mass housing projects are using for urban transformation of adjacent properties and it offers a remedy for social facilities, integrative infrastructure, and better space occupancy. On the other hand, the social relations on the area have totally changed with physical change of the area and new living styles have suddenly popped-up on these quarters. Neighborhood relations, safety needs and open public space usage have totally changed compared to old settlement areas. The people who live in the mass housings in the cities are not monotype and these places are junction points for many different communities with different income levels, life style and cultures. Although they have diversities, their social relationships like all the people are critical to wellbeing. Despite the large number of people living in the same place, a lack of social connection leads to loneliness and isolation on these areas. Social sustainability shows the satisfaction of human social needs and maximizes community values, knowledge, history, traditions, and social networks for next generations. The mass housing projects can be successful when they also provide social satisfaction and sustainability for habitants but on the design phase of these projects, the social sustainability doesn't take any notice. Social places, mobility, and proximity are important for connecting people with each other and developing social relationships. Within the scope of this research, social sustainability of two different scale social mass housing projects are evaluated in accordance with the indicators generated by The Oxford Institute for Sustainable Development (OISD). A sense of community identity and belonging; tolerance, respect and engagement with people from different cultures, background and beliefs; friendly, co-operative and helpful behavior in neighborhoods; opportunities for cultural, leisure, community, sport and other activities; low levels of crime and anti-social behavior with visible, effective and community-friendly policing; and opportunities for all people to be socially included and have similar life opportunities are defined as the basic social needs for habitants. Amenities and social infrastructure, social and cultural life networks, community space to grow and participation of decision making has used as indicators for social sustainability of these two settlements. Consequently, social sustainability is extremely important as environmental and economic sustainability for the future of the cities and it should be considered in the urban transformation projects.

**Key Words:** *Mass housing; social sustainability; social needs; neighbourhoods; urban transformation*

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### **2. Introduction**

As from the 1300's, towns and cities were beginning to expand with commercial revolution but rural exodus has gained another dimension with industrial revolution and it has showed

dramatic increase due to education and business opportunity in middle of 20th century. According to 2016's data, 55% of the world's population lived in urban settlements and half of that lived in a city with at least 1 million inhabitants [1].

This uncontrolled growing has led to many problems in the urban areas. Especially housing problem is one of the fundamental and urgent topics for all cities. One side of this is increase in the need for housing production and another side is prevention and renewal of unplanned and illegal construction. City governments look for ways to guide and control the processes and they are using urban transformation projects as a solution of this problem. Urban transformation can be defined as an urban intervention aimed at providing socio-economic and physical contribution to the city by re-developing of the disadvantaged regions. [2] Heritage conservation, urban regeneration and redevelopment are three major categories of urban transformation. [3] Especially in Turkey, after the "Law on Transformation of the Areas under Disaster Risk" dated on 16/05/2012; urban transformation has been commonly considered as urban redevelopment by policy makers to overcome illegal housing, poor quality of building stock and infrastructure problems of the cities. In the process of redevelopment, when the problematic areas of the cities are coming into the cities as new urban areas, studies should be carried out not only for spatial transformation but also for social and cultural development.

Urban transformation projects have been implemented in different kinds of urban areas and majority of them is squatter areas. Squatter areas have been arisen by producing unauthorized constructions on the territory of the public or real persons. In Turkey, these areas have been gained legal statues by laws and amendments in the eighties. The total number of squatters in Turkey was around 50,000 in 1955, according to the census held in 2002, there were 2.2 million pieces and 11 million people live in these squatter slums. This proportion corresponds to 27% of the total population [4]. It has showed that the high amount of people living in poor quality housing. Squatter areas in the cities are especially need redevelopment but the economic background of the habitant of these places doesn't allow them to make the physical change on their own. City governments have developed different solutions for these areas such as demolition, rehabilitation, and redevelopment.

Mass housing projects are using for urban transformation of adjacent properties. The word "mass housing" was understood a second-class housing for low income level in the past. By the time of progress "mass housing" has represented the urban transformation projects of the metropolitan municipalities. Nowadays it means that housing initiative undertaken by public or private organizations such as housing associations, housing production partnerships or housing banks. This type of projects can provide social, economic, and technical benefits when they are built as large residential sites, rather than individual structures.

Commercial, educational, health, religious services and facilities are required for better residential areas and mass housing projects many times offer this kind of facilities. On the other hand, slums are built with little to no basic infrastructure and sanitary provision, and mass housing projects offer integrative water, energy, information, and communications infrastructure. It provides cost effective solutions and better organizations for the city structure.

The social relations on the area have totally changed with physical change of the area and new living styles have been observed on these quarters with urban transformation projects. Living in squatter areas formed by relatives or townsman clusters can resist the negativities by urbanization with strong solidarity systems and social control mechanisms. When the area is transformed to new mass housing, more vertical relation opportunities have arisen between the neighbors. Many of them have no idea about their neighbor and also the relationship between neighbors has been settled not natural way and it has taken a long-time period.

Outside areas are used more effectively in slum areas and people spend most of their time at the outside. A clear majority of them have their small gardens and they are engaged in

farming. At least they are sitting in front of their doors and involve the street life. So, social control mechanism has been processing on their own and more secure city street life is ongoing.

On this perspective, within this paper, the social sustainability in the regions transformed from the slum areas to the mass housing areas was discussed and evaluated. Two different social mass housing projects which are designed for urban transformation are evaluated in accordance with the social sustainability indicators and it is emphasized that this subject should be approached carefully in the design phase.

### **3. Social Sustainability**

Sustainability is a worldview that seeks to fulfill the environmental, economic, and social needs without harming the living conditions of future generations. The concept of sustainability, in case of the increasing world population, the exhaustion of natural resources, global warming, and environmental pollution, is consistently associated with environmental problems, and this concept is often expressed in the continuity of economic development. Although sustainability is to ensure the continuity of everything in balance within environmental, economic, and social values, the social footprint is constantly forgotten.

Varied definitions of social sustainability have been introduced in different filed. When we looked at urban scientific study field, social sustainability is “development (and/or growth) that is compatible with harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population.” [5] Social Sustainability has been also defined as “the continuing ability of a city to function as a long-term, viable setting for human interaction, communication and cultural development.” [6]

As it has been understood from the definitions, the local needs and cultural pragmatics should be considered in the social sustainability. At this point, OISD (The Oxford Institute for Sustainable Development) made the following statement on this subject: “Concerning how individuals, communities and societies live with each other and set out to achieve the objectives of development models which they have chosen for themselves, also considering the physical boundaries of their places and planet earth as a whole. At a more operational level, social sustainability stems from actions in key thematic areas, encompassing the social realm of individuals and societies, which ranges from capacity building and skills development to environmental and spatial inequalities. In this sense, social sustainability blends traditional social policy areas and principles, such as equity and health, with emerging issues concerning participation, needs, social capital, the economy, the environment, and more recently, with the notions of happiness, wellbeing and quality of life.” [7]

At the literature, the criteria of social sustainability have been varied according to year and the subject of the work. It has been listed in Table 1. Themes of livelihood, equity, security, participation, and employment are the common topics used in many studies. At this point, the scale and subject of the study has gained importance for choosing assessment criteria.

Table 1. Key themes of social sustainability [8]

Chambers and Conway (1992) [9]	DFID (1999) [10]	Sach (1999) [11]	Hans-Böckler-Stiftung (2001) [12]	Thin et al (2002) DIFD [13]	Omann and Spangenberg (2002) [14]	Baines and Morgan (2004) and (Sinner et al, 2004) [15]	Bramley et al (2006) [16]
•Livelihood	•Inclusion	•Equity	•Paid and voluntary work	•Social justice	•Education	•Basic needs	•Community stability
•Equity	•Equity	•Democracy	•Basic needs	•Solidarity	•Skills	•Personal disability	•Security (crime)
•Safety nets	•Poverty	•Human rights	•Social security	•Participation	•Experience	•Equity	•Community participation
•Capability to withstand external pressures	•Livelihood	•Social homogeneity	•Enabling of social innovation	•Security	•Consumption	•Social capital	•Pride and sense of place
		•Equitable access to resources and social services	•Equal opportunities to participate in a democratic society		•Income	•Needs of future generations	•Interactions in the community/ social networks
		•Employment			•Employment	•Cultural and community diversity	
		•Equitable income distribution			•Participation	•Empowerment and participation	

#### 4. Social Sustainability at Mass Housing

Social sustainability shows the satisfaction of human social needs and maximizes community values, knowledge, history, traditions, and social networks for next generations. To assess the social sustainability at mass housing, the social needs and problems at the mass housing settlement should be defined carefully.

Firstly, housing also evokes different meanings such as safekeeping, sense of belonging and socialization beyond the shelter of the individual's life. In this respect, it is not right to express the house as physical spaces built with walls only and the housing environment should not be comprehended only as a place of accommodation, it should be considered as a primary physical input that determines people's life habits, cultural heritage, and social relations. In mass housing, where many people live together, this cannot be designed as one family needs, it should be considered as commixture communities.

The people who live in the mass housings in the cities are not monotype and these places are junction points for many different communities with different income levels, life style and cultures. Even though they have diversities, their social relationships like all the people are critical to wellbeing. Despite the large number of people living in the same place, a lack of social connection leads to loneliness and isolation on these areas. The main reason behind that is the nonexistence of places where people can meet and socialize. The mass housing projects can be successful when they also provide social satisfaction and sustainability for habitants but on the design phase of these projects the social sustainability doesn't take any notice [17].

Planners generally are considering the one family unit; its size, living at this unit, technology and economic construction of this unit are the main themes of their work.

Social places, mobility, and proximity are important for connecting people with each other and for developing social relationships. Some social facilities should be defined on the area according to demographical features of people such as gender, age, income level, occupations, education, and ethnic background. For example, where the number of children and working families is high, the number of playgrounds that children can spend time in mass housing and even the nursery facilities should be designed according to proportional to the population at the settlement. In relation to the project size women, pensioners and young people need to be separately considered and involved to the design with the different sharing and socialization space. Social places such as club houses, youth centers, swimming pools and sunbathing terraces, walking and jogging trails, indoor and outdoor sports fields and recreation areas can be added to mass housing design.

From different standpoint, the cultural behavior and needs should be also considered at designing phase. Some special places can serve to these areas in a manner consistent with the lifestyles, beliefs and income levels of the people living in the mass housing. For instance, places that allow carpet washing, wool washing, small scale farming, etc. which are part of the life in slums can be easily included to the projects in the design phase. Public worship place such as small mosque, cem house, etc., can be designed as a meeting space for site and people with similar beliefs can be gathered closer easily.

Social sustainability can be improved with mobility system of the area. The relation with urban public transport system, a network of bike paths, promote of pedestrian paths can connect the people with public spaces and city centers. It is important for harmonizing and involving to city life. Mobility has also connected with proximity. "In an urban context, proximity is defined by the relationship to accessing and moving in the interdependence between two points. Its meaning should widen and define proximity as a mix of social, territorial, symbolic, and physical aspects. For example, one can utilize the physical proximity while experiencing a set of important social boundaries. This is exemplified in a housing block where one lives close to neighbors but have no social relationship. The opposite situation can occur as well: living in a house with a surrounding garden and having an intense relationship with one's neighbors. Likewise, we can notice the difference between rural or more urbanized areas that affect the model of proximity: density, functional mix, accessibility and the way of defining limits affects the reading of relative distances." [18].

### **5. Evaluation of Social Sustainability at Mass Housing**

A sense of community identity and belonging; tolerance, respect and engagement with people from different cultures, background and beliefs; friendly, co-operative and helpful behavior in neighborhoods; opportunities for cultural, leisure, community, sport and other activities; low levels of crime and anti-social behavior with visible, effective and community-friendly policing; and opportunities for all people to be socially included and have similar life opportunities can be defined as the basic social needs for habitants. The social satisfaction level related with their basic social needs and the transfer of this culture should be evaluated for understanding the social sustainability.

Evaluation methods of social sustainability are varying in respect of place and size of the communities so on the literature the best evaluation indicators had been searched for assessing the urban mass housing studies. On this phase, it had been figured out that Oxford Institute for Sustainable Development works on the urban communities related with their social sustainability and they have developed indicators for this type of communities. The indicators generated by The Oxford Institute for Sustainable Development (OISD) was used in this research to assess the social sustainability and satisfaction of mass housing project. This indicator was generated to designing building blocks for urban communities.

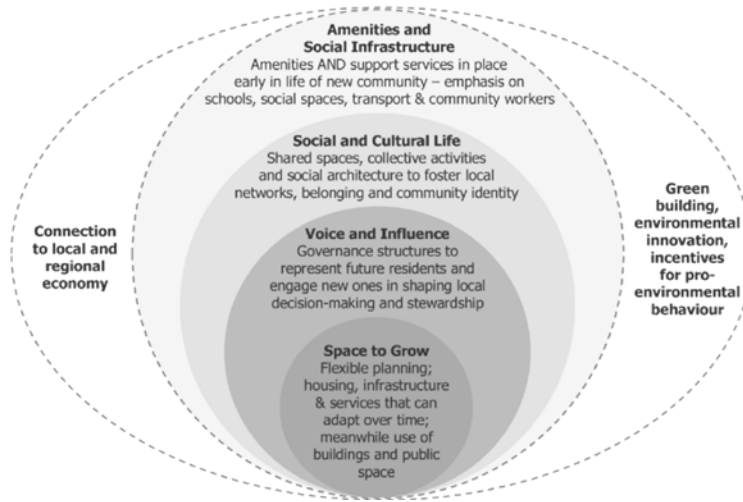


Fig. 1. The Social Sustainability Framework by OISD [19].

Amenities and social infrastructure, social and cultural life networks, community space to grow and participation of decision making has used as indicators for social sustainability which has been presented in figure 1. These indicators represent the social connection possibilities of the site based on the social places, mobility, and proximity on the other hand they show that the life on the site can be adaptable or not for the future generations.

Several of indicators are related with social facilities on the site and those should be decided on the design phase of the area. In Turkey, especially for urban transformation project, site sustainability has never been a subject on the design and instead of this economy or construction quality have been basically taken in consideration. To understand the factual situation of mass housing project, two different mass housing sites have been evaluated with these indicators.

### 6. Case study (Konya –Karatay)

The mass housing projects selected as research study are in Karatay district of Konya which is one of the main district of Konya metropolitan areas. The mass housing projects in this district are produced chiefly by Karatay Municipality in compliance with “Urban Transformation Law”.

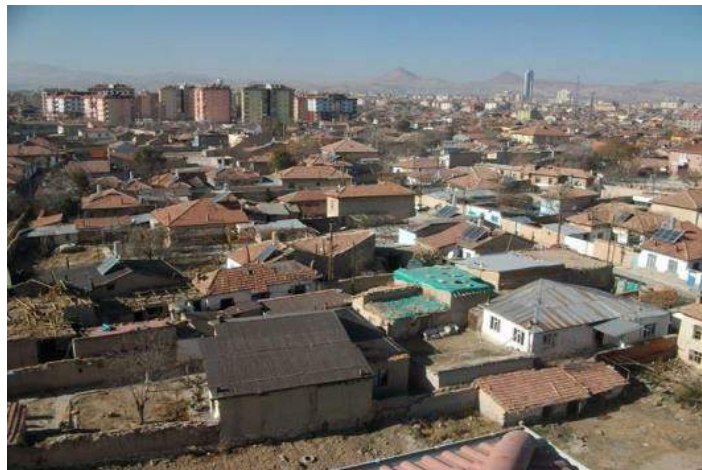


Fig. 2. The photograph of case study area before urban transformation. [20].

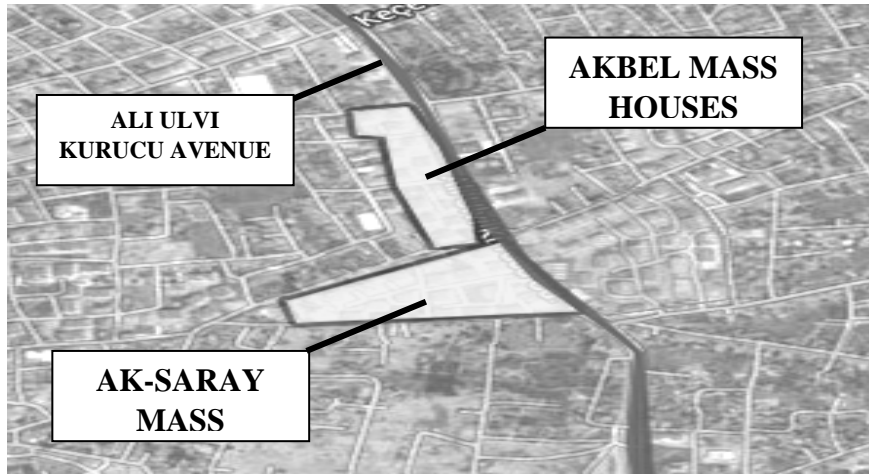


Fig. 3. Location of case study areas [21].

Where the existing houses are decided to be demolished and mass housing is decided to build, the owners of the construct rights are purchased in return for flat. Before mass housing has been built, there were a one-storey slums with gardens in the study area as shown in figure 2. The houses with infrastructure problems were irregular and poor quality on the site.

These two mass housing projects are on one of the main street of the district and they are neighbor settlements. The location of the mass housings has been presented in Figure 3. Aksaray Mass Houses, which was constructed in 2008, were planned as 2 lots, 34 blocks, 444 residences. Akbel Mass Houses, which was constructed in 2005, were planned as 3 lots, 13 blocks, 312 residences.

Ak-saray Mass Houses shown in figure 4(a) are in 2 types, 100-130 m<sup>2</sup>. Houses of 100 m<sup>2</sup> are as 2+1, houses of 130 m<sup>2</sup> are 3+1. The blocks consist of six floors and there are 4 flats at each floor. A parking area is designed for each apartment block. The population of the area is 1488 people. 3+1 apartments are 130 m<sup>2</sup> in Akbel Mass Houses. The blocks consist of six floors and there are 4 flats at each floor. There is not any parking place for each block. The population of the area is 1248 people. The blocks are shown in figure 4(b).



Fig. 4. (a) The photograph of Ak-saray Mass

(b) The photograph of Akbeş Mass Houses

Table 2. Social Sustainability assessment of case study areas.

SOCIAL SUSTAINABILITY INDICATORS		AK-SARAY MASS HOUSES	AKBEL MASS HOUSES	
AMENITIES & SOCIAL INFRASTRUCTURE	Built environment & public space	Early provision of schools, nursery and childcare	-	-
		Early provision of basic community infrastructure – multi-function/flexible spaces with co-located services: shop, community centre, health/wellness provision, green space (temporary provision if permanent not initially feasible)	+	-
		Good transport and communications connections – including public transport and broadband	+	+
		Meanwhile spaces -temporary use of green space, community buildings or housing to meet intermediate needs (e.g. community house instead of a community centre)	+	-
		Low carbon infrastructure that connects to health and wellbeing agendas (e.g. encouraging walking and cycling)	+	-
	Social architectures & supports	Hyper-local information about community services and groups	-	-
		Neighbourhood-based community liaison or community development staff (could be frontline staff co-located in temporary facilities)	-	-
		Collective neighbourhood services combining professional and volunteer skills, either designed in or initiated by residents – e.g. community wireless networks, community generated power, neighbourhood childcare co-ops, group purchasing networks, credit unions	-	-
		Micro-grants to kick start local initiatives	-	-
		Community-owned or managed assets e.g. community shops, food production	-	-
	Social practices	Baby-sitting circles, parent and baby groups, car clubs, lift share schemes, walking school bus, cycle clubs, neighbouring networks	+	+
		Volunteer Community Champions or Neighbourhood Greeters	-	-
		Community gardening, composting, recycling	-	-
		Social health e.g. neighbourhood walking groups, running clubs, cycle buddies	+	-



SOCIAL & CULTURAL LIFE	Built environment & public space	People-friendly layouts e.g. car free areas, speed reductions, eyes on the street, well-lit areas	+	-
		Distinctive architecture/ landscaping to reinforce/ create sense of local identity	+	-
		Public and congregational spaces e.g. open spaces, parks, wide pavements, benches	+	-
		Third spaces (e.g. cafes, pubs, shops), playgrounds and play spaces	+	-
		Connections to neighbouring communities to avoid isolation e.g. pathways and shared public spaces	+	-
		Flexible working spaces to encourage home-working, local enterprise (e.g. spaces in a community centre or café)	-	-
	Social architectures & supports	Time banking – promoting mutual exchange and development of social capital through peer-to-peer time banking or people-to agency time banking	-	-
		Community projects to encourage intergenerational/ inter-group mixing	-	-
		Neighbourhood Charter, Community Design Statement	+	+
		Local rules and norms e.g. Home Zones, car free streets, neighbourhood agreements, local taxes or fundraising	+	+
		Informal local currencies e.g. Local Exchange Trading Systems (LETS)	-	-
	Social practices	Neighbourhood-based groups e.g. Neighbourhood Watch, Residents/Tenants Associations, Pledge bank	+	-
		Inter-generational, cross-cultural events and activities e.g. The Big Lunch	-	-
		Local celebrations – e.g. festivals, street parties, fetes, family days, artists in residence	+	-
		Local oral history projects like Oral History	+	-
Local events – e.g. litter picking, planting, fundraising		-	-	
Neighbouring activities e.g. household network, loanable		+	+	
VOICE & INFLUENCE	Built environment & public space	Community advocate for future residents	-	-
		Community action planning (e.g. Planning for Real, planning charrettes)	-	-
		Identify physical spaces and places residents can influence e.g. design, develop or manage	+	-
		Urban Acupuncture – intensive public consultation on built environment proposals	-	-
		Influencing public service delivery at the neighbourhood level	+	-
	Social architectures & supports	Democratic governance structures e.g. Parish or Neighbourhood Council	+	+
		Formal governance structures e.g. Community Development Trust, neighbourhood management partnership or board, Community Interest Company, Tenant Management Organisations	-	-
		Participatory governance structures e.g. neighbourhood forum, participatory budgeting,	+	+
		Campaigning activities e.g. single issue lobby groups, community organising	-	-
		Devolved or delegated neighbourhood budgets	-	-
		Flexible stewardship and community engagement/ empowerment strategies	-	-
	Social practices	Family days, critical walking, neighbourhood walkabouts, Complaints Choirs	+	+
		Neighbourhood websites and community media e.g., Community Facebook group, Community noticeboard and newsletter	+	-

SPACE TO GROW	Built environment & public space	Flexible and adaptable housing	-	-
		Flexible and adaptable community bases and buildings (e.g. temporary, multi-use buildings)	-	-
		Flexible Master-planning, e.g. enabling participation in planning of the later phases	-	-
	Social arch. & supports	Flexible stewardship strategy – scope for governance structures and actions to change over time to reflect evolving population and needs	-	-
		Social enterprise strategy	-	-
		Community ownership – Community Land Trusts, Development Trusts, asset transfer	-	-
	Social practices	Community gardening, community play spaces	+	-
		Meanwhile use of vacant spaces in the neighbourhood	+	-

Although both projects are produced for municipality, the Akbel Mass Houses don't have any social facilities and green areas. The whole site has been covered with concrete, the distance between blocks are the minimum limits in accordance with construction zoning law. On the other hand, there are social gathering areas between building blocks in Ak-saray Mass Houses. Blocks are surrounded with green zones and only the walking areas are covered with concrete.

When the social sustainability of the two projects are evaluated considering the OISD framework, evaluation is presented in Table 2, Ak-Saray Mass Housing project is more sustainable than the Akbel Mass Housing project. When we look at amenities and social infrastructure of two project, Ak-saray Mass Houses have shop, community centre, health/wellness provision and green space and there is no built environment for social communication in Akbel Mass Houses. Also, social communication and sustainability have been supported with green areas and walking and cycling paths in Ak-saray Mass Houses. There are recreation areas, sport areas, children playgrounds and small mosque in Ak-Saray and moreover all around is green. Although there is plenty of green space left, there is no arranged area where farming can be done. It is not possible to continue similar street life as squatter settlement but Ak—Saray housing project offer a recreation areas suitable for outdoor activities. For young people, children and older people can find specific areas for gathering in this recreation area and also there are well thought-out areas for some cultural activities such as making marriage ceremony or cleaning carpets in Ak-saray Mass Houses. Gardening, composting and recycling are not any subject of them, they are totally bound up with municipality servicing for refuse removal.

Both has not any future to grow or for better sustainable areas. The culture of environmental sustainability or sustainable society has not been improved, people are not care about future generations and they are mainly related with their house unit; its organization and size. In both site, there are over one thousand people living but they have never see themselves as a social community which has a power to shape their life and their future. Beside that people are or have not being educated for collective awareness for sustainability problems and putting in place collective solutions.

According to satisfaction surveys, which are consisting of 50 houses from Akbel Project and 65 houses in Ak-Saray Project; the satisfaction of Akbel is surprisingly higher than Ak-Saray. In this survey, the satisfaction of physical properties of housing, open-green areas, accessibility, comfort conditions, social-neighborhood relations, suitability to user profile were evaluated [21]. There is not any relation between satisfaction level and age, income, or education level of

residents. The satisfaction levels of female participants were lower than male participants related to physical properties of housing and open-green space factors. It is mainly related with people worldview which is considering only daily life or their own self and they don't care about the future or next generations' life and also when their home is nice, in front of the door is not important for them. In Turkey, especially in Anatolian cities, there is no awareness about environment and sustainability so these points are only shaping by predictions and knowledge of designers. But in many developed countries on the design phase, possible users tend to interfere with the mass housing design of these issues related to the place they live their future.

## **7. Conclusion**

Architecture is one of the field is highly effected from the social behavior and the life style of human beings. Especially houses cannot be considered only physical spaces built with walls, it should be the place to evoke the sense of belonging, safekeeping, and socialization. The houses are the important part of the cultural life and social sustainability of houses shows the satisfaction of human social needs and maximizes community values, knowledge, history, traditions, and social networks for next generations.

In order to obtain a sustainable housing stock, we need to develop new perspectives. This research is on the notion of mass housing and how it can be related to aspects of social sustainability. The research helped to investigate the importance of social sustainability at mass housing project which is built in the process of urban transformation. In Turkey, mass housing projects are bearing in mind as a way to overcome the housing problems and sustainability of site has been never thought. In the design phase, with easy solutions such as social facilities, mobility systems, accessibility and functional mix, etc. can be handle better social infrastructure for the project. In design phase of mass housing, some checklist like OISD framework can be used by municipalities or potential users can be educated and trained related with sustainability of the site by municipalities and their participation to process must be ensured.

Architecture is forming the artificial environment which is unimaginable to separate from environment; in other words, it is imperative part of environment. Education of the people related with the artificial environment is important for sustainable futures. Especially the people should be educated about the environmental problems and cultural heritage. It should be begun with their houses, because it is basic unit for their life and sixty percent of built environment consists of residences. Sustainability is a key factor of quality in urban life. Based on two case studies the most obvious problem with current urban renewal practice is that it completely fails to consider the way of life of residents and fails to acknowledge the need to consult local communities in the urban renewal process. It is not can be solved by modernist urban planning approaches and social needs of communities should be taken into account on the design phase of transformation areas.

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## CONCEPTUAL APPROACHES IN DESIGN PROCESS

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### Abstract

People's life experiences, by feelings, thoughts and imagination are changed the perception of reformatting existing trends and make the search for solutions to problems where querying the environment has been continued from the past to present. This action, which can be defined as "designing", is a result of ongoing changes and world order throughout history. Therefore; a variety of methods have been developed in order to achieve a correct result with designing, which have been experienced in theory and practice and many training models have been developed accordingly [1]. The method which is common in such training models is to encourage and improve creativity. In designing process, creativity begins with concept. In order to achieve a new, original and creative design, the first step is to set a starting point as the basis of designing. The concept of design and concept development, which is described as the starting point, is shaped by creating a new perspective and a new perception. Concept development also occurs by interpreting and transforming the images of the differentiating minds depending on their perceptions by directing attention to one or more of the various stimulating objects or events around the designer. Today, with the effect of technology, aesthetic and visual values change our perceptions, causing us to develop a new perception or perceptual selectivity.

An exhibition of design under the title of "Cellular" was organized in the "Design Park, Design and Activity Center" within the scope of the 3rd Istanbul Design Biennial "Creative Neighborhood Program" between 07-14 November 2016 with the name of "Perception and Creativity in Design" by me. By using theoretical approaches, it was argued how the "experiences" that include behaviors and images are handled conceptually in design perception and creativity. This interview has explained the conceptual process of the design exhibition named "Cellular"; and the designer has emphasized that he has synthesized the design process by combining the acquired images and created new imaginative concepts from those. In order to be able to handle objects and events in a wide range, in-depth and with its richness; conceptual approaches in the design process were discussed with the "Cellular" design exhibition, which is a product of a work that will raise awareness from a new point of view, saved from the perceptions created by many objects we have looked at previously. The aim of this study is to examine the relationship between design and concept in order to reveal the foundations reflected in the design process. In addition to this, it is aimed to provide a basis for developing ideas and methods about design training and design process as a result of experiences between the designer and trainer.

**Key Words:** *Design, Concept, Perception, Design Process, Creativity*

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### 1. Introduction

Design is the problem solution activity based on several data, meaning on an informational base. Therefore, no matter whether this is a rational or a heuristic approach; it needs to be embedded into the frame of a knowledge problem [2]. With other words; the achievement of

solution suggestion related the design problem requires definite knowledge contentedness [3]. In this context; also the methods of every designed to explore and develop his/her own creative process depends on the acquisition of this knowledge. Actually, design is a very comprehensive and important process. But what we aim to deal with here within the context of the said process is that design is in its simplest form a creation work. The first step to achieve a new, authentic and creative design is that a starting point constitutes the base for the designing act. The concept phenomenon and concept developing in design, defined as the starting point, are shaped by establishing a new perspective and a new perception.

A person, thinking visual, will try during the research stage to visualize the imagery in his mind with a concept. He/she develops the imagery appearing not very clear and prepares its projection. Here, it's about developing a concept that can be deemed to be very raw or primitive during the development stage and bringing it to a processable level and presenting it. Design starts with a good or bad concept. Just as wrong it is to separate an object as the object and the symbol, so unhealthy it would be to perceive the design except the concept [4].

## **2. Concept in Design**

Conceptualization is giving a meaning; giving a meaning is being able to define. The process of defining cannot always be performed by showing, it requires in some cases explaining, transmitting its development process [5].

The phenomenon of concept in the design process is the approach revealed by the individual by interpreting his/her physical and cultural experiences, personal characteristics and achievements. The phenomenon of concept in question is the reconstruction of the designer during the creation stage by getting to the core of, briefly by abstracting the features able to be starting point of the design via the imagery accumulated in his/her mind as a result of his/her own observations.

According to the data obtained from three works of Kant is concept dealt with from the perspective of meaning (from which known it is correlated with which predicate), function (what is the source, for what it is made) and form (in what the whole is divided into, how it is divided).

### *1.1. Semantic Concepts*

Kant's first work (Critique of Pure Reason); is the theory of cognition, the work about how the objects and events are processed in the mind with their meanings. This category investigates with what the objects are related to, the relation between their meanings and characteristics. The concept of meaning is that what is understood from a word, a phrase and even a behaviour or phenomenon; it bears the meanings of the "object reminded" by these, idea or imagery [6].

### *2.2. Functional Concepts*

Kant's second work, (Critique of Practical Reason), deals with the correlation between function and reason. And the reflection of application, implementation on the mind examines the causality, dependency and their derivatives [7].

This concept category is a category which explains from where what comes and which at the same time queries for which purpose, for whom the design will be made and what it will serve for.

### *2.3. Formal Concepts*

Kant's third work (Critique of Judgement) investigates the relation between moral and reason. This work, which constitutes the disjunction category, is correlated with the form by its distinguishing attribute that constitutes the base for visual perception [8].

Concepts are definitely to be transmitted in two or three dimensions at some point of the designing process and be given a form. In some sense, the form is used for the expression of the meaning during designing. The form is also necessary in order to experience and manage the function.

In a sense, it can be said that a semantic and functional concept will convert into a formal concept at some point. But in some cases may the formal infrastructure take precedence over the semantic infrastructure and also conceptual works completely seeking the form can be conducted. Though these are generally shaped in parallel with each other, it is sometimes possible to think of the form separate from the form in the field of design. In a sense, the form might not express any meaning at the first instance. An association experienced from only the formal perspective may push the designer to get inspired by himself/herself and thus the concept directing the meaning can also be the form [9].

### **3. Abstraction via the Concept**

The harmony of the person with his/her artificial environment can be possible by establishing a biological, physiological and psychological balance through reacting on external physical stimuli (influences). The ability of the person to accord requires primarily that he/she knows, briefly perceives the environment. Human being is a mechanism of perception, cognition and behaviour. Perception is the activity to get information from the environment by means of the senses; cognition is adaptation and understanding of the perceived [10].

Creativity is to develop a new method or idea that provides a solution for a problem. Nigan Bayazit has stated the simple techniques possible to support the creativity as: • Drawing an analogy • Eliminating mental hindrances • Brain storming • Synectic control lists • Morphologic cards [11]. Bayazit also adds that there are hundreds of techniques developed for each of these techniques.

#### *3.1. Perception and Creativity in Design*

Creativity is possible by developing concepts. An idea, a product must be authentic in order to be qualified as creative. And authenticity is possible by developing concepts during the design process. Creativity is an achievement that is incentive, earnable and developable by methods and many training models experienced in theory and practice. Today our aesthetic and visual value perceptions are being changed by also the influence of the technology and results in that we develop a new perception or selectivity at the perception. But our selectivity at the perception gains a meaning with the learned achievements. All works conducted related to selectivity at perception and creativity in the light of semantic, functional and formal concepts constitute a sample that will lighten the development of concepts in design.

I have conducted a discourse on “Perception and Creativity in Design” within the entity of the “Design Park Design and Activity Centre” within the scope of the “Creative Locations Program” of the 3<sup>rd</sup> Istanbul Design Biennale between November 7<sup>th</sup> and 14<sup>th</sup> 2016 related to this issue. During the discourse, it is discussed about theoretical approaches and how perception and creativity is handled in a conceptual perspective in design with regards to the “experiences” containing the behaviours and imageries. It is discussed how creativity could be developed by opening the perception, the relations with the environment, ensuring the exploration of the inner and outer world, providing the perception of the details, always looked at but not seen.

During the discourse are also the conceptual approaches at the design process dealt with and discussed through the products designed by me. Works, that will relief us from the perception created in us by many objects we looked at before in order to handle the objects and events with their entire width, depth and richness and increase the awareness with a new perspective are presented as samples. The infrastructure of the sample designs presented in order to activate the visual thoughts consists of careful looking and focussing on the details. Some of the works in question are provided below:

### 3.2. Sample Works:

#### 3.2.1. Sample 1:

The first example the product of study in both provision of experience, observation in design, by inquiring and finding new forms by the activity of research, perception and explaining the observation over them. In this study the main resource is “perception” as the activity of designing. Looking at our environments in different points of view, searching our architectural history and annotating all that traditional information combining with contemporary vision is the main concept of that performance.

The ceilings of the traditional Turkish houses have a special meaning imposed on as an indicator for the transition to sedentism. The sitting element ENDAM is a design created by referring to the ceiling details of the Emirhocaazade Ahmet Bey Yard House in Safranbolu and that makes a reference to the furniture phenomenon never had in the nomadic life style, (fig:1-2).

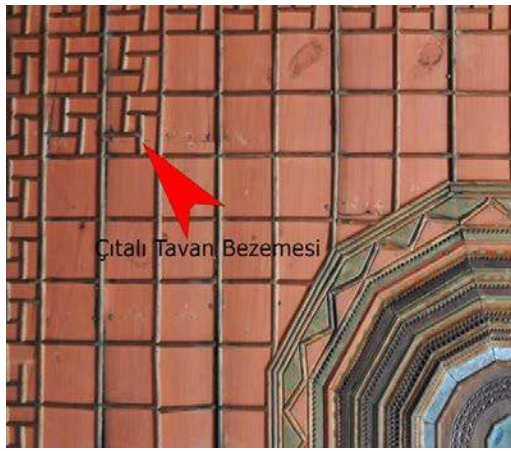


Fig.1: Ceiling Detail of the Emirhocaazade Ahmet Bey House

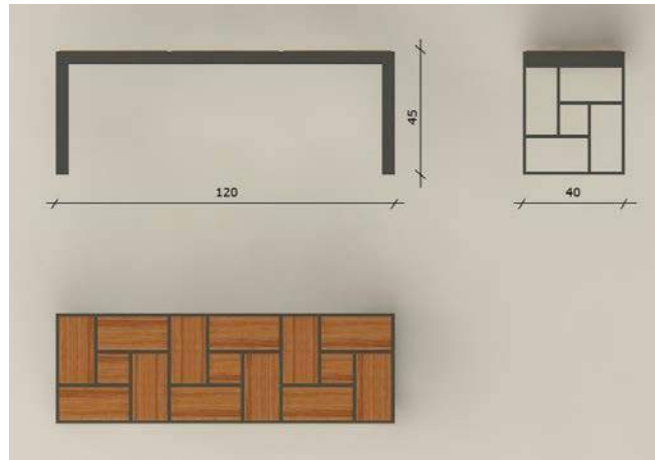


Fig.2 Endam-Bank / Technical

Drawing Photography: Banu Apaydın's Archive – 2012

#### 3.2.2. Sample 2:

The person who thinks more in visual, tries to draw the picture of the image by a concept at brain in the research level. This image which has been getting developed in brain and first comes from abstract to extensional, has combined with extensional item and redesigned at all. Functionality which is at the background gets in important level at the step of developing the concept, coming from abstract to extensional.

This is the sitting element named “Boomerang” designed with the slogan “sit” and “think” when we think of that we make the important decisions of our lives by thinking, setting off from the idea that “life is like a boomerang; you will get back what you give”, (fig. 3-4).





Fig. 3-4: Boomerang – Sitting Element  
3D Modelling 2012, designer: Banu Apaydın

#### 4. “Cellular” Design Exhibition

The design exhibition named “Cellular” opened by me is realized within the entity of the “Design Park Design and Activity Centre” within the scope of the “Creative Locations Program” of the 3<sup>rd</sup> Istanbul Design Biennial between November 7<sup>th</sup> and 14<sup>th</sup> 2016.

##### 4.1. The Conceptual Approach

Design and concept are the elements of a whole, which are fused into each other. The design and creation of an object and the experience thereof is the provision of a statement form by the combination of both our emotionality and the concepts of the visual and the factual in different dimensions [12].

Focussing on the details by the visual thoughts used at designing, have been going further than observing and designing by imagery constitute the base of the resulting products.

Seeing by observing and using the perceived information during problem solving is the key for learning by acquiring visual information. A designer needs to be a good observer

[13]. The selectivity at the perception of an observing person is high, he/she sees the details, distinguishes the details.

Past knowledge and experiences are influential at the approach of the designer to the design process. The story of the emergence of the concept fact of the exhibited designs is as follows: Health is the most important fact for human being. Your viewing perspective on life and your value judgements start to change when you begin to experience health problems. A person experiencing health problems needs to direct his/her perception into different directions. And when you interpret taking these things related to us among those things we perceive with our 5 senses as selectivity at the perception, the perception status of the person having health problems, meaning the perceiving person, changes. In a period where such a situation is faced, it is entered in the endeavour to show the ability to handle objects and events with all their width, depth and richness.

According to Morgan; also imageries are the remaining abstracts of experiences as all thinking forms. Gaudi, who had reflected the inspiration and influence he got from the nature on his design in a clear manner, had childhood in illness and had never been a healthy person. This situation had forced him to live in rural environment for long times. As a sharp observer spirit combined with this process, a person who perceived the nature in an authentic manner resulted without the cultural intermediation based on the past [14].

In brief, past knowledge and experiences are influential at the approach of the designer to the design process. In this context, the designs at the exhibition with the title “Cellular” are the designs realized within the context of semantic, functional and formal concept by the inspiration of the cells photographed under the microscope with the effect of the past experiences of the designer.

#### 4.2. Selected Designs

The designs presented at the exhibition are created by imagery and visual thoughts, meaning by setting of from thinking towards establishing the concept. In this context, the initial ideas, which were abstract, sketch works are conducted in order to materialize the initial forms revived in mind. Along with the sketch works, different design solutions are searched by adapting, changing, converting and reviewing the semantic, functional and formal concepts and in the last stage are the production techniques, colours, shapes etc. of the designs evaluated.

Different cells are examined, sketch works are conducted and 10 cell forms among these are selected for the “Cellular” design exhibition. The selected forms are studied and the designs, for which the sketches were prepared, are modelled with a 3D visualization program in computer environment. Designs that are not in production process, will be taken into evaluation in order to be studied on later. The exhibition process is conducted together with the photography of the cell, selected as concept, under the microscope, the sketches drawn by the inspiration from the photography and its 3D modelling. It is aimed at the exhibition to transmit the audience the conceptual approach during the design process.

##### 4.2.1. Sample 1:

Leuco-Sit sitting element is a sitting element designed being inspired from the white blood cells. It is evaluated by taking into consideration the round form effect of the blood cell and the ligaments on the image, (fig. 5).

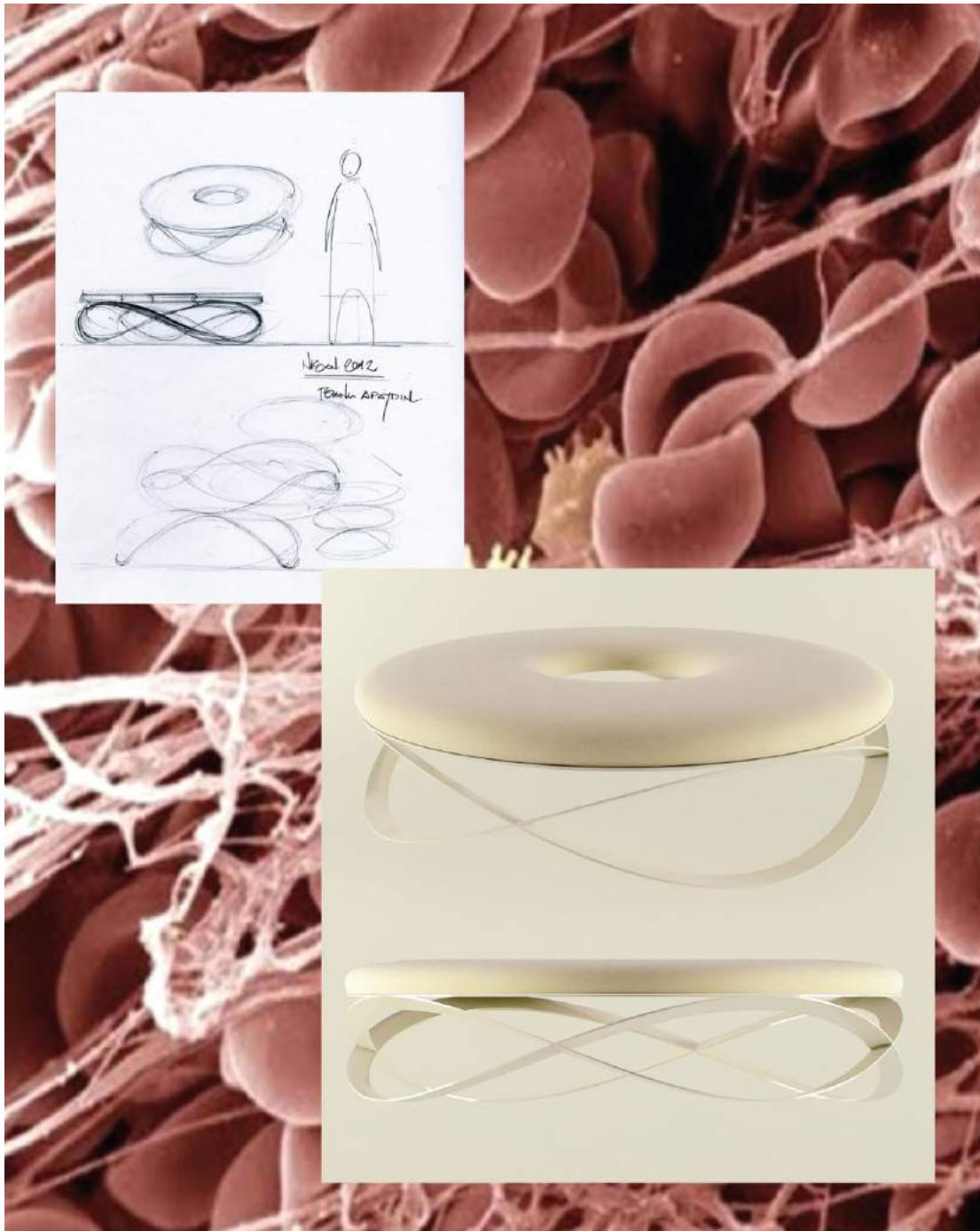


Fig. 5: Leuco-Sit – Sitting Element / 2012, designed by Banu Apaydın

4.2.2. Sample 2:

WBC-Negative trestle is designed being inspired from the negative of the image of the leucocytes of white blood cell taken under the microscope. The trestle design, resulted by the 3 dimensional creations of the interwoven rings, will also be evaluated as a table during the production process, (fig. 6).



Fig. 6: WBC – Negative: Trestle / 2012, designed by Banu Apaydın

#### 4.2.3. Sample 3:

B-Cell is an illumination elements designed by the inspiration of the form structure of the red blood cell erythrocyte on the images taken under a microscope. The illumination element is designed being inspired from the effect of the leucocytes under the microscope as if they were hanging in the air and a formal concept approach setting off from the fluidity of blood, (fig.7).



Fig. 7: B-Cell / Illumination Element 3D Modelling 2012, Production Date 2015, Designer: Banu Apaydın

#### 4.2.4. Images of the Exhibition

An exhibition of design under the title of "Cellular" was organized in the "Design Park, Design and Activity Center" within the scope of the 3rd Istanbul Design Biennial "Creative Neighborhood Program" between 07-14 November 2016 with the name of "Perception and Creativity in Design" by me, (fig. 8).



Fig.8: "Cellular" design exhibition - Design Park Design and Activity Centre - November 7<sup>th</sup> and 14<sup>th</sup> 2016

By using theoretical approaches, it was argued how the "experiences" that include behaviors and images are handled conceptually in design perception and creativity, (fig.9).



Fig. 9: discourse on "Perception and Creativity in Design" within the entity of the "Design Park Design and Activity Centre" within the scope of the "Creative Locations Program" of the 3<sup>rd</sup> Istanbul Design Biennale between November 7<sup>th</sup> and 14<sup>th</sup> 2016

## 5. Conclusion:

Designing activity is a result of the changes held on throughout the history and the world order. There are diverse works conducted, methods developed and these methods are experienced in theory and practice and many training models are developed in order to achieve a correct result with the designing activity. A starting point constitutes at the training models in question the base for achieving new, authentic and a creative design. The aim at the works conducted with regards to the concept phenomenon and concept development is to encourage and develop the creativity at designing. The development of concepts is able to be realized by the interpretation and conversion of the imageries changed in the mind depending on the perceptions by directing the attention on one or more of the many stimulators and event in the environment of the designer.

Achieving a character based on a single imagery, idea or emotion and conceiving the whole design constitutes the conceptual approach. The image, related to the design established in the mind and constituted by “one idea” or “a series of ideas” from the beginning until the least detail reveals in a plenary integrity. As it is the case in all other creation branches; the existence of a repeating, dominant, typical characteristic will ensure the development of the “concept” in interior spaces [15].

The “Cellular” exhibition realized in this context is the product of a work conducted on semantic, functional and formal concepts. At the work are design problems, achieved imageries synthesized by processes like selecting, combining and converting and thus new forms are designed. At the design process, where associations are made with past experiences and events, the visual borders in the mind are challenged and it is contributed to the concept development statement in design when performing examinations and synthesis at the conceptual approach. The designs created by experiencing in the context of a designer-educator are such to constitute a sample for the conceptual approach in design. The exhibition, where the designs realized with a conceptual approach met the audience and user, transmits the relation between the design and the concept and achieved is purpose to be a guiding light for new generation designers on developing ideas and methods.

Courage, continuous research, trying, looking critical and to perform new propositions are required in order to develop the creativity with the phenomenon concept in design. Our perception towards innovations and facts needs to be very open when it is about creativity in design. As stated by Corbusier, “creativity is a patient research”. Life changes with creativity and creativity in design is possible with a conceptual approach. Therefore, the task that falls on persons with the identity of a designer-educator for the development of creativity is to encourage new generations to make observations and research, ensuring their versatile thinking and force them into a creative process.

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## A SUSTAINABLE APPROACH TO REUSE OF INDUSTRIAL HERITAGE

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### **Abstract**

During the second half of the last century, industry has undergone drastic changes with the effects of new production technologies and consumption habits. In many urban and residential areas, a considerable part of the industrial areas that were originally centrally located became disfunctional and abandoned because of the mentioned changes. These industrial areas and structures that have lost their function have been destroyed in the late 20th century, abandoned in ruins, or used for housing, offices, museums, tourist attractions, have been reused by being adapted for new functions. In this study, it is aimed to examine the pre-reuse processes and contribute to the creation of a social sustainable model for the reuse of structures and sites that are inherited by the industry, to contribute to the solution of the problems of reuse of the industrial heritage. The main objective would be to reveal the starting social context of each examined industrial area and create a frame for future proper renewal projects.

The concepts of culture, heritage and industry will be examined in the context of the relationship, contradictions and partnerships between them, with the emergence and development phases of the industry and their different aspects. The conceptual background of social sustainability, including basic needs and socio-cultural-focused approaches, will be indicated by examining successful adaptive re-use examples from the world, the aim is to put forward a social sustainable conceptual framework that includes the main criteria in a way that can guide new designs in the light of positive and negative applications in reuse.

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**Key Words:** *urban transformation; industrial heritage; adaptive re-use; sustainability; social sustainability*

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### **1. Introduction**

The concept of historic conservation emerges today as a tendency to increase its significance throughout the world with different forms of practice. As in other fields the “old”, if bearing an importance of structure, space, especially symbolical or aesthetical significance, have become the most recognized and visited places all over the world for successful practices. With developing technologies and standards and changing lifestyles, even if bearing oppositions on field of conservation for reasons such as age, structure and function, it is of great importance to preserve the historical buildings that are one of the most concrete indicators of our cultural heritage.

Especially since the second half of the last century, adaptive reuse, emerges as a critical tool, supporting conservation through evaluating the structures and urban spaces which remained ineffective. Additionally, it has become one of the most outstanding practices in the context of sustainability that has become a necessity in every discipline nowadays with its economic, ecological and social dimensions. It is supporting the economical sustainability, by assessing

the existing building density and keep the buildings until their life cycle completed; and the ecological sustainability by preventing new constructions and thus ecological footprints that is one of the most important reasons of environmental problems.

These structures, which result in the re-activation of abandoned or depreciated structures, become the counterpart in the field of social sustainability by taking on the role of bringing vitality to the surrounding area and transferring past traces to the future.

The relationship between the adaptive reuse practices -as referred above in general terms- and sustainability is going to be examined through social sustainability principles such as culture, identity, inheritance, participation and conservation. The aim of this study is to contribute to applications that will result in quality urban environments. Thus, the very broad range of adaptive reuse applications is limited to industrial structures and urban areas that emerge from the industry. Primarily, the concepts of inheritance and industry are discussed and these concepts are examined in the context of their contradictions and their partnerships. Then, the examples of Minnesota Minneapolis Historic Mill District and Boston Naval Shipyard have been examined in detail, regarding their importance of pre-implementation processes and approaches to inheritance. In the conclusion of the study, some suggestions have been developed for pre-conversion processes for adaptive reuse applications.

## **2. Heritage and Industry**

Throughout the last two centuries, societies have begun to foster a social interest nationally, for material assets from the past, and not only the personal things that represent the memories. In this process, which started in the late 19th century, with inventory listing of structures deemed valuable in terms of national historical perspective especially in Europe, age, beauty and historical importance were the three dominant criteria. Over the years, the process has evolved from inventory to protection and legal tools have begun to be created. The prior legislation did not have a strong influence on the fate of the listed buildings, but rather bear some implementations at the initiative of landowners and voluntary initiatives. Beside factors as growing cities, increasing population and vehicle use, the World War II has led to the spread and importance of debates on historical heritage and conservation issues. After World War II, approaches to historic built environment have begun to show some change and the scope of the concept of inheritance has expanded. Large, magnificent and monumental buildings as well as small and ordinary buildings are included in the scope. Thus, different types of buildings, various machines and vehicles are being protected under the name of heritage. [1]

Towards the mid-1900s, when the revitalization of industrial areas came into question, an increase in the consciousness of the society and the political environment in the western countries of the period led to react against the destruction of these areas and to protect industrial structures and areas by inheritance and use with new functions. But there is a contradiction between the concepts of industry which is a symbol of modern societies, and culture and heritage. While industrial reminders symbolize poverty and change, cultural heritage has characteristics of authenticity, trust and invariance. Despite all these contrasts, how has industry and heritage concepts come to be known together? How and by whom were industry structures that symbolize regulation with evolving and changing technology argued to be a heritage crop against the same scheme? [1]

To search for answers to these questions, it is useful to look at the effects of industrial revolutions on these areas. As regards cultural heritage, while the first industrial revolution created interest in agricultural environments, the second industrial revolution in the early 20th century shifted the interest to the old/first industrial history which contradicts with the modern industry of that time. The rise of professional and public interest in industrial areas as historical icons has led to a comprehensive understanding of heritage, accompanied by the third industrial revolution. Many industrial sites that have entered UNESCO's World Heritage List have increased their national prestige, found financial resources, and are under the influx of tourists.

This trend has sometimes resulted in the inheritance being regarded as an economic resource and reflected in practice.

In the case of re-use, certain common approaches are observed in the solution process and implementation, regardless of country or region, although different solutions for each area that is transformed occur depending on their geographical, economic and social characteristics. Urban areas that have collapsed with visible physical transformation, gain new meanings and values with new functions and users. It is often noted that efforts are being shown to transfer the ongoing meanings of the past, such as factory chests, production lines, walls and machine remnants, which have remained from the times with these industrial functions. However, these efforts are sometimes limited on a superficial basis, and the dark side of the industry is covered and ignored, such as poverty, poor working conditions, and the order of destroying individuality. For this reason, these symbols of the old times turn into objects supporting the new, visually appealing scheme created with new designs and functions, and cannot fulfill their task of representing the old industrial environment to be understood. Eliminating these negatives from adaptive reuse implementations is only possible with handling pre-transformation processes in line with social sustainability principles, considering public interest and purification of heritage conservation from approaches which are “sacrificing the content over the form”. [2]

### 3. Minnesota Minneapolis Historic Mill District and Boston Naval Shipyard

#### 3.1. Minnesota Minneapolis Historic Mill District

Northern forests of Minnesota formed a good source for timber industry in 1800s and also grain was being produced in the neighborhood by the time. Former sawmills and flour mills were built in 1820s and Mississippi River started to be used as a power plant for timber and grain production together with St. Anthony Fall beginning from 1850s. While timber production took place mainly until 1882, with the establishment of hydro-electric power plant, the district became a world leader in flour production for about 50 years. Changes in transportation and industry ended up with the distancing of production from the river and the district became abandoned. [3]



Fig. 1. (a) Washburn A 1991; (b) Mill City Museum 2003 [4]

Hence the industry left the district in 1950s, the arguments mainly focused on the demolition of historical industrial buildings and construction of contemporary 20<sup>th</sup> century buildings in the district. Within a short time, discussions shifted from demolition to adaptive reuse of historical buildings and newly constructed ones. City Council expropriated most of the riverside lands in this context and Urban Design Associates (UDA), commissioned by Minneapolis Community Development Agency (MCDA) developed a master plan for the district. [5]

Foremost goals of the master plan are; revitalize the district by forming housing zones and attract the workforce to the zone to provide the reconnection of the district to the Minneapolis city center. Consultants from various disciplines working with the team responsible for the industrial areas carried out the participatory planning process. Planning process, made up of three day design sessions and discussions with citizens, municipality representatives and other shareholders, resulted in a range of urban desing ideas and two alternatives for Historic Mill

District. Master plan come up with enlarging the Historic Mill District to cover the entire industrial area, not only to preserve the cultural heritage, but also to benefit from its historical character to enhance the district. Urban Design Associates (UDA) conducted focus group meetings and interviews including several hundred citizens. All participants were asked about the favourable qualities and challenges of the riverside and their opinions related to the fortune of the district. [6]

The district has a core region consisting of historical buildings that authenticate the industrial heritage of Minneapolis. Buildings as the reminders of hydroelectric power, milling and railway roots of the district are inside the boundaries of revitalization plan. Mill buildings and the archeological fields form the image and character of the new settlement as they generate the critical part of district history. Adaptive reuse of the existing abandoned buildings is prioritized and new building designs are to be respectful to the scale, architecture and materials of these historical heritage. Urban design guidelines have been prepared for the new buildings. According to the master plan, several projects were carried out and the progress in the district continued through revised master plans. 2025 city plan is already being developed in order to keep up with change. [6]



Fig. 2. (a) Mill Ruins Park before adaptive reuse ; (b) Mill Ruins Park after adaptive reuse [7]

Historic Mill District example reveals the importance of pre-reuse processes in the implementations of successful adaptive reuse. Interdisciplinary study and the planning process that provides and encourages the participation of all shareholders and citizens particularly bring up user-oriented approach. An integrated study, which covers the entire district avoiding the adaptive reuse of the industrial buildings separate from the environment it is in, was conducted. This approach has not only functionally resulted in favor of public but also provided a visual integrity. Mill City Museum and Mill Ruins Park in the district are of great importance in terms of reflecting the traces of the history. Planning for the future decade indicates that the district is accommodating.

### 3.2. Boston Naval Shipyard

Adaptive reuse of the historic Boston Naval Shipyard as 53-hectare mixed-use Charlestown Harbor is a successful example of how mixed-use and heritage conservation stand side by side and support each other.

The Boston Shipyard was founded by the Massachusetts Parliament in June 1800. The district became the most important naval facility in both world wars. 141 ships were built in the World War II and more than 50.000 people were employed in 1943. The shipyard was also a site of technical innovations. Daniel Treadwell's spinning and twisting machinery in the Ropewalk was state of the art in the 19th century, while two shipyard employees invented the 'Die Lock' chain making process in 1926. Following this latter innovation, all the giant anchor chains for the US Navy were manufactured there. After the World War II, the volume of work fell off as the Navy Yard's tight layout and small buildings were inadequate to maintain the huge ships of the modern US navy and the shipyard closed in 1974. Ropewalk building ran for 400 m. along the site's landward boundary. It provided rope to the shipyard until the operation stopped in 1955. Alexander Parris, one of Boston's most important architects, has designed a few structures, including the Ropewalk building. These buildings and cradles are usually produced from granite. Between 1900-1920, 10 more brick buildings were constructed at the site. [8]

Adaptive reuse of the shipyard was delegated to BRA, which is the most experienced local planning and development agency. BRA started to work on the possible adaptive reuse alternatives. It was determined that the site is convenient for a mixed-use consisting of dwellings, industry and historical heritage. In this pre-reuse process, ideas were based on providing employment to 5000 people that were vacated by the closure of the shipyard. Mixed-use approach revealed that buildings of high quality and historical heritage concentrated on a particular part of the site. Current state enabled to separate the site in four regions for conservation, destruction and reuse. National Historic Park was suggested at one end of the site and USS Constitution ship was the most specific piece of this park. USS Constitution is the oldest active ship of the US Navy and it is also the first vessel to use the No. 1 cradle of the shipyard. [8]

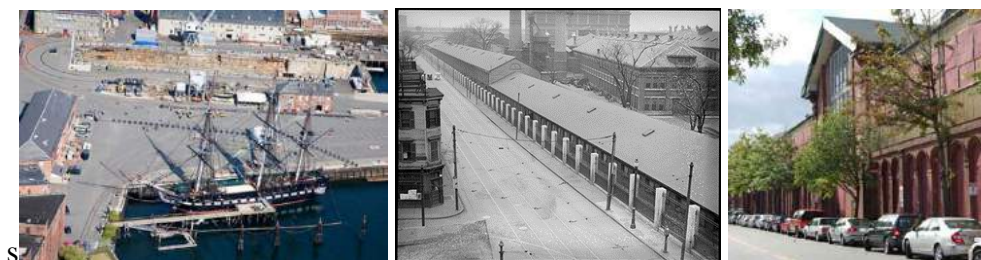


Fig. 3. (a) USS Constitution; (b) Ropewalk building; (c) Chain Forge building [9-10]

The existence of important buildings in terms of history and architecture has significantly affected the design principles for the shipyard. The principles laid down related to the new development in the region did not have any restriction except the height limit of 10 m. Instead they focused on the reuse and rehabilitation of the buildings in Historic Monument District. BRA conducted a two-year study to determine the current state of the buildings. The draft principles have been negotiated with officials from the Interior Design Department that was responsible for the protection of the integrity of historical assets. Only two basic issues have been encountered. First one was the 400 m. long Ropewalk building, which has difficulties in adaptive reuse due to the fact that the structure has only one gate on each end. Second one was the Chain Forge building, which is valuable due to the invention and production of chain making process although the building itself does not have an architectural significance. Interior Design Department, claimed to keep the machine park, which covered the majority of the building's ground floor. BRA also agreed on preserving these two buildings but nobody has been able to come up with an idea about the new functions for a long time. Reuse project of Ropewalk as housing units was still in the implementation phase in 2016.

Adaptive reuse of Boston Naval Shipyard points out the importance of historical heritage approach not only building-based but also covering production methods, equipments and materials. Preserving Chain Forge Building with all the equipments and machine park gives an idea about past production methods and make sense of why the building is valuable. In a similar manner, efforts on preserving Ropewalk building with its original form is an approach beyond formalism while transferring traces of old to the next generations. Besides, the effectiveness of criteria related to basic social issues such as employment on reuse decisions is important in sense of association with local people. Conflicts on the usage of public spaces arised during reuse implementations and it extended the duration. The fact that the community is so influential about such a valuable site, which depends on prior economical and political factors, proves this reuse project to be a suitable one in terms of social sustainability principles.

#### **4. Conclusion**

Social sustainability concept, which is the third dimension of sustainability with ecologic and economic dimensions, has two main approaches as basic needs oriented and socio-cultural oriented. These approaches do not have opposite and contrasting criteria with each other, rather they have complementary and supportive principles. Intentions that mostly focused on basic needs initially replaced by the sociological, psychological and cultural oriented approaches as the awareness about the effects of these intangible issues on society increased. The role of these socio-cultural issues can be observable in the places that the community members live together

from neighborhood to the urban scale. When studies on social sustainability are examined in general, it seems that traditional issues such as equality, poverty reduction and livelihood have begun to be replaced by more intangible concepts such as identity, sense of space, belonging, cultural heritage and benefits of social networks in recent years. This manner does not diminish the importance of basic needs, but also includes the socio-cultural issues, providing different dimensions of social sustainability to come into question. [11]

In pre-adaptive reuse processes, all dimensions of social sustainability principles, together with economic and environmental issues, bring about more successful urban environments. As can be seen in the examples analyzed in this study, consideration of criteria such as social consensus provided by participation, public place usage, employment, sustainability of heritage, while taking decisions related particularly to the places and buildings that witnessed the history, technological developments, the culture and the way of life of the community, resulted in more embraced, efficiently used and lively places. Based on this, it is desirable to emphasize some social sustainability criteria for adaptive reuse applications. Adaptive reuse practices will vary according to the climatic, cultural, economic characteristics of the geographical region to which each building belongs. Thus, it is not possible to form a general framework for applications, but it is possible to develop methods based on certain criteria, independent of all these above features.

These criteria can be mainly addressed under the following headings:

- Employment
- Public space usage
- Participation
- Interdisciplinary cooperation
- Sustainability of heritage traces

Employment is one of the most important criteria particularly for the reuse of industrial buildings. Decreased employment as a result of the decline in production will have to be balanced with new functions in the reused areas.

Public space usage is one of the priority issues in the practices on which the public interest is based. In some applications it is observed that even existing public spaces under the name of rehabilitation and gentrification are usurped. Contrarily, even if private ownershiped, while discussing what to do with the celebrated places in new conditions it is inevitable to create public places.

Participation argues that all groups with place attachment should have a voice in the usage of that place. Participation of all the shareholders in design process, transparency in planning and open design strategies can be listed under this heading.

Interdisciplinary cooperation is also inevitable due to the fact that industrial buildings are often located within a certain industrial zone. The necessity of making many decisions from urban scale to room scale for holistic planning requires the cooperation of many people from different areas of expertise. The teams for planning, design and implementation should be constituted in this spirit.

Sustainability of heritage traces involves practices that go beyond the concept of preserving or restoring the formal characteristics of buildings or spaces. Industrial buildings represent the technology and way of life of a certain period by means of production methods, materials, working conditions and neighborhood relations. In new functions, transferring the traces of the inheritance with practices that reflect these characteristics of the period will prevent formal approaches.

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## REVISITING OTTOMAN ARCHITECTURAL WRITINGS: THOUGHTS ON OTHER FORMS OF KNOWLEDGE ON ARCHITECTURE

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### Abstract

This paper is part of a research work which aims to lay the epistemological grounds of architectural writings of the Ottoman and early Republican periods, blamed of not creating any theoretical attempt within the field of architecture. The basic argument of the research is that there is the possibility of different epistemologies for understanding the knowledge of architecture and different ways of knowing in different parts of the world, which may in turn enhance the development of other forms of knowledge and new ways of knowing within the field of architecture.

Conventionally, it is believed that knowledge sits in the brain and can be understood independent of the outside world, and has representative characteristics. Yet, with the development of new approaches to the thought processes, classical AI theories have been replaced by more complex theories which include both the body -embodied cognition- as a means of knowing and the environment -situated cognition- which the mind interacts with; and non-representative or other forms of representation of knowledge have been proposed. Moreover, knowledge and knowing are not identified with merely rational processes; sensations, dreams, imaginations, myths, and other ways of knowing also exist, and they are considered as different ways of knowing and sum up to what we call knowledge.

The motivation of this paper comes from two basic sources; one is interest in the non-representative or other than language representative qualities of architectural knowledge, and the other is a curiosity for different ways of knowing. When one becomes interested in those non-representative or non-linguistic characteristics, other sources of knowledge become a point of attention. And how this knowledge -which is definitely not explicit- is acquired, becomes another concern. Ottoman texts related to architecture, can be interpreted in the light of these two instruments. Object oriented and language driven knowledge of architectural objects can be replaced by knowledge of existences, which cannot be represented but experienced, e.g. *maqams* and music; or an abstract/symbolic representation of these existences in geometry or with numbers. These would in turn, refer to “lived-in” and “thought of” models of knowing. We will discuss these two ways of learning and knowing through the dichotomy that Mehmed Aga experiences, first by musical education, then by being told that he should learn geometry, which we are informed about by *Risale-i Mimariyye*. [1]

We will base our discussion on propositions of *Tasawwuf* (mysticism) philosophers, e.g. Kindî and Farabî. [2] Kindî’s ontology explains the circular motion of spheres that generate a specific music, in other words, non-conceptual melodic units instead of a conceptual language being the



base of a philosophical thought. The other representative yet not conceptual language of thought to our interest would be geometry. These two tools of thought and experience will be discussed as a potential source for other forms of knowledge and knowing in architecture.

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**Key Words:** *knowledge of architecture; tacit knowledge; harmony of the spheres (music); geometry as abstract symbolization; Ottoman architectural texts.*

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## **1. Introduction: on knowledge**

In this paper we shall concentrate on a discussion which deals with different forms of knowledge and different ways of knowing; with special emphasis on laying the epistemological grounds for architectural writings of the Ottoman, blamed of not creating any theoretical attempt within the field of architecture.

Before proceeding with special emphasis on that of Ottoman writings and of different ontologies or possible forms of knowledge related to those; a short introduction to what we understand from “knowledge” needs to be clarified. Knowledge –as well as theory- has been subjugated to one form of knowledge, and that is scientific knowledge. Habermas discusses the disfavoring of various forms of knowledge by limiting theoretical efforts only with scientific knowledge. [3] Husserl has started to discuss the crisis of this very civilization (specifically the European mankind), when he was asked to lecture on “the mission of philosophy in our time”. [4] He is concerned not with the crisis of the sciences, but with their crisis as science. The problematic could be defined by pointing out to science departing from philosophy, and the favoring of science as a practical interest instead of a ground for ideas and an enlightening endeavor. Lakoff similarly discusses the abandonment of experiential aspects of human psychology by objectivist -either, nativist (born as) or empiricist (learn from)- theories, and introduces natural categorization (prototype theory) as a competing theory. [5] Dreyfus talks about the separation of human sciences from philosophy, and problems arising from not being able to practice as natural sciences do. [6]

What does it really mean, that is, philosophy departing from science? By philosophy being departed from science, science becomes a practically oriented and assumed to be a value free domain, reducing mankind to a one-dimensional stance, eliminating his other existences; and i.e. the knowledge of these existences. Here now, we shall introduce our concern, to search for a form –or other forms- of knowledge which consider man as a holistic being, and which question, the disfavoring of various forms of knowledge, the abandonment of experiential aspects of human psychology, and the separation of sciences from philosophy.

## **2. Representation vs. Non-Representation**

We know that there may be different forms of representing what exists in reality, and that this forms the basis of our knowledge. There are also theories that believe in the conception of the world in a non-representative format and propose that it is experienced directly without an interface, which relates our minds to the outer world; as somewhat seen in the models proposed by the naturalistic approach. Representing requires codification and hence, abstraction. Non-representing depends on experience and experiential qualities. This discussion of mind vs. body, logic vs. experiences, or consciousness vs. consciousness, has a long history. While the classical emphasis starts with Plato, by separating the ideal and the ephemeral worlds, and physical bodies not being true existences; dualistic discussions later separated substance into matter and mind (Descartes), hence man into body and mind, where the mind is seen as a non-physical and non-spatial substance. Descartes has identified the mind with consciousness and self-awareness; which follows that the knowledge of the mind to be conscious and the knowledge of the other as not. [7]

Ramsey has discussed that psychological research is “moving in a non-representational direction”. Research in AI has also extended its limits to studies of the mind related to body (embodied cognition) and environment (situated, embedded, or extended cognition). [8] Lakoff & Johnson have pointed out that, mind is something that is not distinct from our body since it is part of that body; thinking is mostly unconscious; abstract concepts are mostly metaphorical.

[9] Once the body and the experiential phenomena is included, then non-representation becomes a decisive issue. Similarly, within the architectural field, use of the body (muscles, e.g. for sketching) and the activity of designing involves non-representativeness. Discussions on procedural knowledge, the knowledge of doing or performing –originally labeled as praxis (theory embodied in action), or poiesis (making)- draws our attention to one kind of knowledge which is non-representable, and moreover can be considered as tacit. Dreyfus has appropriated two concepts from Merleau-Ponty; one is the “intentional arc”, and the other is the “maximal grip”. [10] Intentional arc is the close relationship of the actor with the world around him to reach an equilibrium; skill is not related to mental representation; it instead includes capacities or ability to respond to those stimuli which surround us. Maximal grip is then, reaching the optimal gestalt when responding to these stimuli.

Using our body generates another kind of knowledge which is non-representational. We will bring up this issue as a form of tacit knowledge in the following parts of this paper. Moreover, although representative, there are other forms of knowledge which are not language laden, and has tacit characteristics; we will be discussing these forms of knowledge in the section that follows.

### **3. Linguistic vs. Non-Linguistic Knowledge**

We will start this section with a quote from Polanyi “we can know more than we can tell”, to deepen our discussion on tacit knowledge. [11] An example to this is, assume that a mime artist is staging a man who is wandering his dog and the dog is scratching the ground. The only thing that people witness is the artist’s extended and shaking arm; yet, what all ‘see’ is a dog scratching the ground and his owner wandering him.

Some use the term “tacit” to characterize exchanges that are carried out without linguistic representations. [12] According to that, tacit knowledge is an exchange (interaction) between the individual and the surrounding environment that is not articulated and that arises without an explicit attempt to link environmental stimuli to phenomenological experience. Wagner and Stenberg define tacit knowledge as “knowledge that usually is not openly expressed or stated, that is not directly taught or spoken about, in contrast to knowledge directly taught”. [13] According to them, tacit knowledge is not necessarily “inaccessible to conscious awareness, unspeakable, or unteachable, but merely that is not taught directly to most of us” [13].

In terms of consciousness and articulation, tacit knowledge can also be seen as a concept that opposes explicit knowledge. The distinction between tacit knowledge and explicit knowledge has sometimes been expressed in terms of knowing-how and knowing-that, respectively, or in terms of a corresponding distinction between embodied knowledge and theoretical knowledge.

Neuweg distinguishes three different meanings associated with the term “tacit”; the first one defines an action that takes place without deliberation that is, doing something intelligently in an intuitive manner. [14] This is the most common meaning associated with the term tacit, and it typically comes hand in hand with the concept of “expertise.” Expert knowledge is usually connected with tacit-based decision making. This type of knowledge is not usually articulated through words, or sets of rules. The second involves a residue left unsaid by (linguistic) articulation. Essentially, what Polanyi phrases as “we can know more than we can tell”. Third, is a societal knowledge (mostly referred as ‘common sense’) that cannot be accessed by a third person point of view.

Besides its meanings, Neuweg also differentiates between three different types of tacit knowledge:

1. Tacit knowing-how: when we refer to the “art of doing,” such as cooking, teaching, managing, etc., we are referring to a “tacit knowing-how.” This is a tacit dimension of expertise that is more than, or different from, the application of a theory.

2. Tacit knowing-that: this would be the tacit manner in which we know how things should or should not be in the world. “This is ‘knowledge taken for granted’; knowledge based on our cognitive background, interpretative frameworks, viewpoints, paradigms, mental models and beliefs.”

3. Tacit roots of explicit knowledge: This category, is not a category in and of itself, but is a statement that emphasizes the extensive character of tacit knowledge in cognitive processes. “All knowledge is fundamentally tacit, because deprived of their tacit coefficients, all spoken or written words would be meaningless; explicit knowledge must rely on being tacitly understood and applied to be knowledge at all”. [14]

Architectural knowledge has predominantly been defined as tacit. Non-analytical forms of knowledge have been a precious asset for architectural designers. Many processes in architectural (and other forms of) design occur subconsciously based on powerful internal systems of logic that we do not fully understand. However, many architects and academics are not willing to openly accept that their rationale is not purely based on analytical modes of thinking and decision-making. It is, however, understandable why non-analytical thinking has been so consistently ill-fated throughout the history of architecture (or science). There has been a consensus that analytic ways of thinking and decision-making are not just better, but the right way to proceed. Once we accept the analytical/non-analytical (conscious/non-conscious; representative/non-representative; linguistic/non-linguistic) dichotomy or as it is often called, the dual model of thought, we can pursue other forms and sources of knowledge and other ways of acquainting with them and knowing them.

Non-linguistic forms of knowledge are not merely non-representative; mathematical logic brings about forms of representation which are non-linguistic, yet can be symbolically handled. We shall be discussing these forms in the following sections, relating them to music and geometry –forms of knowledge deliberated in Islamic philosophy. Kurth says that Nietzsche directly, and Derrida indirectly have proposed that music is preexistent of language; yet, music is defeated by the centrality and overriding of speech (logos). [15] Further, mythos has been ruled out by logos (Plato); although it was the one and the same thing in previous Antique philosophers. [16] Cobussen refers to Plato and explains how he discredits writing:

“Plato understood writing as a sign of a sign, that is, a sign of the spoken word that, in turn, is the sign of a meaning that is expressed. Writing is therefore a two-step representation. It is in the service of logos as the living speech act. Writing is an exteriority that is subsequently added to the inner purity of the concept, the essence, the signified, the soul, the spirit. Since writing can only repeat, it does not add anything essential and could therefore be considered unnecessary. Nevertheless, Plato presents writing as dangerous and threatening. Writing is dangerous because it kills the living meaning and presence of the consciousness to itself; it forms a threat to the inner purity.” [17]

#### **4. Different Ways of Knowing**

Counter to scientific encounters conventionally consenting that knowledge sits in the mind of the beholder detached from the world that surrounds him/her, there are other conceptions which rely on a knowledge that belongs to an extended existence. Zen, e.g., assumes that there is a universal intelligence, which individual beings are part of; and as you unfold yourself to this universal knowledge by silencing your body, enlightenment occurs. A similar conception could be considered with the Islamic philosophy as “sudur” (emanation) in the philosophy of Farabî; which proposes that the whole universe emanated from God. Yet, here, knowledge and knowing belongs to God, not to a universal intelligence; and, there is also a hierarchy proposed here, meaning the hierarchy of different levels of knowledge and knowing. Knowledge and knowing is considered to belong to God; hence, knowledge is not produced or invented, it is discovered. The one who is closest to true knowledge is the prophet (or the sage), and the philosopher, interchangeably; conveying the truth to others as the active intellect. [18-19] This might remind us of disputes on creativity, there creativity is considered as a matter of sin and the artist falls apart between creativity and sinfulness (remember the story of Faust; like Mephistopheles, he challenges the power of God as the creator).

Idealist approaches have defined reality to be found not in the ephemeral, physical world; and considered the physical world as appearances or reflections of another world which one can only conceive with his/her mind. This idealized (Platonic) world is either represented in the form of music and/or geometry. To represent ultimate truth in physical form is reductionism, it is cutting back from its innumerable qualities; it is impossible to represent those ideal states in virtually physical form, therefore abstractions take place. Philosopher Pythagoras has systematized this science and has been a significant intellectual figure as philosopher and mathematician.

Hierarchy of the knowledgeable is reflected in ways of knowing, or acquiring knowledge. The three levels of “knowing” is, revelation (highest level, belongs to the active intellect, the prophetic one) and discovery (the sage), and then there are dreams, which is a means of knowing for everybody. [20] Enlightenment takes place through different means, but especially through

dreams; dreams are considered as a mirror, which reflects true knowledge to minds of people. [21]

One way of acquiring -and representing- true knowledge is the dream; another means is symbolic representation. We will continue with music and geometry as forms of abstract representations of knowledge in Islamic thought.

### **5. Philosophies of Music & Geometry**

Music is the physical reconstruction of the harmony formed by the circular motion of celestial bodies, according to Pythagorean tradition. This cosmic unison or harmony is only comprehensible through thought; and that way of knowing which considers reality as only conceivable by our minds or that there are objects we think of that do not exist yet are real (intentionality), is strongly favored in Islamic thought. Treatises on music have indicated relations between music and mathematics, astronomy, astrology, cosmology, psychology, medicine, ethnology, mythology, geography, literature and social history.

Kindî and Farabî are considered as two different trends in philosophies of music. Kindî is considered as representative of the Pythagorean School, where music is related to arithmetical and astral phenomena. Pythagoras is a 6th Century B.C. philosopher and mathematician. Farabî, on the other hand, is related with the thought of Aristoxenus who is a 4th century B.C. philosopher and a student of Aristotle. [22] Aristoxenus considers the basic phenomena of music to be what can be discerned by human sensory perception, i.e. tones, intervals, et.al. Theoretical inquiry into music is concerned with musical phenomena, neither astral bodies nor mathematics for Farabî. While Kindî considers mind as reflecting abstractions of the world, Farabî ponders the mind as an active agent, which through analysis and synthesis harvests imagination.

Geometry similarly represents cosmology, and an abstract way of representing universe. Point is from which all forms derive in Islamic art, it does not have any dimension –neither length, nor width, even depth; it is that kind of space which is only conceivable through the mind. Point, line and surface are not physical. [23] Muqarnas is the three-dimensional form of this geometry. [24] Necipoğlu has acknowledged that, in order to explain the developmental stages in history and the conceptual dimension of muqarnas, conceived by the occidental mind as merely geometrical drawings of a-historical character, one in fact, needs to deconstruct the whole literature and reconstruct it again. [25]

### **6. Mehmed Ağa**

The motivation of this paper comes from two basic sources; one is interest in the non-representative or non-linguistic representative qualities of architectural knowledge, and the other is a curiosity for different ways of knowing. When one becomes interested in those non-representative or non-linguistic characteristics, other sources of knowledge become a point of attention. And how this knowledge -which is definitely not explicit, or tacit- is acquired, becomes another concern. Ottoman texts related to architecture, can be interpreted in the light of these two instruments. Object oriented and language driven knowledge of architectural objects can be replaced by knowledge of existences, which cannot be represented but experienced, e.g. maqams and music; or an abstract/symbolic representation of these existences in geometry or with numbers. These would in turn, refer to “lived-in” and “thought of” models of knowing. In this section of the paper, we will discuss these two ways of learning and knowing through the dichotomy that Mehmed Ağa experiences, first by musical education, then by being told that he should learn geometry, which we are informed about by *Risale-i Mimariyye*.

*Risale-i Mi'mariyye* is an early 17th century treatise on architecture, written by Ca'fer Efendi and for Architect Mehmed Ağa. It is made up of a preface and fifteen chapters. The first four chapters are about the life of Mehmed Ağa, and the two chapters that follow are about his work. Chapters seven through ten are about measurement; chapters eleven through fourteen include the terminology of architecture, building, and music. Last chapter closes with benediction. After coming to Istanbul as a janissary recruit, Mehmed Ağa, after 7 years, enters the Imperial Gardens. While wondering through the gardens, meets a man with a group of people admiring him while he plays different instruments. He thought music was admired as an art form and wanted to learn it. The musician gives him a spectrum to exercise. Later, on his demand, buys him musical instruments of different kinds. Morning and evening, day and night, Mehmed Ağa exercises his hand, until he is so tired and falls asleep. Although he later disfavors music as an art form, it is told that this exercising of his hand was a prerequisite to manipulate the adze when he worked the mother of pearl. It is evident that use of one's body is one form of acquiring

knowledge, especially the knowledge of doing, procedural knowledge, which we have labeled here as a “lived-in” model of knowing.

While he falls into sleep, in his dream he sees a group of gypsies having all kinds of instruments in their hands, and when they played together in unison, “the sound of the party threw the universe into tumult and resulted in a trembling of the earth and the heavens.” He runs to the musician and asks what this dream means; the musician’s answer involves those basic concepts of the theory of music: note, time, harmony, dissonance, melody, interval, tone, song. And, modes referring to twelve constellations. And, four elements –fire, air, water, earth. And, seven planets. And, 24 derivative modes (*terkib*). He talks of musical composition and of musicology. He says that the person who systematized this science is the disciple of the prophet Solomon, the philosopher Pythagoras. And he should begin at once to practice this art. Yet, Mehmed Ağa is left with questions in his mind: He thinks that if that art of music is so adorable, why is it that a humble tribe got involved in it. [1] He decides to get the advice of a saint, and was told by him to renounce that art. Enlightenment through a dream, and considering the saint as the conveyor of true knowledge is apparent here, as a very characteristic example.

Again while he is in the Gardens, he sees a young person reading a book in the workshop of the mother-of-pearl workers. The book is about the science of geometry. “As long as a person does not understand this rare and agreeable science, he is not capable of the finest working in mother-of-pearl, nor can he be expert and skilled in the art of architecture” says the young person to him. He keeps on explaining that; the earliest master is the son of Adam, Seth, followed by Abraham. These are the masters of stone masters; and that Noah is the master of carpenters. Enoch (İdris) has taught lessons on the science of arithmetic and astronomy; yet, has not written a book. It is Pythagoras who has collected them into a book. The art of mother-of-pearl inlay makes use only of forms derived from the science of geometry. This time we come across another way of knowing, which we considered as the “thought-of” model.

Music as a form of “lived-in” model, and geometry as a “thought-of” model for knowing both take place within the text. Chapters of the treatise include the introduction of both ways, as we have summarized above when discussing the content of the chapters.

### **7. Possibility of Other Forms of Knowledge**

A few words before closing the discussion on the possibility of different forms of knowledge and ways of knowing: Although our references are from the past, they remind us of a time when knowledge was not reduced to scientific knowledge (one form of knowledge). And, they can open the way for problematizing the separation of sciences from philosophy, which has caused humanity to withdraw to the world of practical interests instead of creation of ideas. They can also enrich our ways of knowing and develop various forms of knowledge by including the experiential aspects of human existence both bodily and intellectually. It is (or at least should be) possible to propose that logos is not the only form of knowing, and eventually language not the only form of knowledge representation.

What if, we have lost a part of its essence while we reduce the proper knowledge -and the right way of knowing it- to the scientific way? What may be the possible alternative sources of architectural knowledge? Nowadays, as emerging new models in cognitive psychology and cognitive sciences try to unify the conscious and the non-conscious cognitive states, and the representative and the non-representative forms of cognitive processing, can we unify (or at least try to accept) the different narratives of architectural knowledge.

Can the texts from the past (Ottoman period in this paper), where and when the main knowledge system (may be music, or be dreams) does not concord with the universal knowledge system in-use, enlighten us (or give some clue) about what other forms of knowledge and representation, ways of knowing them and narratives might be.

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## THE ROLE OF “TECHNIZENS” IN SUSTAINABLE ARCHITECTURE: CHANGING USERS' BEHAVIOR FOR BETTER SUSTAINABILITY

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### Abstract

A perusal of the most widely adopted green building certification schemes (BREEAM, LEED, Passivhaus, etc.) demonstrates that sustainable architecture focuses primarily on sustainable materials, more efficient mechanical systems, and technological fixes in general for sustainability issues. In other words, it is focused on “better things” as opposed to “better behavior” on parts of users for sustainability.

Indeed, relatively little attention is paid to how people's behavior affects sustainability. While altering users' behavior can often have profound effects on how sustainable a building is, certification schemes and sustainable designers often overlook this simple fact.

The focus of this paper will be on overcoming the technophilia/technophobia split in environmental discourse. This phenomenon is what Brand and Fischer refer to as the 'technical fix' versus the 'social fix', and which many people consider to be at odds with each other. In our view, nothing could be further from the truth. Through tried and tested examples, this paper aims to demonstrate that the best results with regard to sustainability are often achieved through a successful marriage of technical and social fixes.

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**Key Words:** *technizens; sustainability; user behavior; technophobia; technophilia; environmental discourse*

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### 1. Introduction

In broadest terms, sustainability can be defined as the fulfillment of the needs of present as well as future generations [1]. In terms of the built environment, sustainability discourse has usually centered on climate change, and the need to reduce greenhouse gas emissions to mitigate climate change phenomena. Indeed, as Mohareb et al. point out, Energy Use Intensity (EUI) of buildings and climate have a well-established correlation, and sustainable architecture has long sought to reduce energy consumption as part of its sustainability strategy. However, the same authors have argued that energy saving practices have reduced EUI to the point that it has lost its correlation with heating degree days. This suggests that “end-user behavior is the next major hurdle in lowering the energy consumption of greener buildings” [2]. The same trend can be observed in other areas of sustainable architecture as well. Efficient HVAC systems are only efficient if their thermostat and timer settings have been adjusted correctly. Even the most efficient heating system provides appalling energy performance if a user has forgotten to shut windows while the system is running. Efficient water faucets are useless at reducing water consumption if leaks are not identified and fixed promptly.

Regardless, a perusal of the most widely adopted green building certification schemes (BREEAM, LEED, Passivhaus, etc.) demonstrates that sustainable architecture focuses primarily on sustainable materials, more efficient mechanical systems, and technological fixes in general for sustainability issues. In other words, it is focused on “better things” as opposed to “better behavior” on parts of users for sustainability.

With LEED and BREEAM certification schemes for new buildings (LEED for Building Design and Construction or BREEAM New Construction, for example), behavior based credits are usually limited to transportation options and recycling practices. Both LEED and BREEAM award credits for the provision of bicycle racks and shower facilities in buildings under evaluation. Neither measure, however, how often or how effectively these facilities are used. Similarly, both schemes award points for proximity to public transportation and amenities, but no measurement of usage frequency of public transportation is undertaken.

Even with the introduction of certification schemes such as BREEAM In-Use, which attempts to measure and help reduce the environmental impact of existing buildings, the area of how this reduction is to be facilitated, and the way in which human behavior co-evolves with the advent of new, efficient building systems is sorely under-researched. Furthermore, schemes such as BREEAM In-Use often target non-domestic buildings, and as such miss the bulk of the existing building stock in our cities.

Similarly, LEED for Building Operations and Maintenance (LEED O+M) focuses on end results, but does not provide any guidance regarding how these results are to be achieved. And similar to BREEAM In-Use, domestic buildings are not eligible for certification. Furthermore, the performance measurement period for all credits pursued (except for energy efficiency credits) for LEED O+M is only three months. Especially in hot climates, water usage for example varies considerably between cooler and hotter months. The veridicality of some LEED O+M data, therefore, becomes somewhat questionable.

Scholars with a politically liberal slant are quick to criticize the materialistic focus of green building certification schemes as “a shortcoming of the capitalist world order”, however, the issue seems to be at once more complex and somewhat more benign than that. Part of the reason for green building rating schemes’ focus on “things” is because “better things” are easier to quantify and measure than human behavior. They are also easier to benchmark for comparison purposes, which after all is one of the main purposes of green building certification schemes.

## **2. Human Behavior and the Environment**

Factors affecting human behavior have been studied systematically for decades, resulting in tomes of theoretical discourse. Hence, even a cursory overview of behavioral science would be beyond the scope of this article; suffice it to say that the Transtheoretical Model (TTM), also known as the “Stages of Change” Model, provides a sound framework for understanding how behavioral change may occur. Developed by James O. Prochaska in the late 1970s, TTM analyzes behavioral change in four distinct stages: (1) Precontemplation, (2) Contemplation, (3) Preparation, (4) Action, and (5) Maintenance, Relapse, Recycling [3]. While not the central theme of the investigation at hand, the TTM provides a convenient backdrop for understanding certain aspects of behavior change as it pertains to sustainable architecture.

In contrast, since sustainable buildings are essentially “things” (and often quite technological “things” at that), the discourse laid out by Brand and Fischer in “Overcoming the technophilia/technophobia split in environmental discourse” provides an excellent framework for understanding how technological and social phenomena interrelate in the world of sustainable architecture. This framework will be investigated in detail in Section 3 below.

It should be noted at this point that human behavior as it pertains to sustainable buildings can be viewed in two broad segments: Behavior of operation and maintenance crews and the behavior of end users (building occupants). Since the behavior of operation and maintenance crews are influenced by factors beyond pure psychological issues, they will not be the main focus of this article. For example, in well-organized office buildings with a corporate occupant profile, operation and maintenance can often be highly structured and efficient. This comes about not because of human behavior factors alone, but because of efficient management principles adopted by the said occupants.



Furthermore, many green certification schemes are actually quite competent at providing incentives for more efficient building operation and maintenance. Even in LEED v4 for Building Design and Construction, for example, the Enhanced Commissioning criteria, which involve review of contractor submittals for building maintenance, development of a systems manual, verification of training for building operating personnel, and review of building operations within ten months of substantial completion among others, can earn applicants up to 6 points.

### **3. The Eco-Aware “Technizen”**

The interaction between technological developments and their social acceptance, as well as modification—colloquially referred to as 'hacking'—has been the topic of extensive research. It was Hughes who suggested that technology and society are inextricably linked in a 'seamless web', constantly interacting to shape and reshape each other [4].

Regardless, the dichotomy between 'technophilia' and 'technophobia' seems to be persistent: technophiliacs argue for the importance of technological solutions to environmental problems, whereas technophobics view behavioral changes as the ultimate solution to the same issues. And although a noteworthy body of research has emerged that tries to bridge the gap between these opposing views (see for example, Guy and Shove, 2000, Warde, 2005, and Brand, 2008), the dichotomy somehow persists [5, 6, 7].

It is Brand and Fischer who argue convincingly that not only can we find the middle ground between these two opposing camps, but that finding such common ground is possibly the only way to enhance sustainability as it pertains to the built environment.

It is at this juncture that they coin—or rather adapt—the word 'technizen' to signify a person who is at once techno-savvy, and an ideal social player. Colloquially, the word technizen has been used to signify “a person who is overly influenced by technology and technological gizmos” [8]. Brand and Fischer, however, envision technizens as people who are adept at crossing the 'technophilia' and 'technophobia' divide, and who fit Room's requirements as outlined in *Sustainability Strategies for Industry: The Future of Corporate Practice*: “Steering technological innovation toward social goals requires operating outside the normal process of technology innovation. Consequently, any concern to steer technology developments in socially preferred directions presents a new and complex set of social and technological issues” [9]. Brand and Fisher's 'technizen' is quite comfortable with helping steer technology towards socially preferred directions.

### **4. Better Practices, More Sustainable Behavior**

This section's subtitle is a play on the phrase, 'best practices'. Clearly, since behavioral research related to sustainable buildings is in its infancy, the examples provided herein will only be 'better practices', with best practices hopefully yet to come.

In the award-winning Herman Miller Factory and Offices in Holland, Michigan, for example, the architects wanted to capitalize on the pristine forest views that the site offered for factory workers. The designers of the 295,000-square-foot complex, William McDonough + Partners, were acutely aware of the effects of 'biophilia'—the concept that “people are aesthetically drawn to environmental features that have proven instrumental to human survival,” as noted by Yale University social ecologist Stephen Kellert [10].

According to the same author, such features include “clean flowing water, promontories that foster sight and mobility, areas that offer refuge and shelter, and bright flowering colors that frequently signify the presence of food” [11]. The architects designed large, floor-to-ceiling windows to invite in the views, but also equipped the windows with efficient glazing to keep out the cold in frigid Michigan winters. The building also had a host of high-performance mechanical systems to ensure energy performance.

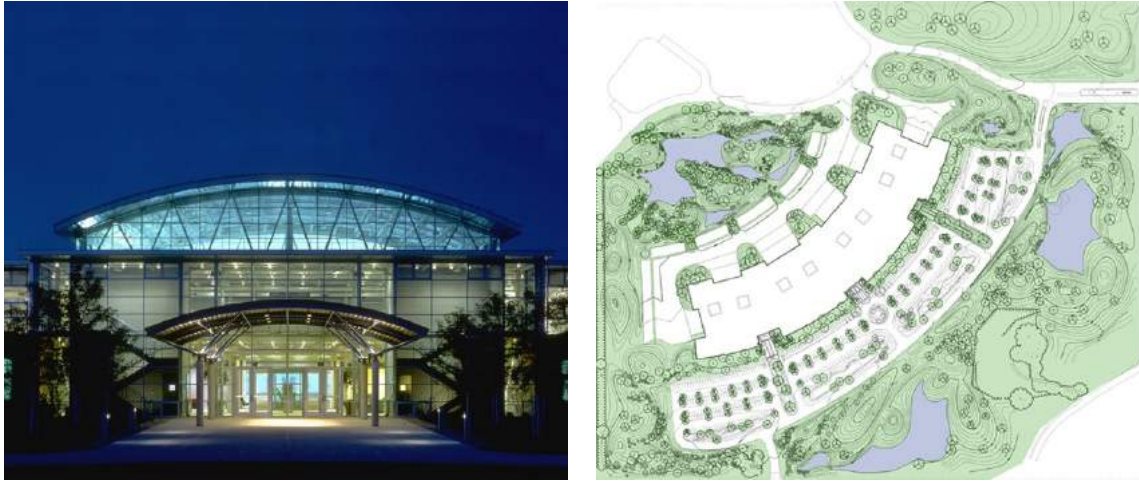


Fig. 1. (a) Entrance façade of the Herman Miller Factory and Offices in Holland, Michigan, by William McDonough + Partners. Photo credit Tim Hursley (used under Creative Commons license) (b) Herman Miller Factory and Offices in Holland, Michigan, by William McDonough + Partners. (<http://www.mcdonoughpartners.com/projects/greenhouse-factory-offices/>)

But as Wener and Carmalt note, the building was found to be operating relatively inefficiently. Energy consumption, for example, was above estimates, partly because factory workers “... kept large bay doors open for the fresh air and for the views that these doors provided. While the original design had allowed for better ventilation and good views, high shelving was added after initial occupancy that blocked the vents and views, encouraging occupants to open the bay doors” [12].

The architects then worked with the client to remedy these problems, and to restore some of the planned efficiencies while not compromising the preferred usage modalities of the occupants. A careful reading of Wener and Carmalt's text seems to imply that this design and re-design process is a less-than-optimal solution. To them, 'sustainably robust' buildings are preferable: “...sustainable buildings might be less sensitive to variations in user activity, if, for instance, they relied on heavy insulation or smart technology that controls lighting, temperature, and windows to save energy. Such a building might be called sustainably robust if it was able to withstand significant variations in behavior, and still maintain optimal performance” [13].

Yet as Brand and Fischer argue the design and re-design process—which actually boils down to participatory design—is actually preferable because it has the potential to produce better results. Brand and Fischer advocate that the design process should invite end user participation, so that the actions of users can be foreseen, and capitalized upon. As such, end user actions are seen not as “something to be tolerated” if begrudgingly, but actually perceived as advantages to refine the design process. This is aptly summarized by Brand and Fischer in the following sentences:

“What we ... envisage is a strategic synchronization or co-evolution of social and technical change as equal partners in pursuit of synergistic effects. This entails mutually responsive, collaborative and coordinated moves between designers and users, supply and demand side, architects and tenants, planners and citizens. This strategy acknowledges and embraces the fact that our environment (both natural and built) and our social reality influence each other anyway. It thus seems better to align both in the first place as much as possible rather than shruggingly accepting a succession of more or less desirable reactions—often in the sense of one trying to outsmart the other.” [14].

Another example is the Wales Institute for Sustainable Education, Centre for Alternative Technology. The performance of the building, as well as the extent to which it encourages sustainable behavior was studied over a two-year period by Clarke and Pretlove [15].

The building was designed by architects Pat Borer and David Lea as a case study for sustainable architecture and has won several awards. It contains a 200-seat lecture theater, offices, classrooms and 24 en-suite bedrooms. As Clarke and Pretlove note, the building offers “an experience of sustainable solutions in practice to influence and effect behavioral change” [16].

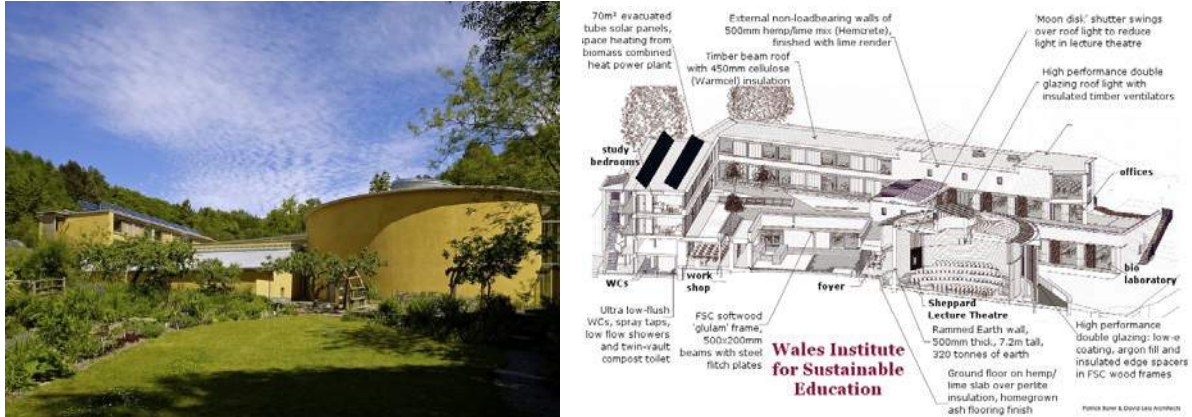


Fig. 2. (a) The Wales Institute for Sustainable Education, Centre for Alternative Technology ([info.cat.org.uk/wise/](http://info.cat.org.uk/wise/)); (b) Key features of the Wales Institute for Sustainable Education, Centre for Alternative Technology ([info.cat.org.uk/wise/](http://info.cat.org.uk/wise/))

One of the key findings of Clarke and Pretlove's study was that the building, which made extensive use of natural light, changed users' perception for the need of artificial lighting. Even in an introverted space such as the lecture theater, the architects provided sky lights to reduce reliance on artificial light. Excessive glare and heat gain in the summer were avoided by the use of timber louvers.

The building also made use of under-floor heating which proved to be a shortcoming for inexperienced users. Since under-floor heating is a slow response heating system (i.e. it takes a long time for changes in thermostat setting to be felt by users), thermostats were typically set too high after spaces remained unheated for some time.

In an end-user survey that the authors conducted on 21 long-term users of the building, a perception that the interiors were, “cooler than usual” was prominent. Indeed, “The ability to guarantee a given temperature for teaching and corporate events proved quite difficult in a low energy climate-responsive building” [17]. This did lead, however, to the desired outcome of making people dress warmer. Thus, users' found that cooler temperatures could be tolerated by changing one's dressing routines.

Perhaps one of the most poignant observations made by Clarke and Pretlove is that “the building needed to be operated for at least a whole year to fully develop the operating systems and potential implications for building users” [18]. One of the respondents to the authors' survey noted that “...there hadn't been enough time since the opening of the building in June 2010 to establish anomalies between design aspirations and operational performance” [19].

This observation is congruent with Ralf and Fischer's prescriptions with regard to co-evolution between technical and social change. Whenever a new building is built, there appears to be a “break-in period” when both the users and the facilities adapt to one another. In the case of the Wales Institute for Sustainable Education, for example, the rammed-earth walls—which are highly sustainable from an embodied energy perspective—performed poorly in terms of acoustics. Thus, sound-buffering panels had to be installed especially in classrooms and the lecture theater.

## **5. Conclusion**

The by-now substantial amount of scholarly debate on the interaction between technological innovation and social change points to new potentials for bringing together the technophilia and technophobia camps together; and in doing so, creating new opportunities for harnessing synergistic effects. Thus, as Brand and Fischer hope, will be the birth of the 'technizen'--a person who is at once techno-savvy, and an ideal social player for bridging the gap between technological innovation and social adoption, as well as enhancement of said innovation [20].

Thus, to help foster synchronicity between the technical and the social, sustainable buildings should allow for greater dialogue between designers and end-users; enabling a process of participatory design. Likewise, technological innovation related to sustainable design should take a more comprehensive view of the interaction between the technical and the social.

Some of these approaches are clearly evident in the strategies employed in the examples above. Both the Herman Miller Factory and Offices, and the Wales Institute for Sustainable Education allow, for example, user participation in the design process to varying degrees. The fact that both examples do this somewhat grudgingly does not negate the need for meaningful dialogue between both parties.

The examples also obviate the need for green building certification schemes to give more importance to the potential gains possible by altering end-user behavior. While these certification schemes do address behavior changes related to building operations and maintenance, they are less than adequate in prescribing meaningful changes in end-user behavior.

This is particularly significant, since it seems that the sustainability gains to be realized through implementation of more efficient technology is close to reaching its limit. Mohareb et al. demonstrate this convincingly in their study related to the correlation between Energy Use Intensity (EUI) and climate change.

It seems that “the next leap forward” with regard to sustainability gains for green buildings will be through better management of end-user behavior. And for this, a strategy which sees technological advancement and human behavior as an inseparable whole is indispensable. It seems that the gains to be made by successfully marrying these two aspects of sustainable architecture are quite significant.

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## Mindfulness and Architecture: How Mindful Design Can Enhance Creativity and Engender Humility

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### Abstract

Through classification, humans impose order upon what has been referred to as the 'primal disorder' of nature, and this also extends into the built environment. Yet despite the increasing sophistication of built forms, and the heightened level of order achieved, prior to the Enlightenment humans were aware of both the imperfection, and the impermanence of their structures. Since the eighteenth century, however, both the desire and ability to impart order upon nature has increased dramatically. This, in turn, has led to the loss of 'human touch' in much of modern-day architecture. More specifically, this may be referred to as commoditization of architecture, architects' tendency to design for "the top 1%", and the architectural trend towards a designing a meaningless pattern of similar buildings. This is why we devote a considerable part of the paper to understanding, codifying, and uncovering the salient points of this backlash. Methodologically, this paper adopts a qualitative mode of research, with weblogs critical, even satirical, of the architectural profession forming the bulk of textual and graphic data under scrutiny. Even a cursory perusal of these blogs demonstrates that some of architects' idiosyncrasies are anathema to the basic attitudinal factors of mindfulness. Mindfulness is defined, herein, as the skill of maintaining attention towards immediate experience and an open and accepting attitude towards one's experience of the present. This definition, as well as the basic tenets of mindfulness are utilized in investigating the way architecture is practiced today in the modernized world, and how this practice might potentially be improved by an adoption of mindfulness skills. In doing so, the link between mindfulness and creativity is also investigated. The paper ends with an analysis of two buildings which the authors consider to be examples of mindful architecture.

**Key Words:** *mindfulness; architectural design; creativity; hermeneutics; starchitecture*

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### 1. Introduction

One of the greatest strengths of the human mind is its ability to recognize patterns and classify information in what appears, at first sight, to be a chaotic world [1]. Although recent findings in the study of complexity point to order and chaos being flip sides of the same coin, there is no doubt that the natural world in general, and natural forms in particular, present themselves as somewhat chaotic; especially when compared to human-made environments. [2, 3]

Through classification, however, order is imposed upon the 'primal disorder', and this certainly extends into the built environment. For eons, architectural design was inextricably

linked to the way in which a society perceived the world, and how it made sense of (ie. classified) space, time, and even the cosmos [4].

As Khambatta eloquently summarizes, “The characteristic that distinguishes a traditional society [from a hunter-gatherer society] is order, the sense of coherence in every aspect of life. This order or coherence derives from a shared knowledge of origins and gives validity to every event,” including the design and construction of buildings [5].

Yet despite the increasing sophistication of built forms, and the heightened level of order achieved, humans were aware of both the imperfection, and the impermanence of their structures. With the exception of major places of worship (such as burial edifices of Ancient Egypt, Roman and Gothic cathedrals, and congregational mosques) buildings were perceived as temporary, and the order they imparted upon nature as limited.

Since the Enlightenment, however, both the desire and ability to impart order upon nature has increased dramatically, at least in the Western world. Not only has this created the false impression that we control our environment, but it also gives us the illusion that our buildings are both permanent, and that they enclose perfectly controlled environments themselves. To use Le Corbusier’s words, our buildings have become 'machines for living in'.

Thus, many people (at least in the modernized world) have forgotten how one can learn to cope with (and even enjoy) temperature swings greater than that allowed by a thermostat; how different parts of a house are more habitable during different periods of the day (and how this becomes a way to celebrate the rhythmic quality of life); and how discomforts such as insects can be avoided with the use of mosquito-nets (and how a simple piece of translucent fabric can impart rich and sublime qualities to both interior and exterior space).

Yet even in the modern world, our buildings age and decay, and are far from perfect. The hermeneutical philosophy of Gadamer and Heidegger point to a sensual, experiential, and historical perception of the built environment, and it is often these qualities that make built environments appealing.

With this last assertion, John Ruskin would certainly agree. Although Ruskin precedes Gadamer and Heidegger by almost a century, his views on art and architecture are congruent with the principles of the hermeneutical tradition. In his seminal *The Lamp of Memory*, Ruskin notes that:

... it is in that golden stain of time, that we are to look for the real light, and color, and preciousness of architecture; and it is not until a building has assumed this character, till it has been entrusted with the fame, and hallowed by the deeds of men, till its walls have been witnesses of suffering, and its pillars rise out of the shadows of death, that its existence, more lasting as it is than that of the natural objects of the world around it, can be gifted with even so much as these possess, of language of life [6].

It is this loss of “human touch” that members of the public seem to lament, and this is perhaps why there is a backlash against architecture which architects by and large continue to ignore. The emergent backlash seems to stem from the commoditization of architecture [7], architects' tendency to design for “the top 1%” [8], and “the architectural trend ... towards a placeless geography, a meaningless pattern of similar buildings, a ‘flatscape’” [9].

The frustration with architects is clearly expressed in *Failed Architecture*, where the editors note that: “The architectural culture suffers from vanity and the mass-production of meaningless viral eye-candy. Like Kanye says 'everything needs to be architected’” [10].

This is why we devote a considerable part of the paper to understanding, codifying, and uncovering the salient points of this backlash. The way in which we collected and analyzed data is explained under the heading *Methodology* below.

Furthermore, in light of these findings we argue that mindfulness, as defined by Jon Kabat-Zinn, provides an effective framework for enhancing architects' creativity, infusing the profession with more humility, and countering the trend towards the creation of 'flatscapes' [11].

By bringing together literature from hitherto unrelated fields, we attempt to bridge the gap between psychology and architecture to come up with a definition of mindfulness-based design. One of the basic pillars of mindfulness, 'non-attachment', suggests that designers could benefit

from loosening their attachment to both permanence and control. The products of less-permanent and more loosely-controlled architectural spaces, in fact, overlap with what Lisa Heschong and Steen Eiler Rasmussen compassionately describe in *Thermal Delight in Architecture* and *Experiencing Architecture* respectively [12, 13].

This is not to say architects should become nonchalant towards their designs, and compromise safety in their buildings. Far from it. As we argue below, mindfulness actually has the potential to enhance creativity, and to make architects more keen designers. There is a substantial body of literature that establishes a firm link between mindfulness and creativity. Capurso et al.'s meta-study regarding mindfulness and creativity, for example, finds that mindfulness improves both divergent and convergent creative thinking [14].

## 2. Methodology

Methodologically, this paper adopts a qualitative mode of research, with weblogs (blogs) critical, even satirical, of the architectural profession forming the bulk of textual and graphic data under scrutiny. While the choice of such a data source itself may be criticized as being potentially biased, we believe this not to be the case. As Stevens notes, "All satire has an element of truth, otherwise it wouldn't be satirical." Thus, even satire has a measure of veridicality, and in the case of the architectural profession—which is so preoccupied with aggrandizing its own image—the critical look afforded by satirical blogs is a welcome change. And by making the choice of our data source explicit, we aim to avoid the pitfall of authoring a biased study.

Through a process of snowball sampling, we identified 11 blogs for scrutiny for this study. The blogs were checked for their web ranking on Alexa.com, and those with the highest rankings were given more weight during the coding of concepts related to the emergent narrative.

A number of the identified blogs are now defunct (no longer being updated), but they were included in the study because they contain highly pertinent information.

Among these blogs, Garry Stevens's *Architectural Blatherations* is noteworthy [15]. The blog, which was active for close to 14 years from 2001 to 2014, provides a wealth of information related to the way architecture is perceived "from without", i.e. by laypersons. Even though Stevens, who is the founder of the Key Centre for Architectural Sociology, is an architect himself, he is able to step outside his professional role to wear various, critical hats.

*Architectural Blatherations* is divided into four main sections: (1) People (i.e., architects), (2) Profession, (3) Education, and (4) Theory. The blog also has a fifth section, called "The Rest", which is a catch-all for everything from hate-mail Stevens has received, to somewhat off-topic discussions [16].

In addition to *Architectural Blatherations*, Jody Brown's *Coffee with an Architect* [17], has proven invaluable in helping identify main themes, and in developing the emergent narrative inherent in satirical blogs related to architecture, as has *Notes on Becoming a Famous Architect* by Conrad Newel [18]. A list of blogs utilized for this study can be found in Appendix A.

## 3. The Seven Pillars of Mindfulness

Even a cursory perusal of the abovementioned blogs demonstrates that some of architects' idiosyncrasies are anathema to the basic attitudinal factors of mindfulness. Since the late 1970s, the concept of mindfulness has been studied extensively in the West. Jon Kabat-Zinn, who pioneered the Mindfulness Based Stress Reduction (MBSR) program at the University of Massachusetts, paved the way for a slew of research on mindfulness and its benefits for achieving mental clarity, reducing stress and anxiety, and a host of other health benefits.

Mindfulness can be defined as the skill of maintaining attention towards immediate experience and an open and accepting attitude towards one's experience of the present [19]. It has been practiced for thousands of years and has its roots in Eastern philosophy, but it has made its way into the mainstream, secular world in the last few decades.

The three principles of mindfulness, as rooted in Eastern philosophy, can be summarized as: (1) impermanence, (2) unsatisfactoriness, and (3) insubstantiality.



The principle of impermanence states that all phenomena are subject to constant change, and that no permanent states, either physical or animate, exist.

The second principle—unsatisfactoriness—suggests that human beings are ultimately unsatisfied with whatever circumstances they may be presented with. In English texts, this tenet is often rendered as “life is suffering.” The word 'suffering', however, is a poor translation of the original Pali word *dukkha*. “A general state of being unsatisfied” is a definition that does more justice to the original. Finally, the third principle, insubstantiality, states that there is no permanent essence, “self”, ego, or soul in phenomena.

In addition to these, Jon Kabat-Zinn has identified seven 'attitudinal factors' for achieving mindfulness. These, as laid out in Kabat-Zinn's *Full Catastrophe Living*, are:

1. Non-judgment: Practicing non-judgment entails taking the position of an impartial witness to one's own experience. The habit of categorizing experiences into positive and negative, locks us into mechanical reactions that we are not even aware of, and that often have no objective basis at all.

2. Patience: Patience, a form of wisdom, involves acceptance. In mindfulness, this pillar involves understanding and accepting that things must unfold in their own time. The beautiful Monarch butterfly, for example, emerges from its chrysalis on its own time. External intervention cannot vary that timetable.

3. Beginner's mind: Looking at everything with a beginner's mind, or 'fresh eyes' enables one to notice the “extraordinariness of the ordinary” in their present-moment experiences. When one engages in the world with a beginner's mind, there are no expectations based on past experiences. Each moment, unique by nature, contains unique possibilities.

4. Trust: Developing a basic trust in oneself, one's feelings, intuitions, wisdom, and goodness. Even if we make 'mistakes' along the way, we must trust our own authority and intuition.

5. Non-striving: The best way to achieve one's goals is to back off from striving and instead to start focusing on seeing and accepting things as they are, moment by moment. With patience and regular practice, movement towards one's goals will take place by itself.

6. Acceptance: Acceptance is a willingness to see things as they are. We are much more likely to know what to do, and to have an inner conviction to act when we have a clear picture of unfolding events. Acceptance is not passive; it does not mean we have to like everything and abandon our principles and values. It does not mean we have to be resigned to tolerating things. Quite the contrary, when we accept things as they are (instead of denying them), we are more likely to take corrective action.

7. Letting go: When we pay attention to our inner experience, we discover that there are certain thoughts, feelings and situations that the mind seems to want to hold on to. Letting go is accepting things as they are, and getting rid of “shoulds” and “oughts” [20].

#### **4. The Emergent, Critical Narrative**

Taken together, the blogs under scrutiny create a substantial body of literature that chides what the architectural profession has evolved into nowadays. Below are the salient points of this critique.

In terms of weighted significance, the most prevalent criticism we found is that 'architecture has lost contact with its users' which—ostensibly—are members of the general public. The reasons and symptoms of this disconnection manifest themselves in various ways. The blogs state that architects are preoccupied with making artistic statements rather than designing spaces which people would actually enjoy. Christine Outram, who is an architect-turned-advertising-professional, makes her case as follows:

In legal terms, an architect is the all seeing, all knowing, building professional. You are liable for anything that goes wrong with a building but if someone just hates the spaces you design? If someone feels uncomfortable, or cold, or scared? Well there's no lawsuit for that ... The problem is that architects seem to pray at the feet of the latest hyped-up formal language. I dare you. Flip through an architectural magazine today. Find any people in the photographs? I didn't think so. Find plenty of pictures that worship obscure angles and the place where two materials meet? You betcha [21].

Garry Stevens, on the hand, defers to architectural historian Spiro Kostoff in criticizing what Modernist Architecture had become in the twentieth century:

Modernist rhetoric waxed eloquent about the needs of users. It represented architecture as the vehicle of social welfare and set public housing issues as the highest priority of architecture. But there was no question of consulting with the user of the housing estate during the course of their design.... [U]sers did not know what they wanted or, more importantly, what they should have. Their collective needs, interpreted by the architect and the sponsoring agency, would be codified in the 'program'—as had been the case with hospitals, schools and prisons in the past. The fit might not be comfortable at first. The setting might appear alien to our habitual ways. The fault was with our habits. We would learn to adjust to the new *Wohnkultur* because it was based on rationally derived standards.... Architectural revolutions required the redesign of humanity [22].

It is as if Kostoff, when writing the above paragraph, had Peter Eisenmann's House VI in mind. House IV, which is regarded as one of the most famous Modernist houses in the United States, is notoriously difficult to inhabit since the architect deliberately made a point of disrupting conventional living. For example, in the bedroom there is a glass slit through the floor, which divides the room in two. This forced the owners (who were a couple) to sleep in separate beds on either side of the room. Similarly, by making the single bathroom in the house accessible through a bedroom, the architect made sure that he 'constantly reminded the users of the architecture around them' or at least every time they felt nature's call.

That architects perceive users to be a 'nuisance' is also evidenced by the absence of people in photographs of architecturally significant buildings. As Stevens notes, the supreme exemplar of this is perhaps the *Phaidon Atlas of Contemporary World Architecture* [23]. "Wherever possible," notes Stevens, "it seems the photographers vacate the buildings and surrounds, to present the building as a pristine *objet d'art*, uncontaminated by users, clients and inhabitants" [24].

Another characteristic of architects that emerges from the data is an obsession with alignment. In the blogs under scrutiny, the word 'align' (and derivatives such as 'aligned', 'aligning', and 'alignment) appear no less than 155 times. The concept is most thoroughly satirized in *Coffee with an Architect*. In 15 of his blog entries, Brown makes reference to 'align', and in most cases this reference is satirical. For example, in his blog entry titled "20 Things To Do To It With the Architecture" (November 17, 2014), Brown advises the following: "Align it. Simplify it. Order it. Place it on axis with it. Remove the barrier between the interior and the exterior of it. Repeat it. Repeat it" [25].

In another entry titled "An Architect in 140 Characters or Less" (August 8, 2011), Brown makes the following observation: "I'm an Architect. I align things. They need to be aligned" [26].

And in "When you are an Architect" (January 5, 2011) Brown notes that when you become an architect, "You'll notice everything that is even slightly out of alignment" [27].

This is not to disparage architects who believe (and rightly so) that the most efficient way to achieve a structurally sound building is to align supporting elements, and to have as rational a plan as possible (which naturally entails aligning things). It is to say, however, that when the desire to align and create order becomes an obsession, it is often detrimental to successful design. And this obsession need not be confined to physical elements: An obsession to align and control, may present itself in the form of a space with unchanging temperature, even lighting, and a constant hum of white noise—think of a modern office with row after row of cubicles. While such an office may be deemed 'efficient' in creating ideal working conditions (although lately, that too is being questioned), it can hardly be classified as 'good design'.

The obsession with aligning things and creating order to the utmost degree can be seen as anathema to non-judgment, and letting go—two of Kabat-Zinn's pillars of mindfulness. Perhaps more significantly, this obsession stands in stark contrast with the principles of impermanence, unsatisfactoriness, and insubstantiality.

We will investigate the link between these principles and design in more detail while looking at specific examples of mindful architecture below.

## 5. Mindful design, or 'design like you are nine years old'

In his blog entry titled “Design Like You Are Nine Years Old”, Jody Brown describes a colleague putting together a set of Lego Architecture Studio bricks: This colleague, Brown notes, undertook the task “...with a look of pure joy in his eyes. He was enjoying the process. He was ecstatic, thinking about the possibilities.” Brown concedes that he was jealous, and continues:

Do you remember when design was fun? When the thought of resolving the intricate puzzle of a building was exhilarating? Me neither. But, I need to find that place again. That place where I stand with the wide-eyed wonder of a child before the possibilities, instead of slouching into the office with the weight of someone else’s world on my shoulders. I need to find the joy in this again. I need to remember the simple pleasure of discovery. Basically, I need to remember how to design like I’m nine-years old [28].

It would be difficult to capture the essence of what we mean by 'mindful design' any better than in the paragraph above. Indeed, these observations overlap with many of mindfulness's seven pillars, most notably: beginner's mind, patience, trust, and non-striving.

Mindful design also embodies humility; both in the sense that the architect's ego should be absent from the design, and also in the sense that it should not unduly disturb the site, disrupt the habitat of flora and fauna existing there, and create an architectural form which is alien to its surroundings. Certain principles of mindful design actually overlap with sustainable design, but sustainable design is usually more performance-focused than mindful design, whereas the latter speaks to both a process of design imbued with equanimity, as well as a product (building) that is conducive to it.

As such, mindful design entails a creative process unhindered by mundane worries, or fretting over whether the design will be appreciated by whomever it is being undertaken for. Of course, the architect is charged with fulfilling the programmatic needs of the client, as well as safety issues such as structural integrity. However, as Vitruvius aptly pointed out over two thousand years ago, architecture is not only about function (*utilitas*) and structure (*firmitas*), but also about aesthetics (*venustas*).

Examples of mindful design are actually quite abundant. The problem being (at least, for the art or the architectural historian) that they are almost invisible. The reason for their invisibility can easily be surmised from the list of seven pillars of mindfulness: mindful design is not pretentious. It does not try to 'be something significant'. In fact, quite the opposite. It tries to blend in, it tries to be inconspicuous. Mindful architects are not out to make a statement; they are not trying to inscribe their signature upon the cityscape or landscape.

One of the most prominent examples of what we consider to be mindful architecture is Jean Prouvé's family home in Nancy, France. Prouvé (1901-1984) was a metal worker, self-taught architect and designer. He spent a lifetime trying to transfer manufacturing technology from industry to architecture, without losing aesthetic qualities. This he was able to do, most significantly, in our view, in the design of his own house.

In reality Prouvé's design philosophy embodied much of the Modern Movement's main tenets. Prouvé helped establish, in fact, the Union of Modern Artists in 1930 whose manifesto was, "We like logic, balance and purity." As we have argued above Modernism—to the extent that it wants to control, dictate, and prescribe the lives of dwellers—is not often compatible with mindfulness. However, while designing his own home Prouvé had recently been shut out of his own factory after the hostile takeover of a rival shareholder. He was bankrupt, and had to undertake significant improvisations to provide a living space for his family. It is due to these improvisations, the limitations of the building site, Prouvé's own design genius, and his vast knowledge of materials, that what we deem to be an extremely mindful piece of architecture has emerged.

In designing his house, Prouvé had to use light materials, since the site's soil quality was poor. Located on a steep slope, the house is strictly linear; its single-story height almost lost within the lush vegetation. Once the site was readied for construction, the house was built over a few weekends. The whole of the front facade is made of prefabricated units that Prouvé had designed for other projects. Regarding the construction elements used in the house, Prouvé notes the following: “Everything I ever made was with the intention of being immediately

constructive. I never visualized or imagined what the form would be. I had no style. I never designed shapes; I constructed things that *had* a shape” [29].

This is most clearly seen in the aluminum sandwich panels with portholes. These panels, which enclose what Prouvé calls the “technical quarters” (bathroom, laundry, and kitchen), provide higher levels of insulation than the wood panels that delineate the bedrooms, and have several innovative features. The porthole shape is preferred for ease and precision of manufacture. But it also enhances privacy in the bathroom, and the round shape of the portholes can be used for mechanical ventilators as well. In the case of the Prouvé House, however, it is the sublime qualities of these portholes that first captures the visitor's attention. The way the portholes constantly split up and reassemble the view of the countryside into different landscapes is simply spellbinding.

Perhaps the most interesting part of the house, which also embodies the notion of mindful design to the fullest, is the roof. The roof is made up of finger-jointed panels of wood, each a meter wide. These had just appeared on the market at the time Prouvé was designing his house. He had no experience with the mechanical/structural qualities of the panels, so the curvature that he designed into the roofline was, in Prouvé's words: “The result of observation, because you can't imagine, if you don't handle it, that a wooden panel could be that flexible. You don't find that sort of thing happening when you are at the drawing board. There is nothing as depressing as a drawing board and a blank piece of paper when you have to try to design a building. You draw on it, you tear it up, throw it away, and start all over again. Onsite you don't tear things up or destroy them; you build [with] them” [30].



Fig. 1. (a) The Prouvé House in Nancy, France, nestled into the hillside; (b) Facade of the west wing of the house, where the bedrooms are located; the aluminum facade with portholes encloses the bathroom and entrance hall; the living room can be seen in the far-right.

Photo credits: Yvette Ranelote (used under Creative Commons license)

In 1954, right after he had lost his business and factory, building his house gave Prouvé something he was constantly yearning for: a way of improvising during the design process—to dream while in contact with reality. Thus was born an architecture that was both simple and honest, but moving and rather magic.

Qualities similar to the Prouvé House can be found in a building with a very different function, but with a similar design philosophy: The Thorncrown Chapel in Eureka Springs, Arkansas, USA.

Designed by E. Fay Jones in 1980, Thorncrown Chapel “... is small (7.3 m wide, 18.3 m long, and 14.6 m high) and walled with glass. It rises from fieldstone floors and two low fieldstone walls; otherwise it is built almost entirely of standard-size lumber worked with the attention to detail of a master cabinetmaker. Repeating diamond shapes loft upward to its overhanging peaked roof” [31]

It is the way these timber pieces come together and form a lattice of tree-like branches that make the building so spellbinding. It is like a forest within a forest, and as such almost 'completes' the site. The modest size, and the humble way in which the building is designed make it a prime example of mindful architecture. But perhaps more importantly, Jones's made a point of disturbing the site as little as possible during the construction process. No heavy machinery was brought to the site, and the local pine used for the superstructure was cut into pieces no larger than what two workers could carry. Thus, we have a building that is built almost

completely by hand, that looks at once fragile, but completely befitting of the site at hand and the given architectural program.

Jones's humility as an architect is even more pronounced when one considers the fact that he was a close friend and apprentice of Frank Lloyd Wright. Jones, apparently, had no desire to become as renowned as Wright, nor an architect with “signature architecture.” His approach is perhaps best encapsulated by the words at the entrance of the non-denominational chapel: “Please Come in and Sit Awhile, Just as You Are.”

It is also noteworthy that Jones, while not a starchitect by any measure, became a relatively renowned designer after Thorncrown Chapel. This shows that in order to gain renown, architects do not always have to undersign radical, and often alienating designs. Jones's approach to design, and the rapport that his masterpiece achieves with its surroundings—not to mention the building's users—stands in stark contrast to Eisenmann's approach, for example, in House IV.

Finally, creativity too is enhanced by mindfulness, since there is a strong inverse correlation between creativity and anxiety and stress. And since mindfulness has been proven to reduce anxiety and stress, it positively affects creative processes.



Fig. 2. (a) Thorncrown Chapel, set in the woods of the Ozark Mountain; (b) The interior of the chapel. Photo credits: Bobak Ha'Eri (used under Creative Commons license)

## 6. Conclusion

The concept of mindfulness has been studied extensively since the late 1970s. Jon Kabat-Zinn, who pioneered the MBSR program at UMass Medical School, opened the door to a slew of research on mindfulness and its benefits for mental clarity, stress and anxiety reduction, and a host of other benefits.

Despite the considerable amount of research conducted on mindfulness in disciplines such as psychology, along with medicine, neuroscience, counseling, entrepreneurship, organizational development, as well as education, little attention has been paid to the link between mindfulness and design. A modest amount of scholarship linking mindfulness and creativity in existence, but a search with the terms 'mindful design' or 'mindful architecture' turns up very few sources on major scholarly indexes.

Indeed, the link between mindfulness and design, and the degree to which architects could benefit from a hearty dose of mindfulness, is sorely under-researched. Architects may benefit substantially from a closer scrutiny of the principles of mindfulness and by adapting these principles to their practice.

This is not to say that there are no architects that, consciously or unconsciously, employ mindfulness in their practice—quite the contrary. However, there seems to be no established, or at least documented, means of creating rapport between the tenets of mindfulness and architectural design.

A scrutiny of weblogs critical of the way architecture is practiced today reveals that many of architects' idiosyncratic behaviors, in fact, quite clearly contradict with the tenets of mindfulness.

This is not to advocate a shoddier form of architecture. On the contrary: by all means architecture and design should strive to achieve its best. It is to say, however, that when this striving becomes an obsession, and when it is divorced from principles that actually enhance creativity, it can create problems for all stakeholders. It is also to say that architects, if too engrossed in their desire to 'make a statement' through architecture, can compromise the essence of mindful design.

Perhaps the essence of mindful design is best encapsulated in a quote by Ruskin: "When men are rightly occupied, their amusement grows out of their work, as the color-petals out of a fruitful flower; —when they are faithfully helpful and compassionate, all their emotions become steady, deep, perpetual, and vivifying to the soul as the natural pulse to the body" [32].

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### **Απενδιξ Α. Appendix A. List of Weblogs Utilized in the Study**

Failed Architecture

<https://www.failedarchitecture.com/>

Architectural Blatherations

<http://www.archsoc.com/kcas/index.html>

Notes on Becoming a Famous Architect

[famousarchitect.blogspot.com](http://famousarchitect.blogspot.com)

Bla-Bla-Blarchitecture

<http://www.blablablarchitecture.com/>

Misfits' Architecture

<http://misfitsarchitecture.com/>

Architecture Here and There

<https://architecturehereandthere.com>

Architorture

<https://architortureschool.wordpress.com/>

The Angry Architect

<http://angryarchi.com/>

Coffee with an Architect

<http://www.coffeewithanarchitect.com/>

How to Architect

<http://howtoarchitect.tumblr.com/post/14168733862/architects-ocd-and-their-inner-voice>

Annie Choi (Not an architectural satire blog, but has many entries related to architecture)



## SPATIAL ANALYSIS OF SEYFİ ARKAN'S EARLY HOUSING DESIGN

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### **Abstract**

The justified plan graph (JPG) technique was the first practical analytical method developed as part of the theory of Space Syntax. It provides a graphical, mathematical and associated theoretical model for analysing the spatial configuration of buildings [1]. JPG technique, which is widely used by Space Syntax researchers to reveal the social logic of architectural plan organization, remains an important approach to the analysis of the built environment. This study analyzes Seyfi Arkan's early housing designs, which is one of the most important names in Turkish architectural history, using space syntax method. Thus, the different approach of the architect is to evaluate the organization of spaces instead of void and form. The aim of this work is to determine that the effect of modernism in Arkan's designs seen not only the form but also the plan, and to demonstrate a space-based approach as an alternative to form-based evaluation.

**Key Words:** *Seyfi Arkan; Space Syntax; Justified plan graph; genotype; plan analysis*

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### **1. Introduction**

Transformation of the Ottoman Empire into the Democratic Republic of Turkey was actually a kind of cultural transformation. After the foundation of the Turkish Republic, the Ottoman Style was still adopted in the design of buildings. However, the foreign architects who came to the country escaping the turmoil in Europe altered this tendency since their formal language was different from the architectural style of Turkish architects at that time. With the arrival of these foreign architects most of whom followed the German modernism, a change in the traditional architectural style was inevitable, especially because of the state ideology that aimed at turning towards a modernist architecture [2]. At that time, while some architects adopted the Modernist Style, the effects of the Ottoman Style could still be observed in the designs of others. In this nationalist-modernist dilemma, Seyfi Arkan was the first architect to follow the modernist style, as a result of the education he received from Hans Poelzig, a prominent German architect [3] [4]. The present study focuses on the houses designed by Seyfi Arkan in the early years of the Turkish Republic. To date, a study that questioned the existence of an equivalent duality between Arkan's modernist style and spatial organizations has not been conducted. In this sense, the main purpose of this work is to question whether the modernist style that can clearly be seen in the forms of Arkan's first housing designs can also be observed in his spatial organizations.

### **2. Seyfi Arkan and His Architecture**

Abdurrahman or Abdurrahim Seyfettin Nasih (Seyfi Arkan), one of the most important figures of Turkish modern architecture, was born in Istanbul in 1904. Father side of Arkan, based on the Ottoman military upper class, his mother's side, which is originated from Aleppo, is based on high Ottoman ulema class. His first education was completed at the French School in Kadıköy and his secondary education at Galatasaray High School [5]. Arkan then continued his education at Sanayi-i Nefise Mektebi (today Mimar Sinan University, Faculty of Fine Arts).

Arkan is a graduate of the 1928 Academy which is a major determinant of architecture of the period and important influences in the history of Turkish architecture [5] [6] [7]. In 1929, he was sent to Europe by the Ministry of Education as a scholar [4] [8]. Arkan stayed in France for a short time, then moved to Berlin [10], and in 1930-33 he became a student of Poelzig in

Germany. Arkan's time in Berlin has been an important time to formation of his architectural attitude in terms of observing a different educational system and witnessing the transformation of modern architecture in central Europe [9]. Arkan's works in Germany, especially in housing, provide a basis his studies in Turkey. After returning to Turkey, Arkan's architectural style, which was on a different line from the architects of his time, was a rapid rise in a very short time. The Republican administration has started to look for a new architecture in line with the evolving transformational attitude after 1930, and the most suitable person for this view is Arkan, who has become a true modernist in Berlin [10]. Arkan, who attracted the attention of Atatürk and started to be known as "the architect of Atatürk", designed and implemented many projects in a short period of time.

It has been known that Arkan followed a modernist style in his designs in terms of form. In the present study, the Space Syntax Method has been used to find out whether his designs also follow the modernist style in the spatial organization of his first designs.

### **3. The JPG Method**

The Justified Plan Graph method starts with the determination of the relative dimensions, shapes, locations and circulation of the rooms on the architectural plan, that is, consideration of building geography. Then the connections between the rooms are described by drawing simple symbols. This architectural plan forms the basis of a convex map or a representation of visible spaces [1]. The convex map is a way of dividing an architectural plan into defined spaces - or nodes - and the connection diagram between them [11].

The construction of the convex map helps to identify the spaces and connections in the architectural plan. After the convex map is created, a justified plan graph is drawn on it. This graph does not observe differences between large and small, high and low spaces. It simply shows the existing defined spaces, called node. It also considers only the existence of connections, ignoring how spaces connect each other-with door or opening-. Graphically, this step transforms the convex plan into a circular graph of nodes connected with straight lines.

Transition refers to the relative depth of the nodes from the starting point, which is called the "root" in the graphical editing process [12]. Therefore, the JPG or the transition graph is shown on horizontal, dotted lines running sequentially starting from 0. As noted in the previous section, each dotted line represents the level of separation between rooms. The locations directly connected to the root are located at depth 1, the subsequent places are located at depth 2, and the graph continues to be created in this direction [1].

While tabulating the JPG graph, TD (Total Depth) value is calculated to find the number of connections between a given node and other nodes at various depths. Then the MD (Mean Depth) value of a node in the JPG graph is calculated. While the TD and MD values are used in the self-evaluation, RA (Relative Asymmetry) value is calculated so that two or more buildings can be compared. The RRA (Real Relative Asymmetry) value is used when there are large differences between the numbers of nodes of comparison buildings because, as buildings grow in configurational complexity and scale, their RA values typically fall. In addition, CV (Control Value) is calculated to find the degree of effectiveness of a space within the JPG. Finally, H (Difference Factor) value and H\* (Relative Difference Factor) value are calculated to interpret the differences between spaces according to the integration value [1].

#### 4. Findings

The views, floor plans, charts and calculation tables for the four houses inspected are as follows.

##### 4.1. Manor house by The Sea

It was first published under the sign of "Architect Seyfettin Nasih" in Journal of Mimar. It is designed for a rich owner, see Fig 1. A general walkway by the street and a foyer from the service section are designed for entrance to the house.

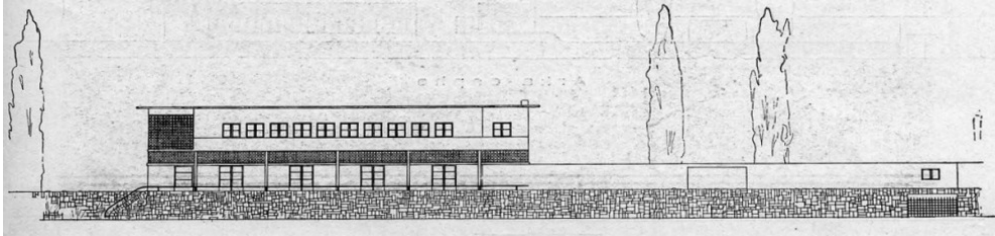


Fig 1. View of manor house by the sea

The rooms of the house are lined up on floors. The dining room and the smoking room are at the farthest floor on the ground floor of the house. On the upper floor there are bedrooms with sea view. The bedrooms also have a balcony with sea view [13], see Fig 2.

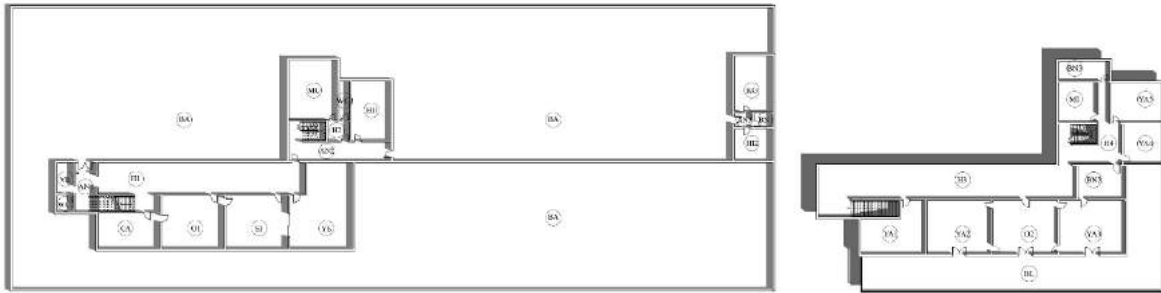


Fig 2. (a) Ground floor of manor house by the sea; (b) Upper floor of manor house by the sea

When the justified plan graph is drawn with the space-connection relations obtained from the convex plans, a tree-like graphic has appeared, see Fig 3. There are many options available for users to switch between spaces in the graph where many rings are seen.

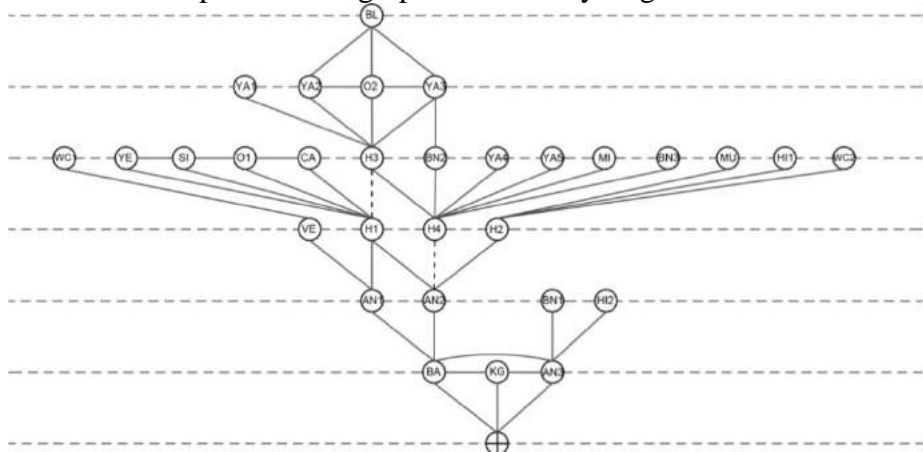


Fig 3. Justified Plan Graph of manor house by the sea

When the calculations of the structure plotted with the justified plan graph are tabulated, see Table 1, it is seen that there is a transition-centered distribution in the calculations as an effect of the modernist plan design

Tablo 1. Deniz kenarında malikane projesi dış dahil hesaplama tablosu

Space No	Space Name	TDn	MDn	RRA	<i>i</i>	CV
0	Root	108	3.60	1.0098	0.9903	0.73
1	Garden (BA)	83	2.76	0.6862	1.4573	1.45
2	Parking Garage (KG)	105	3.50	0.9710	1.0299	0.73
3	Foyer 1(AN1)	86	2.86	0.7250	1.3793	0.84
4	Foyer 2(AN2)	70	2.33	0.5179	<b>1.9309</b>	0.73
5	Foyer 3(AN3)	130	4.33	1.2946	0.7724	2.86
6	Cloak Room (VE)	113	3.76	1.0745	0.9307	1.33
7	Hallway 1(H1)	73	2.43	0.5567	1.7963	2.41
8	Hallway 2(H2)	93	3.10	0.8156	1.2261	3.25
9	Hallway 3(H3)	80	2.66	0.6473	1.5449	2.11
10	Hallway 4(H4)	77	2.56	0.6085	1.6434	<b>4.91</b>
11	Dining Room (YE)	101	3.36	0.9192	1.0879	0.47
12	Living Room 1(O1)	100	3.33	0.9062	1.1035	0.97
13	Living Room 2(O2)	104	3.46	0.9580	1.0438	1.08
14	Workroom (CA)	101	3.36	0.9192	1.0879	0.47
15	Smoking Room (SI)	100	3.33	0.9062	1.1035	0.97
16	Bedroom 1(YA1)	109	3.63	1.0228	0.9777	0.16
17	Bedroom 2(YA2)	106	3.53	0.9839	1.0164	0.75
18	Bedroom 3(YA3)	104	3.46	0.9580	1.0438	1.25
19	Bedroom 4(YA4)	106	3.53	0.9839	1.0164	0.14
20	Bedroom 5(YA5)	106	3.53	0.9839	1.0164	0.14
21	Guest Bedroom (MI)	106	3.53	0.9839	1.0164	0.14
22	Bathroom 1(BN1)	159	5.30	1.6701	0.5988	0.20
23	Bathroom 2(BN2)	101	3.36	0.9192	1.0879	0.39
24	Bathroom 3(BN3)	106	3.53	0.9839	1.0164	0.14
25	Servant's Room 1(HI1)	122	4.06	1.1911	0.8396	0.25
26	Servant's Room 2(HI2)	159	5.30	1.6701	0.5988	0.20
27	Kitchen (MU)	122	4.06	1.1911	0.8396	0.25
28	WC 1	142	4.73	1.4500	0.6897	0.50
29	WC 2	122	4.06	1.1911	0.8396	0.25
30	Balcony(BL)	130	4.33	1.2946	0.7724	0.83
<b>MINIMUM</b>		70.00	2.33	0.5179	0.5988	0.14
<b>MEAN</b>		107.22	3.57	0.9998	1.0806	1.00
<b>MAXIMUM</b>		159.00	5.30	1.6701	1.9309	4.91
<b>H</b>	0.9950		<b>H*</b>	0.7447		

In the calculations of external inclusions to assess the use of residents and guests, the most isolated areas of the building, which have the most integrated venue entrance when considering the integration values (*i*), have been the bathrooms and serviced rooms. It can be said that keeping the servant room in the housing units as the most isolated space in the building is directly related to the desire of the people coming from the outside to reduce the possibility of encountering this part. The fact that the foyer is the most integrated space suggests that the transition spaces are used as the gathering place in the house as it is in modern housing designs. When the control values (CV) are examined, it is seen that the most controlled space is the hallway number 4, which is a transition area.

#### 4.2.Mansion in Suadiye

There is a sign which is "Architect Seyfettin Nasıh" on the project published with the title of "A Mansion Project" in Journal of Mimar. There is also a note that is "Berlin, 5 July / 931 Architect Seyfi Himmetzade" on the drawings in the journal, see Fig 4.

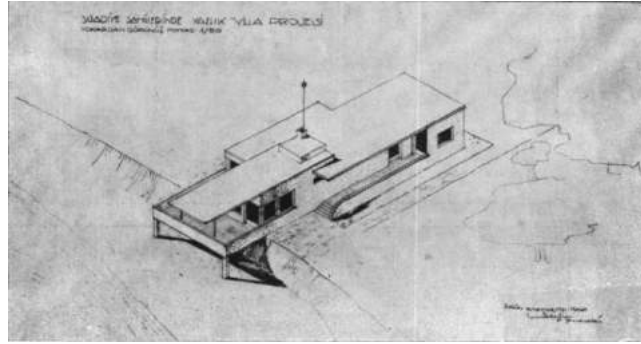


Fig 4. Top view of Mansion in Suadiye

The house is designed for middle-income family. The beachfront side of house consists of a large terrace, a saloon and dining room. This section is connected to the entrance hall which provides a modern style nexus for guests and households. The bedrooms of the house were completely separated from the reception area so that the internal planning of the house was always smoothly served [14], see Fig 5.

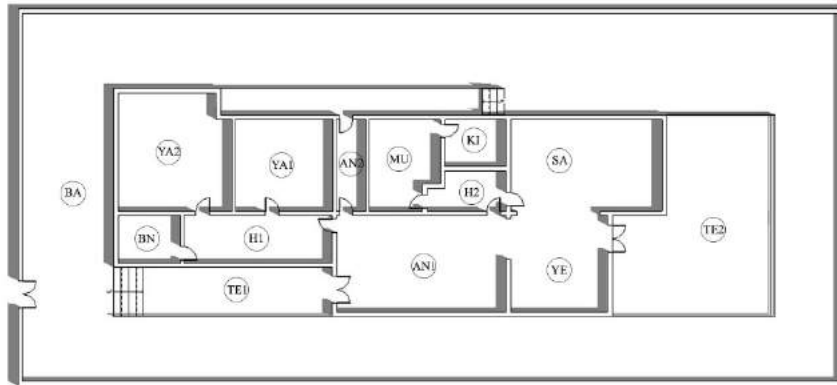


Fig 5. Floor plan of Mansion in Suadiye

The justified plan graph constructed using the convex plan of house is formed in a tree-like appearance, see Fig 6. Compared to other houses, mansion has less space. Additionally, it is seen that the ring type connection is less and the house planning in the graph is deepened.

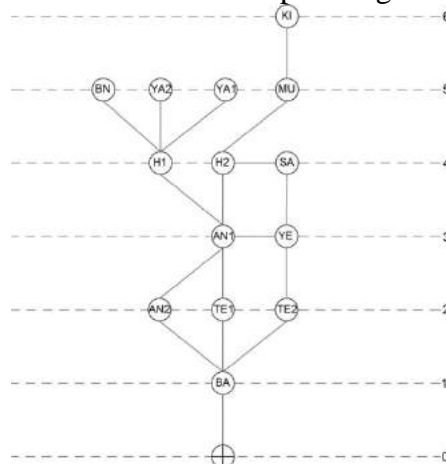


Fig 6. Justified Graph Plan of Mansion in Suadiye

When the calculations of the house plotted with the justified plan graph are tabulated, see Table 2, it is seen that there is again a transition-centered distribution in the calculations as an effect of the modernist plan design.

Table 2. Calculation table of Mansion in Suadiye

Mekân No	Mekân Adı	TDn	MDn	RRA	<i>i</i>	CV
0	Root	51	3.64	1.5720	0.6361	0.25
1	Garden (BA)	38	2.71	1.0196	0.9808	2.50
2	Terrace 1(TE1)	33	2.35	0.8072	1.2389	0.45
3	Terrace 2(TE2)	39	2.78	1.0621	0.9415	0.58
4	Foyer 1(AN1)	25	1.78	0.4673	<b>2.1400</b>	1.91
5	Foyer 2(AN2)	33	2.35	0.8072	1.2389	0.45
6	Hallway 1(H1)	32	2.28	0.7647	1.3077	<b>3.20</b>
7	Hallway 2(H2)	32	2.28	0.7647	1.3077	1.20
8	Dining Room (YE)	32	2.28	0.7647	1.3077	1.20
9	Saloon (SA)	39	2.78	1.0621	0.9415	0.66
10	Bedroom 1(YA1)	45	3.21	1.3170	0.7593	0.25
11	Bedroom 2(YA2)	45	3.21	1.3170	0.7593	0.25
12	Bathroom (BN)	45	3.21	1.3170	0.7593	0.25
13	Kitchen (MU)	43	3.07	1.2321	0.8116	1.33
14	Cellar (KI)	56	4.00	1.7844	0.5604	0.50
<b>MINIMUM</b>		25.00	1.78	0.4673	0.5604	0.25
<b>MEAN</b>		39.20	2.80	1.0706	1.0460	1.00
<b>MAXIMUM</b>		56.00	4.00	1.7844	2.1400	3.20
<b>H</b>	0.9729		<b>H*</b>	0.6902		

In the calculations made, the most isolated areas of the house, which has the most integrated space foyer, are the roots (outer) and cellar when the values of integration (*i*) are examined. The fact that outdoor space is one of the most isolated spaces suggests that the house is less integrated with the exterior and has a deeper distribution. In this house which has modern residential design features, transition spaces are used as the gathering place. As a sign of it, foyer number 1 is the most integrated space. When the control values (CV) are examined, it is seen that the most controlled space is the hallway number 1, which is also a transition area.

#### 4.3. House of İhsan Sami Garan

It was published in the title of "Dr İhsan Sami House" in Journal of Mimar. The project signed by "Architect Seyfettin Erkan" is designed as a two-story and meet the needs of a doctor [15], see Fig 7.



Fig 7. View of House of İhsan Sami

There are two rooms, a kitchen, a cellar, a shower and a maid room, and a saloon that is fully open to the terrace in the ground floor of the building. Bedrooms and bathrooms are situated on the upper floor [17], see Fig 8.

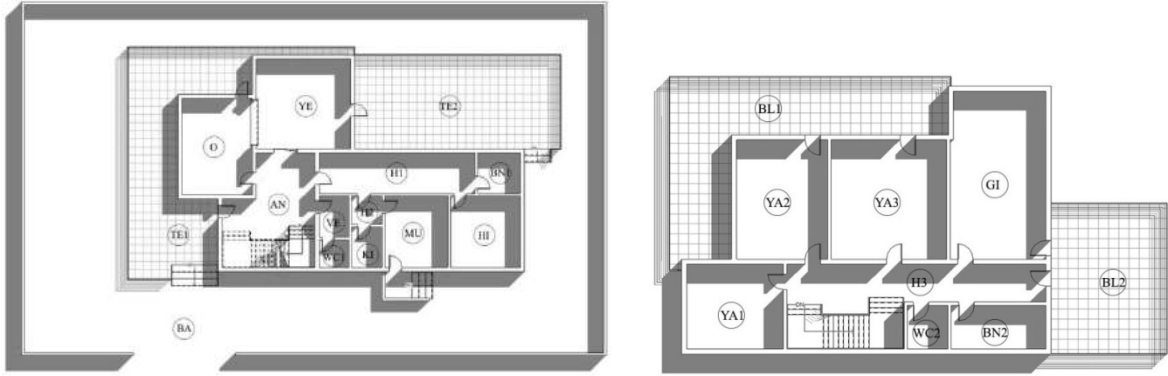


Fig 8. (a) Ground floor of House of İhsan Sami; (b) Upper floor of House of İhsan Sami  
 When the justified plan graph is drawn with the space-connection relations obtained from the convex plans, a deep and tree-like graphic has appeared, Fig 9.

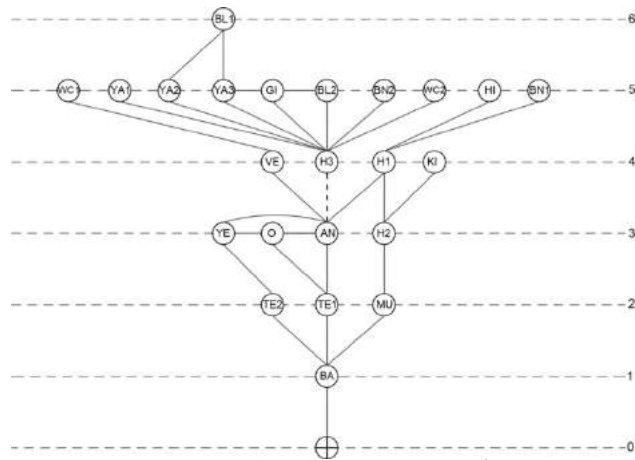


Fig 9. Justified plan graph of House of İhsan Sami

When the calculations of the house plotted with the justified plan graph are tabulated, see Table 3, it is seen that in calculations there is a transition-centered distribution as an effect of modernist plan design as in other houses designed by Arkan.

Table 3. Calculation table of House of İhsan Sami

Mekân No	Mekân Adı	TDn	MDn	RRA	<i>i</i>	CV
0	Root	91	3.95	1.3135	0.7613	0.25
1	Garden (BA)	69	3.00	0.8885	1.1255	2.33
2	Terrace 1(TE1)	58	2.52	0.6760	1.4793	0.75
3	Terrace 2(TE2)	73	3.17	0.9658	1.0354	0.58
4	Foyer (AN)	44	1.91	0.4056	<b>2.4655</b>	1.87
5	Cloakroom (VE)	64	2.78	0.7919	1.2628	1.16
6	Hallway 1(H1)	56	2.43	0.6374	1.5689	2.50
7	Hallway 2(H2)	69	3.00	0.8885	1.1255	1.75
8	Hallway 3(H3)	50	2.17	0.5215	1.9175	<b>4.83</b>
9	Dining Room (YE)	60	2.60	0.7147	1.3992	1.00
10	Living Room (O)	60	2.60	0.7147	1.3992	0.83
11	Bedroom 1(YA1)	72	3.13	0.9465	1.0565	0.12
12	Bedroom 2(YA2)	70	3.04	0.9078	1.1016	0.62
13	Bedroom 3(YA3)	69	3.00	0.8885	1.1255	0.95
14	Changing Room (GI)	69	3.00	0.8885	1.1255	0.95
15	Bathroom 1(BN1)	78	3.39	1.0624	0.9413	0.25
16	Bathroom 2(BN2)	72	3.13	0.9465	1.0565	0.12
17	Servant's Room (HI)	78	3.39	1.0624	0.9413	0.25
18	Kitchen (MU)	81	3.52	1.1203	0.8926	0.58
19	Cellar (KI)	91	3.95	1.3135	0.7613	0.33
20	WC 1	86	3.73	1.2169	0.8218	0.50
21	WC 2	72	3.13	0.9465	1.0565	0.12
22	Balcony 1(BL1)	89	3.86	1.2748	0.7844	0.83
23	Balcony 2(BL2)	71	3.08	0.9272	1.0785	0.45
<b>MINIMUM</b>		44.00	1.91	0.4056	0.7613	0.12
<b>MEAN</b>		70.50	3.06	0.9175	1.1785	1.00
<b>MAXIMUM</b>		91.00	3.95	1.3135	2.4655	4.83
<b>H</b>	1.0008	<b>H*</b>		0.7590		

In calculations of evaluating the use of house by householders and guests, integration values (i) are analyzed. While the most integrated space of the house is the foyer, the most isolated places are the root and the cellar. The fact that outdoor space is one of the most isolated spaces suggests that the building is less integrated with the exterior and has a deeper distribution. The isolation of places such as cellar and WC is due to the desire to keep such places out of sight. In this house, which features modern housing design, transition spaces are used again as the gathering place. Therefore, foyer is the most integrated place in the house. When the control values (CV) are examined, it is seen that the most controlled space is the hallway number 3, which is a transition space.



### Housing Project in Göztepe

The project is published in the title of “House Project” and signed by “Architect Seyfettin Erkan” in the Journal of Mimar. There is no information about house except white paper of project which is written to “about to start the construction”. However Sayı (2006) mention that the house was constructed [16]. On the ground floor there are two foyer used for the kitchen and service together with the saloon, dining room and other guest rooms. Bedrooms and balkonies are placed on the upper floor [17], Fig 10.

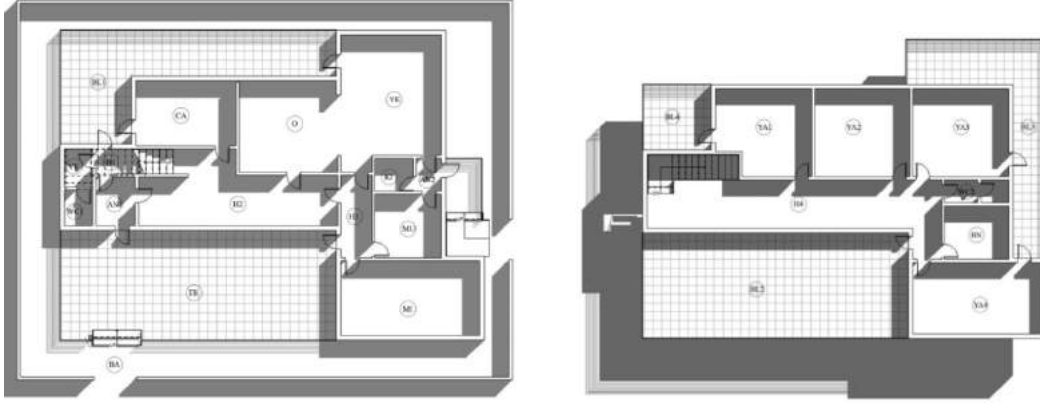


Fig 10. (a) Ground floor of Housing Project in Göztepe; (b) Upper floor of Housing Project in Göztepe

When the justified plan graph is drawn with the space-connection relations obtained from the convex plans, a deep but bush-like graphic has appeared, see Fig 11.

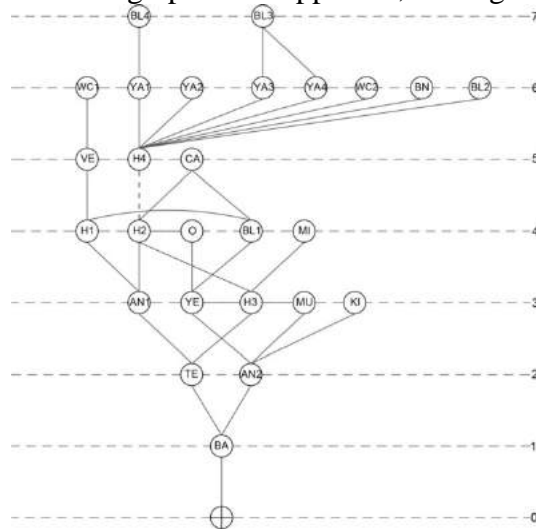


Fig 11. Justified plan graph of Housing Project in Göztepe

When the house calculations plotted with justified plan graph are tabulated, Table 4, it is seen that the transition-centered distribution is valid within this house.

Table 4. Calculation table of Housing Project in Göztepe

Space No	Space Name	TDn	MDn	RRA	<i>i</i>	CV
0	Root	117	4.50	1.4590	0.6854	0.33
1	Garden (BA)	92	3.53	1.0582	0.9450	1.58
2	Terrace (TE)	77	2.96	0.8177	1.2229	0.86
3	Foyer 1(AN1)	68	2.61	0.6734	1.4850	0.86
4	Foyer 2(AN2)	89	3.42	1.0101	0.9900	2.08
5	Cloakroom (VE)	105	4.03	1.2666	0.7895	1.33
6	Hallway 1(H1)	82	3.15	0.8978	1.1138	1.16
7	Hallway 2(H2)	58	2.23	0.5131	<b>1.9489</b>	1.65
8	Hallway 3(H3)	66	2.53	0.6413	1.5593	2.28
9	Hallway 4(H4)	65	2.50	0.6253	1.5992	<b>5.70</b>
10	Dining Room (YE)	74	2.84	0.7696	1.2994	1.28
11	Living Room (O)	74	2.84	0.7696	1.2994	0.45
12	Working Room (CA)	75	2.88	0.7856	1.2729	0.53
13	Bedroom 1(YA1)	88	3.38	0.9940	1.0060	1.12
14	Bedroom 2(YA2)	90	3.46	1.0261	0.9746	0.12
15	Bedroom 3(YA3)	88	3.38	0.9940	1.0060	0.62
16	Bedroom 4(YA4)	88	3.38	0.9940	1.0060	0.62
17	Guest Bedroom (MI)	91	3.50	1.0421	0.9596	0.20
18	Bathroom (BN)	90	3.46	1.0261	0.9746	0.12
19	Kitchen (MU)	85	3.26	0.9459	1.0572	0.45
20	Cellar (KI)	114	4.38	1.4109	0.7088	0.25
21	WC 1	130	5.00	1.6674	0.5997	0.50
22	WC 2	90	3.46	1.0261	0.9746	0.12
23	Balcony 1(BL1)	78	3.00	0.8337	1.1995	1.08
24	Balcony 2(BL2)	90	3.46	1.0261	0.9746	0.12
25	Balcony 3(BL3)	111	4.26	1.3628	0.7338	1.00
26	Balcony 4(BL4)	113	4.34	1.3949	0.7169	0.50
<b>MINIMUM</b>		58.00	2.23	0.5131	0.5997	0.12
<b>MEAN</b>		88.44	3.40	1.0012	1.0779	1.00
<b>MAXIMUM</b>		130.00	5.00	1.6674	1.9489	5.70
<b>H</b>	0.9966		<b>H*</b>	0.7487		

When the integration values (*i*) are examined, it is seen that the hallway number 2 of the most integrated space. As in some of the other houses designed by Arkan, the most isolated places are the places that they want to conceal, such as root (outer) due to the tendency towards inward design and cellar, WC. When the control values (CV) are examined, it is seen that the hallway number 4, which is the transition space of the most controlled space.

## 5. Discussion

When the justified plan graphs of the houses designed by Seyfi Arkan are examined and analyzed in numerical data, integration values indicate that houses have a predominantly transition space design. The order according to the integration values of the house spaces is as follows:

- **Manor House by The Sea (1930-33):**  
 $AN2 (1.93) > H1 (1.79) > H4 (1.64) > H3 (1.54) > BA (1.45) > AN1(1.37) > H2 (1.22) > O1 = SI (1.10) > YE = BN2 = CA (1.087) > \text{Ort. Değ.} (1.080) > O2 = YA3 (1.04) > KG (1.02) > YA2 = YA4 = YA5 = MI = BN3 (1.01) > KÖK (0.99) > YA1 (0.97) > VE (0.93) > H11 = WC2 = MU (0.83) > AN3 = BL (0.77) > WC1 (0.68) > H12 = BN1 (0.59)$
- **Mansion in Suadiye (1930-33):**  
 $AN1 (2.14) > YE = H1 = H2 (1.30) > AN2 = TE1 (1.23) > \text{Ort. Değ.} (1.04) > BA (0.98) > SA = TE2 (0.94) > MU (0.81) > YA1 = YA2 = BN (0.75) > KÖK (0.63) > KI (0.56)$
- **House of İhsan Sami Garan (1933):**  
 $AN (2.46) > H3 (1.91) > H1 (1.56) > TE1 (1.47) > YE = O (1.39) > VE (1.26) > \text{Ort. Değ.} (1.17) > YA3 = H2 = BA = GI (1.12) > YA2 (1.10) > BL2 (1.07) > WC2 = YA1 = BN2 (1.05) > TE2 (1.03) > HI = BN1 (0.94) > MU (0.89) > WC1 (0.82) > BL1 (0.78) > KÖK = KI (0.76)$
- **Housing Project in Göztepe (1934):**  
 $H2 (1.94) > H4 (1.59) > H3 (1.55) > AN1 (1.48) > YE = O (1.29) > CA (1.27) > TE (1.22) > BL1 (1.19) > H1 (1.11) > \text{Ort. Değ.} (1.07) > MU (1.05) > YA1 = YA3 = YA4 (1.00) > AN2 (0.99) > WC2 = YA2 = BN = BL2 (0.97) > MI (0.95) > BA (0.94) > VE (0.78) > BL3 (0.73) > BL4 (0.71) > KI (0.70) > KÖK (0.68) > WC1 (0.59)$

It has been determined that the calculations made in the houses where the effects of the modernist approach are seen are the foyers and hallways which are the transition places of the most integrated spaces. It is also seen that the outer spaces, called the roots, and service departments are the most isolated places. According to Bafna (2001); It is natural that the foyer and dispersal areas are more integrated along the integration-separation axis and that the bedrooms and service areas are located at the other pole [18]. As Bafna mention that in the houses designed by Arkan, distribution spaces such as foyers and hallways as well as guest open living units and dining rooms are more integrated; Bedrooms and service areas are more isolated. In addition to the service areas, the servant's rooms are among the isolated spaces. Beyond the general tendency, however, unexpected results have arisen in places such as saloons and living rooms, which are common areas of use. For example, the other living room (O2) in the Manor on the Seaside; In the Water Project in Suadiye, the hallway (SA: isolated space) is below the average integration value. In the other houses, these living spaces are among the most integrated spaces. The kitchen, which is a isolated space in all of the spatial organizations, has been shifted backwards from the spatial system. This isolation is intended to make the cooking and preparation actions far more out of sight. Toilets are also the most isolated spaces, like other service spaces. It is interesting that there is no toilet in the plan of mansion project in Suadiye (a new point of view for the 1930s), whereas the bathroom is designed more isolated. The fact that outdoor space is one of the most isolated spaces indicates that the house is less integrated with the exterior and has a deeper distribution.

Relative difference factor (H \*) values are calculated to interpret the differentiation of integration value of spaces that generate the spatial organization of the houses. When the relative difference factor (H \*) values (Table 5) were examined, it was determined that the values of all the houses were closer to 1.

Table 5. H\* values of houses designed by Seyfi Arkan

House Name	H* value
Manor Houes by The Sea	0.7447
Mansion Project in Suadiye	0.6902
House of İhsan Sami Garan	0.7590
Housing Project in Göztepe	0.7487

The H \* value is close to 0 indicates that the difference between the integration values of the places is much and that there is a heterogeneous distribution. This shows that planning has strong genotype. The value of H \* is close to 1, indicating that the integration values of the spaces have a homogeneous distribution and that the planning has a weak genotype [19]. When the values obtained from the houses designed by Arkan are evaluated according to this situation, it has been determined that the difference between the integration values (i) in the spatial organizations of the houses is smaller and has a weak genotype. Similar topological structures -lower order relationships- in spatial organizations are also found in the Miesian and Murcuttian houses [20].

### 6. Conclusion

The conclusions reached in the houses designed by Seyfi Arkan, who does not go out of the modernist line, reveal that the architect's concern is not only formal but also the design approach reflects the western style. Numerical data obtained from the houses analyzed show that Arkan uses layouts of modernist approaches in his designs to form plans. Since the first designs, the existing foyers and transition spaces are the most integrated and most controlled spaces, revealing that the expectation of the formal approach exists in the planning sub-structure. Indeed, as many analysts have noted, the more “functional” a space, the less capacity it has to adapt to changing social and cultural conditions. Nonexistence of sofa space, which is also found in the traditional buildings, in the first modern houses is a sign of this change. Seyfi Arkan is one of the architects who realized this change and based on western architecture.

## Acknowledgments

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## AN EXPERIMENT FOR MEASURING THE EFFECT OF ARCHITECTURE EDUCATION ON SPACE PERCEPTION

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### Abstract

The concept of space, which is based on architecture and confronted as an architectural product, has various definitions in the literature. Many perspectives were improved on the concept of space that was discussed for years. Space perception is a contemporary and sophisticated theme. Aforementioned concept is classified as sensual and cognitive perception. While sensual perception is consisted of sight, hearing, smell and touch sense, cognitive perception is defined by Downs and Stea as a range of psychological transformation of obtained information by the individual and coding, storages, recollections and an analyzed case about relative places. [1]

The effect of education on space perception was evaluated within this study. Education is assumed as an important element for the generation of architecture discipline, though opposing views. Architecture education provides yield such as saving detailed perceptual levels for the individuals and differentiating space perception style. The results that architects and non-architects evaluate the constructions differently were expressed within many studies. The objective of this study is to bring into question the space perceptions of architecture students, the change about the evaluating skills of obtained information in parallel with the education.

The study was conducted through a questionnaire about the effect of education on space perception among students in the first, second, third and fourth classes. Four constructions that are an important architecture product and completed after the year of 2000, were selected for the study. The questionnaire was consisted of adjectives for measuring the visual perception at the end of the reviewing process of the literature. Besides, the students are asked for estimating the function and material of the constructions by evaluating visual imaginations. The obtained data was evaluated via statistical analysis.

The 1<sup>st</sup> and 4<sup>th</sup> class students answer more decisive and the other classes present ambivalent answers as considering the significant results. Furthermore, positive effect of education on estimating material and function is highlighted as a conclusion of the study.

*Key words: space perception, experiment, education.*

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### 1. Introduction

The effect of education on creativity and perception has been discussed for years and various views were propounded by philosophers. While some of these views advocate this perception has a natal potential, the others assert that it is shaped by experiences and doctrines. The individual is expected to have a changing perception by contributing his/her design practice that possessed by various experiments, thoughts, insight and experiences to life as well as theoretic

and practical knowledge during education process.

Several sources about perception were reviewed before starting to carry out this study. Primarily, the master thesis of Tokatlı İncekara named as “Physiological and Psychological Factors on Perception of Architectural Place” was examined since, it presents the concept of “perception” and the views about this concept in a detailed chronological order. [2]

Moreover, the literature has many researches on measuring the effect of architecture education on perception level of student. The master thesis of Asar “Examination of the analysis of perceptual experience in architectural space reading with the help of a method” approaches the concepts of perception, place and experience and also, Kevin Lynch conducted a study to constitute a framework for reading architectural places by benefiting from the concepts for reading urban places in his book of “The Image of the City”. [3] The results of survey study that conducted with this framework showed that internal and external of a place are perceived as a whole.

The questionnaire form of this study was composed of the doctorate thesis of Minez named as “Investigation of the transformation of the perception of individuals throughout architectural education on the basis of visual environment evaluation techniques”. [4] This thesis generates a questionnaire about visual environment evaluation techniques by reviewing many sources in the literature and the adjectives were selected for the questionnaire.

Besides, the study of Baytin, “A Research for Determination of the Visual Effects of New Construction in İstanbul Province”, becomes a pathfinder for selecting the adjectives within the study. [5]

## **2. Purpose and Method**

The objective of this study is to investigate the issues of reading construction functions and materials among students by using obtained information of perception of the place, experience during architecture education through various parameters. In the light of this aim, a questionnaire was performed among the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> class students at KTO Karatay University Faculty of Fine Arts and Design Department of Architecture. The students were asked for commenting visual images by using adjectives that determined by various parameters in the literature. Besides, it was expected to read construction functions and materials with given two questions. Obtained data was evaluated via SPSS 24.0 through various analysis. Readings of functions and materials were evaluated frequency analysis as to the classes and variance analysis was used to test the other parameters. This study, which is an experiment about the evaluation of changing perception on visual images during architecture process, was concluded with various comments.

## **3. Architecture Education and Perception**

The concept of “perception” is defined as “transferring nonego to self- consciousness through senses” in the dictionary. [6] Two basic concepts are identified as emotional and cognitive perception for perception of place. Emotional perception is comprised of the actions that occurred by sense organs such as sight, hearing, smell and handling and cognitive perception can be explained according to Downs and Stea as a range of psychological transformation of own obtained information such as an analysed fact about codings, storages, recallings and relativist places. [1] Is perception capability natal or are there learned skills on the basis of



perception? This question was discussed many philosophers such as firstly Descartes, Kant and then Berkeley and Locke in the history of philosophy. While Rapoport advocates that recognition consists of direct and indirect experiences and pure perception occurs suddenly [7], Maslow asserts that all people have a potential natal creativity and they lose time due to education. [8] Furthermore, Montessori expresses that curiosity and creative imagination are losing values while the child's education process. [9]

Architecture education process is a discipline that has the action of design in the central point and is formed by theoretical courses supporting the central point. A new, original, different and creative product and imagination for accessing this product and living various experiences for transformation new ideas to the action are expected from the students during this education process. [10] Design is a field that individuals obtain theoretical and practical information and transform this information into final product with own creative comment in the architecture education process. Design education has differences comparing to other disciplines and contains different cognitive stages. Individual learns by experiencing, thinking, divining and performing in these stages. [11]

The beginner students of architecture education feel themselves as in a different environment because of high school education based on pure theoretical information. Two basic situation that are faced by the students in this environment as unfamiliarity to architectural definitions and being these definitions as quite subjective and uncertain. [4] The student is in a paradox and cannot know what should be firstly learned as expressed by Schön. It is expected from the student to perform not being in the know and he/she goes into dilemma. The student, who have experience by learning the logic of design action, multiple thinking and questioning during the education process. [12] Kahvecioğlu indicates that the performance showed about using and association of data set provides to access the optimal solutions for the problem in unlimited information space. [13]

#### 4. Survey Study

An experiment was conducted to investigate the effect of architectural education on individual perception as to visual imagination within this study. For this purpose, a questionnaire was performed among 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> class students of Department of Architecture. The sample size was determined through statistical tables. Distribution of sample size as to the classes was given in Table 1.

Table 1. The distribution of Sample Size as to Classes

<b>First year students</b>	<b>Second year students</b>	<b>Third year students</b>	<b>Fourth year students</b>	<b>Total</b>
41 people	39 people	50 people	34 people	164 people

Constructions in the questionnaire was selected as cultural constructions after the year of 2000 and these were taken into consideration as valuable and recognized architectural products. For this purpose, Modern Art Museum of Fort World (Architect: T. Ando) constructed in 2002, Walt Disney Concert Hall (Architect: F. Gehry) constructed in 2003, Royal Ontario Museum (Architect: D. Libeskind) constructed in 2007 and Elbphilharmonie (Architect: Herzog/Meuron) constructed in 2016 were selected for the questionnaire. Visual imaginations of these constructions were demonstrated to the students with colourless printing and were asked for reading their functions and materials.

While selecting the imaginations, it was cared of associated with its environment (Table 2).

Table 2. Visual Imaginations

			
<b>Modern Art Museum of Fort Worth</b>	<b>Walt Disney Concert Hall</b>	<b>Royal Ontario Museum</b>	<b>Elbphilharmonie</b>

It is remarkable that more than half of the participants know the correct functions of Walt Disney Concert Hall and Royal Ontario Museum, as seen the results of reading of function. However, Modern Art Museum of Fort Worth was selected as an education building and Elbphilharmonie that was constructed on an old building, was assumed as a trade building (Table 3).

Table 3. Frequency Analysis for the Function

		First year students	Second year students	Third year students	Fourth year students
<b>Modern Art Museum of Fort Worth</b>	<b>Education building</b>	%24,4	%12,8	<b>%48</b>	<b>%52,9</b>
	<b>Trade building</b>	%19,5	%12,8	%8	%14,7
	<b>Culture building</b>	%14,6	<b>%41</b>	%24	%14,7
	<b>Religious building</b>	%0	%0	%0	%0
	<b>Housing building</b>	<b>%39</b>	%20,5	%14	%14,7
	<b>Health building</b>	%0	%7,7	%6	%0
<b>Walt Disney Concert Hall</b>	<b>Education building</b>	%0	%5,3	%0	%3
	<b>Trade building</b>	%45,9	%31,6	%14,3	%15,2
	<b>Culture building</b>	<b>%54,1</b>	<b>%63,2</b>	<b>%85,7</b>	<b>%72,7</b>
	<b>Religious building</b>	%0	%0	%0	%0
	<b>Housing building</b>	%0	%0	%0	%3
	<b>Health building</b>	%0	%0	%0	%6,1
<b>Royal Ontario Museum</b>	<b>Education building</b>	%2,7	%0	%0	%12,1
	<b>Trade building</b>	%8,1	%2,6	%10,4	%9,1
	<b>Culture building</b>	<b>%54,1</b>	<b>%60,5</b>	<b>%64,6</b>	<b>%51,5</b>
	<b>Religious building</b>	%32,4	%34,2	%22,9	%27,3
	<b>Housing building</b>	%0	%0	%2,1	%0
	<b>Health building</b>	%2,7	%2,6	%0	%0
<b>Elbphilharmonie</b>	<b>Education building</b>	%12,5	%2,6	%0	%2,9
	<b>Trade building</b>	<b>%50</b>	<b>%61,5</b>	<b>%64</b>	<b>%61,8</b>
	<b>Culture building</b>	%17,5	%33,3	%24	%29,4
	<b>Religious building</b>	%0	%0	%2,4	%0
	<b>Housing building</b>	%10	%0	%4	%2,9
	<b>Health building</b>	%10	%2,6	%6	%2,9

71.8% of the 1<sup>st</sup> class, 81.6 % of the 2<sup>nd</sup> class, 93.9 % of the 3<sup>rd</sup> class and 84.4 % of the 4<sup>th</sup> class students answer for the material of Modern Art Museum of Fort Worth as glass; 70.3 % of the 1<sup>st</sup> class, 67.6 % of the 2<sup>nd</sup> class, 83.3% of the 3<sup>rd</sup> class and 81.3% of the 4<sup>th</sup> class students answer for the material of Walt Disney Concert Hall as metal; 51.4% of the 1<sup>st</sup> class, 48.6% of the 2<sup>nd</sup> class students answer for the material of Royal Ontario Museum as glass and 54.3% of

the 3<sup>rd</sup> class and 43.8% of the 4<sup>th</sup> class answer as metal. 51.3% of the 1<sup>st</sup> class students answer as concrete and, 38.5% of the 2<sup>nd</sup> class, 46% of the 3<sup>rd</sup> class and 52.9% of the 4<sup>th</sup> class students answer as glass for Elbphilharmonie as considering the reading of material. These results explain that the 1<sup>st</sup> class students are inadequate by knowing material comparing to the 4<sup>th</sup> class students.

Various researches conducted by using visual environment evaluation technique were examined after reviewing studies on function and material in the literature. At the end of this review process, 5 factor groups and 15 adjectives (dynamic- interesting- impressive- high-spacious- huge- symmetrical- modern- old- complex- organized- well sized- compatible-distinct- ordinary) belonging to these groups were determined.[3],[4], [5] the questionnaire was rated with 5- point Likert (1- quite few, 2- few, 3- neutral, 4- much, 5- very much).

Variance analysis was used to test the difference between groups, since a statistically significant difference between the groups would help the research. [14]

Variance analysis were performed for four constructions separately and significant difference between classes was analysed. Analysis of Modern Art Museum of Fort Worth and the adjectives that have significant differences are exhibited in Table 4. The adjective of symmetrical has significant differences as the results of performed analysis. The 1<sup>st</sup> class students found this construction the most symmetrical comparing to the other classes and then the 4<sup>th</sup> class students follow this line.

Table 4. Variance Analysis results of Modern Art Museum of Fort Worth

	First year students	Second year students	Third year students	Fourth year students	P	T
<b>Symmetrical</b>	3,39	2,94	2,52	3,14	0,011	3,844

Analysis of Walt Disney Concert Hall and the adjectives that have significant differences are exhibited in Table 5. The adjective of spacious has significant differences as the results of performed analysis. The 4<sup>th</sup> class students found this construction as quite few spacious.

Table 5. Variance Analysis results of Walt Disney Concert Hall

	First year students	Second year students	Third year students	Fourth year students	P	T
<b>Spacious</b>	2,67	3,20	3,50	2,29	0,03	4,82

Analysis of Royal Ontario Museum and the adjectives that have significant differences are exhibited in Table 6. The adjectives of interesting, impressive, modern and complex have significant differences as the results of performed analysis.

Table 6. Variance Analysis results of Royal Ontario Museum

	First year students	Second year students	Third year students	Fourth year students	P	t
<b>Interesting</b>	4,45	4,10	4,36	3,80	0,047	2,71
<b>Impressive</b>	4,10	3,36	3,35	4,34	0,044	2,60
<b>Modern</b>	4,07	3,94	3,87	4,45	0,049	2,20
<b>Complex</b>	4,15	3,52	3,65	3,88	0,027	3,13

Analysis of Elbphilharmonie and the adjectives that have significant differences are exhibited in Table 7. The adjectives of impressive, spacious, old, organized, well- sized and compatible have significant differences as the results of performed analysis. A regular decreasing ratio of the answers as impressive, spacious, organized, well- sized and ordinary was demonstrated from the 1<sup>st</sup> to 4<sup>th</sup> class for this construction. The answer of neutral was beginning from the 1<sup>st</sup> class and towards the 3<sup>rd</sup> class and the students became more decisive in the 4<sup>th</sup> class.

Table 7. Variance Analysis results of Elbphilharmonie

	First year students	Second year students	Third year students	Fourth year students	P	t
<b>Impressive</b>	3,48	3,25	2,80	3,03	0,021	3,34
<b>Spacious</b>	3,41	2,79	2,46	2,64	0,01	5,74
<b>Old</b>	1,56	2,05	2,00	1,50	0,032	3,015
<b>Organization</b>	3,43	2,66	2,88	2,44	0,03	4,89
<b>Well-sized</b>	3,60	3,25	3,00	4,02	0,048	2,70
<b>Compatible</b>	3,63	2,94	2,70	3,82	0,004	4,66

### 5. Evaluation and Conclusion

The most of the participants estimated Walt Disney Concert Hall and Royal Ontario Museum as cultural constructions correctly as the results of analysis of four constructions' functions and materials within this study that aimed to investigate the changing perception of the students on space perception during architecture education. The reading of right material knowledge was increasing towards the 4<sup>th</sup> class.

The results of 15 adjectives that were selected for measuring the effects of visual imaginations on students are showed various significances. Decision- making in the discipline of architecture is not an easy task due to knowledge, possibilities, complexity and discrepancies. [4] Desire to try different things that occurred by possibilities and complexity created by this desire can rise different psychological situations in this process.

Especially uneducated about architecture of the 1<sup>st</sup> class students and the 4<sup>th</sup> class students that are about to complete their architecture education as a candidate of architect express their ideas more decisive comparing to the other groups as seen in the significant results. The 1<sup>st</sup> class students that are the beginner of architecture education answer bravely. More knowledge creates more ambivalence, but then the students become more decisive towards the last class of the education process.

This study is limited with four construction groups that were used within the study, which is aimed to evaluate the effects of education on perception level. This study is expected to be pathfinder for further and more extensive studies.

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## Urban Transformations: Definitions and Development Process

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### Abstract

The transformations created in the post-1980 politics in the urban economy were also reflected in the spatial structure of the city center. Rent-seeking and the low awareness about the historical environment have created intense pressure on the historical center of the city in Istanbul while the historical texture and the social tissue that it contains have been irreversibly destroyed. Monumental constructions and examples of civil architecture, especially those preserved in the historic city centers, are becoming more and more destructed the other day. These pressures can be assembled as;

- Economic
- Social and Cultural
- Technical

The central government sees the construction industry as a way out for the solution of the economic problems we are in. While the construction sector has been active within the suburbs mostly, it has turned to urban centres with a decrease in rents. It is trying to open its own place in the historical centre under the name of urban transformation.

These studies can ignore international protection principles and safeguarding laws when they come into place. The most obvious example of this is the creation of renewal committees by eliminating conservation boards that are obliged to direct historic environmental protection work.

As architectural vocational discipline, it is necessary to put forward proposals that will lead the central government to protect and develop historical texture by combining international conservation principles in the historical environment with the basic rules and the contemporary conditions of the economy.

In this context, Süleymaniye region, located in the historical peninsula of Istanbul and a member of UNESCO world heritage list, is taken as a special example. The study will examine the urban renewal project and processes of the Süleymaniye region, which was declared an urban renewal area in 2006.

**Key Words:** *urban transformation; historical environment; Suleymaniye; renewal; urban development pressure*

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### 1. Introduction

The concept of urban transformation is meant for the innovative behaviors and methods revealed for solving the problems concentrated on urban depression areas in coordination. It is, as a comprehensive and integrated vision and action, an attempt for continuous improvement of the economical, physical, social and environmental conditions of an area. It can be stated that, urban transformation is; the redevelopment and revitalization of a lost economic activity; making a not-working social function work; ensuring social cohesion in areas of social exclusion; re-establishing the lost environmental quality and ecological equilibrium. (Roberts, 2000).

It is expressed that the phenomenon of urban transformation passes through 4 stages (Cook and Kam, 1998).

1. From the middle of the 1800s to the 1940s and from the second half of 1940s to the 1960s; "state-owned wholesale redevelopment and urban regeneration"
2. From the mid-1960s to the 1970s; "multidimensional redevelopment and rehabilitation, urban improvement and urban regeneration"
3. Between 1970s and 1990s; "property-led urban regeneration with public-private partnership"
4. Since the second half of the 1990s; "transformation studies with a re-remembered community"

After 1990, the approach to urban transformation has also changed. While the physical and economic dimensions of the space were emphasized in the urban transformation in the 1980s, from 1990's onwards the view that public interest can be maximized in urban regeneration is widely supported when an approach is developed that integrates the physical, economic, social and environmental aspects of the space as well as the legal, institutional, organizational, monitoring and evaluation processes of urban transformation. Parallel to this approach, another important feature of the period is the acceptance of the needs for the development of 'sustainable cities and regions' based on economic, social and environmental factors. Especially for the implementation of urban transformation policies that will provide effective use of economic, social and environmental resources in Europe, many main policy titles have begun to be discussed on the urban planning agenda such as the revitalization of urban centers, the limitation of urban expansion, the protection of natural and historical heritage. (Jeffrey and Pounder, 2000).

The marketing of cities is continuing using the urban regeneration projects. However, unlike the 1980s, in city marketing programs, recently urban regeneration projects use the image of the city that brings the city's historical and cultural heritage to the forefront, rather than creating new images. With accepting the importance of the strong link between historical and cultural heritage and economic development, urban conservation has been at the forefront of urban transformation since 1990's. Recently, it has been determined that urban regeneration projects, especially in European cities, have been carried out in four areas:

- a. Revitalization of historic centers that have become a blighted zone.
- b. Improvement of historic centers
- c. Revitalization of industrial and commercial areas of historical value
- d. Protection of small and medium-sized historic towns (Drewe, 2000).

### *1.1. Urban Transformation Process in Turkey*

Urbanization movements that started in republic period in our country have gained speed regarding to the immigration from rural areas to cities in 1950s, and as the cities were not ready for this situation, the unhealthy urbanization officially began. In the 1950s, while the industrial sector was on the rise, there was a decline in the agricultural sector. The decrease in demand for labor due to mechanization in agriculture has triggered the migration of the workforce in this sector to the city. The industrialization-accelerated urbanization process has also led to uncontrolled growth of cities such as Ankara, Istanbul and Izmir, which are particularly heavily migrated. (Şişman, 2008).

The transformations created in the post-1980 politics in the urban economy were also reflected in the spatial structure of the city center. Neoliberal policies have caused that an approach of competition among cities has emerged. With this process, gated luxury housing projects were produced in the suburban areas of the city while luxury office, housing and tourism projects were produced in urban centers. (Enlil 2000). Historical city centers in Istanbul have also begun to be reevaluated with urban regeneration projects as well.

In Istanbul, the historical centers that had been declared as "protected area" within the scope of the Law on Protection of Cultural and Natural Assets were announced as regeneration areas with a new law about "regeneration, protection and revitalization of worn historical and cultural immovable assets". Regeneration areas of Sulukule, Tarlabası, Süleymaniye and Fener-Balat, which were declared as renovation areas in Istanbul within the scope of this law, were the first projected areas. With this law, the efficiency of the higher board of protecting cultural and natural assets has been reduced. Projects to be made in urban regeneration areas are being prepared and implemented in local administrations (Dinçer, 2010).

### *1.2. Urban Regeneration in the Historical Environment - Example of Süleymaniye*

Süleymaniye is a neighborhood of Fatih District surrounded by Demirtaş in the north, Hoca Gıyasettin in the northwest, Molla Hüsrev in the west, Beyazıt in the south and Mercan in the east. The quarter of Süleymaniye is named after Süleymaniye Mosque and Complex, which



was built by Mimar Sinan in the 16th century by the order of the Ottoman Sultan Suleiman the Magnificent. The development of the region has been caused by the settlement formed around this building complex. Many complexes, madrasas and mosques that have been preserved until today belong to the same period. Thus, Süleymaniye became a part of the Ulemans until the first quarter of the 17th century. In addition to these works carried out in similar periods, many shops for commercial purposes in this region can continue their same functions today.

Süleymaniye lost its former significance from the beginning of the 20th century. While before it has been, a region preferred by the elite and wealthy, later it got surrounded by poor settlements. Although traditional building structure could be preserved until 1950s, most of them disappeared through destructions and fires that have occurred over time. (<http://www.fatih.bel.tr/icerik/1158/suleymaniye-bolge-si-yenileme-projesi/>)

Despite all these, there are still many streets and residential buildings that are still up to date. Today Süleymaniye District is a historic place where tourism is given priority along with some structures of the mosque and the surrounding area of Süleymaniye Mosque. It is also located on the historical peninsula and in 1985, along with Zeyrek, Istanbul City Walls and Archeology Park; it was taken to the world heritage list by UNESCO.

Conservation Provisions and Implementation Plans prepared for the historical peninsula came into force in 1990 and 2005 and both plans were canceled because of the lawsuits filed by the Chamber of Architects Istanbul Branch. The 1/5000 scaled Master Plan for Conservation came into force in 2011 while the 1/1000 scaled Implementation Plan for Conservation was introduced in 2012 for the Historical Peninsula, which was declared a protected area entirely in 1995. The peninsula remained unplanned within these years. Istanbul No.1 Regeneration Areas Cultural Heritage Protection Board found the parts about the regeneration areas of the implementation plan appropriate. According to the 1/1000 scaled Implementation Plan Notes it says: “In regeneration areas, the function, construction and elevation conditions of the preliminary projects approved by the regarding regional council for preservation are valid. In Süleymaniye district, residential function may also be included within the building blocks where the original neighborhood and street pattern has been preserved although the function has changed into nonresidential use.” So, in fact, the plan indicates that the construction in the region will be as predicted by the renovation projects.

### *1.3. Süleymaniye Urban Regeneration Project*

Süleymaniye District has been approved as a regeneration area by the decision of the Council of Ministers, for the preservation of the worn historical and cultural immovable assets and the use of them to be revitalized. The content of the project managed by the local government has been published;

“With Istanbul being chosen as the 2010 European Capital of Culture, Istanbul and Fatih District should be redefined as a city that possesses historical and cultural values, where service sectors coexist with commercial, touristic and cultural activities, to create a reliable, sustainable and livable urban settlement structure that will ensure the preservation and survival of durable architectural tactics against all kinds of disasters and risks.” has been defined as the purpose of project.

The objectives of the project define the process of urban regeneration project; A comprehensive and participatory project approach is adopted, which can manage change, respect humanity and historical values. Within the project scope it is declared that the restoration and reconstruction of vanished monumental buildings, restoration of existing monumental buildings and new building projects that are supposed to be “reconciling” with the historical environment are aimed.

A protocol was prepared between the Istanbul Metropolitan Municipality and the Fatih Municipality for the work to be carried out in the Süleymaniye Regeneration Area and the protocol was adopted by decision no. 1528 dated 13.09.2006. In accordance with this protocol Süleymaniye Regeneration Area is divided into 5 units of implementation. It covers an area of 938.718 m<sup>2</sup>, where there are 728 registered monumental and 1239 unregistered buildings. Construction works are being carried out in the 1st part of the implementation zone. There are

39 blocks and 733 parcels within the area, with 319 registered buildings and 26 monumental buildings



Fig. 1. Süleymaniye Urban Regeneration Areas (<http://www.fatih.bel.tr/icerik/1158/suleymaniye-bolgesi-yenileme-projesi/>)



Fig. 2. Süleymaniye urban regeneration project studies



Fig. 3. Süleymaniye urban regeneration project studies

#### 1.4. Actors of the Project

According to project management team, actors included Süleymaniye urban regeneration project are;

- Istanbul Metropolitan Municipality (Historical Environment Preservation Directorate)
- Fatih (Eminönü) Municipality
- Ministry of Culture and Tourism (Istanbul No.1 Regeneration Areas Cultural Heritage Protection Board)
- Special Provincial Administration (Central Administration)
- Istanbul University
- Kiptaş (Greater Municipality of Istanbul Construction Enterprise)
- Bimtaş (Greater Municipality of Istanbul Project Enterprise)
- Private Property
- Private Enterprise

#### 1.5. Process

May 2006: The decision of the Council of Ministers was announced; Süleymaniye declared as a regeneration area

September 2006: Istanbul Metropolitan Municipality and Fatih Municipality signed a protocol. Accordingly, the Süleymaniye renovation area was divided into 5 implementation areas.

November 2007: 9 buildings with a decision of conservation were destroyed by KİPTAŞ.

May 2011: Some of the remaining parcels in the Süleymaniye Regeneration Project Area were given a "hasty expropriation" decision. The decision was published in the official gazette.

April 2012: The destruction of some of the buildings under the project started. The two buildings in which tenants were living were requested to be demolished without notice.

September 2013: Kadir Topbaş-Mayor of Istanbul has declared that "the Project had stopped due to many of the property owners requests of a few times the price of the properties."

February 2015: Fatih Municipality declared a decision of expropriation for many parcels within the regeneration area.

August 2015: the fact that none of the 143 buildings which were bought by Kiptaş were restored has been published in a national newspaper

The urban regeneration Project, which included the restoration of vast historical buildings, has been stopped.

### *1.6. Conclusion*

The fact that cities should not be perceived only as a specific physical building in a certain place, that they are physical integrities formed with the interaction of social relations, institutions, management and legal practices, forms of communication and media, social movements and similar formations, should be underlined. (Özbek, 2001)

Süleymaniye urban renewal project, as understood from the above evaluations, is in line with the approaches of expropriations handed by Kiptaş and Istanbul Metropolitan Municipality; It is covered by the studies of redevelopment and urban renewal, which started from the mid-1800s of the first transformation studies in the world to the 1940s and the second half of the 1940s to the 1960s. Since the second half of 1990s, "recalling the society" has not been developed in accordance with the transformation studies.

Within the Süleymaniye Regeneration Project, while preserving the contour and size of the properties registered as historical buildings, the unregistered buildings are transformed mainly into residential buildings harmonized with the historical environment and silhouette. Apparently compared to other renovation projects such as Tarlabaşı or Sulukule, the Project develops a more conservative approach while this approach is not intended for the socio-economical structure as it has been in the previously referred regeneration projects. It is clear that the proposed plans and projects are aimed at creating a new social environment in addition to being aimed at creating a new physical character for the region.

But how realistic can it be in practice to create such a high-density residential area in Süleymaniye? Although the traditional trading units remain around the estuary coast, the inner areas of workshops of manufacturing and storage units being transformed into luxurious residential units might be causing the space itself to have a destructive effect. Therefore, the risk of creating a new exclusion seems to be extremely high although it's being promoted under the rubric of "creating classical Ottoman neighborhood" as it is in the other projects. In addition to the physical transformation, this social transformation should be addressed by a social transformation project in which methods should be considering the real users, meeting a social consensus and avoiding "haste expropriation"

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## **PUBLIC PLACES FROM PAST TO FUTURE, BERLIN: PARISER PLATZ & POTSDAMER PLATZ ISTANBUL USKUDAR SQUARE EXAMPLES**

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### **Abstract**

As a result of the global cultural, economical and social events of recent years, the definition and utilization of public spaces have again become a matter of debate. Public spaces are basically places where people living in the city come together and meet. Additionally, they also have always been playing an important role in reorganization and development process of societies and cities.

For centuries, city squares have been the most important public spaces of the cities. As well as being urban spaces, city squares are significant architectural elements in terms of representation of their surrounding structures. To the present day, city squares have been transformed by the ruling authorities and their different ideologies.

In this paper, two major squares in Berlin, Pariser Platz and Potsdamer Platz; and one square in Istanbul were selected for the case study. Located in the centre of Berlin, between Brandenburg Gate and Unter den Linden, Pariser Platz was the largest square of the city before World War II. But after the war, following the construction of the Wall, the square turned into an idle space. The Potsdamer Platz is also located in the centre of the city and in only 1 km south of the Pariser Platz. But these two squares differ from each other strongly in terms of their structures and features. For instance, Pariser Platz is a dominant and closed square, whereas Potsdamer Platz is a point streets are directed towards. Since the days the city was being developed, these two squares preserved their identities with their different typologies over the course of history presenting World War II, the era of National Socialism and the erection of the Wall, to the present day.

In regard to significance, the last square to be examined, located in Uskudar, can be considered as important as the city of Istanbul itself. With its long history dating back to the birth of Jesus Christ, it is a major coastal square in Istanbul.

Focusing on the utilization of Pariser Platz, Potsdamer Platz and Uskudar Square, this study aims to examine how spatial quality and its criteria in open public spaces are defined, under the light of new trends in architecture using the methods of comparative analysis, literature research, observation and questionnaires.

***Key Words: Public Space; Square; Berlin; Pariser Platz; Potsdamer Platz***

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### **1.INTRODUCTION**

The lexical definition of the term “public” includes both the notions “related to public” and “belonging to the state”. In general, “public space” is defined as the space that separates the society from the authorities.

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According to Habermas, the most prominent features of public space are its exemption from the authority and its being a space where citizens of all different levels have access to. It is distinct from the authority of the state and also independent of the public authority. [1]

Moreover, highlights two different aspects of public space: physical and symbolic. Physically, public spaces are sites where complaints, criticisms and wishes can be freely announced in the streets, parks and squares. Symbolically, they are sites where institutional considerations and freedom of press are emphasized. [2]

The quality of public spaces (of streets, squares and similar components) plays an important role in the formation of the identities of cities.

## **2.URBAN SPACE**

All the spaces between buildings in the cities can be considered as outdoor spaces or urban social spaces. Everywhere is an urban space where structure made by humans “encloses the void”, i.e. indoor and outdoor spaces, streets, parks and gardens.[3] In addition to being stylistic, architectural spaces are also integrated with characteristics of human life, because these spaces exist depending on their quality of utilization. Madanipour defines urban spaces as physical places within towns, cities and rural areas; that are accessible to anyone and can be entered by foreigners and locals with minimal restriction. [4]

On the other hand, Rob Krier defines the city as a settlement which includes or has been built with urban features in accordance with the characteristics of a city. He especially emphasizes that in case of the absence of aesthetic criticism, any outdoor space would qualify for urban space. [5]

Urban spaces should be able to respond to the needs of users. They should feature design elements conforming to the main needs of users, such as comfort, rest and active / passive participation. Being democratic spaces at the same time, these must protect the rights of the users and provide them with the opportunity to move freely. In addition to all these features, these spaces must be designed to be accessible to all users without difficulty.[6]

### **2.1.PUBLIC SQUARES AS URBAN SPACES**

Throughout history, squares have been places where city dwellers can meet, rest and take a breath and also where they can share with others living in the city. The concept of the square has been at the forefront not only in today’s world, but during many periods of history. In many languages, there is a word for the concept: The Greek call it “agora”, the Romans “forum”, the Italians “piazza”, the Spanish “plaza” and the Germans “Platz”.

While Paul Zucker defines the square as a psychological parking place within public space, according to Schulz the square is the most striking element of urban texture, an urban space with clearly specified boundaries, which is possible to imagine in the simplest manner. Vitruvius states that a city square should be designed directly proportional to the population living in the city, i.e. not too small to be useless and not too large for the low population to get lost in it.

Alternatively, Moughtin has made a regional assessment and related the complexity and functional continuity of the Mediterranean cities to people’s way of living, the culture and their aesthetic judgments.[7] In Mediterranean cities, life happens mostly outdoors. If we were to examine Turkey based on this example, life in Turkish villages (the smallest settlement units) mainly focuses on either the coffee shops located in squares or in the little spaces shopkeepers “invent” in front of their shops by putting a couple of chairs where they communicate with their surroundings. All these observations seem to confirm Moughtin's thesis.

The main cause that people are attracted to the squares is the human factor. The higher the number of people using the space, the more attractive the area will be for other potential users.

The level of visual quality and the appropriate arrangements for activities such as walking and resting, are also attractive features for urbanites.

### 2.1.1. SQUARE TYPOLOGIES

A lot of studies have been conducted on different square types. One of the most widely accepted among these is Paul Zucker's theory. [8] Zucker categorized squares into five different groups:

- The Closed Square, where the space is self-contained,
- The Dominated Square, where the space is directed towards the main building,
- The Nuclear Square, where the space forms around a center,
- The Amorphous Square, a space with unclear boundaries,
- The Grouped Square, where the space is formed by combined spatial units



Fig. 1. Square typologies

According to Zucker, the ideal square has “... the most perfect form possible in Hellenistic and Roman time periods, independent of certain periods or architectural trends. It then emerges again in the 17th and 18th centuries”. An example of such a square is the Place des Voges in Paris.

The key to the enclosure of a square is the method which its corners are designed with. In general, the more open the corners are, the less a sense of enclosure it generates; on the contrary, the more constructed and integrated they are, the more enclosed it feels. [8]

Kevin Lynch says that how we use buildings, spaces, squares and cities is closely related to how we remember them. He underlines that the perception of the city is a longer process than that of a building. Additionally, the perception process of a square depends on the meanings imprinted on our minds according to certain memories based on the time we spent and the reason we were there for. That is, this perception process varies according to the person, their world view and culture. [9][10]

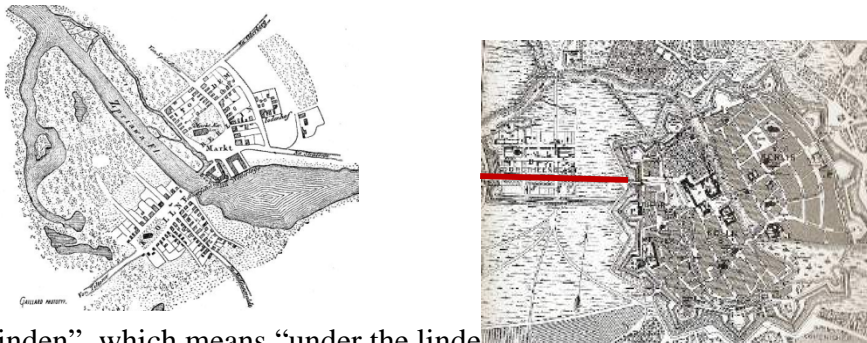
About the use of cities and squares, many different observations have been made. But the most noteworthy among these belongs to Jan Gehl. In a pedestrian city, you see people in the streets because they keep walking from one place to another; whereas in automotive cities there are only cars on the streets. If you are in a square with well-planned functions, people will meet there. If there are no squares and no city life, traffic signs and street lamps transform into meeting places. The city of Venice is the best example of this. When a newly married couple comes out of the church, they do not get in a black limousine, they walk away from among the invitees by foot. Or, a musician casually may walk away from you, carrying their instrument under their arm. [11]

### 3. BERLIN: PARISER PLATZ & POTSDAMER PLATZ EXAMPLES

The history of Berlin dates back to the end of the 12th century. It was established in 1190 as two small fishing villages named Berlin and Cölln on the north and south banks of the Spree river. By the year 1230, as a result of the increased population in the towns, building islands began to form and the town borders started to expand. Then the two towns were merged under the name of Berlin in 1307 and became a single town.



In 1647, the Emperor Friedrich Wilhelm I let linden trees be planted along the road which he used to travel from the palace to the Tiergarten Park (a city park today), where he used to hunt. Turned into an axis, or a boulevard as a result of this decision, this road then was renamed as



“Unter den Linden”, which means “under the linden trees – and still under today.” [2]  
 Fig. 2. (a)Berlin 1232; (b) Berlin-Dorotheenstadt

The city, which was trapped in the city walls towards the end of the 17th century, spread beyond the city walls and expanded to the north and the south of the Spree River. The first settlement beyond the walls was the "Dorotheenstadt" town, which was built by the emperor as a gift to his wife, Sophie Dorothea. (Today, the streets of Dorotheenstadt are still conserved in the center of Berlin.) Due to the increase of trade in the city, customs walls were erected around it in order to collect tax from the outsiders.[13]

In the middle of the 18th century, Emperor Friedrich Wilhelm I appointed architect Philipp Gerlach the director of the Imperial Construction. Gerlach drafted a plan for Berlin to grow in an organized way. According to this plan, three differently shaped squares were designed for the city: square, octagon, circular. The square-shaped one is located in front of the Brandenburger Tor, at the end of Unter den Linden avenue, and today its name is Pariser Platz. The octagon square is in front of Potsdamer Tor, and is now called Leipziger Platz. Lastly, the Mehring Platz with the circular form is in front of Hallesches Tor. Today, these three squares planned by Gerlach still maintain their original forms. Although numerous urban plans have been devised since the Gerlach years, no authority, city planner, or architect has ever attempted to make a change in these squares.

As a result of Berlin reaching a population of 500,000, it was time for a new city plan in 1862. This plan, known as the Hobrecht-Plan, was prepared by the city planner James Hobrecht. The most important feature of Hobrecht's plan was that it aimed to protect Gerlach's and used its squares, octagons and circular forms in different parts of the city, however in smaller scales.[14]

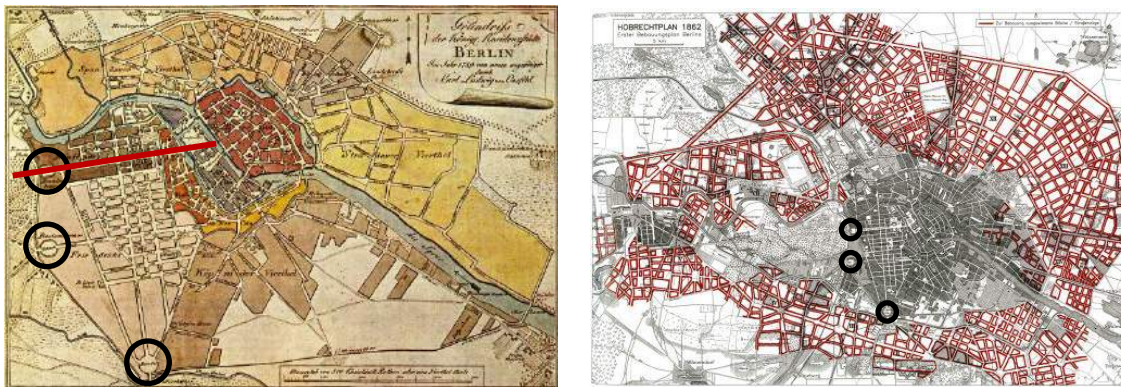


Fig. 3. (a)Gerlach's Plan; (b) Hobrecht-Plan

The National Socialists, who came into power in 1933 under the leadership of Adolf Hitler, left significant marks in Germany and Europe, especially in Berlin. Hitler delivered his fascist

opinions mostly in large public meetings held in the squares of Berlin. Inspired by the city of Rome, he wished to re-design the city of Berlin as a great monumental city for centuries to come, and wanted to make it the capital of Europe. He named this project of his “The Great Germany” and appointed Albert Speer its chief architect. Presenting his design with models, Speer had featured large scale public buildings, arches of triumph and wide boulevards in the project. But the Nazi era, which ended with World War II, has not had the opportunity to realize these projects. One important thing to note is that despite all their extensive and idealistic designs, Hitler and Speer never intended to change the city squares and forms which were designed by Gerlach.

By the end of the World War II, Germany was divided into four parts as the US, French, UK and Soviet Regions. Berlin stayed in East Germany under Soviet control. And the city of Berlin, a very important symbol for the country, was divided into four different regions just like the rest of Germany, despite its location in the centre of East Germany. While the Soviet Union maintained control of the east of the city, the USA, France and the UK governed the west part. West Germany and therefore, West Berlin, therefore, developed rapidly thanks to the Marshall Plan. The difference of the pace of development between the East and West parts led to a serious economic gap between the two sides.[15]



Fig. 4. (a) Divided Germany Sectors; (b) East & West Berlin

In 1952, the East side closed its borders to the West side. With the support of the Soviet Union, the East German government started to take measures and on August 13th, 1961 erected a barbed wire fence between West and East Berlin. On the following day, the Brandenburg Gate, the symbol of the city, was closed and the foundation of the wall was laid on August, 15th. The wall, about 160 km long, was a structure that completely surrounded West Berlin like a cage. With the construction of the wall, spaces that once were the heart of the city, especially the Pariser and Potsdamer Squares designed by Gerlach became completely idle and inactive. [14]

The “Wall of Shame” era that lasted for 28 years, ended on November 9th, 1989 when the wall was destroyed with an immense public support, following the agreement of the Western and Eastern German authorities. The Germans, who pushed the wall out of their lives physically, protected the wall completely at some points in the city in order not to forget what they had to endure during its existence. Where the wall first had been, they also either preserved or highlighted its traces using various flooring materials.

The Berlin city, which has undergone a major restructuring because of the re-union of East and West Berlin, hosted many national and international project competitions during this process. Many sociologists, urban planners and architects have pointed out that this was not a development of only a city, but of a society as well. [12] Moreover, Helmut Frank, architect and the curator of the exhibition “Two Germanys” is known to have stated the following: “In addition to protect people from weather conditions, it is possible to create all kinds of useful spaces with architectural design. It may even lead to the construction of a new society and to give it a spatial form and a meaning.”

### 3.1.PARISER PLATZ

Pariser Platz is one of the three most important squares of the city located at the end of the Unter den Linden Boulevard in the Mitte district, the center of Berlin. Also, the square is one of three designed by Philipp Gerlachi, Friedrich Wilhelm I's architect. Pariser Platz is the one that is in square form. That is the reason why its name was Viereck Square until 1814, but then it was changed to Pariser Platz in memory of the Paris occupation of Prussian troops in March 1814. The Brandenburg Gate, one of the gates of the customs walls surrounding the city of Berlin in the 18th century, is also in this square.[13] Back in the time, the gates in the customs walls were given the names of the cities they were directed towards and Brandenburg Gate got its name for the same reason because it was directed towards Brandenburg.



Fig. 5. (a)Pariser Platz Plan; (b) Platz in II.World War; (c) Pariser Platz During the Wall

Since it is surrounded by buildings, Pariser Platz is considered as a closed square. As Moughtin pointed out, the more buildings there are around a square, the stronger it provides a feeling of enclosure. But Pariser Platz is not only a closed square, but also a dominant square, due to the presence of the Brandenburg Gate, which is a monumental building the square itself is directed towards.[16] Pariser Platz, one of the most important squares of the city until the Second World War, was one of the intensely bombarded sites during the war. All buildings were destroyed except the Brandenburg Gate. The wall structure, which divided Berlin in half passed immediately by the Brandenburg Gate, so Pariser Platz became a completely idle square afterwards. Following all these devastations, the authorities of East Germany have reached very important decisions for the vacant square. In order not to lose the square form of the place and to make the boundaries of the square clear, trees were planted around it. The major reason for them to do this despite the harsh war conditions was the special place the square has had for centuries in the urban memories of German people. Not only the square form, but also the tracks of the structures surrounding the square and the differences of elevation were preserved.[17] After the decision to demolish the Wall in 1989, the first demolitions began with public cooperation, at Pariser Platz, in front of the Brandenburg Gate. After the re-union of East and West Germany under the name of the

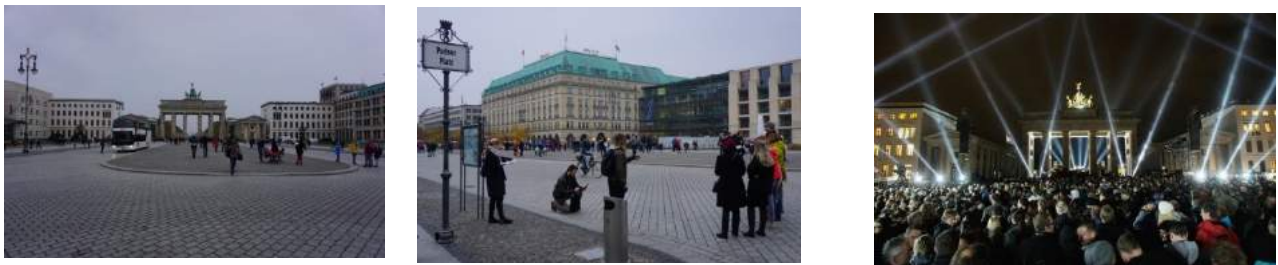


Fig. 6. Nowadays & Activities in Pariser Platz

German Democratic Republic, Berlin was declared as the capital once again. With the act of the Senate of Berlin, preparations began to make Pariser Platz the center of the city again. Because the German Parliament building "Reichstag" was located very close to the square, the

administrative buildings of the state were also positioned close to the square. The Adlon Hotel, that was once in the square, was rebuilt and took its former place. As part of the revitalization project, the American and French Embassies, the Academy of Art (Akademie der Künste), some office buildings, and the DZ Bank building designed by Frank Gehry were built. [17]

Since the year of 2002, Pariser Platz is completely closed to vehicle traffic and a pedestrian-only square. Today, users of the square mainly consist of tourists and students who study the square and draw sketches of it. The materials used in the reconstruction of the square were selected based on its history. While cube stones were used to emphasize pedestrian paths and elevation differences, cut stones were preferred in places which open to vehicle traffic at certain times of the day. In the process of reconstruction of the buildings surrounding the square, a number of criteria for the colors and materials have been set to prevent the existence of irrelevant styles.

Pariser Platz, the liveliest square in Berlin today, is one of the most important squares in Europe, where urban people can freely communicate their wishes and complaints to the authorities. In addition to this, many festivals organized across the continent and New Year's celebrations are being hosted by the square. It is also possible to understand the fact that the square is the most important place for the city, looking at the description of "The Symbol of Separation and Union".

### **3.2.POTSDAMER PLATZ & LEIPZIGER PLATZ**

Leipziger Platz is the one with the octagon form among the three squares Gerlach designed. This square is located at Potsdam Gate on the customs walls surrounding Berlin. At the eastern side of the door is Leipziger Platz, while the other side had no name until 1823. After the architect Karl Friedrich Schinkel redesigned the Potsdam Gate in 1823, the area to the west of the door has gained a more circular and square form. With the fall of the customs walls towards the end of the 19th century, a great transformation took place in Berlin. It is during this period, when the first railway line was also built in the city. The train line from Potsdam, arriving from a point 26 km away from the city, ended at Potsdamer Station, which today the Potsdamer Platz takes its name from.[18]

Potsdamer and Leipziger Squares began to be examined as a whole after the customs walls were demolished. With the construction of the train station, the trade in the area gained momentum too. Numerous hotels, casinos and business centers were built. With the increase in the use of motor vehicles, the first traffic light in Europe was also placed in this square. The years between 1920-1930 in the Potsdamer Platz were the years when the bustle in the city reached its peak. During those years, the square could compete with Piccadilly and Times Squares with its use and functional alternatives. But Potsdamer Platz left its glamorous days behind when the National Socialists came into power and "Germania", dreamed by Adolf Hitler and designed by Albert Speer was brought to agenda. Establishing the city along the axis of Unter den Linden, ignored the remaining parts of the city.

During World War II, the most intensely bombed territory in Berlin was Potsdamer Platz. All the buildings in the square have either been damaged or demolished. After the post-war wreckage has been removed, the square was left utterly empty. Furthermore, the fact that the Potsdamer and Leipziger Squares were separated from each other by the Wall completely eliminated the possibility of these squares to be revived. However, despite all this, during the

recreational phase of Leipziger Platz, the East Berlin government decided that the city senate historical forum should remain the same; as they did for the Pariser Platz.



Fig. 7. (a) Potsdamer Platz in early 1900's; (b) Leipziger Platz Nowadays; (c) Leipziger Platz During the Wall

This was achieved by using the trees to highlight the tracks. The idea that they should stick to the old system of city blocks and networks, which is taking its roots from the past, can be in fact applied to every region of the city that took part in the process of renewal. Leipziger Platz, beginning to be rebuilt thanks to the end of warfare, was surrounded by buildings characteristic of the "Iron Curtain" countries, because it was located within the borders of East Berlin.

With the demolition of the Wall in 1989, the Senate of Berlin decided to expropriate the area that surrounds the square. With the international competition for redesigning of Potsdamer Platz in 1991, a major transformation started in the square. 17 world-renowned architectural offices participated in the contest. The architectural office of Hilmer & Sattler from Munich won the master plan phase. Because of the serious need for resources for the renewal project, the prepared masterplan was divided into four sections and sold to Daimler, Sony, Beisheim and Park Kolonnaden. Having announced that this area was going to be Berlin's new face, these companies contracted with renowned architects such as Renzo Piano and Helmut Jahn.[19]

The project consists of 50% office, 20% residence and 30% shopping area. The Sony Center project, financed by Sony, was designed by German architect Helmut Jahn. The most important feature of the building is the inner courtyard parallel to Potsdamer Street. Surrounded by office buildings, the courtyard is covered with glass that is suspended at a height of 103m and also has a symbolic quality for the design. The architect of the project's other phase, financed by Daimler, is Renzo Piano from Italy. The most prominent feature of Piano's design is sustainability.

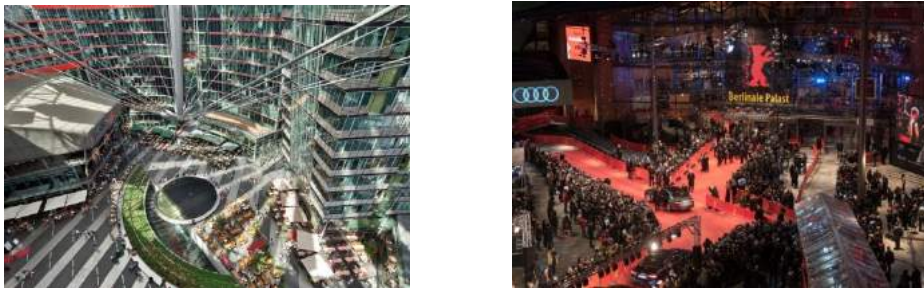


Fig. 8. (a) Potsdamer Platz-Sony Center; (b) Berlin Film Festival

The Berlin Film Festival is being held in these places. Unlike the most common square typologies, Potsdamer Platz is a square which is supported by streets directed towards it.

#### 4. ISTANBUL: USKUDAR SQUARE

With its history dating back to years before Christ, Uskudar is almost as significant as Istanbul itself. Considering its location and historical buildings, it is also of high importance from the

aspect of architectural history. But due to unqualifying interventions and constructions, it has become very difficult to perceive Mimar Sinan’s works in Uskudar Square today.

Throughout history, Uskudar has been ruled by great empires such as Chalcedon, Romans and Byzantines, until it was conquered by the Turks in 1352. In 1453, Fatih Sultan Mehmed conquered Constantinople and thus Uskudar started to develop rapidly. In this period, 91 mosques, 51 Islamic monasteries, 12 Turkish baths, 11 caravanserai, 2 public kitchens, 7 madrasas, 260 fountains, 5 piers, 2 hospitals and numerous palaces, waterfront residences and pavilions for emperors, sultans and pashas were built in Uskudar.[20]

With the declaration of the Turkish Republic, Uskudar has become one of the most important centers of transportation between Europe and Asia. This is why it is called one of the most important coastal squares in Istanbul. Unfortunately, it was not possible for Uskudar to turn this into advantage.



Fig. 9. (a)Pervititch Maps-Uskudar; (b) Uskudar Aerial Photo(2016); (c) Bosphorous View From Uskudar Square

Among the important documents to shed light on the historical texture of Uskudar are the Pervititch maps, prepared by Jacques Pervititch between the years of 1922-1945 on behalf of the Turkish Insurance Officers Center.[21]

The square was closed to vehicle and pedestrian traffic for a long time due to the construction of Marmaray, starting in 2004. During the construction that took almost 10 years to complete, Uskudar Square completely transformed into a construction site. Marmaray’s construction was completed in 2013, but the problems of the square are still not resolved today. Uskudar Square, one of the most important vista points in Istanbul, has become an automotive-oriented square as a consequence of ill-advised designs and planning decisions; whereas it should have been pedestrian-oriented instead. In many places in the square, there are undefined, non-functional elevation differences and empty areas.

As far as the square’s historical development is concerned, there have been interventions during every governance period, making the situation even worse each time. The Uskudar Square project, announced by the Istanbul Metropolitan Municipality in 2014, includes re-planning of the square as a large transfer centre and aims to move the traffic underground to a great extent. But what the large gaps that are to be caused by these changes are going to be filled with has not been explained yet.

As a part of this study, a questionnaire about the square has been done. As a result of the questions asked, data has been obtained about the characteristics and safety concerns of the users and the accessibility and different uses of the square.

The users of the square mainly consist of people who are under 45 years old and they are either working or studying. Due to the lack of places enabling them to spend quality time, users would define the square as only an area for transportation. From the viewpoint of disabled users, the square presents serious challenges as a result of frequent differences of elevation.

With regard to safety, the lighting equipment and security measures are observed to be at a sufficient level. Additionally, interviews with tourists have been conducted where they were asked about their reasons for visiting the square. The vast majority of tourists responded to these questions that they were there to see the historical remains of the Ottoman Empire and to photograph the Bosphorus view.

**5.SPATIAL QUALITY**

To conclude from all the previous concepts and instances, it is necessary to emphasize the importance of spatial quality in a city. There are two important theories for the evaluation of spatial quality. One of these belongs to Kevin Lynch.[9] Lynch groups the necessities for a good city structure in five categories:

- Vitality – (A healthy environmental structure and design)
- Sense – (The things the space makes the user feel, the attachment to the place)
- Fit – (The user being able to adapt to the place in a short amount of time)
- Access – (to activities, places, etc.)
- Control – (Security)

Sherwin Greene's design-related spatial quality theory consists of: [22]

- Function – (Continuity, Safety, Comfort, Variety)
- Space order – (Cohesion, Clarity, Continuity, Balance)
- Identity – (Focus, Unity, Character, Feature)
- Attraction – (Scale, Suitability, Vitality, Harmony)

L. Davies Yeang, in his book "Quality of Place", explored spatial quality in 13 articles, under four main groups and aimed to analyze the space with a number of questions. As a result of the observations, literature researches and questionnaires, a comparison can be made between Pariser Platz and Potsdamer Platz in Berlin and Uskudar Square in Istanbul, utilizing prepared with Yeang's criteria. A questionnaire was conducted with 50 people for Üsküdar the Square.

The questionnaire results were evaluated on the chart.[23]

	ENVIRONMENTAL QUALITY			
	NOISY ? QUIET ?	DIRTY ? CLEAN ?	CROWDED ?	QUALITY
POTSDAMER PLATZ	3	5	4	4
PARISER PLATZ	4	5	4	5
USKUDAR SQUARE	1	2	5	1
	QUALITY OF PHYSICAL PLACE			
	BUILT ENVIRONMENT QUALITY	IS THERE ANY ABANDONED PLACES ?	QUALITY OF PARKS AND GREEN AREAS?	QUALITY OF URBAN PLACES ?
POTSDAMER PLATZ	5	4	5	4
PARISER PLATZ	5	5	4	3
USKUDAR SQUARE	2	4	1	1
	FUNCTIONAL QUALITY OF PLACE			
	IS PEDESTRIAN CIRCULATION GOOD OR BAD ?	TRANSPORTATION QUALITY	QUALITY OF SERVICES	
POTSDAMER PLATZ	5	5	4	
PARISER PLATZ	5	5	3	
USKUDAR SQUARE	4	5	3	
	SAFETY OF PLACES			
	CRIME RATES	UNSOCIAL ACTIVITIES		
POTSDAMER PLATZ	5	5		
PARISER PLATZ	4	4		
USKUDAR SQUARE	4	3		
WORST	BAD	AVERAGE	GOOD	BEST
1	2	3	4	5

Fig. 10. Comparison Chart

## **NOISE**

Uskudar Square is a very noisy place when considering the traffic, the transfer center and the population of the city.

Potsdamer Platz is a noisy place because it is open to vehicle traffic and it is a place where business centers are located.

As Pariser Platz is completely closed to vehicle traffic, it is quieter than the other two.

## **CLEANNES**

Uskudar Square is more polluted than other plazas because of the fact that it is a square where the circulation is excessive.

Pariser and Potsdamer Platz are clean spots due to the fact that fewer people use it than Uskudar and the vulnerability of its users.

## **CROWD**

Uskudar Square is quite crowded due to the population of the city of Istanbul compared to the other two.

Pariser and Potsdamer Platz are also very active spots when evaluated in Berlin city specific.

## **QUALITY**

The Uskudar Square is unplanned and rather crowded than the other two.

Pariser Platz and Potsdamer Platz are highly qualified because they are planned and designed in many terms.

## **SPATIAL QUALITY**

Uskudar Square is mostly surrounded by historical buildings in terms of built environment. But when evaluated together with the new constructions, it is behind other squares.

Pariser Platz is quality because the buildings in the square have a common language in terms of color and facade.

Potsdamer Platz is a highly qualified base because it is a competition-designed square.

## **ABANDONED PLACES**

All the squares are quite crowded because they are used extensively by the users. Abandoned spaces are almost nonexistent.

## **PARKS AND GREEN AREAS**

Uskudar Square is insufficient in terms of green areas and planting as the city of Istanbul is generally.

Pariser Platz and Potsdamer Platz are not very green places but quality spaces when evaluated together with the nearby Tiergarten.



## **URBAN PLACES**

Uskudar Square and Pariser Platz are not enough for urban spaces.

Potsdamer Platz has a quality places because of it is newly designed square.

## **PEDESTRIAN CIRCULATION**

Pariser Platz is a touristic square and in the heart of the city,

Uskudar Square is a transshipment center for public transportation,

Potsdamer Platz is very successful place in terms of pedestrian circulation due to its location for business centers and as a transfer center for public transportation.

## **TRANSPORTATION**

Another common feature of the three is that they are at a fairly good level of public transportation. This seems to be one of the most important elements attracting users.

## **SAFETY**

Considering the characteristics these three squares share in common, it can be said that they are similar in terms of crime rates and unsocial behaviour. All three can be defined as safe places. In addition, each square are crowded places as a result of frequent users and there are scarcely any idle areas in all of them.

The most remarkable result that emerged in the comparison is that the squares in Berlin are quite successful in terms of environmental and physical quality, compared to Uskudar Square. Uskudar Square falls behind the other two squares especially in terms of built environment and cleanliness.

As a result of all these evaluations, it should not be difficult to comprehend the significance of these squares for the cities they are located in. It is possible to conclude that users do not avoid using these squares despite some negative features and design problems.

As a result of all these evaluations, we have achieved the result that a good public space must meet all the criteria mentioned above.

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## EFFECTS OF NEW TECHNOLOGIES ON FLEXIBILITY OF OFFICE FURNITURE

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### Abstract

The technological developments in every extent causes the office interiors to change, the furniture to be updated. This situation brings along new concepts in working spaces and furniture design. Because, the changing activities require different technologies in the offices that consist of individuals coming together for the same purposes. Especially the Y generation born between 1981-2000, raised in the 4th Industrial Revolution era has an important effect on workplace designs. In this era where modern information and mobile technologies come into prominence; the family and social life culture is changing rapidly and man power is slowly getting behind robotic-smart systems. The Y generation has different choices from their clothes to working hours, from their thinking to the way they work; so they demand flexibility in every aspect in their offices. This situation effects the use of technology, and working systems more and more each day causing us to rethink the working areas and how we use the office furniture.

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### 1. Technology, Flexibility and Office Furniture

Office is a space where the workers interact constantly within the framework of the task. It is also a space that creates a setting for several social relations to happen as a result of different hierarchical structures. Offices are not only collective spaces used by managers and workers; they also support the work physically, socially, psychologically and facilitate the process of work [1]. On the other hand, office furniture is an ergonomic product that has a place in every area of working life, serves the social and cultural necessities directly related with human life quality. In all of these definitions, we have to point out that technological developments are on the foreground in the design of adaptable spaces and furniture to the users requirements. In the light of this, we can define office as; a dynamic environment created by interaction; changing, renewing itself by technological impact with intense flow of information. Especially when the user is unknown, none of the designs created for office spaces can fit the work done there. In this case 'flexibility' is the keyword. Flexibility is a sustainable solution that harbours conditions of different users and their requests under the influence of changing organizations and

developing technologies. Flexibility is a concept that enables the user to work where they want, removes the limitations and supports not only the comfort of the body, but the mind also.

## 2. Reasons For The Need Of Flexibility in Offices

Throughout history, we can see office interiors and furniture has changed due to a lot of spacial and intellectual reasons. Some of these are; changes in working organizations, the sociocultural structure and needs of users, economical factors, the form of the building, the plan scheme or how/how much are the technological developments used in the corporation.

### 2.1.Flexibility Due to Changes in Work Organization

The person/worker who is bound to spend a portion of his lifetime in the office to reach his living standarts; has been seen to go through changes in working area requirements within time. The administrational changes at the offices, customer participation, business potential, economical opportunities, cause the need for adaptability to changing situations. This leads to new balances between work and home life. As the variables like the quality, the style, the management, the working team of the job changes; the space and the furniture serving it takes shape accordingly.



Fig.1 (a-b) Clive Wilkinson Architects, Superdesk for Barbarian Group Office

[http://www.architectmagazine.com/technology/detail/innovative-detail-the-superdesk-at-the-barbarian-group-office\\_o](http://www.architectmagazine.com/technology/detail/innovative-detail-the-superdesk-at-the-barbarian-group-office_o)

New technology brings possibilities of uninterrupted communication, which leads to a more connected spacial design that has furniture designed with a continuous structure. Superdesk is an example of this continuity that is realized not only by the possibilities of material technology but the support of computer programs dissolving the boundries of design. (see Fig.1) In here the users work on the same surface under the same circumstances. “Clive Wilkinson Architects (CWA) used the 3D-modeling software Rhinoceros and Revit to achieve the desk’s geometry. The desk measures 1,100 feet long and 11-1/2 feet across at its widest point.

An embedded utility tray makes power and data cables accessible along the length of the desk.” [2].

The acceleration of developments in technology have an enormous effect on the employees and management. It brings the necessity to handle the working environment all over again because of changes in the way we look at supervision mechanisms or hierarchy between workers or the flexibility in working hours. If we have fixtures with enough technology for the users, besides correct spacial organization; the work process will be faster and will develop continuously.



Fig.2 (a-b-c-) Clive Wilkinson Architects, The DISney Store Headquarters, California, 2007

[http://www.clivewilkinson.com/portfolio\\_page/disney-store-headquarters/](http://www.clivewilkinson.com/portfolio_page/disney-store-headquarters/)

As an example, Clive Wilkinson Architects working with DEGW designed the Disney Store Headquarters by colourful blocks that becomes both walls and furniture according to their need. The blocks are made of foam and they become the walls of the Conference Room. The walls also transform into a seating system for meetings of 200 people. [3]

## 2.2. Flexibility due to Changes in User Needs

Offices are now under the severe influence of technology. The use of electronic devices have increased and sharing of information have become widespread. As a consequence, the priorities and needs have changed towards flexible furniture systems that provide alternative uses of space. These furniture systems are preferred because of their modular pieces that can be put together differently according to the need. The important point in forming the modules is to figure out the requirements and the location correctly; while solving the details about lightness, strength, movability and transformability of the material.



Fig.3 (a-b) Jack Godfrey Wood And Tom Ballhatchet, Build for Movisi, 2013

<https://www.dezeen.com/2013/07/21/build-by-jack-godfrey-wood-and-tom-ballhatchet-for-movisi/>

'Build' is an example for modular systems; it is a storage element produced by moulding of plastic material, put together by connection pieces. The characteristics of the system is to become flexible enough to be a seating element, a box to carry, a partition in need; and to be lightweight enough to be carried. (see Fig.3)

Customization or personalization is an important factor in office spaces today. The user is motivated and office life is positively effected by the flexible workstations designed to fit his/her characteristics. In the spaces where flexibility is an important factor, sustainability is provided by the use of neutral surfaces divided or added according to the number of users. With a modular piece of partition, working surfaces can serve different users at the same time.

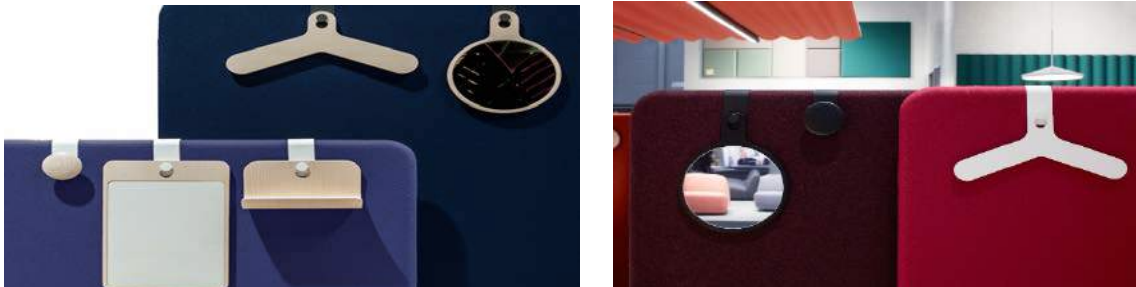


Fig.4 (a-b) Nina Jobs, Collect for Abstracta

<https://abstracta.se/product/collect/>

Many methods of alternative uses are applied in furniture designs linked with the workers' need to create a personal space for themselves under the same roof or around the same table. The Collect series (see Fig.4) designed in this understanding; “include writing boards, pen shelves, mirrors, coat hangers and hooks that are all easy to hang on the screen. The accessories are made out of ash wood and are available in natural colour, as well as black- and white-stained.” [4].

### 2.3. Flexibility Due to Social and Cultural Changes

“The changes in the way we live effect our working environment also. From the concept and form of spaces to the office furniture, even in the small details used, we are inclined to seek out different things”[5]. To enhance performance of employees, a lot of space use approaches are developed. As an example for out of office methods, co-working office Kolektif House, gives reservations for a chosen table, room or surface. At the same time there is the idea of individual office in the meeting rooms or group working areas. Generally there is no special unit for users but a renting system that brings a space open to creativity and different experiences contrary to the conventional systems. In the neutral spaces left; there are seminars, movie screenings, shows, product launches done by using flexible furniture.



Fig.5 (a-b) Kolektif House, Sanayi, Levent

<http://www.kolektifhouse.co/sanayi-ofis/>

As our vision of workstations change, we see workplaces with minimum hierarchy, maximum autocontrol and more people in communication and interaction. To make the Y generation comfortable and happy at work; designers can use changeable accessories for personalization. There are wide range of form and material for the furniture to be used alternatively as the user wishes. Modules can be added to the workstation to make them work individually; have meetings; have a social gathering or take a break. This can be done by adding, turning, subtracting, sliding, lifting the modules to fit the function (see Fig.5).



Fig.6 (a-b) Pierandrei Associati and Betaunopuntozero, Tecno Spa, 2010

[http://www.designed.rs/d-report/milano\\_2010/tecno\\_spa\\_-\\_entering\\_10s](http://www.designed.rs/d-report/milano_2010/tecno_spa_-_entering_10s)

## 2. New Technologies and Office Furniture

Flexibility concept is supported by changeability and mobility that new technology brought to us. Use of technologies in furniture design especially have developed after World War II. The metal and wood structures were replaced by plastic, paper and textile materials very often. The new era has brought to us, composite materials and computer aided production that allows the product to become more flexible and multifunctional. [6].

Furniture has taken an important role by nanotechnological potential in human-environment interactions. We can see extraordinary solutions with the last changes in the structural frame. Molo (see Fig.7); is a flexible office furniture made from natural brown paper and white or black textile, which can be decomposed and assembled or extended to be used in any dimension or shape; which can become transparent or opaque. It may be used as a seating element, partition or work surface according to the need. Any softwall or softblock element can expand to a maximum of 4.5 meters, or to shorter lengths to suit particular occasions, and the material is light for easy use.



Fig.7 (a-b) Stephanie Forsythe and Todd MacAllen, Softwall, Molo Design, 2009



<https://www.molostore.com/product-softwall-softblock>



“‘Kivo,’ (see Fig.8) is a workplace partition system designed exclusively for Herman Miller by Alexander Lorenz. The frame is composed of polished steel that encloses felt tiles. These triangular modules come together to form a space to work for better concentration with the sound absorptive effect of felt. Or they can meet up and collaborate easily with the help of flexible system. 7]



Fig.8 (a-b) Alexander Lorenz, Kivo

[http://www.hermanmiller.com/content/hermanmiller/apac/en\\_apc/home/design-resources/images.html?text=Herman%20Miller:Products/Kivo](http://www.hermanmiller.com/content/hermanmiller/apac/en_apc/home/design-resources/images.html?text=Herman%20Miller:Products/Kivo)

## 2.1. Material and Production Technologies

“Materials are not trendy; they are a necessity for the realization of creativity. We have learned how a great design becomes successful if the right material selected”[8]. Materials are now more stronger, more harder, more lighter, with better isolation or transparent. Nanotechnology has the aim of guiding the atoms and molecules to make the material have the intended shape. Smart materials can send each other messages, information, sound, light with fiber lines connected by way of probes [9]. “They can spontaneously change their physical properties-shape, conductivity, color, viscoelasticity, etc.-in response to a natural or manual trigger such as a change in temperature, the presence of a magnetic or electrical field, or the application of stress. In short, the material responds to an external stimulus. Shape memory alloys are programmable metal alloys which can assume a different shape under certain physical stimuli, and return to their initial shape when the stimulus is removed”[10].

Carbon fibre is becoming an increasingly popular material for furniture design, due to its light weight relative to its high strength. Fibres can be used in many ways like knitting and braiding to have different forms. The rigidity of the fibers are maintained by coating or immersing them in resins of different kinds like epoxy, polyester or polyurethane. Each of the resins give them a different property like toughness or flexibility.[8].



Fig.9 (a-b) Kris Lamba, Thomas Feichtner and Michael Sodeau / Nendo, Nest Shelf, London Design Festival, 2015

<http://www.nendo.jp/en/works/nest-shelf/>

“In the Nest shelves (see Fig.9), the thinner expandable portion is hidden within the outer shelving layer, and assembled in a way that allows it to easily slide out when pulled. Vertical partitions are made from 3.7-millimetre carbon fibre, while horizontal elements comprise a honeycomb material made from synthetic fibres that is sandwiched between carbon-fibre layers. All the surfaces are covered in a wooden larch veneer”[11].

Today, instead of using wood or steel structure with textile, gypsum or metal panels on top; we are using polyester fiber structure with acoustic panels or 3D acoustical textile. There is also flexible metal mesh produced in various types: lightweight aluminum mesh in a spider or ring weave, for costumes and drapery; and a highly flexible, durable stainless-steel ring mesh with rings for added strength [8].



Fig.10 (a-b) Benjamin Hubert, Cradle Chair for Moroso, 2016

<https://www.dezeen.com/2016/06/03/benjamin-hubert-layer-3d-knitted-cradle-furniture-collection-moroso-clerkenwell-design-week/>

“This example is a stretch-mesh material made using new digital knitting techniques. Each chair is (see Fig.10) constructed from a metal frame, an upholstered seat and a mesh textile backrest, which imitates the feel of leaning back in a hammock” [12].

## 2.2.Information, Telecommunication and Computer Technologies

We have come a long way since the first Industrial Revolution that used steam power for production. Since then, the steps until today encompasses a mass production revolution with electric power to automated production revolution of electronics and information technology. Today, a new one is coming up which is the digital revolution. “It is characterized by a fusion of technologies that is blurring the lines between the physical, digital and biological spheres” [13]. The Fourth Industrial Revolution is a new concept which relates to the advancement in fields such as artificial intelligence, robotics, nanotechnology, 3-D printing and biotechnology. It is believed that these once disjointed areas have now reached a stage where their influence will cause widespread disruption and workplace change.

Information and communication technologies have brought advantages in our lives that provide space-user-worker relations to be handled in a different way. Especially with mobile technologies, we have to think about working in any place, the advantage of fast access and transport and fast flow of information. Sharing and having the data at the right time means that we do not need to be sitting at the office all day; on the contrary we must interact, communicate more with the work groups. The important thing is adaptability of our environment and equipment; especially the details to increase productivity.

The traditional office doesn't exist anymore. Cloud services and Wi-Fi networks have made work independent of place and time. People work temporarily at their own offices, from home, in video conferences, on business trips or at subsidiaries' offices. The activity-based office is the new way of working. Many designers have foreseen that in the future, surfaces will be actively used in the office spaces. Today; smart boards, interactive tables, interwall, holographic screen are some of the examples of these surfaces (see Fig.11). Holographic screen is a two dimensional display technology that uses coated glass media for the projection surface of a video projector. It gives us multi-surfaces to work on and blends in the interior because of its transparency.



Fig. 11 (a-b-c) Interaction desk, Holographic glass

<http://moveableonline.com/blog/2014/09/24/interaction-interfaces-tomorrow-future-ui-ux/>

<http://www.holopro.com/en/products.html>

The transparency of the projection surfaces leads to creative solutions for information preparation: interactive elements with touch or gesture control broaden the scope of use.

## **Conclusion**

Traditional office designs with intense paperwork, where people are obliged to work within a specified time, hierarchy is clearly dominant and technological developments are not supported, have gone through a drastic change. Today's office spaces and furniture designs are made open to innovations in many ways, have adaptive flexibility and are able to respond to the needs of different users.

Flexibility does not only express physical change and modification compatibility; but usage and purpose multiplicity and at the same time, concept of freedom and adaptation. With this approach and developments in material, production, communication, information and computer technologies; more ergonomic and flexible furniture are designed. Functionality, lightness, durability, comfort, mobility ve aesthetics are featured qualities of office furniture.

Recently, especially with the open plan office and flexibility togetherness, offices became more collective spaces. For teams or working groups; this approach leads to making designs that enable engaging in the production by being in communication. Some examples of these designs are; digital meeting tables/rooms with interactive display systems, mobile/ portable acoustic partitions made with contemporary material, active lighting systems that change according to the biorhythm of workers to enhance/stimulate their performance and exclusive furniture and details in any form and material made with the Fourth Industrial Revolution technologies.

Especially after transferring to open office arrangements, new offices became more collective spaces. With this approach; teams working in groups can be in communication for the production. Modular workstations that provide working environment to its user in any direction and any place they want, ensure flexibility by supporting changing conditions. Because necessities that change in time entail new approaches and updates accordingly.

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## USE OF THE WATER ELEMENT AS A CULTURAL SYMBOL AND HAGIA SOPHIA ROXELANA (HASEKİ HÜRREM SULTAN) HAMAM

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### Abstract

Spaces required for refinement and cleaning activities, as old as the history of humanity, develop under the influences of the cultures. Bath structures have been structures where water, which is deemed holy in all faiths and used to be refined of dirt and one's sins, has found shape with culture and faiths. The act of bathing, which has acquired an indoor space in the Antique Age, has been shaped by the influences of cultures and faiths over the centuries and still continues to renew its form in our day.

The story of the synergy between man and "water" has reached its climax with the Turkish Baths during the Classical Period of the Ottoman Empire. Especially when the 16th Century Classical Ottoman Architecture is examined, it is observed that the most special Turkish Baths such as the Hagia Sophia Roxelana Bath have been constructed during this period.

It is one of the most precious works of the Classical Period of Ottoman Architecture that Suleiman the Magnificent, who is the tenth sultan of the Ottoman Empire who has ascended to the throne in 1520, has had constructed by Sinan the Architect, the chief architect of the period, during 1556-1558 for his wife Haseki Hürrem Sultan (Roxelana). The building that has been built to generate revenue for the foundations of Haseki Hürrem Sultan is located on the Historical Peninsula in Istanbul, as parallel to the axis between the Hagia Sophia and the Sultanahmet (Blue) Mosque. It is believed that the presence of the ruins of the Zeuksippos Bath and the Byzantine watercourses in this area have been influential in the selection of this location by Sinan the Architect.

The Turkish Baths, which have attracted the attention of travellers who have visited the Ottoman lands by their features, have become renowned in Europe especially after the 16th century by those that the travellers told and wrote, and have evolved into an object of curiosity. The Turkish Baths, which are known by the entire World today, have shaped and developed the spaces and the habits of using these spaces under the influence of various social and cultural values during the development process.

Following the explanation of the development of the bathing culture and the introduction of the spaces of the bath structure referred to at the title of the paper, which relays the impressions acquired through the information obtained during the latest survey – restitution and restoration studies (2007-2011) of the Hagia Sophia Roxelana Bath, the cultural codes determined in the Turkish Baths have been handled under different headings, both as general to the Turkish Bath culture and as specific to the Hagia Sophia Roxelana Bath. The sub-headings have been determined as reflection of gender differences under the influence of religious faith, reflections of the faiths on the use of space, habits of using the spaces as a result of sharing social lives, bathing articles and changing cabins as indicators of social

status, reflection of social solidarity onto bath spaces, codes used as expression symbols in architectural form, and the cultural codes that the 21st century has added to the historical bath structures.

These examinations explain the cultural codes of the Turkish Baths tangibly and shed light for the researches that will be made in this field in the future.

**Key Words:** *Turkish hamam; Roxelana Hamam; cultural symbol; water; architecture*

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## **1. Introduction**

Water that is accepted as the main source of life in the entire universe has been the means of purifying the body and the soul for health, beauty and prayer purposes ever since the existence of mankind. Water is the symbol of existence for all known living creatures on earth and is the main reference source of mankind for legends, poems, songs, mental and spiritual health throughout the history of humanity.

Water has acquired an important place in life by its tremendous influence and function in human life. Water emerges as a force that is worshipped, sacrifices are offered, feared and equipped with superior qualifications as set forth in the Biblical Flood, ever since the primitive tribal beliefs. Mankind that has an ongoing relationship with water for thousands of years has reflected this synergy onto his religion, culture and architecture in the historical process. Since meeting the vital needs sets the basis of this association, ceremonies have been held, venues have been built with the values laden to the name of water. The “human and water relationship”, which has started with the creation of mankind and has continued to the present day, has taken more different forms with the emergence of civilizations.

When we look at the history of civilizations, water has been used to ensure internal peace against the unknown and unperceived where the secrets of the life cycle cannot be resolved, to be relieved of sins that are believed to be committed against the incomprehensible forces of nature or the creator, in short to “be purified” and to “purify”. It has become a part of the cultural values and ceremonies that have developed during the process.

Water, which has been one of the elements that has allowed civilizations to progress during the historical process, is the source for the emergence of all cultures from the Sumer to Egypt, from the Hittite to the Urartu, from the Indus Valley to Central Asia. It is possible to trace the spatial diversity that represents the mankind and water relationship and physical and spiritual purification of collectively, in light of different geographies and cultures.

## **2. Spatial Equivalent of The Act of Bathing In Turks: The Baths**

The first bath structures where cultures meet with water and find a response in the form of architectural spaces have been built in Ancient Greece. Meanwhile in Turks, they have started to develop with the Seljuks. It is known that the Seljuks, upon migrating to Anatolia from Central Asia, have modified and applied the bath structures of the antique age as compatible with the Islamic religious bathing culture, as per the cleanness understanding that is one of the requirements to start prayer in the Islam religion. It is observed that these bath structures have been constructed as units that have a plain architecture that solely serves for the act of bathing, have unique features with respect to construction technique and have been designed with functional solutions, rather than the “multi-functional structures” where various acts are collected together as is the case in the Greek and Roman baths.

It is determined that the baths built during the Seljuk period pose as a continuation of Roman baths with respect to plan and space layout, except some minor changes. However,

setting off with the information acquired from ruins in general, it is understood that a bath architecture unique for the Turks has been developed in light of the bathing related habits and customs of the local civilizations in Anatolia, blending all rules coming from the past and those that have been brought by the Islamic religion. The Turkish baths have continued their spatial development along the timeline that starts with the holy springs protected by pre-historic gods to the neighborhood baths that decorate every Anatolian town today with their domes in different dimensions. Samsun-Havza Thermal Springs, Kalendu Bath and Ephesus-Arcadian Bath, Ankara Roman Bath may be listed as the finest first specimens built in Anatolia [1]. Meanwhile, the Mardin Maristan Bath, which is a Turkish bath built at the beginning of the 12<sup>th</sup> century, is known as the oldest Turkish bath on Anatolian lands.

As a return of the bathing and purification ceremonies in the Seljuk period baths, the spaces have names and space sequences that are different from Roman baths. All spaces are lined one after another as allowing a single passage from one to the next. The main spaces are “soğukluk”, the undressing room and a cold room (literal translation from Turkish). And the space named “aralık” where the clothes are taken off and waistcloths are put on is the changing space, contains the toilet and shaving sections and also where individuals undressed and dressed during cold weather is the pause space. And after the pause space, “ılıklik” is situated between “aralık” and “sıcaklık” that in winter can be used as a dressing room. The next section, sıcaklık or ‘inner hamam’ is the hottest room of a bath. This section of the bath has a large dome often decorated with small glass windows (so called the elephant’s eye glass) that create a half-light. Halvet is a very hot small bathing cell with adjustable steam lids. It is a place where a visitor can bathe in private if desired. No door partitions this secluded area, therefore a bather hangs a “peştemal” (a special towel for bathing) over the entry and thus indicate that a halvet is occupied. In halvet one can also find basins for washing. The secluded space of halvet in fact also indicates an Islamic religious influence on privacy, of not showing a naked body to others. Külhan, a space for heating, is a room kept apart from the other sections of a hamam. The külhan has a separate entrance from outside. The hot place sıcaklık and the dressing place soyunmalık are most pronounced in Turkish hamams for their special functions. The hot area is used for bathing, massaging and rubbing the skin with “kese”, a special rough glove. The “heart” of every “sıcaklık” is “göbektaşı” that is marble stone positioned in the middle of the section, usually octagonal or square in shape. A bather can lie down and relax on göbektaşı, massage and rubbing of the skin is also usually done there. The dressing room “soyunmalık-soğukluk” is often the largest area in the whole hamam. Very often one can find a fountain in the middle of this section and a tea preparation place, which makes it an important space for communication and entertainment.

The temperature of the human body is slowly increased during the passage between the spaces that have been lined as “soğukluk”-“ılıklik” and “sıcaklık” and is reduced back to normal in a controlled manner while going back through these spaces at the end of bathing. This is a condition that is necessary for human health as has also been set forth by Avicenna [2]. It is known that women’s and men’s sections are built separately or the baths are opened for use by women on certain days of the week in Turkish baths, as a consequence of the shaping of spaces by the Islam religion.

The development of the bath architecture during 1325-1453 in the Ottoman Period is named as the “Bursa Period”. Byzantine influences may be traced in the internal space designs in some specimens of this period. Constructing the roof covers of the changing sections of baths in the form of a single dome with a large clearance is one of the important architectural customs of this period. The use of a single and large dome in space of “soğukluk” is widespread both in order to influence the user positively in the internal space and increase perceptibility with respect to the facade effect in the layout. The other spaces



were covered by domes and vaults in different dimensions.

The period when the most special works of the Ottoman Period have been built is the “Classical Period” during 1501-1703. The finest bath specimens of this period have been built in Istanbul that was the capitol of the Empire. The spaces are now lined as “soğukluk”, “ılıkılık” and “sıcaklık” in the specimens of this period when the influences of the Islam religion and Turkish living customs are observed more clearly on bath architecture. It is observed that the space that was called the pause space (aralık) is no longer used in the plan diagrams. It is observed that almost all of the spaces are covered by domes in the bath structures of this period. However, the domes of the cold spaces (soğukluk) are still built as higher than the other domes. This circumstance has developed in the endeavor to maintain the spaces at the required temperatures.

While Turkish bath structures spread rapidly primarily over the Anatolian lands and the Balkans and the other lands of the Empire, it is known that there were waves of change in the social structure in Europe and the influence of the religion dominating those lands, and restrictions concerning bathing and baths in the communiqués issued by the church in order to control the public. These communiqués date back to the 16<sup>th</sup> century. According to the church, epidemic diseases spread through baths. Because the pores on the skin opened up when people bathed and the diseases that were floating in the air could easily penetrate inside through these pores. As a matter of fact, the church had been against bathing for centuries and this belief was supported with the opinion that it was “necessary to prevent baptism from being tainted”. The opinions regarding baths are shared as follows in a book that was published in 1568 [3].

*“It is necessary to shut down baths and tepidariums; because the flesh and all acts of the body have gotten soft, the pores have opened when one comes out of these places. Therefore, diseases enter the body easily and kill man right away; this has been observed numerous times.”*

There are three main reasons that caused big public baths to decline during the middle age: dwindling population, hence the baths were too big to use, economic considerations, which made it too expensive to maintain the baths and Christianity that became a genuine characteristic of the Empire the newly introduced religion dictated some patterns of life, social behaviour and to some extent politics. The Christian Church had an ambiguous position about baths and bathing, which in times went as far as to follow the ascetic ideal that neglect of personal hygiene would achieve grace of God as it was believed. As Yegül indicates “the Church often tried to create the impression that the baths of the pagan world were linked with the devil”. Although baths were in opposition to the Christian doctrines and spirituality, the Church allowed bathing in general if the washing of the body was done for functional, hygienic and medical reasons excluding the element of pleasure. Furthermore, baths were necessary to perform baptism, a fundamental event in Christian life. Therefore, the clergy could not totally reject baths for they needed to use it, too, for religious as well as hygienic reasons. Eventually baths became a part of the Church in order to “regulate the secular as well as the religious life of the faithful” as some scholars interpret. The other issue that the Christian Church was in particular in strong opposition to was that of the gymnasiums. Yegül suggests that this disapproval was related to “the idle watching of athletic performances” and furthermore it was believed that gymnasiums had a “potential to resurrect this [pagan] culture”. It is one possible reason why baths lost their athletic use during.

### 3. Cultural Codes In The Spaces of The Hagia Sophia Haseki Hürrem Sultan (Roxelana) Bath

The building that Suleiman the Magnificent, who is the tenth sultan of the Ottoman Empire who has ascended to the throne in 1520, has had constructed by Sinan the Architect, the chief architect of the period, during 1556-1558 for his wife Haseki Hürrem Sultan (Roxelana) is one of the most precious works of the Classical Period of Ottoman Architecture. The building that has been built to generate revenue for the foundations of Haseki Hürrem Sultan [4] is located on the Historical Peninsula in Istanbul, as parallel to the axis between the Hagia Sophia and the Sultanahmet (Blue) Mosque. It is believed that the presence of the ruins of the Zeuksippos Bath and the Byzantine watercourses in this area [5] have been influential in the selection of this location by Sinan the Architect. The Zeuksippos bath has been built by Septimus Severus at the end of the 2<sup>nd</sup> and beginning of the 3<sup>rd</sup> century, and has been expanded later by Constantinus I.



Fig. 1 The Zeuksippos (Zeuxippus-Severion) Baths at the Augusteion Square have continued the large bath structures tradition of the

Byzantine Era in Istanbul. Zeuksippos bath excavations from the archive of British art historian David Talbot-Rice who was in Istanbul and participated in the excavations during 1927-1957 [6] and an animation made as based on the ruins found in 1928 on the Zeuksippos (Severion) Baths and determinations [7].

The Hagia Sophia Haseki Hürrem Sultan Bath has been used as a bath from the date it has been constructed up to 1910, although discontinuously. Later on, it has been used as a court hall by the French during the occupation of the lands of the Ottoman State, then as a gasoline storage by the Municipality and the State Printing House; it has been worn down significantly especially during the last period of such use and interventions have been made in the interior space. In 1930, the Asar-i Atika Encümen-i Daimi (Prime Ministry State Archives) has allowed the use of the bath as an exhibition area for a temporary period and interior space interventions have also continued during this period; the available heating installations of the building have become idle since the building was not used for its original function. The building has last been used as the carpet sales store of the Ministry of Culture and Tourism – Central Directorate of Circulating Capitol Enterprise. The last restoration works in the building have been started in 2007 and it has been restored to the bath function. The building serves as one of the bath structures of the classical period of Ottoman Architecture that has been built as a response to the rules on cleaning brought by the Islam religion and the Turkish living culture and continues to be used with its original function in our day.



Fig.2 Photograph of the bath building. (the author's archive)

While the women's and men's sections are positioned as separately and back-to-back due to a cultural rule where religion is also influential, as is the case in most of the Classical Ottoman bath structures, it is observed that the building forms a distinguishable silhouette between Hagia Sophia and the Blue Mosque by its slim and long plan layout and high domes. It is believed that Sinan the Architect has opted for this form in order for the building that he built very close to Hagia Sophia to be immediately distinguished among the other neighboring buildings. The facade form that has continued to make its location noticed in the silhouette even after the construction of the Blue Mosque (1616) helps to reveal the insights and skills of the designer.

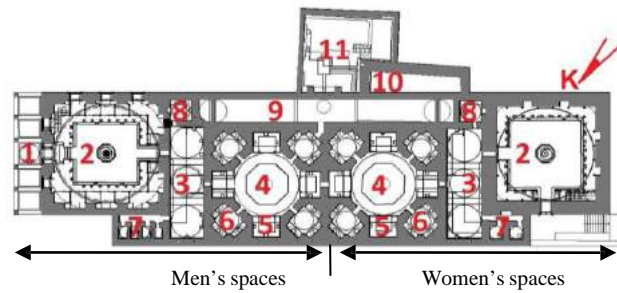


Fig. 3 Function diagram prepared on the survey plan of the building. (the author's archive)

Men's section entrance portico, 2. Soğukluk, 3. Ilıklık, 4.Sıcaklık, 5.Iwan(eyvan), 6.Retreat (halvet; a very hot small bathing cell in Turkish hamam). 7.Toilets and shaving space, 8.Pre-restoration: Cold bathing room / post-restoration: consumables storeroom,9. re-restoration: Hot water tank / post-restoration: personnel rooms for rubbers and bath attendants, 10. Pre-restoration: Cold water tank / post-restoration: office, 11.Pre-restoration: Furnace (külhan; a stokepit that is kept in a separate room in Turkish hamam. It heats the water and the hamam) / post-restoration: personel entrance, connection to service areas and kitchen.

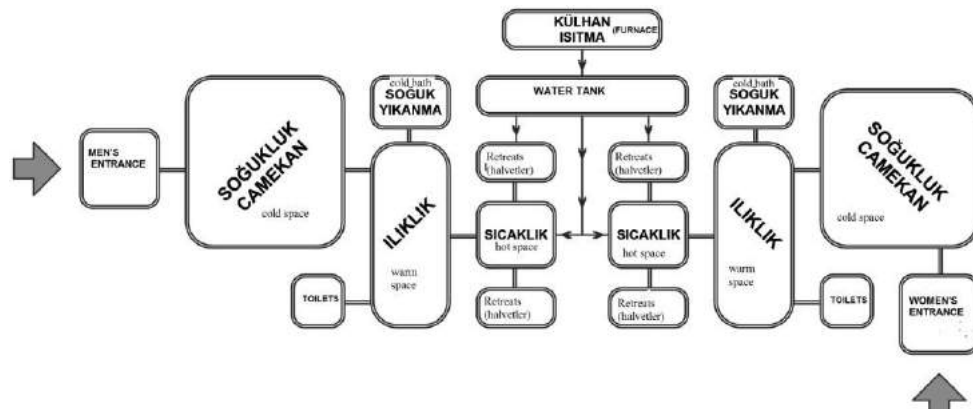


Fig. 4 Function diagram of the building (the author's archive)

The “cultural codes” that start with the development of the Turkish bath architecture and have become more distinct with the influences of maturing in the Classical Period of Ottoman

Architecture may be defined as the reflection of cultural influences onto architecture. It is necessary to collect these codes under headings in order to explain them in detail.

### 3.1 Codes Developing as Based on Gender

The rules regarding daily life brought by the Islam religion restrict the male-female relations with certain rules also in social living spaces. In addition to the baths that were solely used by women or men, there were also dual bath buildings where men and women used the same building collectively, but the spaces were not interconnected inside and the entrance doors opened to different streets.

The baths in the neighborhoods that were solely for women were called “private parts bath (avret hamamı)”, while the baths in the markets that were solely for men were called “dignitaries bath (rical hamamı)”. It is quite obvious that the site selection for baths built to be used separately by women and men as inside neighborhoods or markets is also a coding formed as based on genders. As can be seen in the other dual bath buildings in Ottoman Architecture, bath entrances have been provided from different streets also in the Hagia Sophia Hürrem Sultan Bath. The men’s entrance has been built across Hagia Sophia and has been supported by a portico with 5 sections. Allocation of an entrance facade overlooking an important structure like Hagia Sophia to women is not possible in any event due to the easy ability to trace the individuals who are entering and leaving the bath.

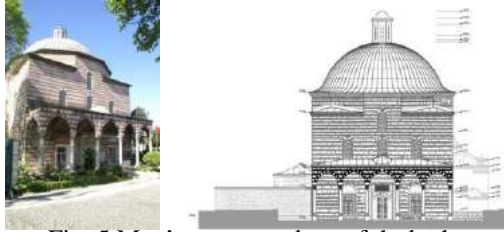


Fig. 5 Men's entrance door of the bath

While the men’s entrance doors open to a crowded square with elaborate architectural forms, entrance of women to the bath is provided from the Blue Mosque Square direction, through a narrow entrance below the square elevation that is reached by going down the stairs. The entrance door has been kept out of sight and has a modest form.

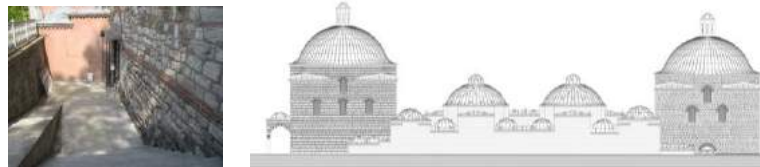


Fig. 6 Women's entrance door of the bath

The cold (soğukluk), warm (ılıkılık) and hot (sıcaklık) spaces where bathing acts are carried out have been located in the same sequence and with minor differences in the women’s and men’s sections. The dome in the cold space used by men is decorated inside and is slightly higher than the dome of the women’s cold space. The dome of the women’s cold space is not decorated on the inside. There is a pond at the center of both cold spaces. The warm spaces are not very different from each other. Two toilet cabins have been made for women and four for men. The plan forms of the bathing sections are the same. Upon entering the hot space, it is observed that the marble cladding of the massage platform at the center of the space is different in the women’s and men’s sections; it has been made more ornamental in the men’s section. In addition, it is observed that the forms of the bath basins at the iwans that are defined as the bathing areas are different for women and men.

It was compulsory for the individuals who assisted the bathing individual while bathing to be of the same gender. The women’s assistants were named “rubbers (natır)” and men’s assistants “bath attendants (tellak)”, and these individuals ensured continuity of the bathing

culture and compliance with the rules in the baths. There were similar rules for women and men. The first rule was to wrap large water absorbent cloths called “waistcloths” (peştemal) around the body after getting undressed. The rules of wrapping the waistcloth are different for men and women, but the main rule is to keep the private parts covered. It was not approved for anyone to bathe without a waistcloth. The bathing act was required to be carried out in a ceremonial order. It was not allowed to go into the hot space directly after wrapping the waistcloths. It was essential to use the spaces in the correct sequence since it was important to heat and cool the body slowly also from the health perspective, and to maintain the body temperature by changing the wet waistcloths and towels while passing from one space to the next.



Fig.7 A rubber (the female attendant in Turkish hamam giving the massage and the rubbing service) is welcoming her customers at the bath entrance in the image [8].



Fig. 8 The iwans and basins of the men's hot space (left) and the iwans and basins of the women's hot space (right) following restoration (photographs: the author's archive)

### 3.2 Codes Carried over to Baths by Social Life Sharing

Men and women had different purposes in meeting at the baths, which were observed as the common spot for social life sharing of the period. Although the lives of women from the dynasty throughout Ottoman history could be deemed as being somewhat freer than the other women, it is known that a majority of the dynastic women have spent their lives in the harem quarters or their homes. For women who were not welcomed religiously, the baths they went once in every ten or fifteen days with their relatives, friends and neighbors have been observed as an important venue for social relations and freedom.

Various organizations were made under names as fifteen bath, engagement bath, bride bath, after childbirth bath, soldier bath, and circumcision bath. It is known that girls at marriage age were seen, women after childbirth and babies were passed through health examinations, haircuts and skin cares were given and laundry was washed at the baths.

Circumcision and soldier baths lead among the important bath rituals for men. It is observed the child's relatives and friends got together prior to the circumcision feasts in order to bathe, get information and have fun, while the lad who would go for military service went to the bath with friends and relatives and they sent the lad off for military service following the soldier bath. It is also known that it is a tradition among men to go to the bath especially before prayer on Thursday evenings, Friday mornings, during Ramadan and eves of holidays, and this cleaning is observed as a means of communication as well as body care. Furthermore, it is also known that firefighter teams went to the bath altogether and bathed after putting out

a fire. Considering how big and devastating fires were in Istanbul where houses were made of wood at that time, it would be more accurate to note that the firefighters did not solely want to get clean while ending their day in this way.

The bath that men visited more frequently than women poses as the source of many idioms that we use today. “Like a women’s bath” used for venues where there is a lot of noise and clamor, “owner of lodging house and bath” told for wealthy individuals, “like a bath” used for a too hot venue and many other idioms carry traces that reflect the social life and bath culture of the period.

### 3.3 Codes that are Social Status Indicators

Baths that are visited in groups for different reasons are also known as areas where the income level is defined by clear lines especially for women. The contents and abundance of the gifts that were handed out during the organizations and the appearance and variety of the bath articles used by the bathing individual were the main indicators to define social statuses. It is known that members of wealthy families sent all their bath articles in bundles to the bath by their servants one day in advance because the articles they would use at the bath were so diversified.



Fig.9 Women going to the bath, Lambert de Vos, 1574 [9].

In addition to the ornaments used in the design of the slippers/clogs called “nalın” that were worn on the feet while bathing in the bath, the height of these clogs from the floor also defined the hierarchy between the individuals who were using the venue. The highest clogs were generally those of the owner of the bath. However, it is known that wealthy women used high clogs that were decorated with materials such as mother of pearl, pearls and silver.



Fig. 10 Mother of pearl inlaid clogs, Ottoman 18<sup>th</sup> century, height 16 cm., length 24 cm. [10]

Among the other bathing articles that defined the assets and wealth of the family, we may list the “bath bowl” used to pour water on the body while bathing, “kildence (soap holder)” used to store the soaps, “ewer” used to perform ablution at the bath, “gülabdan” (flask) used to store the sherbets to make up for the water loss of the body following bathing, “buhurdan (thurible)” used to spread fine scents inside the venue, “waistcloths (peştemal) and towels” wrapped around the body, “hair combs”, “hand mirrors”. While these bath articles could be made of gold, silver or brass, depending on status, they were made flashier by decorations made of mother of pearl, ivory, precious gems.



Fig. 11a-Brass bath bowl. Ottoman 19<sup>th</sup> century, b-Decorated with prayers, verses in Arabic and Seal of Suleiman. 23 cm high, c- Copper soap holder with cover decorated with geometric patterns [10]. d- Grooved and plant patterned bowls and ewers [11]. Tombac sugar-bowl made of copper with the hammering technique, sliced from the top to the bottom with the inlaying embossing technique and decorated with flower and leaf patterns, dates back to the end of 18<sup>th</sup> century, beginning of 19<sup>th</sup> century [12].

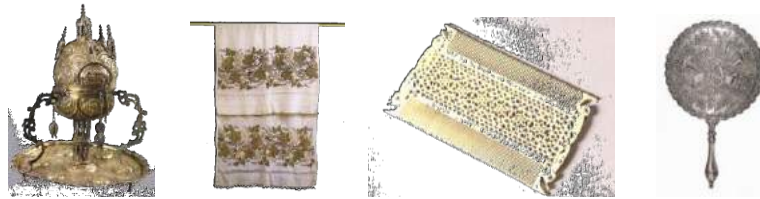


Fig. 12 a-Decorated brass thurible in dome form b-Bursa stitch embroidered towel (peşkir), end of 19<sup>th</sup> century, beginning of 20<sup>th</sup> century, dimensions: 150\*83 cm. [13] c-17<sup>th</sup> century ivory comb d-Silver mirror with plant and musical instruments patterns [14].

Although they are not included in the original design of Turkish baths, the changing cabins that were placed inside the changing space near the end of the Classical Period and were accessed by climbing up the stairs are known as spaces used by individuals with a high income level. Together with the samples where the principle of equality between everyone bathing in the baths was impaired by building these cabins, more decorated wash basins that were positioned at special places were also encountered in the hot spaces as different from the others.



Fig. 13. a- Views from the changing cabins that were renewed during the final restoration made at the Hagia Sophia Haseki Hürrem Sultan Bath b- The sultan iwan at the men's hot space of the bath.

### 3.4 Codes Developed as Based on Beliefs

It is observed that the influences of all monotheistic and polytheistic religions that were acknowledged on the Anatolian lands prior to and following Islam have acquired substantial places in the rules of daily life. The influences of faiths on the uses of the spaces in Turkish Baths are important cultural codes. According to some resources, the belief that water has a healing power beyond cleaning has allowed to decide that certain baths were good for certain diseases and their use as therapy centers [15]. Information that spread on the grapevine in the society during this process that continued as based on experiences, beliefs and indoctrinations proved to be adequate for the said bath to be renowned for its therapeutic power. In addition, bathing at a votive bath has been among the important rituals, such as for ladies who did not have children to go to a votive bath and pray, and those who gave birth to a child to rent the

bath for twenty four hours and give food to the poor and allow them to bathe. Furthermore, performing these rituals has been evaluated as a good deed. While it was a status indicator as explained above, there also was another reason based on beliefs in making the clogs worn on the feet during bathing at the bath high from the ground. It was not desired for the bad forces that were believed to be in the dirty water that flowed to the ground while bathing to splash on the feet and the legs, and settle in the body.

### *3.5 Cultural Codes in Social Solidarity*

The Furnace section in the Turkish Baths is a space that finds a cultural reciprocal in the society. These spaces that are called “külhan” and supply the heating system of the bath are spaces where orphans were allowed to lodge or live during the times when shelter and heating were problems. Children who assisted the furnace master in unloading and stacking the large logs that were brought to the furnace, disposing of the accumulated ashes, collecting fuel from houses are known to have remained here until they were adults. Orphans and half-orphans were admitted to the furnace. Although we know that orphans and half-orphans were primarily preferred, there were also exceptions where those who had siblings and relatives were also admitted to the furnace. All children who lived at the furnace had to acknowledge the authority of the individual who was responsible to light the furnace fire, in other words the furnace master. Children from all faiths and nationalities were admitted to the furnace with a special ceremony, they were all raised as siblings and did not additionally burden the bath owner or the furnace master; they met their food and other needs with what they collected from the tradesmen and shared among themselves.

There used to be a furnace leader called “destebaşı” for every ten children at each furnace and he was chosen from among the oldest children. It is known that certain measures have been taken against these furnace leaders near the end of the 18<sup>th</sup> century because they increased in number, got involved in beggary, burglary, pickpocketing, racketeering and bullying and caused disturbances in their communities. According to resources, all baths were raided by the police one night in 1846 and approximately 800 furnace leaders (called külhanbeyi) were collected together with the children, those who were older than 16 were sent to the army and the younger ones were sent to the factory that produced shoes for the army [16].

The furnace leader concept has taken a different form than its initial meaning due to the social relations that have developed in our day and has been transformed into bullying, while this spirit and name have continued to live in Hacivat-Karagöz shows, hundreds of stories, novels, films and its unique slang vocabulary and have reached the present day.

### *3.6 Codes used in Expression Symbols in Architectural Configuration*

The variety and the sequence of the spaces in the Turkish bath structures have altered during historical development, reaching formations where “pause” space (aralık) was left out of use and not built anymore. Although wooden roofs have been used as the top cover of the structures in the buildings prior to the Classical Period, it is observed that modesty has been left behind also in the bath structures in the Classical Period; it has been attempted to capture powerful facade effects and the spaces have been covered by high single domes with large clearances. It is also observed in the Hagia Sophia Haseki Hürrem Sultan Bath that the cold space domes are single, large and high domes, the warm spaces that were used as passage from the cold to the hot space were passed with arrays of small domes, and large and single domes covered the top of the central massage platforms at the hot spaces.





Fig. 14 a-Dome configurations of the Hagia Sophia Haseki Hürrem Sultan Bath b- Photograph taken from the minaret of the Blue Mosque, emphasizing the significance of domes in the architectural configurations of other buildings on the Historical Peninsula.

### 3.7 Cultural codes that the 21<sup>st</sup> century has added to the historical bath structures

The 21<sup>st</sup> century witnesses the efforts to bring historical structures into life by various methods with the responsibility of passing the culture onto the future generations, although a majority of historical buildings have become dysfunctional. The tourism sector is supporting such studies. Although it may appear as an inanimate, totally commercial activity, tourism actually is a profession that could serve culture if it is guided well [17]. The changes in the tourism moves, tourism investments made in different areas, the changes in the preferences in the individuals who will travel accelerate the generation of new products. The Turkish Bath that poses as a touristic product in the present context of our day has numerous interesting patterns and original elements both from cultural and architectural perspectives and the branches of art it influences. The touristic product concept that constitutes the initial stage of tourism marketing is the combination of the accommodation, wining-dining, entertainment and many other services that a tourist enjoys throughout his trip. The Turkish Bath that is included among these components qualifies as a product that can both be included in a package and can be offered independently. Wellness and beauty tourism, which is one of the most popular fields of tourism and places the Turkish Bath it incorporates to the forefront in its promotions, is important for the country's economy and country's promotion by its ability to extend tourism over 12 months [18].

#### CONCLUSION:

The Roxelana Bath, one of the most colorful elements of the Turkish National Culture, and many similar Turkish bath structures primarily serve as tourism focused in our day. In addition to offering all physical and spiritual sensations brought by water to their guests, they also evaluate water as a cultural element and allow the ability to experience all cultural codes that have developed under the influence of the Turkish - Islam Culture in their original venues. The Turkish Baths, where bathing has been transformed into a special ceremony in itself, are among very special cultural specimens in the World by the various ceremonies created over the centuries, the contents and articles of these ceremonies, male-female relations and the reciprocation of all these values in the venues and the venue accessories.

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## AUDITORY SPATIAL AWARENESS IN ARCHITECTURAL EDUCATION

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### Abstract

A place is perceived by the ear and other senses as well as it is by the eye. While the journey of sound consisting of being reflected in volume, absorbed and transmitted, associate the time and space, part of the sound perceived by the individual helps create ideas about the architecture of the place and therefore the atmosphere. When a multidisciplinary approach is used to assess voice-related studies, architectural education, which is based mostly on visual perception and meagerly on auditory elements, should be in the scope of these studies. In this study, the notions auditory spatial awareness and aural architecture, which take place in the recent literature, are both examined and tried to be associated with architectural education. The main purpose of this study is to develop an approach that could not only provide the formation of auditory spatial awareness but also help students comprehend the significance of auditory aspect in addition to visuality as a part of integrated design process. As a methodology, a workshop study was conducted in order to experience the architecture in an auditory term with the students. In this study, firstly the questions that measure the auditory awareness were asked and then the questionnaires were conducted for evaluation after the listening test. Afterwards the students were demanded to design a place with a specific function and users in terms of auditory environment and to express how they imagine the auditory atmosphere of the place they designed by creating an integrated animation with external soundtracks. Projects were analysed and presented. Consequently a pilot study was carried out in order to transform the efforts to experience architecture into the awareness of “Every space that I design has a sound.” and add into the education.

***Key Words:** acoustics, spatial design, aural architecture, senses and perceptions, architectural education*

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### 1. Introduction

Designing a good auditory environment may be possible by considering the proper site selection, providing good space and room organization, taking care of basic architectural acoustic principles and selecting the appropriate materials from façade to finishing. For the first time in the literature, S.E. Rasmussen has asked the question “Can architecture be heard? [1]” in order to experience architecture from an auditory perception. The sounds we hear when experiencing different spaces is as important as observing them, in order to live, internalize and recall these spaces. The formation of the spatial memory occurs with the integration of the senses including seeing, hearing and others. It is expected that the properties of sound related to human perception could be integrated into the architecture as well as - the physical events related to sound within, outside and inside the building. The journey of sound waves between every single reflection, absorption and transmission relates the time and space. The perception of sound by the individuals helps to create ideas about the architecture of the space and therefore the atmosphere.

The physical characteristics of a sound find a response in the human ear and cognition. The reflections of sound waves provide an understanding of the differences between being in a

large or small space or, being in a crowded and noisy or quiet environments. In addition to procuring the comprehension of what is there and what is not, what is sensed and what is dreamed. Peter Zumthor describes the spaces as instruments that reflect the sounds inside them [2]. The atmosphere of the place creates different effects/perceptions depending on the environment being audibly rich or poor. We can define the vocal esthetic of a space as meeting of aural expectations and needs by the rich sound atmosphere. Impoverishment of sound environments weaken the functional effectiveness of spaces and makes it difficult for us to remember them later. The auditory spatial awareness established by the architecture strengthens and empowers individual's sense of reality and leaves a mark in the memory according to Blesser and Salter [3].

Sound and space have affected each other throughout history. The hymns of the churches were shaped because of the long reverberation times. Chamber Music emerged from the obligation for the composers to perform in the chambers of the royal palaces and was affected from the conditions of the chambers. With the discovery of the reverberation formula by the pioneer of architectural acoustic studies W. C. Sabine [4], Boston Symphony Hall designed for a specific music genre and afterwards it became possible to design the space for sound on the contrary to the precedents as shown in Figure 1.

Sound affects human and space cognition in behavioral perspective as well as being a physical phenomenon. By making assumptions for experiencing the space with an auditory approach, Blesser and Salter used the aural architecture notion in the book "Spaces Speak, Are You Listening? - Experiencing Aural Architecture". Blesser and Salter used the term "auditory spatial awareness [5]" in the meaning of understanding the place changing the sound and experiencing this in emotionally and behaviourally in the paper "The Other Half of the Soundscape: Aural Architecture" further explaining that it is a multidisciplinary notion [6]. According to the acoustic intimacy chapter of Pallasmaa's book, sight isolates and sound unites, sight is linear and sound is omnidirectional. Moreover Pallasmaa compares the auditory and visual and emphasizes the importance of auditory component by stating that "Sight represents externality whereas sound creates an experience of internality. I regard an object but sound approaches me, the eye reaches but the ear receives. Buildings do not react to our gaze but they do return our sounds back to our ears [7]". According to David Henry, the sounds presented to our ancestors and us a sense of time and space and a sense of danger and comfort and made us feel connected to other people. It helped us be human. In that case instead of making the sound an obsession in an abstract way, we must develop a brand new approach about how important it is in daily life [8].

The major studies within architectural education regarding sound can be summarized as; building acoustics, noise control, noise mapping, room acoustics and recently becoming more popular soundscape. In Istanbul Technical University Faculty of Architecture, these subjects are explained in mandatory physical environmental control studio and in different selective courses about room acoustic and sound insulation. Building acoustics and noise control focuses on sound insulation as well as protecting human health and providing acoustic comfort. Room acoustics is related to design of performance places and music venues whereas soundscape studies includes all the sounds in a place, region or environment. Hence, urban soundscape studies are important for understanding the sound environments in a city from different points of view. The scope of soundscape idea starts from stating that the physical quantities of the sound may be insufficient to express qualifying noise annoyance and sound perception for human ear and cognition as shown Figure 2.

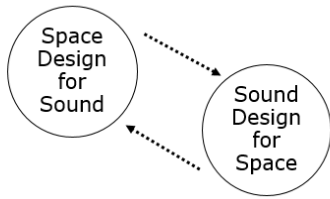


Fig. 1. Sound and Space Design

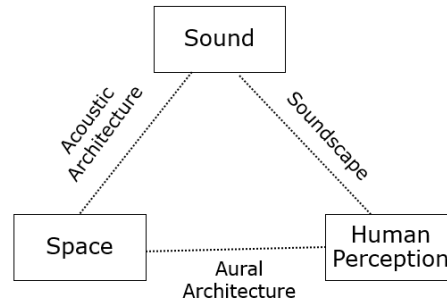


Fig. 2. Sound, Space and Human Perception

However, it is hard to find an approach in architectural education that helps architectural students creating ideas on the basis of what kind of sound is required to have in the preliminary design stage of buildings. Julian Treasure, a sound consultant, in his TED Talk speech states that ‘‘Architects should start designing for our ears [9]’’. He draws attention to the effects of sound and noise in daily life and gives responsibility to the architects. From that aspect acoustic education in architecture should be the guide in design and the parts related to the sound should not be the matter left for experts to solve after the design process.

When the projects produced in design studios or architectural design competitions are examined, it is not possible to read the inputs based on integration of sound with architectural design or experiencing sound in buildings by the user in parallel with the architectural education practice. A contemporary architectural education should reflect the inputs of experiencing sound in different buildings. For that reason, it has been decided to conduct a study about how to improve the students’ auditory spatial awareness in during architectural education. A two day workshop starting with a basic theoretical information about what is aural architecture called have been carried out. The methodology of the work is explained step by step in chapter 2-4. The findings are presented in chapter 5 and the results are stated in chapter 6.

## 2. Auditory Spatial Awareness and Aural Architecture

Blesser and Salter explains the formation of auditory experience and awareness in sequence of sensation (detection), perception (recognition), and affect (meaningfulness) [3]. Sensation (detection) refers to the conversion of physical sound waves into neural signals. Perception (recognition) refers to the meaningful identification of the sound source and the acoustical circle with our senses. Affect (meaningfulness) refers to the change in people’s emotion and interpretation created by acoustical space defined by their senses as shown Figure 3. Experiences that respond in human cognition accumulate and form the perception of space. For this reason, we must first listen to the places we are living in daily life, understand the feelings that are awoken in us, and be aware of our reaction. Aural architecture involves the design of spaces that will create emotional, behavioral, and instinctive reflections by knowing the basic concepts of sound. It foresees the auditory design of spaces with various functions not only for performance and music venues but also for the buildings in which we live our daily lives such as offices, hospitals, schools, houses, museums and galleries, exhibitions, and restaurants. In that case the properties of sound, which provides auditory aesthetical development comes into prominence as well as its physical properties. In this case, besides the physical qualities of the sound, the features that affect the social interaction establishing the perceptual place-direction relation provide the development of the auditory aesthetic are also foreground.

### 2.1. Five aspects of aural architecture

According to Blesser and Salter aural architecture is composed of five fundamental component, which are social spatiality , musical spatiality, navigational spatiality, aesthetic spatiality and symbolic spatiality [3]. Beginning of the workshop these concepts are explained to the students as shown in Figure 4 with the subcomponents in order to present a theoretical basis.

**Social spatiality :** We can be involved in a place or community as much as we can hear our voices, when we do not hear we become isolated. We can make our emotions and thoughts feel with sounds and tonal features. For this reason, sound is an important part of our social communication. Our social cohesion and isolation depends on it.

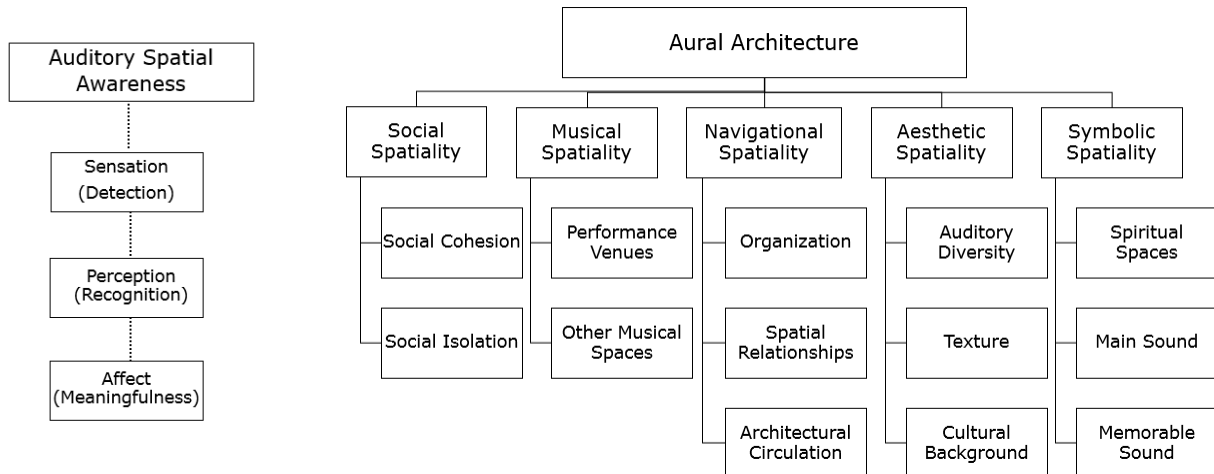


Fig. 3. Auditory Spatial Awareness

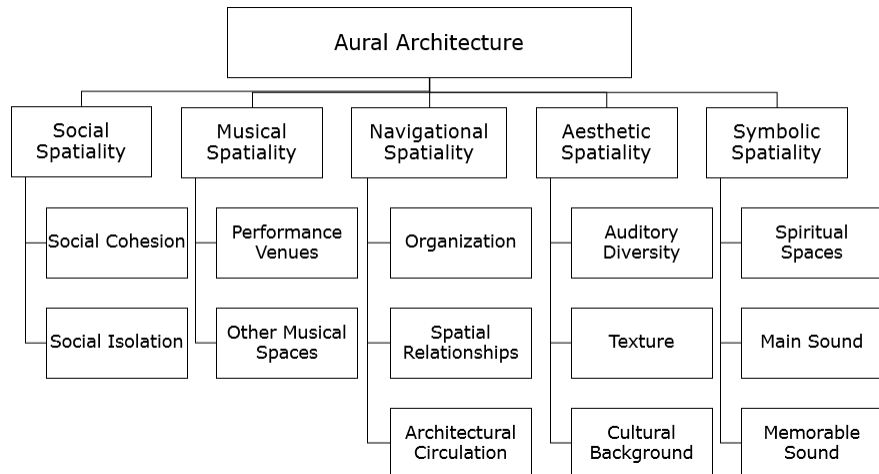


Fig. 4. Aural Architecture

- **Musical spatiality :** Basically, musical experience is important for performance venues but music is used in most of the places we live in. There can be positive negative aspects of music in our behaviors and perception of space. Music can weaken the function of the space.
- **Navigational spatiality :** Humans have ecolocation feature as well as bats. We understand our place-direction relationship and the obstacles we face within the space with the aid of our aural abilities. Some listeners benefit by having this ability: hearing is a way to feel the size proportions of the space There is evidence that people determine the direction in the first place, according to the sounds they hear. During the design of the architectural project, the spatial organization and the spatial relations can be built from this direction. In particular, the transition and circulation areas gain importance because of the behavior of sound in volume.
- **Aesthetic spatiality:** The properties of selected material, texture and scattering properties of surfaces can be used to create different auditory environments in macro or micro areas that are adjacent or neighboring to each other. Architectural details such as reliefs, niches and sculpture provide hearing aesthetics while cultural history is effective in determining architectural materials such as wood, glass or fabric.
- **Symbolic spatiality :** It provides a distinctive feature to the space with sound. Sound of religious spaces, like the bell of a church can be given as an example. The sound of water, the sound of wood, the reflection of the marbles create the sounds that will remind you of that place.

### 3. Indoor Soundscape

The acoustical qualities and properties of the spaces are qualified using various objective and subjective criteria using different measurement and evaluation techniques. Among these criteria, besides the subjective and objective ones, it is necessary to add a new criterion, which analyzes the properties of space and architectural structure and helps making deductions regarding the soundscape should be added. [10]. According to Dökmeçi and Kang, indoor

soundscape criteria of interior space consist of three fundamental criteria as shown in Figure 5. Three basic criteria, which are function, user and architectural features must be discussed under the context of structural analysis. It is crucial that these three criteria are examined in depth and associated with other objective and subjective criteria of an acoustic study regarding the interior space. In particular, the architectural features of indoor spaces and their unique designs of architectural elements are directly related to the formation of the soundscape in this space [11].

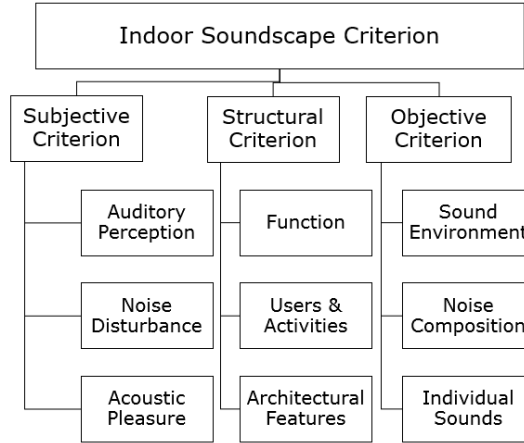


Fig. 5. Soundscape of Enclosed Spaces (Dökmeçi, P., 2011)

#### 4. Integrating the Auditory Spatial Awareness Concepts to Architectural Education- Methodology of Workshop Study

Considering how auditory awareness will be integrated to the architectural education, as a method, two day long workshop was carried out with students. Similar to the workshop “Aural Architecture” carried out by Federica Goffi at Carleton University School of Architecture in Fall 2007 [12], the workshop designed as a pilot study providing an informal and experimental input to the spatial awareness education. Bayazit and others studied the answers of question "What is the most effective way to teach acoustics to architecture student?" They used a practical connection for architecture students by using a room acoustic simulation programme to realize the relation with architectural design and acoustic [13]. Workshop study consisted of five stages: conducting a questionnaire, conducting a listening test, architectural project design, integrating the sound recordings with architectural design and interview with the students. Questionnaire stage contains questions regarding demographic information and current auditory awareness information. Listening test stage contains listening sounds and pairing of indoor photos with sounds (Figure 6).

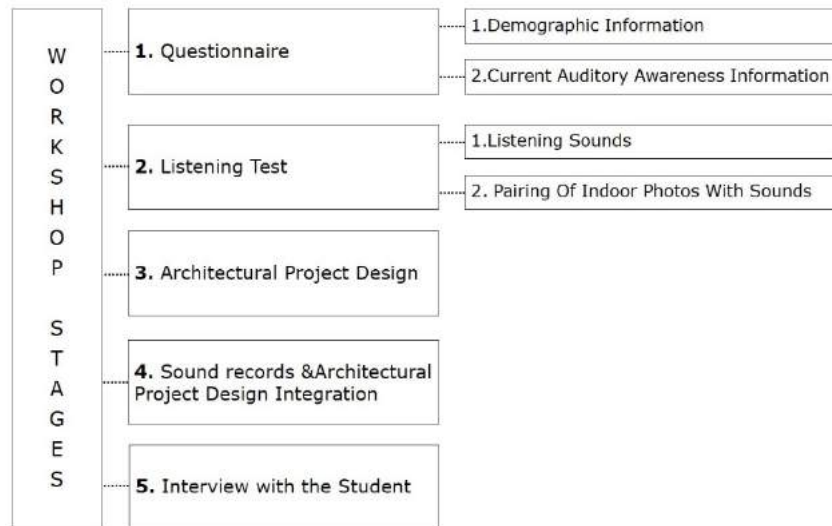


Fig. 6. Methodology of Workshop

#### 4.1. Questionnaire

- First Part /Demographic Information: The students were asked about gender, age, education in architecture and whether they have taken courses that contain acoustics.
- Second Part /Current Auditory Awareness Information : A few basic questions were asked in order to measure the current auditory awareness of the students. It was aimed to determine whether the auditory environment of the spaces designed with these questions could be read, whether they imagined the auditory environment in their own design, and whether the auditory environment data were questioned by the project executives during the educational process. The following questions were asked in the questionnaire.
  - *Have you encountered any examples of the architectural project that take the auditory conditions of the place as its parameters? (Except for performance places)*
  - *Have you ever considered how the spaces you design will have a sound environment when it is built?*
  - *Have the acoustical properties of the spaces (except for performance spaces) you designed in your project studio questioned by your instructor?*

#### 4.2. Listening Test

*In this section, students were asked to make simple two-minute audio recordings on their mobile phones in any of the places they were in daily life without communicating each other and to photograph these places. These audio recordings and photographs were taken electronically and prepared for the listening test prior the students came to the workshop.*

- First Part / Listening sounds : The audio recordings of 12 different places, as shown in Figure 6, were listened by the students without seeing the actual photographs. They required to answer the relevant questionnaire after listening each recording. The same recording were played an average of three times while answering the questionnaires. The questions that were answered just listening about the places are as follows;
  - *Where is the place you listen to?*
  - *Who are its users?*
  - *What actions are being taken?*
  - *Is it a crowded place?*
  - *Would you give examples of the sounds you hear from the place you listened to?*



-What would be your predictions about volume, ceiling height, architectural structure components, and materials?

-Would you give examples of the sounds that you were pleased to hear? Which sounds would you prefer to rise to prominence?

-Would you explain the feelings and thoughts that were awoken in you by the sounds you listened?

-Would you draw the visual response of the place you listened to in a perspective with a human figure? (Please draw your first impression simply)

The purpose of asking these questions is, to let students imagining and experiencing a place based on listening tests.

- Second part / Pairing of indoor photos with sounds : After the questionnaire the photographs belong to 12 places they listened were shown to the students and they were asked to match the photographs with the sound recordings (Figure 7). The students did not evaluate their own recordings and photographs. It was aimed to create an spatial awareness to the students and teach them the importance of listening to spaces that surrounding them. A letter was appointed to each place as shown in Figure 7 and each recording was given a number. The matching between 12 recordings and 12 photographs was done by the students as Recording 1 = Photograph A and so on.













				A - Pedestrian underpass
A	B	C	D	B - Barber shop
				C - Wood workshop
E	F	G	H	D - Student affairs
				E - Cafe
I	J	K	L	F - Metro station
				G - Bakery shop
				H - Clothing store
				I - Studio classroom
				J - Public transport passing area
				K - Shopping mall atrium
				L - Bazaar (open-air)

Fig. 7. Listening to Space

### 4.3 Architectural Project Design

After spending the first half of the day one with technical lecture and listening tests, at the end on the first day, the students were asked to organize a student center for a faculty building. It is requested that the room and spatial organization of the center were meant to design in terms of taking the auditory spatial design considerations at first. The preliminary design work for the function diagram and room organization was asked to be considered as part of the integrated design and to be seen as constructing the auditory environment as a design input. The students were asked to write down their design decisions and draw their sketches to a notebook. At this stage, the aim is to design with a new approach by blending

the theoretical knowledge with the primary impressions and intuitions.

#### 4.4. Sound recordings and Architectural Design Integration

On the second day of the workshop, the students were asked to collage their projects in the form of a volumetric organization or by defining a user route in 3D digital environment. The students were obliged to find the soundtracks they consider helpful to explain their virtual space and integrate sounds to their designs. The purpose of this stage was to define and create the auditory environment deliberately and sharing this experience with the students. To create a concrete understanding about the final project, an animation, which was presented as ARC508 Thesis Presentation in Architecture Program of Syracuse University in 2012 by Jack Solomon, was given as example [14].

#### 4.5. Interview with the student

As the last stage of the workshop, an interview consisting of seven questions was conducted to evaluate the process together with the students. The purpose of these questions is to improve suggestions for future works by gaining feedback from the students. The following questions were asked in the interview;

-Are there any places that affect you by its auditory environment? Would you share your experiences?

-Would you talk about what you gained from the workshop?

-Could you use your workshop experience in the future? Where do you consider you will use and how?

-You created a workshop project. What represented your design in terms of sound?

-Considering social, musical, navigational, aesthetic and symbolic as five fundamental aural architecture parameters how did you use these parameters in your design?

-Would you like these aural architectural studies to be added into architectural education?

-What are your opinions and suggestions about the workshop?

Each of the answers obtained from students were compared with each other and taken into consideration.

### 5. Results

During the workshop, various discussions with students took place based on the information they gained by the theoretical and practical part of the workshop on auditory spatial awareness. Nine students were attend the workshop generally from third and fourth grade. On the first day *questionnaire* and listening were performed with the students and the project design study expected for the second day was explained. On the second day the projects they designed were reviewed and the students integrated the prepared soundtrack into their designs. One of nine students did not complete the workshop and another one made a video for a project not concerning the student social center. Seven different videos accomplished all the stages of the workshop.

#### 5.1. Questionnaire findings

The workshop group was consisted of two female and seven male students. One of the students has never had any courses related to acoustics. Two students have taken the environmental control lesson that contains acoustical subject and six of the students have taken both environmental control course and an elective acoustical design of halls lecture. Two of the students were on their fifth term, one in sixth term, four in seventh term, and one in ninth term. General evaluation based on the demographic information is shown in Figure 8.

Five of the students answered as “no” to the first of the specified questions whereas four of them answered “yes”. This means that the 55.5 % of the students stated that they could not read the designs and spaces in terms of auditory atmosphere. Six of the students responded “yes” to the second question yet three of them responded

“no”. This means that 66.6% students explained that they considered auditory approach in their designs. However; all of the students answered as “no” to the third question. This means that 100% of the students stated that although they considered auditory aspect for their designs except for performance places, none of them used it as a parameter due to this subject not being emphasized in the project lessons. (Figure 8).

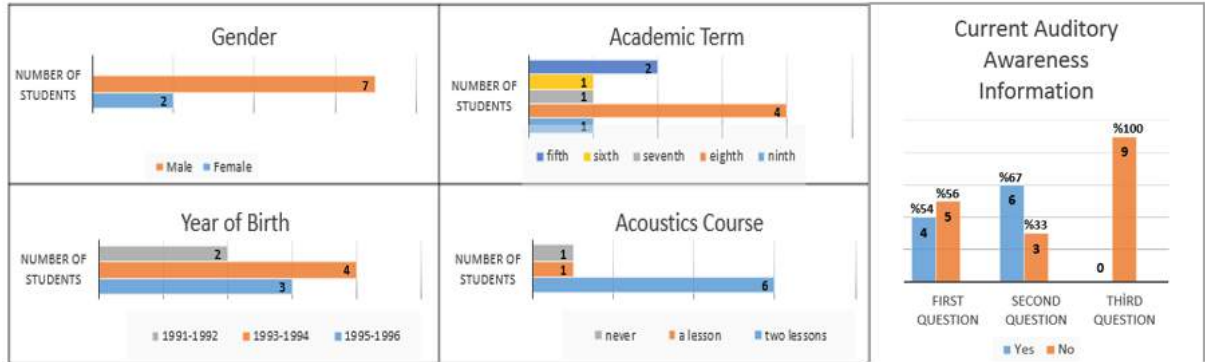


Fig. 8. Demographic and Current Auditory Awareness Information

### 5.2. Listening Test Analysis

The general findings obtained with the questions are as followed. The students did not have any difficulties predicting the users of the place and their actions yet they had difficulties predicting the function and architectural properties of the place. The students expressed the listening exercises as a different experience and especially E-Café, H-Clothing Store, I-Studio classroom and K-Shopping Mall Atrium were frequently confused with each other. It is stated by the students that the composition of people’s sounds with music creating humming sounds, which is unidentified and undefined, was leading to confusion. One of the nine students matched six places, three matched eight places, four matched ten places and one matched all of the places correctly. Regarding data is shown in Table 1. Although this study was consisted mostly of symbolic sounds, all students expect one failing to match all of the twelve places correctly is a matter of question.

Table 1. Pairing of indoor photos with sounds

Number of students	Right	Wrong
1 student	6	6
3 students	8	4
4 students	10	2
1 student	12	0

### 5.3. General evaluation of project design and its integration with sound

Although students have been informed about the five aspects of aural architecture at the beginning of the workshop, it has seen that students had difficulties to construct the room organisation according to listening skills. Instead, they chosen to design the room organisation depending on their noisiness or sensitivity levels. During auditory collage study, they proposed human sounds together with music into some of the units. The form of corridors and circulation areas were defined in a navigational way as well as courtyard design and interior and exterior space relation. They explained that the materials had texture to provide auditory variety in aesthetic aspect. Symbolically the sound of water in a pool or a sound from a digital studio server were chosen as dominant sounds by the students.

The movement that will make the route perceived by audience was created in various computers as an animation by the students. The sounds, which the user will be needing along

the route was added as prepared sound files. Thus the auditory atmosphere the students imagined to hear in preliminary design stage was created. The prominent features from the students' projects are stated with the visual elements from the animation in Figure 9.

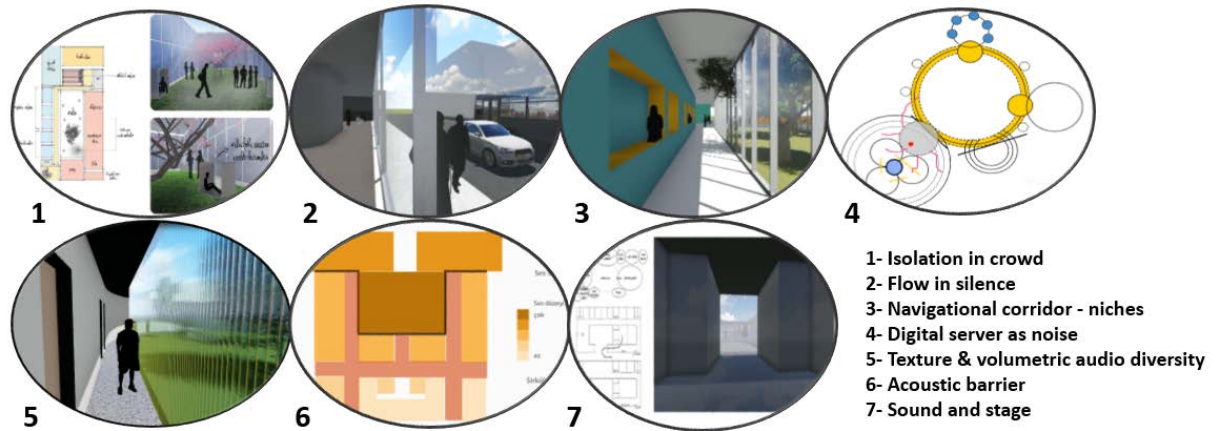


Fig. 9. Examples of Animation

#### 5.4. Feedback from Students according to interviews

After the workshop the students stated that they will be more sensitive about providing the auditory comfort in their future designs.

All of the students were enthusiastic about including this kind of studies regarding aural architecture into the architectural education. It was emphasized that architects should aim at designing suitable and high quality spaces from all aspects when designing a space. The students also stated that they would definitely design buildings with better acoustics. They learned more about how to gain aural architectural consciousness and how to achieve it. Suggestions about the workshop are as follows:

-Technically determining or limiting the sound recording conditions in the listening test. (The speech sound that throws the ambient sound into background or the examples with a dominant sound source were difficult to understand.)

-Better discussion environment can be provided if the study is conducted in groups instead of individuals.

-Instead of designing a project with specific building plan, this study can be carried out based on one place.

-Listening test can be supported with field trips to provide experience on site.

-Before starting to design a project with specific building plan, listening test sounds could be listened to investigate a place suitable to these sounds and 3D models could be constructed as an answer to the listening test.

## 6. Conclusions

Although sound in space has crucial role in human perception and cognition, it was not questioned enough throughout the architectural education, except for the performance places. Yet, the auditory spatial awareness of students should be increased to design an audibly rich environment. Similar studies like workshop should be done in a longer period of time with more students in order to nurture the architectural education and receive more feedbacks. This study has shown that, even mentioning the aural aspects of buildings in a two day workshop have enriched the students' ability to design with sound without using the complicated formulas and calculations. Students developed ideas about the auditory environment without specializing in acoustics. An architectural education collaborating the sound and space concept might be the key to sense the sonic spatial attributes of our everyday environments along with

visual ones. Further studies must be done in order to investigate how to add aural architectural variables into the design process. As a result, this experimental study can be used to develop project courses in architectural education.

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## GALLERIA AS HYPERREALITY

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### **Abstract**

Starting from mid-1950s, shopping malls have emerged as a new architectural form that was constructed outside the city as a simulation of the city center, and in isolation from all the negative external aspects of the city, with their enclosed environments. Starting to integrate into the global economy in 1980s, Turkey set out to import the components of the global economy within the perspective of liberalism. The concept of the shopping mall, invented by the global economy as the new public space, was also imported to İstanbul at the end of 1980s. The import was carried out by copying the shopping mall concept, which is a simulation of the city center in the West, as a model in İstanbul.

Galleria, located in Istanbul, which is also a copy of the representation of the city center, is the first and the transformative example of this modeling. Galleria has significantly changed the understanding of spending leisure time, shopping and entertainment in İstanbul, and made a big impact on the city despite the relative small area it covers. Galleria became a prestigious area, and a center of attraction for domestic tourists, turning into an authority of approval for those who wanted to emphasize their urban identity. Paving the road for a new and significant public space model in the minds of İstanbul residents, Galleria became one of the significant triggers of the postmodern transformation in İstanbul. In this sense, it sets an important example as to how an architectural structure can impact the socio-economic and cultural fabric of society.

*Key Words: Hyperreality, Baudrillard, Simulation, Simulacra, Shopping mall, Galleria.*

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### **1. Introduction**

Shopping has always been an act dependent on socialization or public space, tends to be stronger in cities, integrates with other functions in the city and takes place in urban spaces. Urban space, as public space, consists of characteristics that enrich and support urban social activities. The common objective of spaces hosting such activities is to create an environment with positive characteristics in order to fulfill people's need to congregate, socialize and communicate with each other, while providing the function of purchasing goods and services [1]. The urban infrastructure determines the existential characteristics of shopping.

In the modern era, shopping is mainly clustered in the compact and enclosed system of shopping malls which contain many stores within certain boundaries. The shopping mall structure demarcates and isolates the shopping space from the urban environment visually, physically and socially within a gigantic enclosed space, and thus recreates the public space outside the city center. In this structure, the shopping activity is transformed from an act of purchasing with the intention to fulfill needs, into an act of consumption which is independent from needs [2]. In this way, consumption becomes an end in itself.

Until the 20th century, the fundamental characteristic of urban shopping spaces was their integration with the urban fabric. The agoras in the cities of Antiquity and the squares in the

cities of the Middle Ages comprised the main shopping areas in cities, where the activity of shopping was fulfilled along with other urban functions, such as congregation and social communication with other urban residents.

## **2. The Development of Shopping Center Concept**

Enclosed shopping spaces which contained public areas first emerged after the advent of the Industrial Revolution in the 19th century. The rapid increase in the production and the diversification of consumer goods after the Industrial Revolution have led to a tendency of exhibiting these consumer goods in abundant variety and in places isolated from the uncomfortable urban conditions of the day. The tendency of the affluent class to avoid shopping together with people from lower-income groups and the disturbing qualities of the urban physical environment were the main reasons which led to a preference for isolated shopping environments. Therefore, as enclosed marketplaces gradually started to serve the entire urban population regardless of social class, shopping spaces entered a process of redefinition along the demands of the affluent class who were disturbed by this predicament. Hence, the new large structures enabled expansive enclosed spaces within the city that were exempt from the negative aspects of the urban environment, and naturally became centers of attraction for the affluent people of the period.

Initially, there was a transition to multi-floor stores called “department stores” which were first planned and constructed in England. These department stores were mainly intended for the consumption of luxury goods, and boasted a minimum staff of twenty-five people [3]. In time, the definition of the department store was expanded so as to cover large enclosed spaces ranging from ten to twenty thousand meter-squares and comprising of recreational areas, food outlets and branches of various brands [4]. These multi-floor buildings were the first institutions of the modern retail industry and the first enclosed shopping spaces of the 19th century [5]. Moreover, the development of steel and glass technologies enabled the construction of well-lit structures, which had transparent ceilings, offered wide openings in common spaces and brought many shopping units together [6]. In this sense, developments in architecture made a tremendous contribution to the transformation of shopping spaces from structures that were focused on city centers to independent shopping malls.

As a result of these development, arcades and large department stores started to emerge at the end of the 19th century [7]. Arcades were the first indication of the tendency to isolate shopping structures from the city. In these structures, window-shopping and shopping itself were no longer performed merely out of necessity, but had also become a daily leisure activity [8]. In addition to becoming a routine activity in daily life, shopping itself was also transformed into a hobby.

In time, shopping malls began to emerge outside the city. The first out-of-city shopping malls were structures consisting of a single complex building, which contained several large stores, a supermarket and open spaces for promenading that were independent from each other [9]. Eventually, the shopping mall architecturally evolved into a completely enclosed structure where everything was brought together under a single roof. This approach was revealed as a closed universe in the 1950s, in Victor Gruen's Northland Center, which spread over five hundred thousand meter-squares on two floors, and contained a hundred and ten stores. With the shopping mall completely closed to the outside world, it became possible to control the climate within the complex [10]. Thus, shopping malls succeeded in isolating themselves from the world outside their walls, in terms of climate as well. From then on, shopping malls became a world of their own and created their own universe.



### **3. Environment in Shopping Malls**

In contemporary urban centers, the density of pedestrians dwindled and these spaces became business centers consisting of high-rise buildings, with avenues completely dedicated to vehicles, all of which lead the way to an environment where shopping spaces were reinvented in a new and unique structure. The most important embodiment of this predicament is the contemporary shopping mall.

Shopping malls are a spatial reflection of the transformation of consumption mentality and culture into a form in which the modern urban life is "packaged" and offered to urban residents. They are designed to be much more than mere centers for shopping activities. They are also intended to serve as meeting areas where many activities can take place in a closed physical environment with air-conditioning and safe social atmosphere [11]. Those strolling in shopping malls are distanced not only from unpleasant weather conditions, but also from the unpredictable and disturbing criminal activities they are likely to encounter on the city streets [12]. The aesthetic characteristics of the space augment the satisfaction of those using it, enable potential users to be attracted to it and boost their morale by relieving them from the pressures of the city [13]. As a result of the touch of a designer, they transpire as significant spaces of "pleasure and enjoyment."

Shopping malls are detached from their environments and contexts, and are thus closed in on themselves. These structures host a contemporary public space within their boundaries that has been designed as indoor urban space. With proper climate control and lighting, and with its functions and formal characteristics, it attains an appearance that looks increasingly like a city center. Integrating many stores, a few department stores, a supermarket or hypermarket and areas for social activities, it is a type of structure which constitutes a new urban focal point.

In these spaces where one can stroll freely, there is no obligation to buy and window-shopping is widespread. The consumer is allowed to look at, to engage with and to try products in carnivalesque atmosphere. The consumer experiences commodities which she or he does not own [14]. This space offers a different world to the consumer, and enables direct contact with this world.

Along with the act of purchasing, people also do other things at shopping malls. For example, they take part in experiences. The consumer incorporates the acts of buying and consumption in a short span of time and in a single event in the shopping mall. Even though such purchasing and consumption experiences include both tangible and intangible products, the act of consumption still remains experimental. This is particularly the case for eating in a restaurant, strolling around, sitting down to rest, going to a movie or visiting an art gallery. In this sense, the shopping mall contains sources related to experiences outside commodification and the significance of the world of objects becomes secondary [15]. A new universe comes into being with the shopping mall.

Shopping malls not only assume the function of shopping, but also attempt to cater to social needs such as recreation and relaxation, sense of security and the preservation of social distance between people. Given the way in which it defines the sense of relaxation and release, recreation bears the promise of distancing oneself from the fast and tiresome pace and turbulence of urban life, of regaining strength and of revitalization. The notion of recreation in shopping malls entails psychological recreation to a greater degree than physical recreation. The common spaces are intended to provide psychological relaxation to people, with their social environment, natural elements, artworks and various activities on offer. For common spaces to successfully provide recreation to its users, it is of utmost importance that these spaces offer psychological comfort in addition to physical comfort. Considered in terms of its social aspects, some users prefer spaces where they can rest and relax, while others prefer spaces where they can actively interact with it and its various aspects and can participate in discovery, new experiences and activities.

One of the most striking aspects of shopping malls is their incorporation of areas for passive participation. Passive participation is the conceptualization of a spectator and can be defined as the enjoyment attained by watching the environment, in addition to being an actor on the stage provided by the shopping mall. In passive participation, the act of watching becomes more important than doing things or talking, and the individual can perceive himself or herself to be a part of the surrounding society and the environment [16]. Factors such as the presence of other people, visual quality and diversity, art, scenery and nature attract people to passive participation.

#### **4. The Reconstruction of the City Center in the Shopping Mall as a Imitation**

In the post-industrialist society, everything is done according to a determined model. In this type of society, the model is not designed on the basis of “reality”, instead “reality” is based on the model itself [17]. Baudrillard calls this reconstruction of reality through models, where there is no original or reality to begin with, as hyperreality or simulation [18]. According to Baudrillard, simulation is the counterfeit which has replaced reality itself, by overtaking all of the signs pertaining to reality. In this perspective, simulation is a hyperreality which has insidiously destroyed and replaced “reality” at an unknown point and time. In Baudrillard's opinion, simulation is maintained through the simulacra, or in other words, representations which are perceived as reality. In Baudrillard's words, “the simulacrum is never that which conceals the truth - it is the truth which conceals that there is none” [19]. In this sense, simulation is reproduction of objects or events without having any basis on “reality”.

Baudrillard argues that the simulacra has four distinct stages [20]. and the post-industrial period corresponds to the third stage of the simulacra. For Baudrillard, during the first stage of the simulacra, which encompasses the period between the Renaissance and the Industrial Revolution, and during the second stage of the simulacra, which in turn encompasses the period between the Industrial Revolution and the post-industrial era, the image strives to establish a connection with and to represent reality. However, this predicament changes with the third stage of the simulacra. At this stage, both the real image and the counterfeit image is perceived as a simulation [21]. Under these conditions, images float freely without having a concrete connection to reality, and thus they can only generate meaning in relation to each other [22]. That is to say, there is a difference between reality and its representation during Baudrillard's first two stages of the simulacra, but with the third stage, signs have become representation of other representations, instead of reality. Now, a dimension exists, in which it is argued that the “real” is derived from the representation of representations. In this way, representations are derived from reality during the first and the second stage of the simulacra, while the third stage is governed by an order, in which reality is derived from the representation of representations.

The phenomenon which Baudrillard depicts as the third stage of the simulacra has directly determined the act and the architectural space of shopping as well. In fact, the shopping mall concept was invented in the post-industrial era. It was initially reconstructed as physically and socially distant from the city, but with an appearance that is similar to the city center in terms of architectural functionality. In this context, the city center was reconstructed within the shopping mall, which defined and presented itself as an alternative to the city center with its references to the city [23]. However, these references are not spatial but formal. They are not related to the essence of the city, but instead they are merely superficial and artificial. According to Baudrillard, shopping malls are akin to a festival of commodities, and exhibit a small scale simulation of the city to their users [24]. Shopping malls behave like city centers, but they are indeed constructed with a completely different type of architecture. In this sense, they represent not a “real” city center, but the concept of shopping, or in other words, a representation in itself, and they establish this as a new reality, or as Baudrillard coins it, as hyperreality. Fiction, which starts out from reality, becomes an imposition of the fiction, as reality itself.

Urban space, which is reconstructed in the shopping mall, loses its ability to renew itself, and becomes an empty space created at once within a confined space. A uniform spatial organization which manipulates the user lies behind the rich appearance, created by the use of landscaping elements and decorative arrangements in the urban/public space that has been (constructed) moved indoors. Characteristics of real urban space are simulated superficially in the structure, with the aim to recreate the complex and chaotic urban atmosphere of the city in a sterile environment. In Baudrillard's words, in the shopping mall, "everything is taken over and superseded in the ease and translucidity of an abstract 'happiness', defined solely by the resolution of tensions" [25]. It turns into a controllable and easily manageable artificial urban space which is designed with a focus on commercial success. The urban space is imitated by allowing an ample amount of natural light into the structure or by recreating this sensation by artificial illumination, as well as by designing the facades of stores by mimicking the facades of buildings on avenues in the city.

Today, shopping malls have turned into surreal places where completely unrelated entertainment elements such as carousel and ice skating ring; technological elements such as panoramic elevators and escalators; and architectural elements such as arches, domes and bridges are combined together. However, it is also a reality that shopping malls are the new public spaces of our age that are shaped with an indoor space approach, which is at times reminiscent of the past with a "kitsch" style, and which at other times reflects a "high-tech" appearance, evoking a space station. The public relationships established within such spaces, have also lost their naturalness, similar to the artificial world reconstructed in shopping malls. From air conditioning to security checks, everything is controlled in shopping malls. Likewise, public relationships are monitored and controlled as well. Everything is an imitation of the real city center, but all that is not sterile has been exempted from this imitation, thus a refined shopping space is offered to consumers. In this way, both physical and social needs are fulfilled in an urban environment that is secure, protected, air-conditioned, isolated from traffic and completely pedestrianized. According to Baudrillard, shopping malls offer an unprecedented comfort to those strolling in the promenades of shopping malls [26]. The imitation city center has started to replace the traditional city center [27]. For Baudrillard, the pace of modern life is reconciled with the idleness of antiquity in the shopping mall [28]. In this space, shopping transforms into a mechanical activity, while the appearance of the city center the shopping mall seeks to recreate is replaced by a mechanical and completely commercialized spatial organization.

### **5. Imitation of Imitation/Hypersimulation: Galleria**

The emergence of shopping malls in Turkey took place in the liberal economic environment of the post-1980a period [29]. Galleria opened in September 1988, on the waterfront of Atakoy in İstanbul, as the first shopping mall in Turkey. Its construction was inspired by "The Galleria" shopping mall in Houston, and it was also named after this shopping mall [30]. In this sense, Galleria was brought to İstanbul as a model of the first-generation shopping malls, which themselves were created as imitations of the city centers in the United States. Therefore, architecturally speaking, it was presented as an imitation of the newly established reconstruction of the city center. In imitating the city center, Galleria emerged as a model of an architectural representation that is detached from reality and thus became a hypersimulation. Its purpose is not to model the city center, but to imitate a representation that has been directly modeled on the city center. In that respect, the imagery that Galleria conjures in Turkey is the import of an architectural structure originating in the United States, rather than a shopping area as an architectural alternative to the city center. Considering the widely shared aspiration among society in Turkey during the 1980s for anything and everything from the United States, it can be understood more easily as to why such an exported architectural model has drawn so much

attention from all segments of society. In the first few years following the opening of Galleria, many people have traveled from all parts of Anatolia to İstanbul, only to visit Galleria and to have the "privilege" of shopping there [31]. In a way, shopping at Galleria meant shopping in the United States. Thus architectural simulation brought about cultural simulation. As an indication of modern urbanization in the context of İstanbul and Turkey, Galleria is a pivotal architectural structure with regard to the changes in the urban structure. It is a unique and primary example demonstrating the impact architecture has on how social life is re-shaped in the process of urbanization, based on economic and social relationships.



Fig. 1. Photo of Galleria Mall

The consumption culture was reinforced with the phenomena of entertainment and shopping, and Turkish people quite easily and smoothly adapted to Galleria in particular and to shopping malls in general [32]. Appealing to many people from different segments of society, Galleria became the new venue for spending leisure time and for participating in leisure activities. Contributing to this were the problem of traffic in İstanbul, unsolved for decades and worsening every year, the city streets, loud and impossible to walk in, and deficiencies in security. In Turkey, vehicles have priority in the organization of the city; people do not respect traffic rules; vehicles park on the sidewalks; pedestrian crossings are few and far in between; and pedestrian rights are disregarded. Therefore, Galleria was perceived by many people as a much needed modern public space [33]. The commercial and social success of the Galleria representation has provided the motivation necessary for the modeling of similar new shopping malls in İstanbul and the rest of Turkey.

Offering more luxurious and eye-catching display windows compared those of existing stores on streets and avenues, and thus presenting itself as an indicator of the modern Western world, Galleria offered the residents of İstanbul a whole new world with its global brands and design stores, movie theaters, brand eateries, bookstores and global electronic centers. Society perceived the act of shopping here as a means of attaining elevated prestige and social status [34]. In the years following its constructions, Galleria gradually transformed from being an urban space to being an alternative space to the city.

As a result, the residents of İstanbul began to flock to Galleria for all their needs. Galleria became a popular place not only for shopping, but also for entertainment and socializing [35]. Especially working people preferred to spend their weekends and holidays in Galleria, with their families [36]. Initially a project which aimed to attract the high-income group, Galleria would eventually also appeal to the demands of the lower-income groups [37]. Consequently, although this development could be seen to expand its scope, in reality it ended up weakening its power.



Fig. 2. Photo of Galleria Mall Interior

The merging of consumption with leisure time experiences in shopping malls, indicate a new era in terms of city centers and in consumption. Henceforth, the act of shopping in daily life, along with shopping itself, signifies the visibility of the subject doing the shopping. The subject who is doing the shopping is displaying a public performance during by carrying out the activity of shopping. Resembling the performing arts, this performance is observed by passers-by who are integrated into the live experience of consumption, as spectators with no obligation of spending. In this context, the shopping mall also becomes a stage for this performance and for the cultural transformation, the social experience and the daily life constituting this performance [38]. In this sense, Galleria has been successful in transferring the performance of visibility in the favorite shopping streets of İstanbul to the sterile environment of its narrow confines. This has made it a model for all the other shopping malls in Turkey.

Having attained a nature akin to a spectacle, consumption is explained through concepts such as performing, entertainment, pleasure, hedonism, freedom, experience and socialization, all of which goes on to demonstrate that the rational characteristic of consumption has long been abandoned, with the focus shifting to its social characteristic instead. Today, an outing to shopping malls almost turns into an excursion to touristic sites [39]. In Galleria, this characteristic of being a touristic site was attributed to Fame City. Fame City is in a sense a small-scale model of Disneyland in the United States. Therefore, once again it is an imported concept, based on the model of a representation of a representation.

Baudrillard describes Disneyland as “a perfect model of all the entangled orders of simulacra.” (Baudrillard, 2014). Just like Baudrillard, Jameson also describes Disneyland as the exemplary framework of postmodern hyperspace and simulation [40]. It is proposed that even though visitors are aware of the fact that the performance they are being offered in these amusement parks are simulations, they accept this montaged world and hyperreality as it is [41]. In this context, Disneyland and similar amusement parks generate aesthetically mediated perceptions of “reality”, consequently reproducing a new reality that is completely detached from actual “reality” in essence. And in Galleria, the function assumed by Disneyland has been reproduced through Fame City. As such, just like Galleria being the copy of another Galleria in Houston, Fame City came into being as a small-scale copy of Disneyland. Nevertheless, Galleria is still in business today, while Fame City is no longer operated.

Shopping malls are architecturally designed to create fantasy worlds and theatrical atmospheres [42]. In this performance, both consumers and employers play crucial roles. In order to satisfy consumers and to engage them, the shopping mall is filled with stage props as well as backstage elements. While some of the paraphernalia remains all year round, some of them, such as Christmas decorations, are used only for special events and promotions. On weekends, clowns, balloons, illusionists, orchestras and the like make their appearances [43]. In order to draw purchases away from the Internet where they can be made for much lower

prices, shopping malls must be transformed into a stage where consumers can become active participants. Starting from the end of the 1980s, Galleria transported all these shopping mall traditions to İstanbul as constructed realities and initiated a seemingly small rupture in the social life of the city, which has led to much greater consequences. Many shopping mall-centered innovations in Turkey have made their way through the door opened by Galleria.

Galleria, was constructed as one of the complementary facilities of the Atakoy Tourism Center, which is located at a distance of twenty kilometers from Taksim, which can be considered as the city center, along with other facilities such the marina, the hotel and the entertainment and convention center within the boundaries of the tourism center. It is located on the northwestern side of the Atakoy Tourism Center, and lies in parallel to the Sirkeci-Florya road by the coast. With a total indoor area of eighty thousand meter-squares, Galleria contains shopping areas, an ice skating ring, Fame City (a large entertainment center), a food court and other recreational areas. It has a parking lot with a capacity for two thousand vehicles, and it is connected to a 2750 meter-square supermarket. Its construction cost was twelve million dollars. The restoration work, which was carried out years later in 2011, cost more than its construction, and fifteen million dollars were spent only for its renewal [44]. Today, Galleria is visited by 20-25 thousand people daily on average.

The facility was constructed on land owned by Emlak Bank, with the build-transfer-and-operate (BOT) method and leased to a private enterprise. The construction of Galleria was completed within an unusually short amount of time, due to the harmonious collaboration between the owner, the designer, the architect and the building contractor.

Architecturally, Galleria is comprised of six blocks. A five-floor block with an atrium in the middle is conjoined from the western wing by a three-floor block with a gallery. The western side of this block is occupied by a five-floor department store. The two three-floor blocks encircling the atrium and the four-floor block they conjoin make up the entertainment center. Pedestrian entrance from the sea-side ground level opens onto the atrium and the main galleries, while the basement floor that is one level below the ground floor that can be accessed using the escalators and stairs also provide access to the multi-floor parking structure that lies on the south side of the complex. All shopping areas are located around the two-floor gallery and the atrium in a visually harmonious way. The lower-floor around the atrium houses the food court and offers a sitting capacity for a thousand people. There are two shopping floors around the atrium, and above these, there are two more floors that are occupied by a fashion-textiles merchandising center. The blocks to the east of the atrium contain an entertainment center that is particularly intended for children and teenagers.

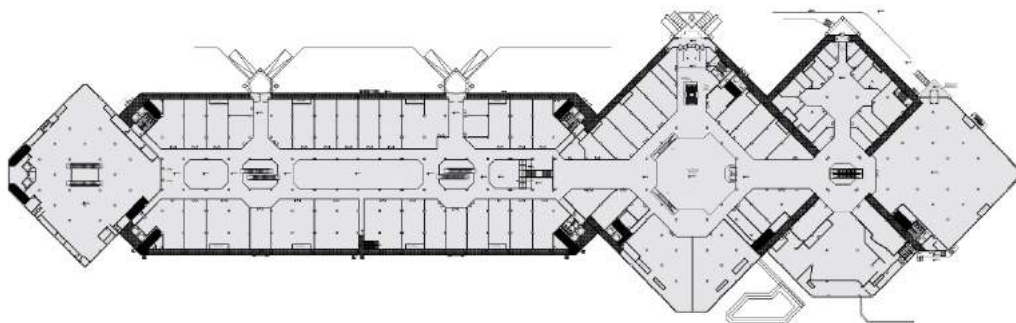


Fig. 3. Plan of Galleria Mall

The central area is covered by a skating ring, which can also be used for shows and exhibitions. The load-bearing system is designed with a systematic modulation, in which columns and beams are cast-in-place concrete. The tiles are composed by hollow core slab elements made from ready-mixed concrete, most of which are laid out with a spacing of 6.5

meters. The atrium roofing is space frame system [45]. The pyramidal dome skylight above the atrium and the octagonal dome skylight above the gallery are constructed out of aluminum and polycarbonate construction materials. The water heated by three hot water boilers is circulated through air-conditioning plants and boilers for heating use, while the water chilled by three cold water generators are used for air conditioning purposes throughout the complex.

The shopping mall is equipped with various safety systems and tools, in accordance with the building functions and international standards, such as fire warning system, fire detectors, manual control buttons, fire extinguishers, fire cabinets, electrical and fire protection and evacuation.

Galleria received “Best architectural design”, “Meticulous project”, “Rapidly constructed center with different features” and “Best shop mix” awards in international shopping malls fair held in Las Vegas in 1989, with the participation of 78 shopping malls. The mall is characterized as a modern interpretation of the traditional “Grand Bazaar” model by its designer, Dr. Hayati Tabanlıoğlu.

As the most important model for all consequently constructed shopping malls in İstanbul and Turkey, Galleria's popularity is far from its height in its early years. This predicament is due to the growth of the city center towards the Maslak axis instead of the Atakoy axis, with new shopping malls, which boast of much greater indoor areas being built on the Maslak axis, and the fact that multiple shopping malls have been built in all districts of İstanbul. Nevertheless, Galleria is definitely the progenitor of the shopping mall concept in Turkey.

## **6. Conclusion**

Galleria, is the result of the third stage of simulacra, which characterizes the post-industrial society according to Baudrillard. This post-industrial society is organized in and around a perception of reality that is a representation of representation, and whose relation to reality to is reconstructed on the basis of shaping reality, instead of starting out from reality itself. It sets out an example of the shopping mall architecture and concept, which was invented and reconstructed as a simulation of the city center, and imported from the West by modeling a representation of a representation.

Galleria presents a powerful example by highlighting the potential an architectural structure can have in sharply changing the shopping, leisure and socialization habits of a city. It has demonstrated that in a gigantic metropolis with a population in double digit millions such as İstanbul, building and living space architecture can serve as a trigger of postmodern transformation.

As a simulation, Galleria has remodeled the city center in İstanbul as a shopping mall, and emerged as an architectural structure that is a candidate for replacing the city center. It has been such a successful initiative that around one hundred and fifty shopping malls of the Galleria type have been constructed within the twenty-years since Galleria's construction. During this process which spans a quarter century, city centers have lost their quality of being the heart of social life in İstanbul to the dozens of shopping malls that have been built in nearly all districts of İstanbul. This result is testament to the fact that an architectural structure that has the necessary design characteristics such as Galleria, can transform the urban fabric radically.

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## VIDEO AS A TOOL FOR LEARNING FROM CITIES:STROLLING THROUGH İSTANBUL’S NEIGHBORHOODS

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### **Abstract**

Developments in digital technology opened up new visions for education, which offer the students flexibility to learn at any time and any place. Formal learning no longer comprises the majority of education and architectural design education has adapted quickly to this reality. In this context, workshops are held frequently between two or more architectural schools from different countries resulting in outstanding success and sharing. Besides developing skills, they help the students develop confidence in international environments. This paper is about an international workshop held in İstanbul, 25-29 January 2016, between UPC/ETSAB (Universitat Politècnica de Catalunya/Escola Tècnica Superior d’Arquitectura) and BAU/FA&D (Bahçeşehir University/Faculty of Architecture&Design). The title of the workshop was “Neighborhood”. Thirty two students from both faculties worked in joint groups and were asked to create a stop motion video as the end product of the workshop. The objective of the workshop was providing a best learning experience, in a short time. In recent years, videos have played an important role in education. They are appealing because they can be made with low budgets. Videos also have an advantage of, when done objectively, explaining in a few seconds something that needs several pages when written. Together with the fact that students may see them whenever they can and play as many times as needed, makes them a powerful tool for enhancing learning efficiency. Video is different from other technologies because it calls upon visual perception, the most powerful of all our senses. An image in motion helps the viewer to see a process and find out how things work, move and perform.

In this workshop, the students were asked to create a stop motion video of their experiences reflecting on some neighborhoods of İstanbul. They were supposed to focus on spatial, visual and audio characteristics of the visited neighbourhoods. The students were given a template and a storyboard to guide them to design the visual story of the visited neighborhoods. All students were encouraged to sketch during the visits. Because hand drawing is a tool that coordinates the brain with the hand and allows to capture very quickly impressions of the visited sites. All groups used sketches, watercolours, collages and photographs in their stop motion videos. They were asked to create a story mixing all the techniques explained. Besides using proper techniques for the videos, they were supposed to be supported by a narrative reflecting the city and its neighborhoods. The students were encouraged not only to walk the city, but live the places they visited. As Pallasmaa says “Architectural space is lived space rather than physical space and lived space always transcends geometry and measurability”.

Growing popularity of videos for education proved to be right in the case of Winter Workshop 2016 of ETSAB and BAU. Videos helped to create student engagement and facilitate learning, although majority of the workshop students met for the first time. Thinking and reflecting on buildings and places they visited, students experimented lived space by using all their senses, through their sketches and mixed images that made up their stop motion videos. It was a challenge because the conditions were not the best.

There seems to be no doubt that the number of higher education institutions of design will aim at making and using more videos. From now on, the pedagogical problem should be stated as: the optimum length of videos and their dependence on subjects.

**Key words:** Istanbul, neighbourhood, international workshop, stop motion video

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## 1. Introduction

Developments in digital technology have opened new visions for education, which offer the students the flexibility to learn at any time and any place. As formal learning no longer comprises majority of education, architectural design education has adapted quickly to this reality. A true education, as distinct from training, is something which is enriching for the recipient in every sense. It is not just about giving the recipients better opportunities in terms of life chances, but even more importantly, it gives them the skills to translate information into knowledge.

Architectural design education consists of theoretical and practical courses aiming at contribution to the development of the society at social and cultural levels besides the economic. With the advent of globalization another aim should be contribution to the society at international level. In this context, besides formal architectural education, informal studies such as workshops have a growing importance. Workshops are held frequently between two or more number of architectural schools from different countries resulting in outstanding success and sharing. They help the student develop design thinking skills, learning by doing skills, motivation for creativity and most important of all, self-confidence in international environments.



*Image 1. Poster of the workshop*

This paper is about a workshop titled “Neighborhood” held in İstanbul, on 25-29 January 2016. It was held between UPC Escola Tècnica Superior d’Arquitectura de Barcelona and BAU Faculty of Architecture and Design (Image 1). It was a five days workshop comprising of site visits, studio lectures, studio works and presentation on themes related to the visited neighbourhoods. BAU ETSAB Winter Workshop was organized around 4 themes:

- *Observe,*
- *Live,*
- *Make,*
- *Play.*

These themes manifested themselves in the streets of old and new neighbourhoods of İstanbul. Thirty two students from both faculties worked in joint groups of five or six members. As the assignment of the workshop, students were asked to create a stop motion video of the various old and new neighborhoods of İstanbul they visited. Going through the streets, Spanish and Turkish students encountered the city with all their senses and emotions. In spite of the short time, the students searched for a best learning experience. (Image 2)



*Image 2. Visits to the neighbourhoods of İstanbul* Street art is gaining popularity in Turkey and of course in İstanbul. The best places to see street art in the city are the neighbourhoods. Some districts with progressive municipalities are beautifying their neighbourhoods with massive murals. So, why should not Winter Workshop 2016 turn into a Virtual Street Art Festival? As for the assignment of the workshop, students were asked to create a stop motion video collage of the neighbourhoods they visited. The video was supposed to contain a piece of virtual street art designed by the students, especially for one of the visited neighbourhoods.

## 2. Video as a tool for representation

In the recent years, videos have played an important role in education. Videos help increase student engagement and facilitate learning. What is more, making a video is a demanding process. It requires selecting appropriate words and images, arranging them into coherent verbal and pictorial ways. This arrangement needs prior knowledge [1]. Videos have an advantage of, when done objectively, explaining in a few seconds something that needs several pages when written. This, together with the fact that students may see them whenever they can and play as many times as they need it, makes them a very powerful tool for enhancing learning efficiency [2]. Majority of the students are used to technology since they are born, so they must be provided with the necessary tools in their education process.

Video is different from other learning technologies because it offers the benefit of using the visual perception, the most powerful of all our senses. An image in motion helps the viewer to see a process and find out how things work, move and perform. According to Goodyear and Steeples [3] videos can present a clear and striking manner descriptions to articulate tacit information and knowledge hard to describe through text. See in Image 3, two frames of the stop motion video

“İstanbul Repetitives”, made by one of the groups of the workshop. Their work explores the relation between buildings and places, and their geometries. It is an easy way to represent, through different images, a concept that should be difficult to understand through text.



Image 3. Stop motion frames, “İstanbul Repetitives”

The technological development seems to be fast but still little is known about how to produce and effectively use them for educational purposes. The manner in which students select an approach for a learning situation has many effects on performance and the learning outcomes [4]. There are various theoretical explanations, models and measures about learning styles. As an example dual coding theory can be mentioned. The theory says that there are two classes of phenomena that are handled cognitively in separate sub systems: one deals with “objects” while the other deals with “language” [5].

Presenting information is an important part of learning. Some presenters are “verbalizers” while some are “imagers”. Verbalizers are better in presenting the information in words and imagers in pictorial form [6]. So, if information is presented in both formats, the students can choose between the formats, the best for their learning. Learning preference is a function of learner’s capability of information intake. Here, “intake” means what the learner finds important or worth learning. Videos are effective means to use the auditory and the visual perception for learning. When the video presents more information than the learner can intake, there might be a perceptual overload. We, human beings, are so good at processing the appropriate amount of information at a time. The overload in watching a video can be interpreted based on two theories: “cognitive load theory” and “cognitive theory of multimedia learning” [7]. These two theories both state that human memory has a certain cognitive capacity and if it is overloaded, learning may not be optimized. According to this, in order to learn more effectively, the cognitive load should be kept optimal.

Since, people’s perception capacity varies from one to the other, the editorial decision for the optimal amount of information in videos for education is difficult. Sometimes it is the pace and the rhythms of the video that make the overload rather than the information. See in Image 4, some frames of one of the stop motion videos made by the students group “A face of İstanbul”.

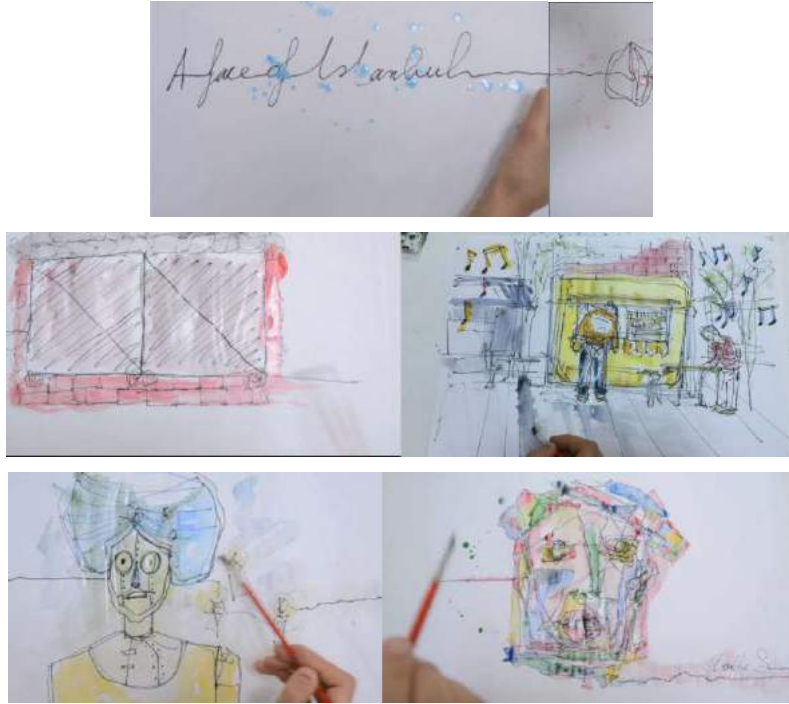


Image 4. Stop motion frames, “A face of İstanbul”

Bishop et al. [8] found that sound and music attract attention, but they do not have any effect on learning. Too much information may lead to an effect that the necessary part of the information may be unnoticed.

### 3. Methodology

In this workshop, the students were asked to create a stop motion video of their experiences of various neighbourhoods of İstanbul. The students that participated in the workshop didn't know each other before, because they were from two different universities and also from different levels of architectural education. So they were all asked to present themselves first. After this, they were given a short time for forming groups of five or six students. In our opinion, it was important that the students should themselves decide in which group they were going to take part.

They were supposed to focus on the spatial, visual and audio characteristics of the old and new neighbourhoods. The student groups produced six videos. The duration of the video was defined between four to five minutes. The titles of the videos were “Two Women, Two Men”, “A face of İstanbul”, “Aqua İstanbul”, “Butterflies”, “Group Paranoia” and “Texture İstanbul”. Because they were working against time, in the final presentation, the students found themselves in a position of saying the most in 10-15 minutes using appropriate amount of verbal and graphical information.

After the groups were formed, it was time to introduce the stop motion technique to the workshop students. In general, this was not a commonly used representational tool at both universities. The students were shown different examples and were informed about possibilities of new ideas for making the videos. As seen in Image 6, two of the frames for two different stop motion videos titled “Two Women, Two Men” and “Texture İstanbul”,

different techniques of using newspaper letters and letters drawn on paper for doing the titles were used. This happens to be very common in stop motion movies.

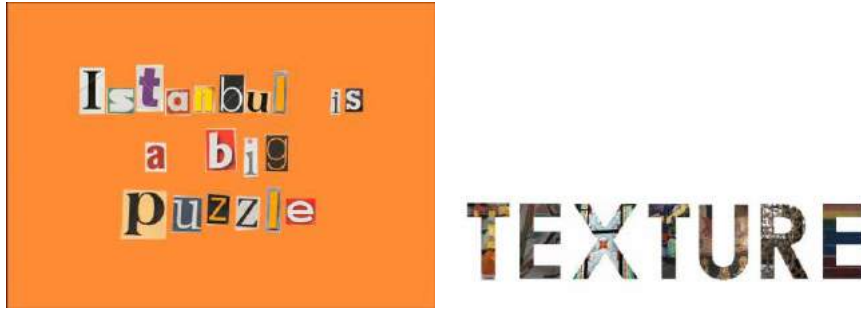


Image 6. Stop motion frames, “Two Women, Two Men” and “Texture İstanbul”

One of the important stages of doing a stop motion video is the way the story is explained, namely the storyboard. The storyboard concept was defined as a tool for creating the videos. All of the elements that took part in the movie like scene, frames, space, camera position, music, movements, characters, time, action were explained in detail. The students were given a template storyboard, as seen in Image 7, to guide them to design the story of the visited neighborhoods. They had to hand this template in along with their drawings, at the final presentation of the stop motion videos, on the last day of the workshop which took place on 29 January 2016.

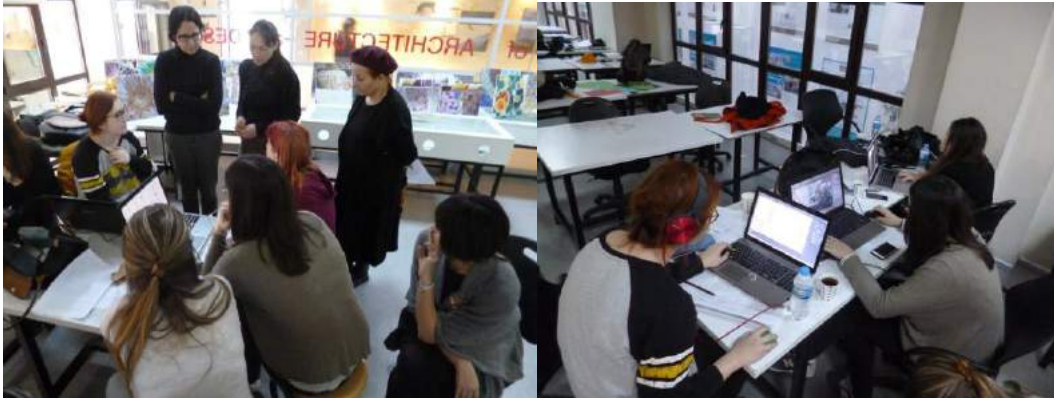


Image 7. Template storyboard

On the template, the first box was supposed to have a three-dimensional drawing including the scene with the position of the characters and their movements. In the second box they had to draw the plan of the scene with the position of the cameras and their movements around the space. On the right side of the template they had to write the duration of the frame, the space where the

action was going to take place, the music they were going to use, define the characters and explain all the relevant information for the video.





*Image 8. Students working in groups.*

In Image 8, the students are seen working in groups in this first stage, defining the overall story and doing the first sketches of their storyboard. Once they had defined the storyboard the groups could start preparing all the documentation for the stop motion video. The students had to mix different techniques of graphic representation for doing their movies. One of the main rules was the importance of introducing hand drawings in their works. They did it using sketchbooks, pencils and pens, but also with digital tools. In Image 9, the group with the stop motion video titled “Texture Istanbul” used this image made by hand for starting the video. A sequence of different frames of the evolution of this title can be seen .



*Image 9. Stop motion with the title “Texture Istanbul”*

The students could use different technological tools for doing their stop motion video. Each group decided which program they were going to use depending on their knowledge in computer applications. The tools that the students used for the stop motion videos were “Adobe Premier”, “iMovie”, “Windows Movie Maker” and “PowerPoint”. It was not important for the instructors which platform the students used to perform the videos, because the software used was just a tool to explain the ideas of the different groups.

All of the students were encouraged to have a sketchbook along with them during the visits of the workshop. In general, at least one or two students per group were doing sketches while visiting the places and buildings of Istanbul neighborhoods (Image 10). They went to details when observing doors and windows that elaborated the facades.



Image 10. Frames from the video “Butterflies”

The students were asked to focus on hand drawings, because is a tool that coordinates the brain with the hand and allows to capture very quick impressions of the visited sites. As John Berger [9] said: “There are many types of drawings: ones are studies, forms of research and other projects that are sketches of masterpieces”. We were interested in these drawings as forms of research, as a tool for discovering new aspects of the cities. The students were not expected to do perfectly finished drawings. We were looking for incomplete ideas that appeared on the sketches. As in Image 11, two different frames of the stop motion video titled “Reflect Motion” can be seen as examples. The use of different hand drawing techniques with markers, watercolours and all mixed effect produced different experimental drawings.

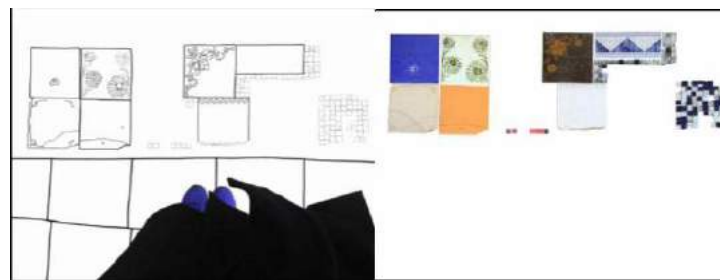


Image 11. Stop motion frames, “Texture İstanbul”

All the groups used sketches and photographs in their stop motion videos. They were asked to create a story mixing all the techniques explained. As seen in Image 12, an example of some of the frames of the stop motion video titled “ Group Paranoia”, in three frames the students mixed

photos from different angles and blurred images of important buildings of the visited old Balat neighborhood.



Image 12. Stop motion frames, “Paranoia İstanbul”

We focus on the importance of exploring, studying and analysing the cities, as Georges Perec [10] described in his book: “Our look moves around the space and gives us the illusion of relief and distance. So we built the image of space: from above and below, from left and right, from front and back, from close and a far”. With the sense of vision and the sense of touch our students were able to find all the necessary information for creating their stop motion videos. In Image 13, one can move around the space as one sees it in these two frames of the stop motion “Paranoia İstanbul”. One can have a look at the city in different ways: first, as a camera capturing the real scene: second, as a regenerated colour version, where there is a proposal for the betterment of the locale.



Image 13. Stop motion frames, “Paranoia İstanbul”

We explained the relevance of feeling with the cities. We encouraged the students not just to walk, but to live the places and buildings. As Pallasmaa [11] says “Architectural space is lived space rather than physical space, and lived space always transcends geometry and measurability”. We challenged the groups for trying to find this lived space, these personal feelings they had while they were going around different places. In Image 14, we have four frames of the stop motion video titled “Two women, two men”. They played with music, water, light and colours. They touched the places visited through fragmented images. One cannot feel all these aspects only by using the sense of vision. It is important to give the students different tools and different ways of walking through the cities.

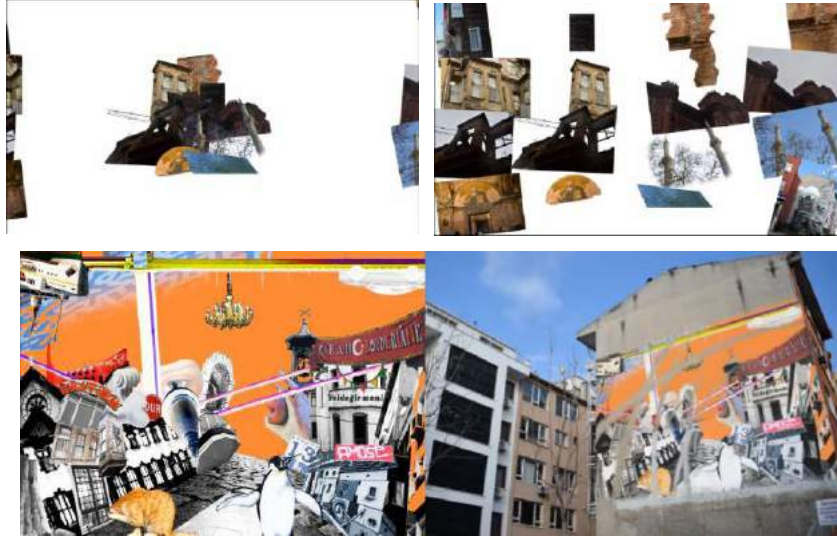


Image 14. Stop motion frames, “Two women, two men”

In Image 15, there is another example of a stop motion video titled “Two women, two men”. In this movie the students also worked with the concept of senses, making a reflection of how people perceive different locales of the cities. They tried to imagine the way these people feel when they go around different places that they are not prepared for. They focused on the essence of the space, avoiding ornaments and decorations for understanding the place through some street art performers’ eyes. Actually, our mind is perfectly able to sense the real image of the lived space just through the artists’ imagination.



Image 15. Stop motion frames, “Two women , two men”

In general, all the six videos presented on the last day of the workshop were related with the concept of senses. All of them did good research on this new way of experimenting with the city. It was a challenge for the students to work with a different tool of graphic representation of spaces, namely the stop motion videos. All of them were successful. All the groups enjoyed thinking and imagining the best way to express their ideas through a stop motion video of a short duration, just between three to four minutes.

#### 4. Conclusion

In recent years, videos have played an important role in education. Videos help create student engagement and facilitate learning. This is true for learning in all design arenas, as well as architectural design. Video has become a way people are communicating. It is almost a must. By experience, it is known to us that videos provide high quality lecture capture and they support group engagement.

Over the last decades, technology has been reorganizing our ways of learning. With the

advent of globalization, one of the aims of architectural design education has been contribution to the society at an international level. International workshops are held frequently between architectural schools resulting in outstanding success and sharing. Growing popularity of videos proved to be right in the case of 2016 Winter Workshop in İstanbul's old and new neighborhoods. Potential benefits and challenges associated with making videos in the teaching and learning process at higher education level has been a good experience both for the students and the faculty alike.

By using the stop motion video techniques, all the groups of students have studied the old and new neighbourhoods of İstanbul in different ways, so as not just looking through a camera. People do not process information about the environment the way cameras or computers do. Our processing is full of errors and our perceptions differ from one to the next. Our imperfect images are quite useful to us. The stop motion videos produced by the workshop students were a perfect indication of this. Thinking and reflecting on the neighborhoods they visited, students had a chance of experimenting lived space by using all their senses and through their sketches and mixed images shown in their stop motion videos. It was a challenge because the conditions were not the best. Budget was zero and there was not much support neither in terms of producing, designing and technology. Videos are appealing because they can be made with low budgets, which is one of the important challenges to universities.

There seems to be no doubt that the number of higher education institutions of design will aim at making and using more videos. From now on, the pedagogical problem should be stated as “*the optimum length of videos and their dependence upon subjects*”.

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## BIM IMPLEMENTATION FOR INTEGRATED INTERIOR DESIGN SOLUTIONS

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### **Abstract**

The usage of BIM in Architecture, Engineering, and Construction (ACE) sector has been increasing rapidly. The concept of BIM contains the formation and the usage of the design, construction and management knowledge of buildings. The computational model of BIM forms an environment that serving the various disciplines of the design process to work together. Although there is enough discussion on the advantages and the usage areas of BIM, problems for BIM practice still continue.

In this paper, a BIM implementation on a large-scale retail store chain was explained. The chain has several stores in Turkey as well as Europe, Asia, and Africa. The chain operates in the textile sector, and quality control of the overall processes are crucial to the company's workflow. Although it is rather called large-scale, all the design works were done by conventional methods for a long time. The BIM implementation coordinated by the author has been started in 2015 and still in progress. Design, application, and construction of all stores of the chain were transformed by using BIM methods.

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**Key Words:** *BIM; AEC; BIM implementation; data transfer; retail stores.*

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### **1. Introduction**

BIM for Building Information Modelling is a concept appeared in the middle of 90's. The idea of BIM is to integrate all building information in one only concept. Although the name originally found by Autodesk, it was used by other software developers such as Graphisoft and Nemetschek.

BIM is defined by IAI (International Alliance for Interoperability) as three different ways:

- Interoperable digital presentation of physical and functional characteristics of a building based on open standards
- A shared database of the building that uses during the whole building lifecycle by different areas and professionals.
- The collaboration between different areas and professionals that aim to add, change and renew building information during the whole building life-cycle.

Many countries, particularly Northern European countries, have developed their own standards of BIM. "National BIM Standards" (NBIMS, 2008) in the USA, "building SMART" (NO 2008) in Norway, "CRC Construction Innovation" (CRC CI 2008) in Norway, DK (DK 2008) in Denmark are among the best-known national BIM standards.

Defining BIM as software type reduces its importance for design and construction processes. Eastman et al., [1] state that it is necessary to understand BIM as a wide range of concepts, activities, techniques, tools and subjects united in complex relationships and distributed in all activities related to construction industry.

By using BIM technology, the designer, “build” virtually a building model through objects that simulate the behavior and shape of constructive elements. The virtual models can be understood as databases, where stored both geometric data and text information of each construction element used in design. The combination of this data enables automatic extraction of documents such as plans, sections, perspectives, and quantities take off. [2].

BIM is used to identify and store all information on the buildings such as analysis, modeling, geometric data, spatial relations, geographic information, physical objects etc. BIM can also be used to present all assets of the building lifecycle. Ofluoglu [3] describes usage areas of BIM as four main headings;

- Usage of BIM in the design process
- Usage of BIM in environmental analysis
- Usage of BIM in building construction
- Usage of BIM in building management

Kiviniemi, [4] indicates that Architecture, Engineering, and Construction (AEC) industries increasingly have begun to learn and use the concept of BIM concepts. He also states that architects those adapt the fastest to the BIM technologies among all of the professionals of the design process.

Nowadays, different areas and professionals of design process work together and exchange information via the Internet. The ways of transmission and visualization of design representations vary with the current developments of BIM and communication technologies. In the near future, the concept of BIM will be the most important determinant for the development of design collaboration.

After the introduction, this paper is divided into three main parts. The first part is exposing why the implementation of BIM is crucial/important in the design process. The second presents the process of an implementation of BIM on a large-scale retail store chain. The last part gives conclusions with a summary of the contribution of this research.

## **2. Why Do We Need the Implementation of BIM?**

*"The problem with a set of architectural drawings, for example, as a symbolic picture or model of a building is that they present an inadequate means for the rigorous testing of the form against the requirements of the programme or context; they are a model of what the proposed building will look like, how it will be disposed three-dimensionally in space, but not how it will behave....."[5]*

Using CAD for the production of drawings is not taking advantage of CAD. The production of drawings would still rule the process keeping intelligent humans occupied by doing work which to a great extent easily could be automated. The time could be used to put more efforts into the design work.

A BIM is not only rich with geometric 3D data about the building but has additional information that can be useful throughout the building's whole lifecycle. Examples of such information are strength values, isolation levels, acoustic values, etc. This additional information in computer models has made it possible to talk about 4D (3D+time/scheduling), 5D (4D+cost) and even nD modeling (involving other information properties, for example, the drying time of a concrete slab). Another bonus of using BIM is the possibility of viewing the model in real time. As Lee et al [6] explain, ‘nD modeling develops the concept of 4D modeling and aims to integrate an nth number of design dimensions into a holistic model, which would enable users to portray and visually project the building design over its complete lifecycle’.

According to a technical report by Gao and Fischer [7], the use of BIM models varies according to the business drivers, project stakeholders, and project phases. They also emphasize that companies are starting to integrate BIM models for more data-driven tasks such as the analysis of design options, supply chain management, cost estimating and change



order management, facility management and the establishment of owner requirements. The BIM models currently used are not real-time visualizations enabling user interaction and navigation, but simply time-based models where the animations show changes over a given time period. Nonetheless, the visualization of BIM information is beginning to prove very effective for communication on the construction site [8].

### **3. Case Study**

The BIM implementation on a large-scale retail store chain was explained in this part. The chain has several stores in Turkey as well as Europe, Asia, and Africa. The chain operates in the textile sector, and quality control of the overall processes are crucial to the company's workflow. The chain has also its' design and construction offices responsible for all stage of stores design. Although it is rather called large-scale, all the design works were done by conventional methods for a long time. The BIM implementation coordinated by the author has been started in 2015 and still in progress. Design, application, and construction of all stores of the chain were transformed by using BIM methods.

The existing system of design was based on 2D drawings. The data transfer between staff members was unsynchronized. Teamwork concept was highly unfamiliar among staff. Calculations of the projects were done on layouts by conventional methods. Since the data transfer between architects and engineers were done by 2D drawings, the design errors were corrected via traditional methods. Data transfer was badly organized. The data files were huge that it is difficult to make transfer between workers. The hardware infrastructure was incapable of working with BIM software. Additional costs were created. Some network errors occurred by using Graphisoft BIMServer. Even the problem was based on networks, the motivation and performance of staff were badly affected. There were adaptation and trust problem among staff on new 3D drawings. The results were calculated with traditional and computer aided methods both.

BIM authoring tools provide a built-in library of categorized components that include geometry as well as nongraphic attributes. In addition to these built-in libraries of components, building product libraries, as called "BIM Content Libraries", are web portals for building product models where the user can navigate, search and download BIM contents [1]. BIM Content Libraries contain a lot of BIM related information for a range of product models that can be used in some BIM applications. To avoid the problems and start the BIM implementation, a BIM Content Library to make appropriate calculation was developed. The infrastructure of teamwork was established with the local BIMCloud server. BIMcloud allows a BIM workflow on any network, hardware or software configuration, connecting teams and projects of any size or setup [10].

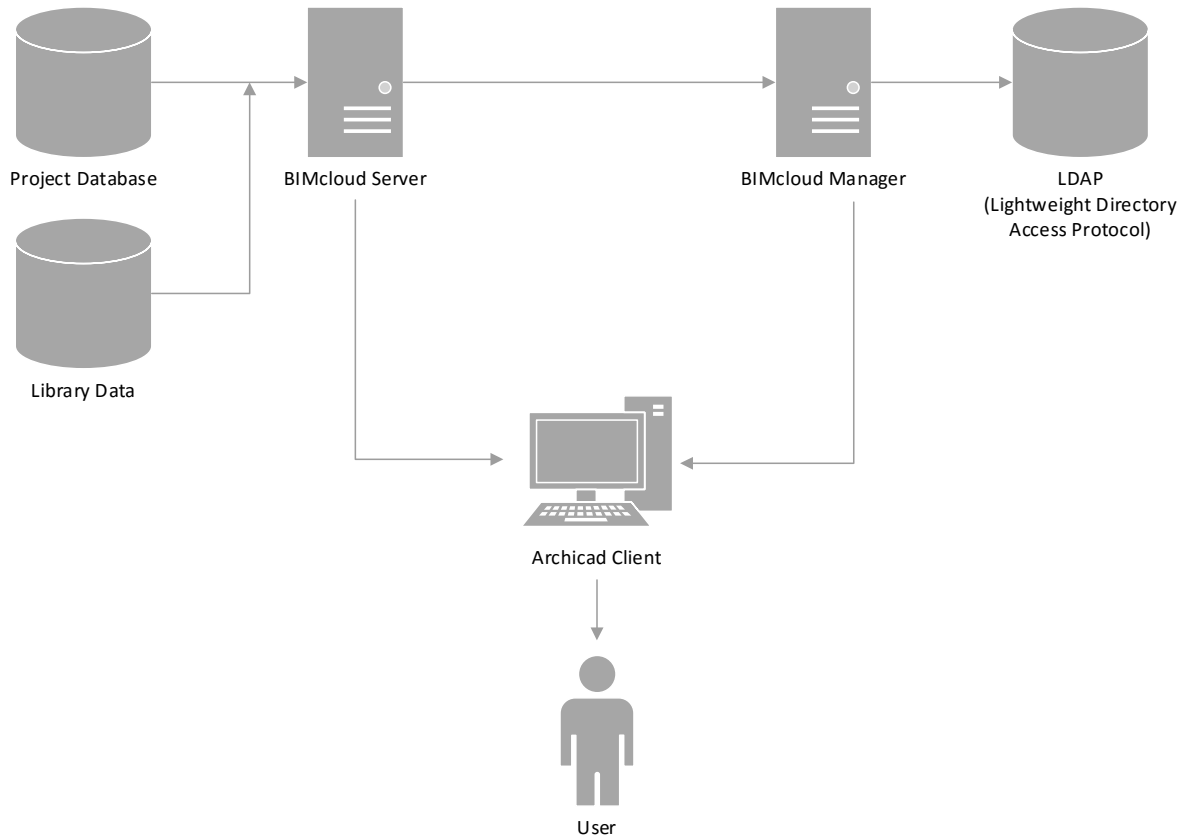


Fig. 1. BimCloud Environment

BIM is a technology relies on BIM objects reflecting the real-world. BIM object is a data file including information, geometry, visualization and functional data. A chair and a wall are both BIM objects [11]. A common architectural presentation technique was defined to organize the BIM objects. In order to organize thousands of objects in BIM Content Libraries, they needed to be grouped into proper categories. This provided a quick access to the objects of the same category. In categorization of the objects three criteria were used;

- Objects classes that were defined in the target platform
- Using references to the classification systems
- Customized categorization system

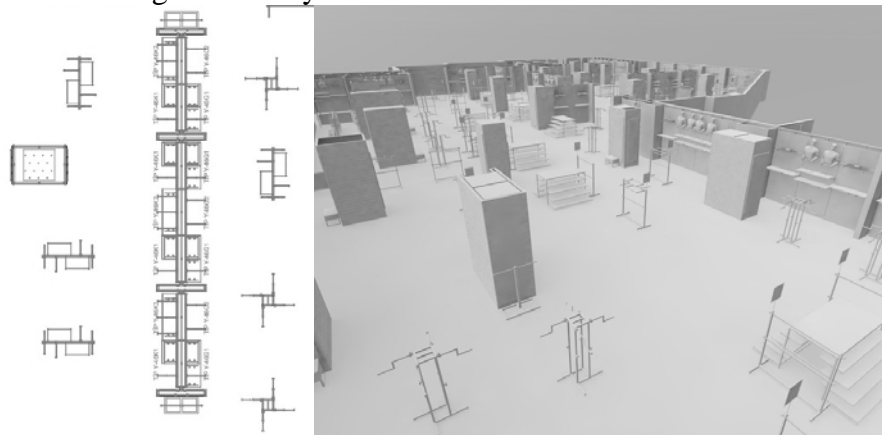


Fig. 2. BIM Content Objects (Left: Floor Plan, Right: 3D View)

BIMcomponents (<https://bimcomponents.com>) provides BIM objects for ArchiCAD users.

Graphisoft's BIM library categorizes building product models in a customized way that is slightly similar to the object classes in ArchiCAD but it is in 59 categories. They are ordered alphabetically and represented with a word cloud system on the first page of the portal [9]. In this case, the new BIM Content Library of the retail store chain has similar characteristics with BIM components of ArchiCAD but only give access to the users defined by the retail store chain.

#### **4. Conclusions**

Creating libraries of manufacturer's specific products is time-consuming and practically it is not efficient to develop multiple manufacturers' products within the firms. Due to the variety of building products and because of a large number of objects and assemblies' new challenges arise in developing and managing BIM Content Libraries. Currently, there is no clear guideline or documentation on the idea of how to organize building product models within BIM Content Libraries.

Smaller businesses sometimes have uncertain thoughts about BIM technology. In this case, the management of the company believed the efficiency and necessity of working with BIM. They influenced on the employees in a very positive way. Improvements obtained in BIM implementation affected the process as positive manner. The economic investment of shifting to BIM quickly recovered. Right consultancy and enough support of BIM software were other factors increase the success of BIM implementation. The usage of BIM saves many man hours on a given project, so even for smaller businesses, BIM implementation offers a good return on the investment. BIM technology is an efficient tool for creating innovative and integrated solutions – also within the retail industry.

The construction industry needs BIM objects. Linking design and manufacturing information mean better solutions. A renewal of the action methods in the construction and building management process is a clear goal. Studies of how to conduct changes of structure, working methods etc. in commercial organizations is to be used to exemplify and guide any BIM implementation process.

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## Using NFC Technology As One of The Smart Home Solutions

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### Abstract

Widespread choices of making life easier for users with developing technologies, are increasing the demand for smart homes day by day. Therefore; smart home, producing new solutions by be integrated to developing technologies, has become a condition to accelerate in order to respond growing demand and led producers to new and more advanced searches. They can make homes more simple and also ensure a lot of useful systems such as contribution for elderly-disabled people, security of kids, access control, environmental monitoring and home automation. Moreover; the need to control-manage the smart home via these devices, is growing because of the common dispersal of mobile devices (smartphones, tablets, etc) and intregation with new automatic identification technologies (such as NFC).

Automation and other systems in the smart homes are not able to satisfy the need to user requirements as required, despite of fast development in information and innovative technologies. Near Field Communication (NFC) is a technology aiming to establish a short-range two way communication that operates on the 13.56 mhz frequency based on Radio Frequency Identification (RFID) principle. Furthermore, NFC has more basic hardware, more easier using and less power consumption than other technologies (Bluetooth, Wifi, Wibree, Zigbee, Ir DA etc) in short distance communication.

NFC-enabled smart phones are defined by a series of standarts, provided by international standardization bodies such ISO/IEC and ECMA and by technical spesifications provided by the Near Field Communication Forum, an association of companies that has the promotion, standardization and implementation of NFC technology as its objective. NFC compatible smart mobile phones preferred as an alternative to the smart housing systems, provides advantages such as cost reduction, combining all current available technologies (face recognition, touch screen, access control, fingerprint recognition), gathering under a single roof security and distributed systems for users and manufacturers.

In this paper, the contribution of the rapidly developing NFC technology for smart housing at the human-technology interface intersection, will be investigated under architectural perspective. NFC-enabled smart phones, as a new approach to the alternative preferred to automation systems in the smart homes, are emphasized on what improvements and advantages for users and manufacturer. © 2017

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*Keywords:* Smart Home, NFC, NFC Enabled Smart Phone, NFC Smart Home Solutions

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### 1. Introduction

In today's rapidly growing technology world, new access technologies are constantly being explored and developed for the control and management of all electronic devices. These are the most preferred technologies in order to make people's daily lives easier in every area and save time by solving problems in a short time. Among these technologies, readers are the most common systems used to solve daily activities among mobile devices. while these systems

meet all the functionality of mobile devices equipped with modules such as wireless, at the same time they are able to produce new and practical solutions for access and control-oriented mobile problems. Almost all mobile access and control systems are equipped with Bluetooth and infrared. NFC technology is the newest of these equipment. [1]

Near Field Communication (NFC) is a technology that provides proximity, contactless communication between two computers or a computer and a passive electronic tag (without battery). It is a system founded by NFC Forum, established by Nokia, Sony and Philips, in 2004. The primary target in the system is mobile computers; for example, to encourage data sharing between Smartphones and network services. [2]

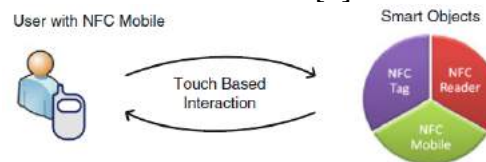


Figure 1. Touch based paradigm for NFC [3]

Moreover nowadays, rapidly increasing number of high-rise buildings arouse interest with magnificence external and are proud on distinction of being smart homes, too. However, when these constructions are evaluated in terms of providing opportunities- advancement of technology and comparisons results made with other smart building-, the fact that the smart homes fed by the new technology is revealed. [3][4] Which perspective do smart homes become more intelligent? Do a smart home, offering high-tech opportunities provide most suitable condition for users or offer advanced technology opportunities of time and cost for architectures and engineers in the process of design and construction? From these points forth in this paper, facilities of using NFC (aims to bring practical solutions with developing technology for users in the smart homes) compatible mobile phone in the systems of smart housing automation, will be emphasized.

## 2. Smart Homes

Smart homes can be defined as homes that can be controlled from a center, communicate with each other, build relationships, and aim to offer a more economical, safer, more comfortable, more accessible, and easier life to the residents of the home. [5] By protecting the time, producing new solutions, managing and integrating technological products; smart homes, which aim to provide an independent and autonomous environment for disabled and adult people, especially to increase the quality of life, facilitates the functions of the users in the residences thanks to the intelligent home control systems. Smart home systems are integrated housing systems that incorporate the functions of integration and management of home systems, such as various home systems, including buttons and pre-programmed scenarios, which adopt the principle of working integrately with the various automatic and mechanical systems found in the home, or which provide sound control through operational modes. [6] Smart homes, like systems in intelligent buildings, operate within the framework of a management rationale. Home automation systems covering intelligent residential technologies can be summarized under three main headings: [7]

- Security and Access Control Systems
- Comfort Control Systems (Air Conditioning, Lighting, Communication, Networking, Structured Cabling, Sound-Visual Systems, Home Theatre, Multi-Room Audio And Video)
- Energy Control Systems (energy, water) [8]

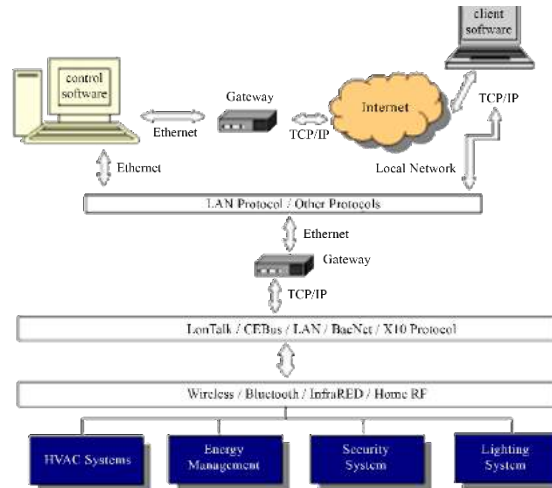


Figure 2. Systems and Protocols of Smart Home Technology [11]

There are "central management unit" to control these technologies which are working under the management of home automation systems, "sensors" to detect changes in the environment and "electronic processing units" to fulfill the necessary operations. [9] While the home automation technologies that allow the house to be controlled from a single point and provide this control by means of programming possibilities are being developed, one of the basic elements considered is that of these systems with personal computers; remote control, card, control panel, telephone call, or via the internet. [10] Smart Home Components consist of the following equipment.

- Smart application network interface wireless module card
- Wireless touch monitor
- Interior monitoring device (a network monitor that can connect to the internet at the same time that all wireless devices in the home can be viewed and controlled, and software updates of the smart home system can be made possible by a service provider)
- Transitional
- Wireless control technology

Most of the ready systems include a master control box, a control panel, various sensors, device controllers, remote controllers, cards and card modules. It is placed at the entrance to the house with an average book size of control panel. Sensors and device controllers communicating with the control box can be of wireless or electrical network communication types which cause no modification, and wired models can also be selected so that they do not need a clip or are not affected by electricity interruptions. [11]

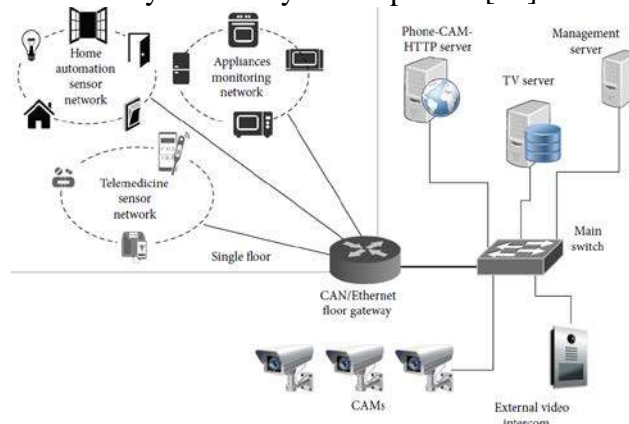


Figure 3. Home Automation System Architecture [13]

If it is necessary to evaluate intelligent home systems over existing systems, Arla Smart Home Systems control home automation systems with Universal Control having Home CAT LCD screen, Smart control Arla Home Wizard control, Graphical display wall mount control

via keypad, Telephone control, SMS control, Personal computer control and Card control via parameters Control. [13]

Berker home automation systems use screen + control, display + touch feature, display + card components for housing automation systems. It provide opportunity to manage many functions such as house lighting, air-conditioning, energy flow, curtain-shutter-jalousie control, TV-music-volume control, water control from a single center via card, finger or control. [14]

#### *Security and Access Control Systems*

The main sub-units of home security control systems are integrated security systems, burglar detection and alarm systems, fire-smoke detection and alarm systems, fire extinguishing systems, gas detection and alarm systems, closed-circuit camera and television security systems (CCTV), metal and x-ray detectors, detection system, environmental security systems.

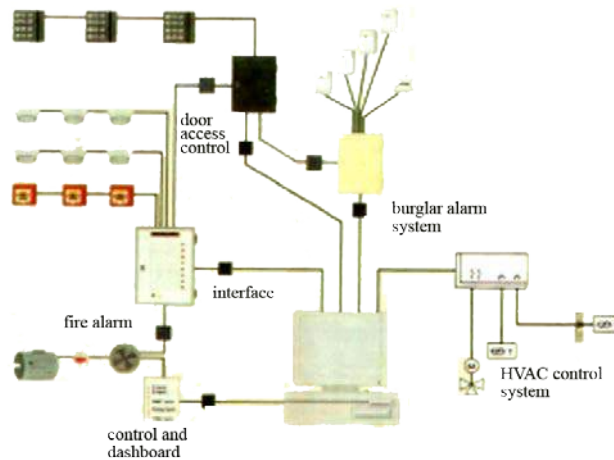


Figure 4. Smart Home Management System [10]

These systems are equipped with motion sensors, which are used in the main control, and magnetic sensors placed in the doors and windows, so that the entire house is kept under surveillance. There is a computer-assisted main command center that controls all sensors and is in communication with the security authorities of the center. Security organizations can be notified in case of any danger.

Smart home security systems have features such as turning on and off all lights in the house, opening and closing louvers, opening and closing curtains, playing music, television and other electronic appliances, as well as what any alarm system can do. [10]

#### *Comfort Control Systems*

All smart home systems, which bring in the comfort and control system in the house, are controlled from a main control center by using control, card, fingerprinting, eye or face recognition systems. The fact that the functions of the main control center can be activated both manually and automatically allows the user to have all the comfort conditions they expect at home, as the housing situation can be continuously monitored on the control panel or monitored via internet or telephone. Interior comfort systems on smart home technology are air conditioning, ventilation, heating, cooling, lighting, communication, sound-visual systems., scenario control-conditioning and accessories.

Lighting Systems are consist of photocell and automatic lighting systems, dimming, switching and shading systems, scenario control and lighting systems, shutters, blinds and other solar control systems, outdoor lighting systems, interior lighting systems, light sources and accessories. Communication Systems provide internal and external communication of technical units, to organize the exchange and routing systems and to communicate with the main command center. Telephone, switchboard and routing systems are formed of remote



operation systems, remote monitoring systems, mobile-wireless communication systems, communication network systems, data processing systems and OT / VT systems. Audio and Video Systems include central music and sound broadcasting systems, central television broadcasting systems, intercom systems and presentation systems. [10]

*Energy Control Systems*

The most common of the subunits in energy control systems of smart homes are; energy and load control systems, meters, distribution systems and panels, power sources, uninterruptible power supplies, low current cable systems, data, audio and video cable systems, energy cabling systems, communication, communication cabling systems and water control systems. [10] The communication between all these systems are provided by an energy system governed by the main command center.

**3. Near Field Communication (NFC) Technology**

Near Field Communication, NFC is a technology based on Radio Frequency Identification, RFID. It supplies wireless communication in short distance by making possible correspondence of two NFC compatible devices on a secure radio frequency interface. [15][16] NFC, designed for interactions- very short distance (0-4 cm) or in formed adumbrating two electronic devices each other, provides data communication on high frequency (13:56 MHz) and low bandwidth (424 kbit/s).[16] Moreover, ensuring data communication in very short distance is an important advantage for securtiy. NFC has more basic hardware, more easier using and less power consumption than other technologies (Bluetooth, Wifi, Wibree, Zigbee, Ir DA etc) in short distance communication. [18] Bluetooth wireless technology was designed to replace cables between cell phones, laptops, and other computing and communication devices within a 10-meter range. Wi-Fi technology was designed and optimized for Local Area Networks (LAN); it provides an extension or replacement of wired networks for dozens of computing devices within a +100-meter range. ZigBee wireless technology is a standard enabling control and monitoring capabilities for industrial and residential applications within a +100-meter range. IrDA is a short range (<1 meter), line-of-sight communication standard for exchange of data over infrared light. IrDA interfaces are frequently used in computers and mobile phones. [16]

Tablo 1. Comparison among NFC, Bluetooth, and InfraRed (IR) technologies

Technology	Operating distance	Cost	Power consumption	Usability
Bluetooth	Small	Relatively high	Relatively high	Relatively complex
IR	Small	Relatively low	Relatively high	Simple
NFC	Very small	Low	Passive or very low	Simple

NFC also can contact in a short time and hardware is more cheaper than other wireless technologies. Today' s most widely used portable devices, mobile phones are the most important devices as a candidate to be used for NFC reader. Besides, NFC compatible mobile devices can read and storage data over NFC tag.



Figure 5. A passive NFC tag [2]

Because of integration with mobile devices, NFC has been developed as a popular technology that can be applied to many areas in recent years. Today mostly used NFC Applications and Service Domains are consist of Healthcare Applications, Smart Environment Applications, Data Exchange and Sharing Applications, Mobile Payment, Ticketing and Loyalty Applications, Entertainment Applications, Social Network Applications, Educational Service Applications, Location Based Applications and Work Force and Retail Management Applications.

Contactless payment systems and contactless ticketing systems allow users for making payment with their NFC compatible smart mobile phones without carry more than one card. [18] Moreover, smart posters applications provide easy using for functions as smart university systems, remote patient follow-up, remote meal order by moving tag data to mobile phone after zooming from mobile phones to posters. [19]

NFC specially are clear to produce new solutions for healthcare. For instance, NFC can ensure storing patient story in mobile phone instead of hospital servers. What is more, the truth of offering new solutions integrated to lots of areas has made NFC a wanted technology. [6]

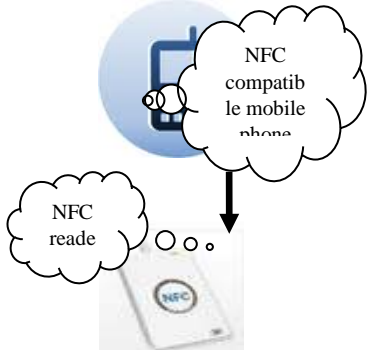

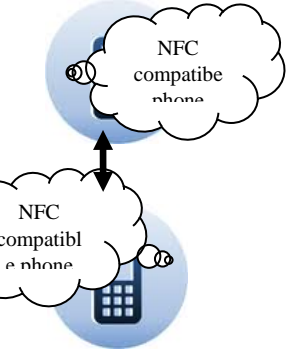
#### *NFC Working Principle*

NFC eco-system consisting of active and passive devices has three different operating modes included in one to one work mode, reader-writer operation mode and card emulation operation mode. While NFC tags can be hold up as passive devices, (tablo 2) NFC readers and NFC compatible mobile devices can be example for active devices. The following table describes the NFC operating modes and applications. [18][20]

NFC tags can be written more than once, or only once, and then locked. This keeps the stored data under control of the tag holder; The tag is important because it is available for commercial applications and should not be easily changed by the general public. Kill-Switch enabling a tag to be disabled, is another feature provided by some tag manufacturers. By the time a NFC tag is used by a vendor to label a product, it is generally desirable to disable it at the point of sale to prevent it from being read and identified later by a third party. Since active product tags might be a personal security concern for people who have purchased, and then carry around, high-value items such as small state-of-the-art consumer electronics.

Having a typical max read range of 5cm NFC can be designed as reading 3-6m away as promoted by EPC Global unlike UHF RFID tags. Nevertheless, with specialized readers it is possible to extend an NFC tag's read range to 1m, which may be enough to automatically interrogate the contents of a bag as it is carried through a doorway, and would be another tool thieves might use to find victims to rob. [2]

Tablo 2. NFC operating modes

Card emulation mode	Reader / Writer mode	One to one work mode
		
Data on the device goes to reader when nfc compatible mobile phone is let touch on NFC reader,	NFC compatible mobile device reads or writes data to NFC tag because of its magnetic field.	NFC enabled mobile phone makes data exchange with another NFC enabled phone.
Example application: Contactless payment, ticketing system	Example application: smart poster application, remote patient tracking system, smart advertisement, social media applications	Example application: two-person information sharing file transfer

Result of literature search, it has seen that academic studies are intended for research about NFC generally. But, application studies have increased last years, too. Due to the fact that any academic research or application study about the use of NFC technology in smart buildings are limited in the literaure, the proposal for the usage of NFC technology in Smart Housing Atomation Systems is a new approach emphasized on it.

*Usage of NFC Technology in Smart Houses*

Application of NFC compatible mobile phones in smart home systems which aim to gather many subsystems as integrated, is one of the best candidate to serve this purpose. Because of NFC tags in various location of building, control of building interior systems can be possible with mobile phone.

Thanks to NFC tags in smart home layers and different location on layers, users can run distinct air-conditioning settings at another point and store optimum temperature for themselves on their phones, also later, make the same settings active again. Fire alarm systems can be brought more efficient condition due to NFC tags. Thus, user can touch the naerest tag with phone if there is a fire and also can directly interfere to the point where the fire is, by transmitted the information of tags location to related centers. So, fire can be provided intervention opportunity more quickly and in less time.

Additionally, NFC tags in smart homes can be used in case of any burglar. User can convey the location of burglar to securtiy by making touch phone to NFC tag and also burglar can be prohibited to run away by locking exits of relevant floors.

Furthermore, with smart posters in smart buildings and homes, communication can be eaiser between building management and residents. NFC operating modes of smart home systems are shown on Table 3.

Tablo 3. NFC operation modes in Smart Home Systems

Smart Home System	NFC modes of work
Air-conditioning	Reader/Writer operation mode
Heating-Cooling	Reader/Writer operation mode
Lighting	Reader/Writer operation mode
Energy and Water	Reader/Writer operation mode
Fire Alarm	Card emulation operation mode
Elevators	Card emulation operation mode
Passing Authorization	Reader/Writer operation mode
Burglar sensation and security	Card emulation operation mode
Home Social Media Application	Reader/Writer operation mode
White Goods Control	Reader/Writer operation mode

*NFC Compatible Mobile Phone Usage in Smart Home Automation Systems*

NFC applications in smart homes with mobile phones are taken shape according to operating systems (OS) of mobile devices. The software application is designed generally for Android OS and IOS devices mostly used today. NFC-based user-system application has the configuration of the Smart Panel (consisting of writing commands into the tags) and reader the tags present on the Smart Panel, their identification, and activation of the corresponding commands. Furthermore, the application fulfil number of checks on the information gathered from tags, along user's interaction through NFC, in order to supply that properly formatted commands are always delivered to the home automation system. [12]

In this paper proposed home automation system is consist of a centralized framework, exploits common commercial hardware, and opens source software, suitably modified and adapted to the target application. And also the system has roomcontrol nodes, a module for handling in-the-room and external communications, and a module for the delivery of entertainment signals. [2]

Nowadays, rapidly expanding on mobile phone fingerprint recognition, iris recognition and face recognition technology, combined with advanced technologies such as NFC in case of inretgrated intelligent buildings and smart homes security and access systems, all systems can be gathered with a phone and tag. By this means, the costs can be reduce significantly for users and manufacturers by being abolished card cost.

With the use of NFC technology, rather different reading and recognition systems only usage of NFC tag has still a substantial advantage in terms of cost. Moreover, NFC technology allows security and access control systems rapidly, easily and together working. Besides, NFC-enabled mobile phones, adding new solutions over all functions of card access systems offer a new cheap, fast and easy access system.

Another advantage of collecting all systems in a single phone is to eliminate the need to carry a card. Card, due to their material, the added software and microchips on it, tends to increase its cost. Whereas, if NFC enabled phone is used, card cost will be removed and likewise the cost increase that may arise due to card itself, will be eliminated.

The use of NFC-compatible mobile phones in smart home control systems make positive improvement for current systems as intelligent building systems. NFC technology will enable the smart home users to integrate their interior functions with each other and manage all systems with a single mobile phone. Thus, NFC technology will increase the quality of life and also save time and money thanks to the NFC tags placed in different points of the house and in the rooms.

NFC technology is evaluated in terms of serving 3 different categories in smart houses. NFC equipment is designed to meet household functions and subsystems; including time, space and demographic data. [21]

Tablo 4. NFC using area in smart home automation system

Demographic	Temporal	Spatial
		Study
		Door/Hall
		Kitchen
Children	Morning	Livingroom
Adults	Evening	Bedroom
Elderly	Night	Bathroom
		Laundry/Utility room
		Garage

### *Demographic Solutions*

The NFC tags in the house may give different authority to different user profiles at home; For example, children's access to the automation system can be prevented, the guests' authority can be restricted by opening the door or by the limits set by the landlord. It will be possible to control for security many functions such as lighting, climate control, energy management, curtain-shutter-jalousie control, TV-music-volume control, water control etc. with NFC tags in one place.

For child safety, tracking tags could be stitched into toddlers' clothing and potentially dangerous household equipment such as ovens, might be fitted with proximity sensors.

### *Temporal Solutions*

When home owner gets or leave home, NFC technology can activate or shut the heat or air conditioning of the house. NFC chip on a device chip can activate desired temperature by swiped near the thermostat of the home. [22]

While an smart clock can set alarms for sleeping people in the morning; homeowners can control the rigidity, shape and inclination of their smart beds before going to bed. Some morning and evening routines can be personalized and automated such as heater open, floor heating, coffee making, water heating, etc.

Users can be informed about weather conditions and weathered items, umbrellas and clothing items can be made available to the user before the owners go out. In addition, by applying tags to the objects that perform the key task, the user can be reminded of the location of the phone during entry and exit. [21]

### *Spatial Solutions*

Through the use of NFC in smart homes, the user can control and turn on and off all systems with the NFC tag at the front of the bed. This is a great advantage for the disabled allowing the disableds to control the units in the home remotely, and in case of an emergency, they can reach to competent department via telephone. In the event of theft or fire, touching to the nearest ethics inside home will be a serious step in the sense of rapid intervention to notify the situation and situation of the incident at the relevant departments.

NFC tags also have the ability to open and close the main door of home. In September 2013, Yale University developed the first front door lock (for consumer use) that could be opened with an smart phone having NFC technology.

NFC can serve in kitchens with applications such as intelligent refrigerator. A smart refrigerator with a tag that could read by the NFC chip can make it easier for users to track their food and beverage inventory. Users can learn when products are running out or running down. LG and Samsung have already developed an intelligent refrigerator with HD display and Wi-Fi capability. But NFC technology can be made compatible with these systems in the future, too. [22]

Also in the kitchen, an smart microwave oven can recognize the food in its interior because of NFC tags, and can adjust the duration and the required heat.

A NFC-compatible smart media center can recognize the user and configure favorite channels on the TV, upload playlists to the media player, and choose a pre-configured keymap for the universal remote. Music and movies can be transferred to the center's hard disk by touching the external center. However, this environment (or other storage device) must be NFC-capable. Since the storage space on the label is limited, the information transferred can only be collapsed on metadata (movie shot, artists, dates, etc.).

If users' clothes are embedded with RFID tags, a smart washing machine can choose the program, temperature, color and material setting for them. What is important in this system is that the labels are durable and removable enough to withstand continuous wear and tear. Similarly, an intelligent steam iron can be designed. [21]

#### **4. Conclusion**

In this paper, a new system proposal is brought forward by referring to current smart homes technologies and emphasizing on integrated these systems with new technologies. Based on Radio Frequency Identification (RFID) suppling wireless communication in short distance by making possible correspondence of two NFC compatible devices on a secure radio frequency interface, Near Field Communication (NFC) is an interesting technology that allows people to perform actions, manipulate objects and gain more information about them by a simple gesture of touching. NFC has been researched usage in smart home subsystems and evaluated in terms of providing more progressive solutions than current systems. A new approach NFC compatible smart mobile phones preferred as an alternative to the current smart home automation systems, provides advantages such as cost reduction, combining all current available technologies (face recognition, touch screen, access control, fingerprint recognition), gathering under a single roof security and distributed systems for users and manufacturers.

NFC allows users to control and manage all the automation systems of smart home from mobile phones. By using only NFC compatible phones, NFC tags and NFC automation application, it is possible to use smart home technology which is cheaper and easier than current automation systems.

This equipment can be gained new features by adding or removing new applications and labels according to availability of household goods and systems. This automation system can be adapted for all users (children, adults, elderly, disabled, etc.) according to time and space needs.

The big hurdle to the idea of a smart home is that NFC technology would need to be incorporated into many devices throughout a home. This requires many different manufacturers to produce products which are compatible with NFC. However, if NFC does catch on and manufacturers start developing household products using this technology, it could change the way we live our lives. In this paper; the NFC-based smart home solution is proposed to live safely and comfortably at home, by facilitating the autonomous execution of daily life tasks requiring physical efforts, with the support of a home automation system and a simplified user-system interaction.

Consequently; NFC compatible mobile phones have been proposed to provide more practical and comfortable solutions for users by emphasizing the importance of adapting developing technologies for smart homes. This study can also lead another researches related automation systems by following new and developing technologies, and trying usage of another devices with another systems in buildings or houses. Due to the fact that NFC is an important development sector that has potential in the field of short-range communications technology, NFC enabled smart home automation systems is the most [open for improvement](#) technology among of all smart housing systems, too.

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## SECRET LIVES OF DINING TABLES

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### Abstract

The aim of this research is to find out the situation of the acquirement and the usages of the dining tables and chairs which are part of the modern dining room furniture items. The starting hypothesis is that the dining tables and chairs are acquired for certain functions like hosting and having daily meals, but do not afford the intended functions efficiently. It is questioned whether the people really consider how many times they take meals at home and on the dining table, how many times they receive guests and how much they need for a dining table. Besides dining and hosting, people acquire dining tables as a means for conspicuous consumption. Also the social control on people about having a proper living room contribute to this acquirement. Having bought the dining table, next question is about the usage frequency of it. For collecting data, combination of surveys with open ended questions and surveys with closed questions are used with 30 middle class women. The research sought to find clues about the reasons why the contemporary women acquire dining tables, how often they use them, what they think about other ways of dining, whether they use them for other informal purposes. In the quantitative surveys, it was analyzed that people tend to acquire dining tables as an item for conspicuous consumption. They want to be equal in means of status with their friends who visit their houses. But a decline in the usage of dining tables is observed and detected. The respondents do not comply with the idea of keeping the dining table for the guests and separating from everyday use. This may lead to the idea of using the dining table in everyday use. But the results show that the respondents mostly take their daily meals out or in the office or eat in the kitchen table. A frequent use of dining table for daily meals is not valid. The dining table is used for hosting practice as well the coffee table. But even the respondents who enjoy hosting more, can perform this occasion seldom. Respondents mostly receive guests once or twice a month. Also in the case of guest – receiving, the total number of the guests vary from one to four. So even the respondents use the dining table for guests, this is a seldom usage. As people do not tend to receive a big crowd of guests, they may not tend to use the dining table for small number of people. There are several layers embedded with this decline. Time shortages of working women, development and commoditization of eating out activities, shortly transmission of a new life style are dominating and reshaping the contemporary habits. In this study, the decline of the usage of the dining tables are discussed and elaborated by interpreting the research results in detail in the perspective of the modern middle-class lifestyles.

**Key Words:** *dining table, furniture, domesticity, material culture, lifestyle*

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### 1. Introduction

Observing the modern, industrialized society in the crowded metropolis cities, it is possible to detect the converging attributes of the life styles. The aim of this research is to find out the situation of the acquirement and the usages of the dining tables and chairs which are part of the modern dining room furniture items. The starting hypothesis is that the dining tables and

chairs are acquired for certain usage intentions, but do not afford the intended usages efficiently.

For studying the usage of the dining tables, first the the need for the acquirement must be handled. The basic purpose is dining for purchasing a dining table. But it is questioned whether the people really consider how many times they take meals at home and on the dining table, how many times they receive guests and how much they need for a dining table. Besides dining, people acquire dining tables as a means for conspicuous consumption. Also the social control on people about having a proper living room contributes to this acquirement. Having bought the dining table, next question is about the usage frequency of it. The usage of the dining table is questioned in the context of both formal and informal eating styles in the domestic environment. After setting this background, the subject rather than the object of the study will be examined. The tendency of the contemporary working women on using dining tables and the frequency of the usage will be discussed in terms of novel life styles.

## **2. About Dining Tables**

This study will focus on the dining tables and chairs. The multipurpose tables, usually used in kitchens or other convenient tables are not considered as the subject matter. The subject matter is the table and chairs that are intended to serve for especially dining activity and serving the guests. The dining tables and chairs of the traditional dining room set-up furniture are good examples to define. These dining tables are considered and produced for the special events, formal occasions as they accommodate 6- 8 chairs completing the dining set and have the expandable functions to serve for more guests. But separate dining tables and chairs with an intention of dining and serving the guests are also in the context of the study.

### *2.1 The Dining Tables and Their Place in the Domestic Environment*

In order to review the place of the dining tables and the meaning of this placement within the domestic environment, it will be helpful to search inside 'the house'. A house has many aspects and meanings. Gullestad (1995) considers the house as a tool with practical utility, and with economic, social, aesthetic and symbolic aspects. A house functions as a framework for the lives of the people. The study of houses presents a rich data for the study of culture.

Considering the division of the rooms or parts of a house as 'informal' and 'formal'; 'public' and 'private' is very common in different cultures (Ulver-Sneistrup, 2008; Gullestad, 1995, Rechavi, 2009; Korosec-Serfaty, 1984; Goffman, 1959). This division has a long tradition. In western culture, people slept, ate and mated in the same room. Before the 17th century, everything had been public and the division did not exist. After that, with the privacy concept appeared, Victorians introduced the upstairs for privacy and the downstairs for the public (Ames, 1992). The existence of the dining tables was realized within the dining rooms. As Bryson (2010) mentions, after so many food discoveries and struggles occurred a defined form of table: the dinner table, and in a new kind of room: the dining room. The dining room didn't acquire its modern meaning until the late 17th century and did not become general in houses until even later. Previously meals had been served at little tables in any convenient room. The main reason for the existence of the dining rooms was the desire of the mistress of the house to save her expensive upholstered furniture from damages rather than to dine in a space exclusively dedicated to the purpose.

Dining rooms were in the public or front side of the houses. They conveyed a kind of formality and display. So they were formal rooms with precious furniture inside. By the arrival of Modernity, the houses contained open – plan 'large living rooms' having two zones which are dining and lounge zones instead of the two separate reception rooms typical of the middle – class (Attfield, 1995; Sparke et all, 2009). Separating the living room into two zones became

common application in house plans (Birdwell-Pheasant and Lawrence-Zuniga 1999). The dining room left its place to a dining zone in the modern world but still carrying some properties of the 'dining room' like formality and display of status. The dining table and chairs are considered as the main eating furniture placed in the dining zone of the living room (Chiara and Callender, 2007; Vrancx, 2007; Postell, 2007).

### *2.2 Dining Tables: An Object of Status Display*

Certain social groups identify themselves in terms of status through 'conspicuous consumption', according to a hierarchical system of emulation (Veblen, 1989). Dining tables and the other dining room furniture exemplify this kind of consumption in many cultures. In the 18th century, it was seen that the dining table came to being with a display intention. This display intention continued with the decoration of the table. Since those times dining room furniture became items for display for the outsiders.

The parlor was the symbol of upper class values and attributes for the middle – class. The emulation of the middle – class made the parlor style a popular preference. In the mid - twentieth century, through the disappearing process of the parlor, the modern designers redefined the meaning of 'parlor' from an isolated room for special occasions to an everyday sitting or living room which must serve for the family. But the need for display still remained in the furnishing of the domestic interiors. In the large living rooms, one corner was turned nostalgically into a 'token –parlor substitute' (Attfield, 2007). The traditional dining sets were vehicles for realizing this parlor display. Gullestad (1995), due to the fieldwork conducted considers the living room as the main room for display with a higher priority than all the other rooms that contains the best furniture, lamps, pictures, etc. The literature also mentions about the emphasis on keeping the parlor as a display room in spite of lack of money and space in the domestic environment (Ulver-Sneistrup, 2008; Attfield, 2007; Kıray, 2005). This is valid for the dining table which is an element of 'parlor substitute' set also.

In Turkish culture, dining table exemplifies being a display item of conspicuous consumption by the transition from eating on the 'sini' on the floor to the table. When the dining table first came into Turkish people's lives, it was being used as a console table on which the spare dishes, jugs, glasses and other stuff were put. Later on, different types of usage developed. Sometimes the table was located in front of the sofa. Sometimes, the table was carried in front of the sofa for all meal times like in the tradition of eating around the 'sini'. In this type, two – three people were sitting on the sofa and the others were sitting on the chairs around the table. Both of the eating forms of common dish and separate dishes were practiced. After having armchairs, the dining table was put on the center of this room, laying a precious tablecloth and putting a vase or ashtray on. A separate dining room was rarely observed. The houses which maintain the traditional ways did not contain such a settlement. Among these alternatives, the mobilization of the dining table was the most difficult one. On the other hand, eating on the floor or sofa did not comply with the novelties. The concern of complying with novelties was the sign of modernization process which affected the eating traditions. The eating style was one of the consumption norms that depicted the modernization phase. Eating from one common dish from the 'sini' or eating from separate dishes at the table were the signs of two different levels of modernity and change phases. In Kıray's research (2005) conducted in 1960 in Ankara, the people from the highest level of income did not eat on the floor at all. The people who ate on the floor as an old tradition passed over the dining table in the case of receiving guests. This passing sometimes included the transition from eating from the common dish to eating from separate dishes when guests come.

Dining tables were part of the guest rooms which were very important for prestige. The conspicuous consumption that is made close by the foreigners was believed to increase the status of the family. This consumption started with the home interiors, especially with the

salon. Not the other rooms, but salon (the guest room) contained the furniture set-ups. Even if the furniture of the other rooms was neglected or the family had a low income, the expensive and prestigious furniture was purchased for the salons. The most precious objects like the radio, nut veneered console, sewing machine were displayed in the salon. Like these precious objects, people considered the dining table as a symbol of modernization and wanted to display their modernity to the guests coming. So the dining tables functioned as display items in the means of conspicuous consumption. Middle – class people consume the dining tables for identifying themselves modern and wealthy; and differentiating themselves from the social group who still ate on the floor.

Ulver-Sneistrup (2008) finds out that salon is still a room for display in Turkish culture today. The possibility to have a space dedicated solely to guests is described as a luxury. If there are means to keep a salon, it is seen as one's duty to perform this room. People acquire dining tables for the case of receiving guests and presenting their domestic environment. People want to be equal in means of social status and income with their acquaintances and friends. If one person visits a friend who has a proper salon, he wants to represent a similar household when his friend visits him back. So people may acquire dining tables even if such an occasion happens once a year. In the context of conspicuous consumption, acquiring a dining table is more important than the frequency of the using it.

### *2.3 Dining table as a means for formal and informal eating patterns*

In this part, the uses of the dining tables will be discussed in the context of formal and informal eating patterns in the domestic environment. Ulver-Sneistrup (2008) considers formality as a sign of status competition. If there were no competition, the rules and roles of formality would not be needed. So the attributes referring to formality and the status would be in parallel arguments and overlap each other. This situation will cover the study of the dining tables too.

Formality is associated with a kind of role – playing where a system of unwritten rules apply to different situations. Considering formality in the context of eating and dining, one would expect a system of unwritten rules applied to eating process. This has a great validity in the world of the dining rooms and zones in many cultures. Even the starting point of the dining room contains such a formality. In the historical background, the arrival of the dining room marked a change not only in where the food was served, but how it was eaten and when. The fork which was not used for eating until then, became an element of the dining. In the 19th century, when the dining tables started to be commonly used, protocol ruled every action in dining. There were many rules of dining behaviors. The types of specialized eating implements for cutting, serving, probing, winking became almost numberless. As well as a generous array of knives, forks and spoons, the diner also needed to recognize and manipulate specialized cheese scoops, olive spoons, terrapin forks, oyster prongs, chocolate muddlers, gelatin knives, tomato slices, etc. (Bryson, 2010). In those times, for example, if a person wished to take a sip of wine, he needed to find someone to drink with him. When he raises his glass, he looks fixedly at the one with whom he was drinking.

To discuss about the uses of the dining tables in the context of informal eating, it is important to analyze the contemporary living room setting that accommodates the dining table. Living room is the evolved form of the parlor, having two zones of dining and lounge instead of the parlor with two separate rooms. After the arrival of Functionalism and Modernism, modern architects of those times introduced the living room with an informal identity, considering the parlor as out – dated and 'difficult to use' in 1950's (Attfield, 2007). With easy living, the basic needs and desires fulfilled within the home were simplified and the concept of quality time spent among family members and friends was emphasized. The women were able to serve sit-down meals or buffets, as their family's needs dictated. The importance

of this kind of living in the postwar domestic world was addressed as "Live without pretense:"

‘It's rather difficult to define this new trend, but the idea behind it is living without pretense. It's an informal way of life in which you are yourself, and your home reflects your intention to live wholesomely and forthrightly. It's a leisurely kind of life in which you enjoy yourself, in which you are more interested in living than in spending your time maintaining a front. And it's a friendly kind of life, because you don't stand on ceremony; you have time to enjoy your home and your friends (cited by Hooper – Lane, 2009).

The dining table was also considered for the informal uses. One of the attempts for making the dining room (zone) subservient to everyday use of home life was made in 1959 in order to support the open – plan style house plans (cited by Attfield, 2007). It was dictated that the dining zone was for eating, sitting and talking, for being at ease. The walls that divide the dining zone and the kitchen should be broken. So the efficiency in bringing the stuff from the kitchen to the dining table would be provided.

It is seen that the dictations of Modernism contributed to the uses of the dining tables for informal eating. But it is difficult to say ‘the dining room’ changing in means of form, immediately lost its traditions, formality and publicity. Some of the literature still considers the dining tables for formal uses. Scutella (2005) refers to informal dining term for quick breakfasts, lunches and children’s meals considering the place of eating as a utilitarian bar, in the kitchen work counter, in a set of stools or a table/ chairs or booth/bench arrangement included as part of an extension of the kitchen. Formal dining is defined as less frequent than the informal dining. Formal dining is mentioned as playing an important role in holiday celebrations and special family events which requires the use of the dining table. The use of dining table is not referred for the daily family eating. So in this case of usage, the dining table does not go beyond the situation of parlor.

On the other hand, some of the literature accepts the dining table as a place for informal family eating. Graves and Zager (2002) implies that dining table is one of the essential elements in a house and seen as a sign of domesticity which allows the family to get together eating a meal. It is considered as important to share the meal with family or friends instead of having a takeout meal in front of TV. Akiko (1999), considers the dining room as a small domain of family rituals that answers some vestigial human need.

In Turkish culture, before the Westernization era, people had an informal way of eating. Referring to formality definition, informal eating and dining has no particular rules to obey or roles to play. Eating on the floor, around a big tray (called ‘*sini*’), with common dishes was a prevailing tradition. Furthermore, informal dining does not have to take place in a certain room or zone dedicated to this action. The ‘*sini*’ was a mobile unit. Performing this kind of eating, the ‘*sini*’, a circular tray and its standing support were located on a tablecloth that was spread out on the floor (Kıray, 1998). People sit around the circular tray, taking the tablecloth on their knees. People either sit cross-legged or sit on taking their feet back. In this setting, all the people ate from the same dish. Water, mugs, glasses are limited and the knife is very seldom used. This style of eating exemplifies an informal type of eating and it is still valid in rural regions in Turkey.

With the Westernization period, the material culture of living rooms, in the context of the public stage of domestic interiors, served to construct modern and Western identities throughout the middle-classes in Turkey (Gürel, 2009). Living rooms, together with the furniture and objects they contained and practices they held, were spaces for the representation of modern and Western identities. The living room was called as salon and contained the dining and lounge zones. Both of the zones were dedicated for formal uses. The publicity of

the living room naturally brought the formality requirements for this room, as ‘guests’ and ‘hospitality’ were very important and sensitive concepts. Isolating the living room from the daily usages, even locking the door of this room, not allowing children play there have been common attitudes towards the living room which is kept clean and tidy for formal occasions. Orhan Pamuk introduces the term, ‘sitting room museums’ for the haphazard and gloomy salons which display the western influence in the Westernization period (Pamuk, 2006). The term ‘museum’ is used here because families used to lock these rooms and opened them for only holidays and special guests. In the context of such a public and formal living room, the dining tables and chairs were used for formal eating and were not used for the informal eating for the family. Kıray (2005) mentions that the family members ate their meals in the hall or somewhere near the kitchen. Salon has the concept of the parlor in means of formality. The first breaking point that changed the formality of the living rooms was the arrival of TV. Family members began to enjoy sitting together and watching television. But in Turkey, some families still put their television in their central hallways and kept on with locking the salon. Attfield (2007) also considers the introduction of TV as the end of the ‘parlor’, which transformed the room of special occasions into everyday use. But even today the salon is still a central notion among Turkish people. Where some people advocates on having a proper salon, some of them regards it as a symbol of conformity that needs to be challenged (Ulver-Sneistrup, 2008).

### **3. Method and Findings**

For collecting data, combination of surveys with open ended questions and surveys with closed questions are used. The aim of the open ended questions is to find clues about the reasons why the contemporary women acquire dining tables, how often they use them, what they think about other ways of dining, whether they use them for other informal purposes. The data gathered from these surveys form a background for the closed questionnaires. It is important to make such a qualitative research because there may be some options that the researcher may not predict, for instance using the dining table for playing cards.

After the analysis of the open ended questionnaires, a closed questionnaire is prepared and quantitative analysis is performed in order to especially measure the frequencies of the usages formally or informally. The quantitative data for comparing the usages and frequencies is adopted as a convenient material for supporting the hypothesis. The questionnaire is prepared and evaluated due to Likert Scale. The surveys of closed questions were conducted among 30 respondents.

The respondents are selected as complying with the profile:

- Middle class (Having an income 2000 – 10000),
- Well educated (Having at least undergraduate degree),
- Ages between ages 28-40),
- Married (People expose social control mostly through marriage),
- Professionals (Having a job of working at least 9 hours/day)

The research is conducted in İstanbul. It is convenient to hold this research in Istanbul because it is an urbanized crowded metropolis which has a developed industry and many employment opportunities. In Istanbul, it is also common for women to work. Istanbul can exemplify the busy novel life styles of the contemporary working women.

The survey questions consist of the questions about usage frequencies of the dining tables in means of family meals and guest serving, questions about social control in the context of

acquiring dining table and the questions about the preferences on the formal and informal eating styles. Below is the findings derived from the answers of the respondents.

### *3.1 Using the Dining Tables for Everyday Use*

This question was asked to learn about the current attitudes towards the everyday use of the dining table. Respondents were asked if it complies with them to keep the dining tables and chairs clean, tidy and isolated for guests and to separate from everyday use. According to the results, isolating dining tables and chairs for guest occasions does not comply with 63% of the respondents at all. 23% of the respondents do not comply with this idea much. 3% of the respondents are not sure another 3% complies with this idea. And 7% of the respondents exactly complies with this idea.

### *3.2 Using the Dining Tables for Daily Meals*

Throughout the sample, 12% of the meals of respondents are taken on dining tables. Most of the meals are taken out or in the office with a percentage of 39%. Taking the meals in the kitchen is very close to eating out or office with a percentage of 36%. The sum of the percentages of the informal types of eating on the armchair and around a coffee table gets close to the usage of dining table with a percentage of 11%. So we can say that the contemporary working women mostly take their meals in kitchen or out of home.

### *3.3 How Much the Guests are Appreciated*

33% of the respondents like guest-receiving very much. 57% of the respondents claimed as liking. 7% of the respondents stayed neutral. 3% of the respondents did not like much. But none of the respondents selected the option of 'not like at all'. So the working women like guest – receiving (like or like very much) with a percentage of 90%.

### *3.4 How Much the Guests are Appreciated*

Although the respondents mostly have positive attitudes for receiving guests, 70% of them receive guests once or twice/month. 20% of the respondents receive guests 3-4 times/ month. 10% receive guests 4 – 10 times per month.

### *3.5 How Much the Guests are Appreciated*

Throughout the sample, 50% of the respondents receive 3-4 guests for a general guest occasion. 20% of the respondents receive generally 1-2 guests. 7% of the respondents receive 5- 7 guests in general where another 7% 7 – 12 guests. 17% of the respondents do not have a general pattern of guest crowd.

### *3.6. The Informal Uses of the Dining Tables*

For collecting this data, respondents were asked which informal ways they were using the dining table for and how often they refer to this usage. The selections of 'never', 'seldom', 'sometimes', 'often', 'usually' and 'always' were given. In this chart, the correlation between the informal usage types of the dining tables and the frequency of performing these usage types are illustrated. It is seen that 47% of the respondents sometimes use the dining table as a desk area. 20% of the respondents often use the dining table as a card – playing area. Another 20% often use for hobby area. 34% of the respondents always use the dining table as a décor area.

The representatives of the contemporary working women do not comply with the idea of keeping the dining table for the guests and separating from everyday use. This may lead to the

idea of using the dining table in everyday use. But the results show that the respondents mostly take their daily meals out or in the office (39%), or eat in the kitchen table (36%). A frequent use of dining table for daily meals is not valid. (The percentage is 12%). The dining table is used for guest occasions as well the coffee table. But even the respondents mostly like guest – receiving, they can perform this occasion seldom. Big majority of the respondents (70%) receive guests once or twice a month. Also in the case of guest – receiving, the total number of the guests vary from 1 to 4 in a big majority (70%). So even the respondents use the dining table for guests, this is a seldom usage. As people do not tend to receive a big crowd of guests, they may not tend to use the dining table for small number of people.

#### **4. Conclusion**

In the quantitative surveys, it was analyzed that people tend to acquire dining tables as an item for conspicuous consumption. They want to be equal in means of status with their friends who visit their houses. Marriage is seen as a breaking point from the student or single life style in which not having a proper salon is tolerated to a proper family life on which the social control is felt. People acquire the dining tables, but a decline in the usage is observed and detected. There are several layers embedded with this decline. Time shortages of working busy women, development and commoditization of eating out activities, shortly transmission of a new life style are dominating and reshaping the contemporary habits. Women don't want to spend time and energy on the traditional preparations for guest serving – including cleaning home up, making several dishes, etc. In fact, this is kind of a formality which is different from one's natural situation. Getting well dressed, having lots of different meals, having a super tidy and clean domestic environment are some kind of artificiality. Formality requirements are both physical (the effort for preparation) and spiritual (relationships are getting more relaxed and informal) burdens for the contemporary women. The decline is observed in serving for the family meals also. Although clustering around a dining table and having family conversations is believed as strenghtening family ties, different working hours of family members, novel life style patterns, informal eating patterns (snacks in front of TV) are being adopted gradually (Cieraad, 1999). The individualization, rather than group behaviour, even among family members may dominate the family lives. Also for family meals, the dining table has important rivals such as the multipurpose tables in kitchens, coffee tables, trays (informal eating on the armchairs). Moreover, even people invite guests and even family members get together at the same meal, the meeting point is not always preferred as the dining table. All these factors cause the decline of the usages of the dining tables.

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## ARCHITECTURE WITH ACCESSIBILITY: A STUDY OF ACCESSIBILITY AT ISTANBUL METRO STATIONS

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### **Abstract**

In a globalized world, communication, accessibility and transportation become the most important requirements for the metropolitan life. Especially, accessibility emerges as an important term which is required by all citizens whether you are healthy or disabled.

According to Scherrer, “A wheelchair user, a blind person or an elderly are not disabled in an accessible environment, but, even a normal person can be disabled if accessibility is not provided” [1]. Accessibility can be provided through the continuity of interrelated daily activities without any interruption. When the connection between the activities breaks off, we can't mention about accessibility.

Rights of disabled people monitoring report which was prepared in 2014 by Association of Social Rights and Researches, noteworthy outcomes have been obtained. The research, conducted within the framework of accessibility at public transportation systems in Turkey, asked an important question to municipalities “Have your municipality been ensuring the new accessible public transportation vehicles which were equipped and prescribed by the Turkish law # 5378 for disabled people since 2005?” According to the report; it is identified that only 52,36% of public transportation vehicles were bought after 2005. And 41.02% it have ramps or elevators, 26,02% only have audible warning system and 29,60% have visual warning system. And 52,36% of vehicles [2]. If we consider the results of this case study, we may say that municipalities in Turkey don't take the law of accessibility on public transportation vehicles into account.

In our country, despite of ensuring laws, regulations and standards on accessibility, lack of reglementation and enforcements, as well as insufficient user's knowledge cause our cities inaccessible. Similar to that case; informative, stimulating and guiding regulations, horizontal and vertical circulations at buildings, public spaces and transportation systems don't display the same sensitivity for all users.

Therefore, to make our cities more accessible and friendly for all users, we need to increase the awareness of our community and to re-organize our public spaces and transportation systems.

This paper is based on a case study which is intended to examine the accessibility level of connections between public spaces, transition spaces between outdoor and indoor and interiors of mass transportation systems. In this context, five interchange stations of M1-Yenikapi-Airport line were analysed with a mapping method by using experiences of subjects who have different physical and demographic structures. Consequently, despite the fact that the metro stations were built according to the barrier free design principles, accessible problems were detached on the connections between public spaces with the entrances of metro stations or at the transition points between different authorities.

With the help of these data, due to insufficient current regulations and implementations, we try to find out alternative barrier free solutions.

**Key Words:** *accessibility, architecture, case study, Istanbul, metro station*

## **1. Introduction**

In a globalized world, communication, accessibility and transportation become the most important requirements for the metropolitan life. Especially, accessibility emerges as an important term which is required by all citizens whether you are healthy or disabled.

Accessibility plays an important role on public spaces. Both physical and psychological access is required in public spaces. Physical accessibility is partially based on the distribution of public space. Both temporally and spatially, a public space should be located near users. It should be “easy to get to and get through; it is visible from a distance and up close” [3].

Public spaces should meet all physical requirements and provide the independent individual life for disability access and accommodate users with a variety of needs (wheelchair bounds, blinds, elderly people, mothers with strollers, bicyclists, etc.).

Accessible public spaces can actualize the barrier free daily life. To create a fully democratic and socialized space, a public space must be accessible to all [4]. Accessibility “refers to the ease with which a site or service may be reached or obtained; it can thus be said to measure the relative opportunity for interaction or contact with a given phenomenon...[5]. An accessible public space is open to a variety of people and allows a variety of uses [6].

According to Scherrer, “A wheelchair user, a blind person or an elderly are not disabled in an accessible environment, but, even a normal person can be disabled if accessibility is not provided” [1]. Accessibility can be provided through the continuity of interrelated daily activities without any interruption. When the connection between the activities breaks off, we can't mention about accessibility.

Thus, to increase the accessibility of public space and our city life, accessible transportation takes part significantly. Too often inclusive transport is not fully considered in transport planning, design, construction and implementation in developing countries. Mobility and access requirements of people with disabilities should be considered by planning and designing barrier-free transport systems. This implies an understanding and identification of the circumstances that create barriers for people with disabilities [7].

Disabled people have difficulties to access indoors and outdoors and also have to face significant problems to be included in a daily life, despite the current regulations and laws. However, disabled people are entitled to have all social and cultural benefits independently as healthy people do. Realization of this act can be possible, if we re-design or re-organize our buildings, transportation systems and the city life to achieve the accessibility requirements for all.

All around the world and also in our country, various laws, design rules and standards are tried to re-organize the accessibility for public transportation systems. However, despite of ensuring laws, regulations and standards on accessibility, lack of reglementation and enforcements, as well as insufficient user's knowledge cause our cities inaccessible.

When we look at the barrier-free implementations at public buildings and public spaces, we may say that requirements of disabled people are mostly conceived. But the main problem is failure to provide the accessibility between buildings and the continuity of our city life. Therefore, to increase the accessibility, we need to focus on accessibility problems with new perspectives and new solutions.

In this context, with the help of a case study, this paper intends to examine the accessibility level of connections between public spaces, transition spaces between outdoor and indoor and interiors of metro transportation system in Istanbul. And also try to find out alternative barrier free solutions to overcome the deficiencies of accessibility at transportation systems.

## 2. Examination of Accessibility at Transportation Systems: A Case Study at Istanbul Metro Stations

With the scope of the case study, five interchange stations of M1-Yenikapi-Airport line; Emniyet-Fatih, Coach, Zeytinburnu, Bahçelievler and Istanbul Fair Center Stations were selected to examine the accessibility level of connections between public spaces, transition spaces between outdoor and indoor and interiors of metro stations. These interchange stations are integrated to other lines and transportation systems, passing through the old residential areas, public buildings (hospital, coach, security chief office, fair center) and public spaces which make them more problematic for all people, especially for the people with disability.

Initially, entrances, ticket halls, platforms, vertical and horizontal circulations of each five stations were determined according to barrier free design principles by using Ministry of Family and Social Policies, Department of Accessibility, Accessibility Monitoring and Control Forms for buildings, stations and rail systems.

In the case of local space-based examinations, it is observed that there are discontinuities in accessibility, especially in the circumferences and entrances of the stations, transition spaces between outdoors and indoors and in some vertical circulations, as shown in the Table 1.



Fig. 1. M1-Yenikapi-Airport line and selected five interchanged stations

According to results of local space-based examinations, we may say that, despite the fact that the metro stations were built according to the barrier free design principles, accessible problems can be detached mostly on the connections between public spaces with the entrances of metro stations, vertical circulations or at the transition points between different authorities.

To find out how discontinuities in accessibility affect the journey of the disabled people at the metro stations, there is a need for a case study on mapping of disabled passengers' routes.

Table 1. Current situation of metro stations according to barrier free design principles

Stations	Entrances	Ticket Hall	Vertical circulations	Horizontal circulations	platform
Emniyet-Fatih	~	+	+	+	+
Coach	~	~	+	+	+
Zeytinburnu	~	+	+	+	+
Bahçelievler	~	~	~	+	+
Istanbul Fair Center	~	+	-	+	+

*Suitable + Partial compatibility ~ unsuitable -*

### 2.1 Method

With the help of a mapping method by using experiences of subjects who have different physical and demographic structures, disability-oriented applications through the entrances, ticket halls, platforms, vertical and horizontal circulations of the stations were examined to understand whether local barrier-free solutions were enough or not to satisfy the accessibility and how do the disabled people behave in problematic places.

The number of subjects was appointed by calculating the number of passengers who prefer not to travel on peak hours of Metro (07:30-09:30 and 16:00-20:30), with 12% of the population in Turkey with a disability. According to this account the number of subjects was found 23.

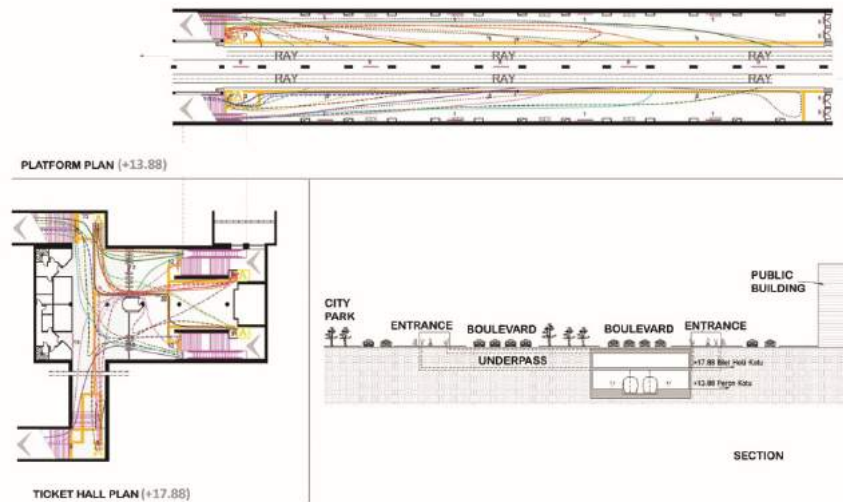


Fig. 2. Emniyet-Fatih station, mapping

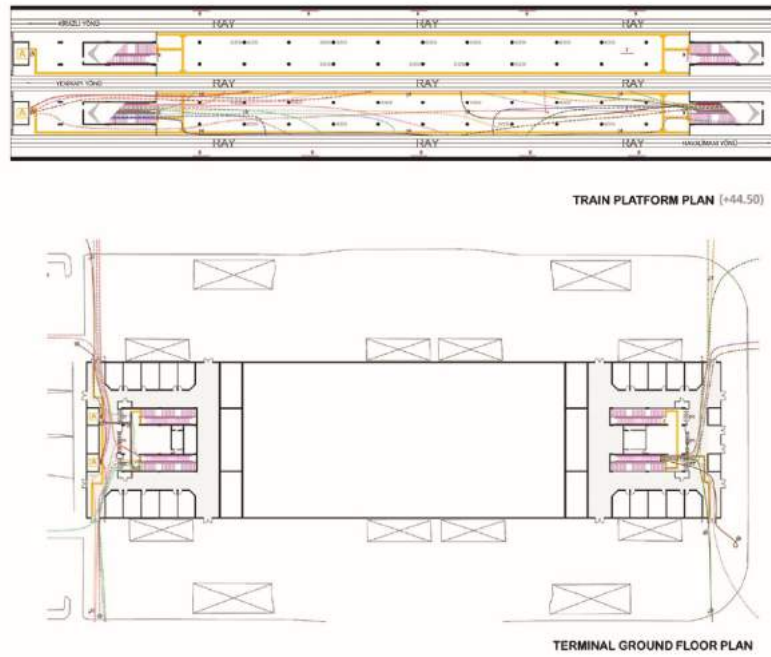


Fig. 3. Coach station, mapping

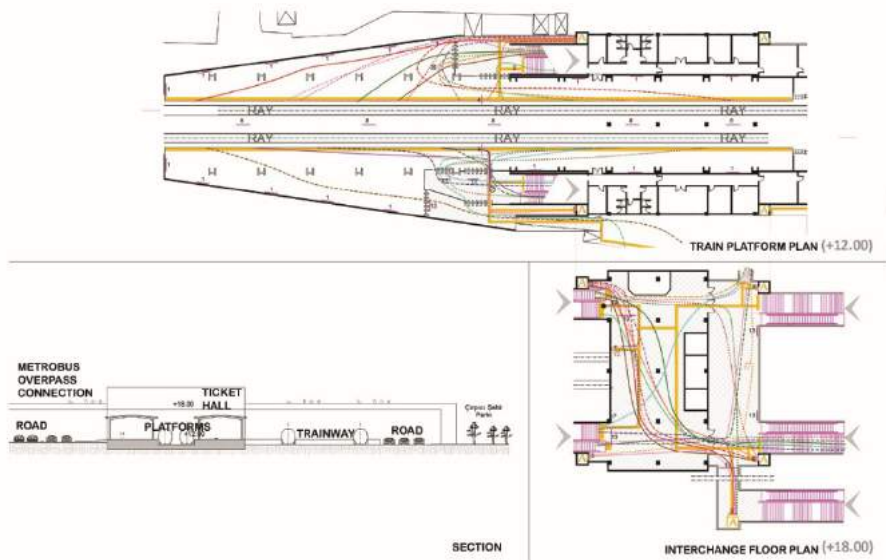


Fig. 4. Zeytinburnu station, mapping

With the scope of the case study we were asked from 23 subjects, who were in different age, sex, education, occupation and disability situations (wheelchair-bound, [walking disabled](#), blind, semi-sighted, hearing-impaired, elderly, mothers with stroller, pregnant, chronic diseases(diabetes, asthmas and obesities) and people with luggage), to experience a metro trip without getting any help.

Independently of subjects, observer was mapping of each subject's route by drawing on plans which were prepared previously and shown only the architectural elements with stimulating and guiding signs. In the mapping, different line types were defined to show route of each subject. Discontinuities in accessibility were indicated by black dots.

The stops, returns and confusions on the routes of the subjects, including the access to the station, entrance hall, ticket hall, horizontal circulations, escalators and elevators that provide

the vertical circulations, connections and transition spaces between outdoors and indoors, were indicated on the floor plans.

In the second step, subjects who arrived at metro station's exits were required to reach public areas or buildings which are connected with the stations without requesting any assistance or information. At this stage, the last places where subjects can reach without getting any help was indicated and the barriers were identified.



Fig. 5. (a) elevators under maintenance; (b) discontinuity on tactile paving; (c) difference of level

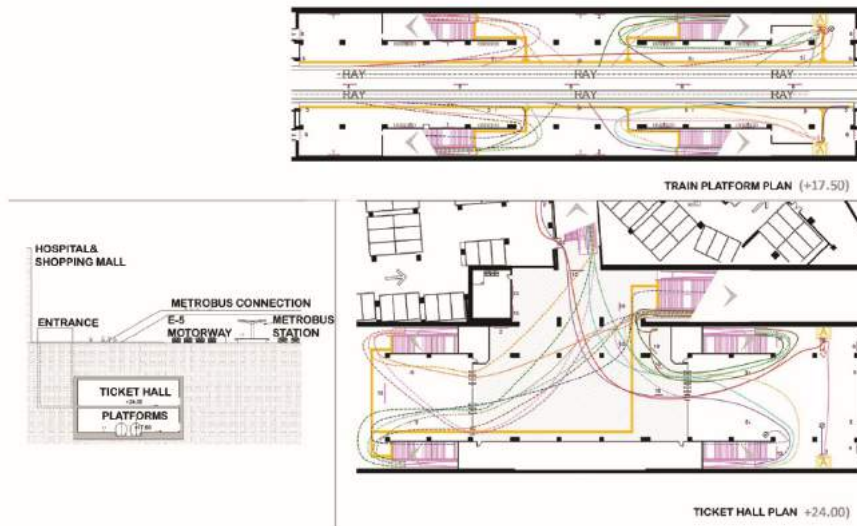


Fig. 6. Bahçelievler station, mapping



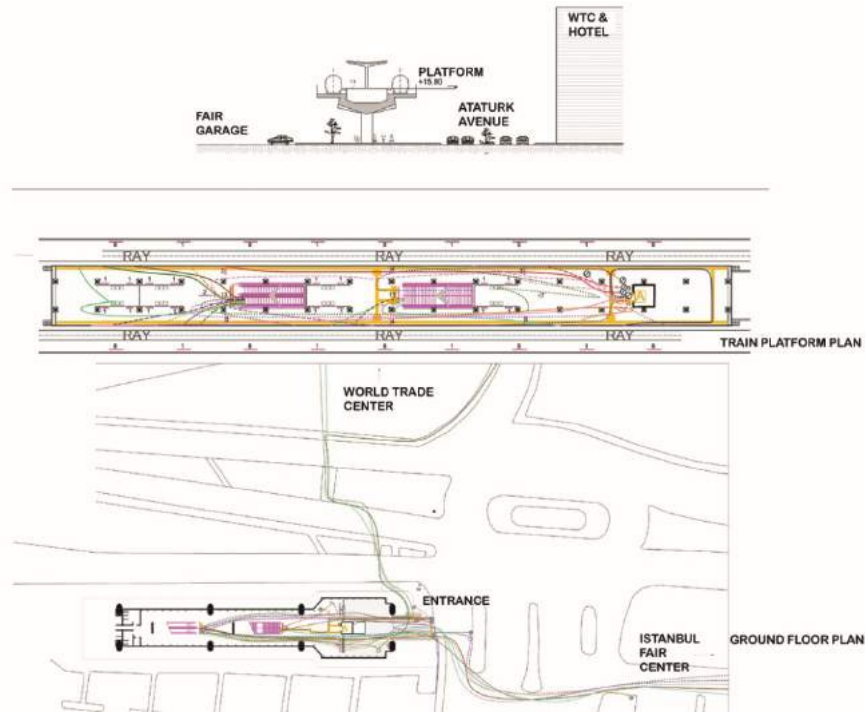


Fig. 7. Istanbul Fair Center station, mapping

## 2.2 Results and Discussions

As a result of examining on the level of accessibility at metro Stations, it can be said that there is a positive act for barrier free design and accessibility. But as it stated at the examinations and mappings, accessibility of metro stations do not reach to the desirable level for visually impaired people and wheelchair users.

Few barrier free deficiencies can easily affect the accessibility chain, and cause discontinuities in visually impaired people and wheelchair users' life than others. In general, the accessibility of these five stations can be summarized as follows:

Multiple combinations of tactile paving such as "T" and "Y" cause incapability of orientation preferences for the visually impaired people in horizontal circulations. They need to get help or return. Thus, there is a need for new alternative solutions that will prevent visually impaired people from incorrect orientations and time-consuming returns.

It was observed that in vertical circulations, all groups with disabilities usually used elevators or escalators. It is the main reason for the elevators to be preferred was the direct access to the train platforms from the ticket hall. However, this situation causes free, illegal accesses. Because of that the elevators are mostly closed by the station operators, it will run only if there is a request. This causes discontinuities in accessibility.

During the case study, the elevators in the Istanbul Fair Center and Bahçelievler Stations were out of order, so wheelchair user subjects could not use these stations; they tried to find an alternative metro station or a vehicle for transportation. As a result it is determined that how elevators are important for the wheelchair users to reach the platforms.

Tactile paving over starting and finishing points of escalators and stairs help visually impaired people to orient themselves easily. But, because of tactile paving are not floored from elevator doors to train platforms, visually impaired people cannot access to platforms or entrances.

Lack of blind maps at metro station causes visually impaired people to orient by using only tactile paving.

Announcements and warnings in the station are not supported by the digital information boards, so that hearing impaired people have some difficulties to reach correct train or station.

Inside the metro station, resting points for the people with disabilities are not considered. Uncomfortable and insecure long walking distances, that require high energy, are deterrent for the subjects and caused them not to prefer these routes.

All entrances are perceptible and accessible. But, sidewalks, pedestrian crossings are not suitable for the barrier free standards. Lack of stimulating and guiding signs, difference of levels cause discontinuities in accessibility. Discontinuities of tactile paving from entrances to public spaces limit the visually impaired people to access. Because of the ramps at the sidewalks are not considered, wheelchair user and mothers with stroller subjects were forced to go through the street.

### **3. Conclusions and Recommendations**

Currently, Istanbul metro system rapidly becomes a primary public transportation against increasing density of traffic. The efforts of making the metro system accessible will also help in connecting all the parts of Istanbul for the people with disabilities in the near future.

But generally in our county; laws, legislations and regulations for accessibility and barrier-free design in public space and public transportation are not enough to realize our hopes. It is seen that care, expectations and awareness on accessibility become more important to emerge these difficulties.

According to data from case study, there is an urgent need for the standardization at the connections between Metro Station and public spaces, on ramps and city ground applications at sidewalks and difference of levels.

And, there is also need for an institution that ensures coordination between different municipalities or corporations to provide the standardization in accessibility.

Thus, In order to ensure that elevators are always available and the public and transportation buildings are accessible, it is necessary to organize training-educating programs and workshops to enhance the awareness of need for the accessibility to all citizens. When the regulations and implementations are realized as it should be, many of these barrier free problems can be removed. But it has also been observed that in some cases, existing conventional barrier free applications which stimulate and guide the users (especially for the visually impaired people) are failed to satisfy.

Therefore, to provide accessibility at metro stations, indoor spaces or historical buildings where new arrangements are required or where renovations are not possible, we may say that there is an extremely need of alternative and innovative technologies for accessibility instead of conventional solutions. Accessibility, especially for the visually impaired users and for all at underground spaces, can be solved by using alternative in-door navigation systems, such as:

- GPRS based navigation applications
- Ibeacons
- Smart mobile technologies with audial or/and visual perception technologies.

We pleased to inform that one of these three alternative in-door navigation technologies will be used in our next scientific study to propose an alternative solution for the discontinuity problems in accessibility.

As a result, we can say that, accessibility depends on supplying the physical and social requirements of disabled people as the healthy people do. And also opportunities to live independently in a community are up to people to know and care the accessibility. We must remember that everyone has equal rights.

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## SUSTAINABLE DESIGN PRINCIPLES AND THEIR FEASIBILITY IN HOUSING ESTATE AND APARTMENT BLOCK GARDENS

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### **Abstract**

Today, multi-floor housing estates and apartment blocks have turned into common housing types in the metropolitan areas of Turkey. Landscape architects are restricted by applicability, ecology, availability of materials, cost, client or user demands, infrastructure and the relevant bylaws while making design in such areas. Even if it is difficult to design under various restraints, a landscape architect has to integrate some principles of sustainable landscape design (SLD) into his/her project. The main purpose of SLD is to establish a balance between aesthetic and functional needs and on the other hand to achieve spaces socially, environmentally and economically sustainable. This paper aims to determine SLD principles that can be integrated into landscape architects' housing estate and apartment block gardens designs. For this purpose, in literature, sustainable design concept, its relation to landscape architecture and SLD principles were examined. Factors limiting design based on the author's design studies and her observations were determined. As a result, feasible SLD principles and how they can be implemented were revealed. These SLD principles can be summarized under six main headings: using of existing facilities, fixing soil, appropriate plantation, establishing an effective irrigation system, material selection and health and welfare. The multi-floor housing estate and apartment block gardens which are one of the common examples of residential areas in metropolitan areas over the past decade, are a part of the urban green space system and they should try to design according to these SLD principles.

**Key Words:** *Sustainable design; Sustainable landscape design; Housing estate gardens, Apartment block gardens, Landscape design*

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### **1. Introduction**

This paper is aimed to review the concept and principles of sustainable landscape design (SLD) and the feasibility of these principles in multi-floor housing estate and apartment block gardens. Many studies have been done on the SLD principles and many principles have been set [e.g., 1-2-3-4-5-6-7-8]. However, not every landscape project and every garden can be designed considering all these principles. The best example to these is multi-floor housing estates and apartment blocks which are common housing types of the metropolitan areas of Turkey. In these areas, the designers work under certain constraints and pressures. His/her design is limited by applicability, ecology, availability of materials, cost, user demands, infrastructure and the relevant bylaws. While these areas may seem as small and multi-part areas where SLD principles cannot be applied at first sight, they meet a large part of the housing needs, especially in the metropolitan areas. This type of housing is very common and continues to increase and this make these areas an important part of the urban green space system. For this reason, even if under aforementioned constraints and pressures, designers need to adhere to the SLD principles as much as possible. In similar areas and under similar conditions the principles can be applied in part and often this cannot be as difficult as it seems. Achieving this in such small units is a contribution to the development and evolvement of the urban green space system in line with the SLD principles. In this study, it was tried to

determine what should be included in the design in order to comply with the SLD principles in the housing estate and apartment block gardens which seem to be desperate in this regard. At first, in literature, sustainable design concept, its relation to landscape architecture and SLD principles were examined. Then, under current conditions, the factors which restrict the designers in housing estate and apartment block gardens, were determined. These determinations were based on the author's design studies and her observations in such areas. As a result, feasible SLD principles and how they can be implemented were revealed.

## **2. The Concept of SLD and Its Principles**

World Commission on Environment and Development's (WCED) sustainable development definition is as follows [9]:

'meets the needs of the present without compromising the ability of future generations to meet their own needs'

McLennan defines the term sustainable design [1]:

'Sustainable design is a design philosophy that seeks to maximize the quality of the built environment, while minimizing or eliminating negative impact to the natural environment.'

The American Society of Landscape Architects (ASLA), defined the sustainable landscape concept for practitioners [10]:

'Sustainable landscapes are responsive to the environment, re-generative, and can actively contribute to the development of healthy communities. Sustainable landscapes sequester carbon, clean the air and water, increase energy efficiency, restore habitats, and create value through significant economic, social and, environmental benefits.'

Landscape design for aesthetic, rugged, usable, durable and permeable urban areas can only be achieved by holistic thinking of the infrastructure and facilities [11]. Living environments can be improved to meet people's demands, and this concerns hardscape, not only with plant material, but also with a successful design by the completion of plants [12]. The aim of the SLD is to provide integration between human and nature and contribute to the sustainable development of social, economic and cultural values [13]. Very small scale landscape gardening that started with the birth of humanity has yielded to wider scale landscape designs as a result of an upsurge of social settlements. Landscape design is linked by the sustainability concept and has become one of the major topics of landscape architecture discipline [14]. SLD has three pillars: Social suitability, environmental compatibility, economical feasibility. SLD has three pillars: Social suitability, environmental compatibility, economical feasibility. Landscape architects try to maintain aesthetic and function balance for successful sustainable design [15].

Sustainable Sites Initiative, an interdisciplinary partnership led by the American Society of Landscape Architects (ASLA), has identified five key topics for sustainable landscapes: soil, vegetation, hydrology, material selection, and human health and well being [2]. The contents of these titles are as follows [6]:

- Soil: Protection and improvement of topsoil, use of compost
- Vegetation: Preservation and use of existing vegetation cover, protection of aged trees, use of native species, planting to reduce energy consumption, planting to reduce fire damage
- Hydrology: Protection of hydrological functions, water cleaning and acquisition, rainwater management, minimization of water consumption
- Material selection: Use of available materials, use of locally available materials, use of recycled materials, material selection to reduce waste level, heat island effect and air pollution
- Human health and well being: Creating user-friendly spaces, evaluating natural images, keeping culture and history alive, providing mental, social and physical benefits

Cook and VanDerZanden reported that a quality sustainable design aims to generate aesthetic, functional, sustainable and cost-saving landscapes fitting well for a certain location

or region. Maximally sustainable landscapes can be achieved in short and long terms with this approach. Most landscapes include a combination of hardscapes, turf areas, and ornamental plants. The diverse products available on the market today make it possible to select from a wide variety of hardscape materials, many of which will enhance the overall sustainability of the landscape. There are eight key factors in SLD: keeping a SLD method, using of suitable plants, creating aesthetically pleasing and functional landscapes, meeting physical and cognitive basic needs of people, reduction of maintenance works, keeping the costs low, taking into account the expectations of users about the design [4].

Thompson and Sorvig determined ten principles to achieve sustainable landscape construction: keep healthy sites healthy, heal injured sites, favor living-flexible materials, respect the waters of life, pave less, consider origin and fate of materials, know the costs of energy over time, celebrate light-respect darkness, quietly defend silence, maintain to sustain. They also pointed out that hardscape material should be selected according to some criteria: using the materials exist in the local environment, processed slightly, can easily be supplied, can be recycled or reusable, abstain from using petroleum-based materials, using durable materials in terms of structure and design, abstain from using toxic materials during construction and production, using durable wood absorbing CO<sub>2</sub> [3].

Seçkin, Seçkin and Seçkin list the SLD principles as follows [5]:

- Use of regional possibilities: Climate conditions, sun and shadow conditions, wind, precipitation, local and / or alternating materials
- Minimal destruction of existing landscape: Minimum excavation and filling, existing vegetation, surface waters
- Restoration of degraded landscapes: Improve the soil structure, harmful substances, unsuitable plants

According to the another reference there are five considerations in designing a sustainable landscape. The landscape should be [7]:

- Functional: Functional design enables work, movement, recreation and leisure occur easily in landscape. These functions are related to the actual process or activities associated with a family, a business, or a public place.
- Maintainable: When a functional design is more concerned with the users of the landscape, a landscaping area that is easy to maintain is for the managers. In a landscape that is easy to maintain, fertilizer, pesticide, equipment and water costs are reduced.
- Environmentally sound: The proper design of plants and related hardscaping greatly affects the quality of that landscape over its entire life. For example, using the plant in the right place and for the right purpose can affect the tolerance of the plant against environmental, disease and insect stress. The constant stress of the plants leads to an increase in the cost of care such as labor, fertilizer, pesticides.
- Cost effective: Considering the cost of design affect processes, plants and hard goods that involved in implementation of landscape. The cost should not determine whether the landscape is functional, maintained or environmentally sound. These issues must be met independently from the budget. To put in different way, a low cost landscape must be sustainable up to a high cost landscape. The cost of forming a sustainable landscape can be much lower.
- Visually pleasing: A sustainable landscape design should not affect the aesthetic value of the landscape, as the integration of many of the required variables.

According to LandscapingNetwork.com in order to achieve SLD residential gardens should treat water as a resource, value soil, preserve existing plants and conserve material resources [8].

- Treat water as a recourse: In SLD, it is necessary to treat water as a valuable and indispensable resource. Proper design and plant selection can reduce or eliminate irrigation

needs. Also, rainwater can be collected and used in irrigation.

- Value the soil: Soil compaction causes problems such as plant growth restriction, erosion, running water and flooding. The discharge from the clogged soils is one of the main sources of water pollution.
- Preserve existing plants: A sustainable landscape approach is achieved by evaluating existing plant material and protecting indigenous plants. Non-native plants should be removed and replaced with more appropriate selection. While selecting a plant, it is a guiding principle to use the right plant in the right place.
- Conserve material resources: Appropriate sized plant selection and re-use of the construction waste are important criteria in line with sustainable landscaping approach. Wherever possible, locally sourced materials should be used and building materials carefully selected.

### **3. SLD Principles for Garden Design of Housing Estates and Apartment Blocks**

The designers are unfortunately unable to act faithfully on the promised SLD principles. In architectural projects in metropolitan cities, according to Type Zoning Regulation on Planned Areas, the floor area coefficient of 40% is generally used by the contractors until the end. A large part of the remaining open space is covered outdoor parking and vehicle routes. In addition to this, completely underground garages that remain completely underground are not included in the floor area, so especially in the housing estates, a large part of the garden is designed as underground garage. In such areas, vegetation design is restricted due to excessive load on the apron, isolation problems caused by plant roots and inadequate soil depth. Thus, the ratio of built-up area and green area comes out of the designer's control. The designer is also opposed to certain constraints that come from the architectural project. Some of these are, positioned and sized constructions, architectural objects, parking lots and the main circulation in the municipal approved site plan. There may be hard-to-maintain areas such as continuous shadows or permanent sunny areas between multi-storey structures, corridors where unwanted air currents can occur, and sloping or narrow areas. Design is formed by municipality, contractor and designer, because these gardens are mostly built with constructions. Once the occupancy permit has been received, site or apartment managers and users are engaged and sometimes change the design according to their desires. The designer has to think like a user and anticipate potential expectations. It should also be noted that in such residential gardens, the users are people of all ages. Often it is not possible to address all age groups in confined spaces. It is frequently encountered that the designer is placed in the project site, when building site set up, grading is done, and the building construction is finished. The costs of this delay are loss of the upper soil with the excavation and filling works, the mixing of construction waste and toxic materials with soil, ruin of natural drainage and loss of natural vegetation.

Designers can apply some SLD principles in housing estate and apartment block gardens, even under limited conditions. These principles can be grouped under six headings: using existing facilities, fixing soil, proper plantation, establishing an effective irrigation system, material selection and health and welfare:

*Using of existing facilities:* A landscape architect who is involved in the design process right away should first take the opportunity to preserve existing facilities. Foremost among these are existing soil and plants. It is necessary to minimize excavation and fill by changing the ground levels as few as possible, to take precautions to minimize the damage of existing plants due to the setting up the building site, and excavation at the site of foundation, and to eliminate the over compression in the ground due to motion of the construction machinery, material handling, man and vehicle circulation in the construction site during the construction period.

*Fixing soil:* Unfortunately, there are frequent applications in which vegetable soil is laid

without the construction waste being purified and the structure of the stuck soil not being improved, and are short-lived and costly to maintain. The structure of very heavy or very light-weighted soils should be fixed. Clay and stuck soil can be mixed with sand and barn stubble. The stable manure also increases the water holding capacity of the soil and adds the plant nutrient. Deep infiltration, surface flow, erosion, drainage and irrigation problems are unavoidable when soil structure is not suitable. Slope stabilizers should be used in sloping areas, see Fig 1.



Fig. 1. Slope stabilizers

*Appropriate plantation:* Essential ecological, aesthetic and functional characteristics of plantation in residence gardens are creation of space effect and identity, climate control, background formation, enclosure, bordering, screening, accenting, directing and noise and erosion prevention [3-16-17-18-19]. Plants are elements that interpolate form, texture and color to the landscape as the basic elements of revealing design principles [12]. Plant selection should be based on physical environment, soil type, water quality and climate. These components should be analyzed in terms of ecological requirements in plant selection. It is also important to pay attention to site conditions when selecting suitable plants for a successful landscape design. At the same time, important tips to guide this choice can be obtained through local observations. Local varieties should be used for successful landscape design and this also leads to specific identity of the place [18]. Trees form the side surfaces of the place in the vertical plane. Shrubs impart texture, density and color to these faces. By using the plants in this way, the height, density, texture and color effects of the space are revealed. Trees function as a dome forming an open-space ceiling tile. This makes it easier to perceive the vertical scale, the feeling of comfort and the effect of shadow [5].

In the housing estate and apartment block gardens, selected plants should be appropriate to the region, with easy and low-cost maintenance, visually effective and not be too demanding in terms of growth environment requirements. The plantation must fulfill some functions such as visual acclaim, accenting, directing, shielding, limiting, shading and slope keeping [19]. Shading is especially needed in the living areas and outdoor parking lots. When this is overlooked, it is tried to be added by the users over time in a contradiction to the design. It is also frequently observed that managers or users have completely changed the plant design, see Fig 2. A scattered and mixed plantation in narrow spaces will not be long lasting both will be difficult to maintain. Especially in narrow areas, permeable materials such as bark, pebbles, sand and tumbled stone can be used instead of grass, or these areas can be completely covered with creeping plants and shrubs.





Fig. 2. Change of planting design in some gardens in Çankaya, Ankara

The areas with underground garage, adequate soil depth cannot be provided for many plants, and plant roots can harm the insulation layer. Perennials, covering plants, turf areas, flower pots and light rock gardens can be preferred instead of trees and shrubs. Climbing plants can be used to cover enclosure walls, retaining walls and pergolas. A seed mixture consisting of different grass species with a tight structure and resistant to stepping, short mow and harsh winter conditions should be used [19]. A design which is made ignoring the plants future sizes, will never be sustainable.

*Establishing an effective irrigation system:* Irrigation systems should be established for the optimum growth of plants and for the sustainability of green areas. In the housing estate and apartment block gardens, irrigation water is supplied from municipal water system. Water consumption is reduced by designing an effective sprinkler and drip irrigation system. In addition, maintenance work is reduced, homogeneous irrigation can be provided, night irrigation can be possible, liquid fertilizer can be given to the plants via irrigation water, controlled irrigation can be achieved where the soil depth is low and the groundwater is high. System projects for the rainwater harvesting and the use of water in ornamental pools in garden irrigation, will significantly reduce water consumption and drainage systems loads. One of the issues that is ignored in such gardens is drainage. Impermeable hard floors that accumulate water for a long time and green areas with drainage problems need to be repaired and replaced regularly.

*Material selection:* Material selection among SLD principles is very important. Instead of supplying new material, it will be in place to use the available materials as much as possible. For example, structural waste arising during the construction of the building can be used as a blockage below the floor. Stones and rock fragments found in the field or obtained during the excavation can be used in the construction of the stone drywall or retaining wall.

The choice of material must be both aesthetic and functional targets as well as SLD principles. In the housing estate and apartment block gardens, parking lots, car roads and ramps cover a very large area. Instead of impermeable materials such as asphalt, reinforced concrete and concrete slabs, locked parquets, cubes, grass stones and gravel slabs should be used in the parking lots, see Fig 3. As well as these materials, wooden flooring and local natural stones can be used in narrower spaces such as walkways, sidewalks, underground pavilions, squares, entrances to buildings. Asphalt may be used since it is long-lived, sturdy and flexible against soil settling. In certain sizes of cut andesite, travertine, granite and basalt

can be used alone or in combination with concrete flooring. Step stones may also be preferred on pedestrian paths where uninterrupted grounds are not compulsory.



Fig. 3. Permeable flooring examples

Wood is also a commonly used material in landscape designs. Wood is preferred because it is a natural and warm material, and it is expected to remain as the first day as it is long-lasting. For this reason, impregnated wood is preferred. Impregnation is a process of applying various chemical substances to the pores to protect wood against biological degradation. Although this process extends the life of the timber, some chemicals mix with the soil through evaporation to the air or by washing. Wooden sleepers from railroads in recent years are often used in landscape designs because they are both cheap and aesthetically pleasing. Initially appearing as a beautiful example of recycling in this case, is actually means to enter our daily use of the material should be treated as hazardous waste. For this reason, caution should be exercised when using recycled materials. Allowing the natural change and aging of the wood in time reveals more aesthetic results, see Fig 4.



Fig. 4. Old wooden flooring examples

Wood composite obtained as a result of compression with petroleum products and rubber floor elements obtained by grinding old car tires together with chemical adhesives has been widely used in landscape designs in recent years. Both materials are being discussed for their human health hazards. Wooden composite is used in floor coverings, pergola and urban furniture production. It is ironic that rubber floor elements find themselves in health-related areas such as playgrounds, jogging paths, fitness areas and sports fields. However, SLD requires to stay away from petroleum products. In most of these areas sand, gravel and brick dust can give good results. Urban furnitures are an important part of design and they should be selected according to the SLD principles, see Fig 5.



Fig. 5. Benches examples

*Health and welfare:* It is possible to present beautiful landscapes to people, to screen ugly views in neighboring parcels, to reduce the noise of urban roads the least and to contribute to reducing air pollution with an appropriate planting design. Green area ratio should be increased to reduce heat island effect, reflective material should be preferred in structural landscaping elements. While forming the structural design, sitting, resting, and gathering areas where people can communicate, and sports areas where they can do physical activities such as sports and walks should be given space. One of the users of the design is the children. In order to create sustainable playgrounds, it is necessary to implement a recreational program for children of different ages. They also should include enhancing physical fitness and socializing [20], see Fig 6.



Fig. 6. Playground examples

#### 4. Conclusions

Housing estates and apartment blocks are common housing types in Turkey, especially in metropolitan cities. Landscape architects are under a variety of oppressions and constraints when designing these gardens. Factors that restrict the designer in the current situation are the fact that the landscape architects are not involved in the design process in time, the problem of cooperation with other professional disciplines, related bylaws of the municipalities, especially the cost-related constraints of the employers or contractors, trying to make a design for each group and every type of user in narrow spaces. The imposition from the layout plans of the architectural projects can also be added these such as areas reserved for open car parks, excessive interventions on existing elevations, excess of impermeable surfaces and green area and hard ground ratio outside acceptable limits. How to abolish these constraints can be discussed under another study in the legislative and administrative framework. In this study, under the current conditions, it is examined how landscape architects can depend on SLD principles presented by various authorities and recognized worldwide. It is thought that SLD principles can be applied more or less in the design of housing estate and apartment block gardens which are the most common type of residence in the city and important parts of the green space system. When SLD principles are considered, the applicable ones for such areas are grouped under six main headings. These are using of existing facilities especially soil and plants, fixing soil which includes the improvement of existing soil and taking measures to prevent soil loss, appropriate plantation which means selection of plants suitable for locality

and correct positioning, establishing an effective irrigation system, which guarantees less maintenance, a long-lasting plantation and less water consumption, readily available, local, durable and permeable material selection and health and welfare which covers the user desires, needs and satisfaction.

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## HOUSING DEVELOPMENT IN TURKEY SINCE THE REPUBLIC'S ANNOUNCEMENT

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### Abstract

Housing is a physical space where man finds himself from the moment a person comes to the World, the first steps are taken in the development of personality and selfness, the rules of social relations and social values are acquired and reproduced. It is the most important place to eat, to sleep, to get personal needs, shortly, to live in [1]. From the former time to daily time, these places are changing and developing day by day with many effects such as living conditions, environmental conditions, political interactions, aesthetic, climate conditions and population increase. In terms of political interactions, after the declaration of the republic in Turkey, radical changes in the meaning of housing in the country had come to happen. The fact that Turkey is entering a new turn has led to some question marks on the minds. Among them, they like such as whether or not to be taken as an avant-garde, reformist or being in evolutionary attitude. While some architects are accepting the avant-garde style, some had wanted to follow the traditional forms. However, many factors within the country have lost the closeness to traditionalism and modern housing has begun to take its place. These, which have both positive and negative features in many ways, started to influence since the republican period and the present day. Sedat Hakkı Eldem, who created the typology of traditional Turkish architecture, designed both functional and modern structures combining the features of republican architecture with the functionality of past structures. The architect, who is close to the views of Frank Lloyd Wright, effected the period. Besides this, many architects carried out the ideas of the reflects architecture style of the republican period up to date. This study examines how today's housing structures are shaped and developed and what things provide superiority or negative features modern buildings to traditional.

**Key Words:** *Housing development, architecture in Turkey, republican period, traditional housing*

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### 1. Introduction

Human is an entity who feels a need for sheltering until his death from the birth. People are always in search of place both keeping their lives and supplied other necessities except dwelling. The desire to provide these requirements that have been continuing since the first man to than now through various processes. If we explain them, it is depend on many factors such as life conditions, environmental conditions, political interactions, aesthetics, climate conditions, population growth and so on, which are essential for the survival of human beings. If we consider these conditions, it is possible that housing structures designed today are different from traditional housing structures that pass through various stages and reach daily in adaptation of the human being to the environment.

Essentially, Housing is a frame that provide by showing of the date's feature. At the same time, it is the place where reflects the opinions of the people who live in, provides their needs, gets their preferences, and can expresses themselves, people feel possessives feelings [2]. In other words, this places where individuals feel themselves in peaceful and safety manner; they can be socialized, beyond protection and shelter.

In the formation of the houses, geographical influences are reflected. Many styles in terms of building material and construction techniques are seen to have their own style. In addition, economical and technological development, and global factors have either positive or negative impact on the housing change process.

Traditional housing has mirrored the past in the housing development process, which is based on different factors such as environmental conditions and culture. In this study will be dealt with the situation of the housing structures which have undergone many changes from the past to the present day and are still developing.

## **2. Turkish Housing during the republican period**

### *2.1 Housing design*

In the housing culture, many radical changes have begun in the early 20th century along with the Ottoman society entered the process of westernization. With the declaration of the Republic, social, cultural and economic developments started to take place on the country. It is seen that many foreign architects, with certain laws, have come to Turkey and made works carrying Turkish-European traces with the permission of working in our country [3]. Thus, traditional housing buildings that serving for a period will change and start to differentiate after a while.

Eldem, determining the common features of the houses in Turkey based on the plan, emphasized the importance of the sofa and the room and determined the typology on traditional houses before the Republican period [4]. Traditional Turkish houses have that the rooms around the sofa where have functions such as sitting, lying, eating, drinking, resting, running and even bathing, for multiple functions. At the same time, the sofa is reflected a place where family live and socialize.

After Tanzimat edict the result of the structural realized started to be formed as apartment in the early republican period. However, while this process is continuing, the influence of the tradition in Anatolia continues on the other hand. Although it has undergone a process of structuring towards westernization, together with using of sofa in plan schemes, it seems that traditional style's influence continues [5]. However, because of the continuation of economic changes, population increase, urbanization, living conditions, passing of the family model to the core family from the fatherland, and the fact that the woman becomes active in many areas, traditional Turkish house traces have been wiped away. In addition this, the apartment was seen as a means of modernization.

Apartment forms were started first in 1870 Akaretler row houses in a different way for palace members in Istanbul and in 1918 Harikzedegan (Tayyare) houses for the ones who lost their homes in the large fire of Aksaray in Laleli [6].

In the society that cannot be faced to the westernization movements, the more sophisticated society looks more moderate and accepted the apartment building. These outward facing apartment buildings are being built in the most prestigious locations of the city. However, these structures have not been adopted by many architects.

If we look at the facade from the point of view of character, the movements that are not seen in the traditional houses have taken place in the modern buildings facades. For example, there are balconies instead of console at traditional houses (fig.1); there are also some radical decisions about places as a room in the house such as toilets, kitchens. Moreover, while the built-in cupboard and bathroom have same functions in past, it was created separate room for bathroom nowadays (fig.2). Sofa concept turned into salon where large and unnecessary rooms, when the guests come was used, and valuable items are exhibited. In salon there was also a salamander concept, which consists of two separate sections that provide a passage between the seating area and the dining area.

Window ratios on the facades have changed, and differentiation has occurred on the roof. Street and garden relationship has been redefined, neighborhood size has been renewed.



Fig.1. Console at traditional houses



Fig.2. Built-in cupboard

## 2.2 Types of houses built

Eldem, one of the architects traditionally blended the architectural features of the Republican period, designed both private and apartment buildings. One of the most important structures of the period was Ceylan Apartment, designed by Eldem in 1933. The building that located in the corner has basement, ground floor shops, six apartments and terrace floors. The most interesting place of construction is three-faced salon. The façade is made up of large windows with square shaped repeats. This layout changed by the balcony entrance [7]. When viewed on plan level, this structure differs from tradition's influences and reflects modern lines. However, the situation where the salon is most dominant around the house is parallel to the spatial characteristics of the sofa in the traditional houses.

One of the buildings designed by the same architect and prominent in this period is Ağaoğlu House. The Ağaoğlu house was designed by Eldem in 1936 (fig 3-4). The house has two floors and has been built as three independent family houses. On the ground floor of the building are two departments with three rooms, kitchen and bathroom. These apartments were placed symmetrically to the right and left of the entrance. On the top floor, there is a single apartment with kitchen, bathroom, salon and five rooms. In this part reached by the main stairway in the middle a living room with an oval plan in front of the entrance and a dining room connected to it. The bookcase in the symmetry of the dining room is not linked directly to the salon but is directed to the view such as the other dining and living room sections. In this way, it is seen that the 'having medium sofa' which is surrounded by the rooms on all four sides of the salon is formally influenced by the type of Turkish house plan. The building, built on the ground floor walls of an existing wooden masonry, is a reinforced concrete carcass, reminiscent of a Turkish house with its wide fringes and console. The harmony in the oval room, the niches in the wall, the stair plan that reminiscent of Turkish character has gained a modern identity [8].



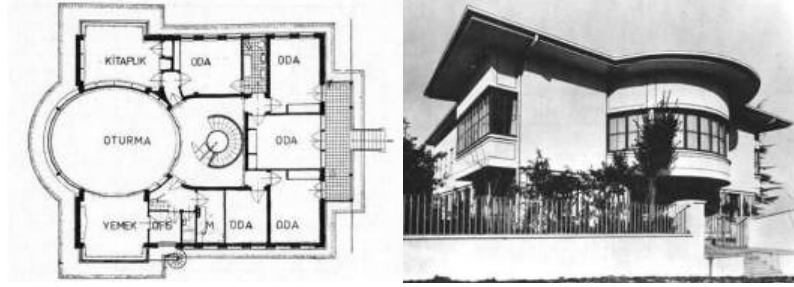


Fig.3-4. Ağaoglu house plan and exterior view

Within the reinterpretation studies of the Turkish house which made the lead of Sedad Hakkı Eldem, Traditional housing concept has been tried to be continued in the historical process. The closeness of the traditional dwelling to the modern dwelling was influenced by the architects' house insights such as Le Corbusier and Frank Lloyd Wright [9]. When Wright's Winslow house is examined it is seen to be similar to the Turkish house. It is understood that the harmony with the surroundings, the roof fringes, the residence structure, that is to say, looks like a traditional Turkish house in terms of form (fig.5).



Fig.5. Winslow house

After 1950's, when the need for increased housing in cities cannot be answered by the state, new forms of housing have begun to develop. Cooperative houses and the first mass housing emerged during this period. In addition, because of reasons such as industrialization, immigration, population increase, interest in housing problem has shifted to slum. In this period, even though various development plans and laws were enacted, distorted construction could not be prevented [2]. When you look at mass housing; a term used to describe many housing units with social and physical infrastructure [10].

The first examples of mass housing and cooperative building are the Akaretler family houses in Beşiktaş in Istanbul and Harikzedegan (Tayyare) apartments in Laleli (fig.6).



Fig.6. Harikzedegan apartments

Since 1980, following an outward open policy has caused the change of housing stock and large scale projects have started to be done through cooperatives. Security, comfort and prestige become the priority in the society, causing the change of living spaces and the emergence of gated communities. The presentation of new lifestyles that are snug, safe and

luxurious have increased the demand for such houses, many gated communities have been produced in different types and sizes.

### **3. Nowadays Housing**

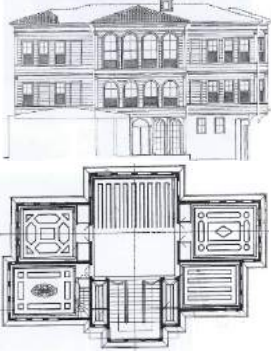
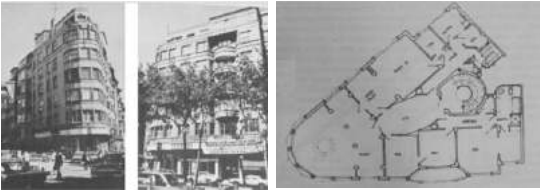

In the following years, state with new legal instruments and institutions released the Mass Housing Act in 1984 to ensure the implementation of large-scale projects by providing loans to cooperatives and contractors. The main aims of this law are; to encourage multi-storey housing construction, to produce housing for the low and middle income, to make the designed housing in the status of 'social housing', to control the intensity of the city center through the housing, to provide that the users live in their homes as a homeowner, not as a tenant [12].

In the post-2000 period, urban transformation projects started to be done. These projects changed the texture of the city, its development and people's living conditions. In this period, the Toki (the houses that state has built to make low-income people home) has spread over a wider area. The property of these buildings is that they can be constructed in every region and are constructed by neglecting the geographical and cultural characteristics of that region. In addition, apartment buildings, luxurious residences and residences have increased along with crooked constructions.

#### 4. Sample Buildings

In this chapter, the traditional Turkish houses, an apartment building from the republican period and recently built housing have been examined in İstanbul (table 1).

Table 1. Evaluation of buildings according to periods

Housing information	View and Plan	Comment
<p>Name: Kahvecibaşı House</p> <p>Location: İstanbul</p> <p>Period: 19.century</p>		<p>Different designs for each locality, Multiple functions in one room, Less privacy, Having organic forms, Facades have aesthetic qualities, Integrated with street, Using local materials.</p>
<p>Name: Ceylan Apartment</p> <p>Location: İstanbul</p> <p>Period: 20.century</p>		<p>The salon is multi-purpose and the other rooms serve only one purpose, Combination of traditional and European style, Definition of salon salamander instead of sofa, Starting to be designed corridor.</p>
<p>Name: Toki Apartments</p> <p>Location: İstanbul</p> <p>Period: 21.century</p>		<p>Monotype construction, Rooms serve only one purpose, More privacy, Having nonorganic forms, Non-aesthetics on the façade, Non-directly connected to the street, Non-local material used as construction technique.</p>

#### 5. Conclusion

In Turkey, which is known for its geographical riches, the structure of housing has changed with many factors from past to present. These factors affected both voluntarily and involuntarily housing structure.

Today, new construction systems have developed together the development of science and technology. As a result, differences were observed in the materials used and in the construction techniques compared to the past. This differentiation in terms of planimetric and facade has distinguished the present-day housing with a certain line of tradition.

Reinforced concrete replaced construction techniques such as half-timber wall, carcass, and masonry wall used in the past gradually.

Most of the houses produced with reinforced concrete construction technique consist of high and boxy buildings which are similar to each other, have no cultural characteristics, are not functional in plan scheme, and do not reflect Turkish culture.

Innovations in residential design and construction are significant to facilitate life. However, the fact that the construction of houses based on financial matter and lack of consideration of moral values effect the psychological health of the individuals living in the dwelling. Individuals who live in residence can become infelicitous with their lives in places that are built without consideration of peace, security, privacy and flexibility. In terms of evaluation of facade, esthetic worries and designs do not provide integrity can adversely affect human life. In traditional dwellings, it can be seen that the respect of houses, unobstructed sight and the attitude that does not obstruct the sun aforementioned subjects are insufficient in new structures. Today, the separation of high-rise buildings from the soil reduces the relation between people and nature. Children were playing in courtyards, in gardens or on the streets of the houses but they are lonely in high-rise apartments nowadays.

In the Ottoman period, the neighborhood was a family function, the problems are solved jointly, the mutual affinity was increased by intimate conversations, and children are not observed and looked after by elderlies of family that not experienced today. By transforming from a patriarchal family to a small family, large families have left their place to the family structure of parents and children.

In the past, traditional Turkish houses that responded to many functions were replaced by modern houses where each place had separate functions. The room of traditional houses was providing function of eating and drinking, lying, sitting, guest hospitality and even bathing, on the other hand there are no rooms that have a place to meet all functions today. Concepts such as a living room, a bedroom, a dining room, a guest room, a bathroom and a ante-room are available in today's residences. All these units are not able to covered more than one function also has non-functional areas.

The ceilings of traditional houses are usually wood. Even more dense wood ornaments are visible on the sofas. Sometimes in these houses ceiling decorations are painted. These ceilings with geometric patterns increase the depth of the room and provide a beautiful appearance. The ornaments applied on the ceilings of the houses of today are made of plaster rather than wood. Instead of settee as furniture, displaceable or even portable furniture is used. In a traditional room, while bed mattress is taken out from constant cabinet and laid low, in modern house, we can see a sleeping area with bed in bedroom. In the furniture used after the Republican period are not seen traditional effects. Previously, while eating on the floor table, later, this function is provided by tables in living room or kitchen.

In traditional dwelling, multifunctional usages are provided opportunities to spend time together and socializing among individuals. On the contrary side, each individual is lonely with his / her own room in today's constructions. The salon-sofa relationship cannot be established clearly; it is observed that dining room is used only when the guest arrives. On the other hand, it is observed that the level of privacy in young people is at really low in traditional houses contrary to what is believed. A young individual does not have a room and not have personal space due to he/she needs to use common space.

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## A NEW APPROACH TO LIBRARY CONCEPT: LIBRARY-ON-DUTY

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### **Abstract**

Libraries are the places, where science and knowledge are transferred to the next generations. In this sense, libraries play an important role in the constitution of the cultural, historical and spatial memory of society. The use of the traditional library has remained in the background in the historical process because of the developing technology and changing living conditions, and library buildings have been in a spatial and fictional change over time. However, the necessity and basic function of these spaces for scientific progress have not changed.

According to statistics published in recent years, it is determined that the number of libraries closed up in Turkey is increasing and the rate of library use is decreasing. For this reason, different designs, concepts or functions have been sought in libraries in order to draw people's attention to libraries. "Libraries on Duty" arisen in Adana as the presentative and first example of this approach in Turkey constitute the main topic of the study.

"Libraries on Duty", unlike traditional libraries, have a minimal scale and a more flexible form in use. The "Library-on-Duty" phenomenon has given a new meaning to the image of the traditional library with its multifunctional form that hosts social, cultural and artistic events and aimed at addressing to a wider user population with flexible visiting hours.

The purpose of the study is to perform semantical and pragmatcal readings of the space of library-on-duty within the scope of the hypothesis of semiology and to observe the change revealed in comparison with traditional library buildings. Accordingly, the spatial readings of three libraries on duty in Adana were performed. Besides, the functions of the libraries on duty have been presented and analyzed in the semantical dimension through interviews made with users, and in the pragmatcal dimension through internal spatial organizations and plan analyzes.

As a result; architectural spaces which are considered to be a language that conveys meanings, communicate with their users. Within the scope of the study, in the light of the data obtained from the users of libraries on duty and the spatial analyzes made; it has been observed that this new social and multifunctional formation encourages the use of libraries. Accordingly, the increase of spatial formations that will encourage people to use libraries has been aimed through the example of libraries on duty developed as an alternative to traditional library buildings.

**Key Words:** *Library, Library-on-Duty, Semiology, Pragmatcal Analyzes, Semantical Analyzes*

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### **1. Introduction**

*"The science is recorded on the papers to be stored and transferred to the next generations through books"* [Bernal]

Libraries are living spaces dedicated to the advancement of knowledge and science. At the same time, these libraries that shape culture, space and time also contribute to the sustainability

of human knowledge [1]. In this context, there are libraries at every stage of the discovery, preservation, transfer to future generations and reproduction of information [2].

As Bernal stated, the books have been an important tool for centuries to transfer the knowledge to the next generations [1]. The sustainability of knowledge accumulation is closely related to the libraries and books. Hence, the carriers of knowledge heritage in many areas such as philosophy, music, literature, painting, architecture, history, social and human sciences are books and libraries.

According to the data provided by Turkish Statistical Institute in 2015, the number of libraries closed in Turkey has increased in recent years and the rate of library use has decreased [3]. For this reason, different designs, concepts or functions have been searched for in the library structures in order to attract people's attention to these places that have primary importance in information transfer. The "Library-on-Duty" approach is an answer to these quests.

From this viewpoint, the study of Libraries-on-Duty structures in Adana, which are the concrete and first examples of searching for different concepts and functions in the library structures in Turkey, has been done in the context of semantic and pragmatic analyses. These structures are considered important because of their current interpretation of library use in terms of their spatial and semantic flexibility.

## **2. The Concept of Library**

The Turkish word for library *kütüphane* is derived from the words "*kütüb*" meaning books in Arabic and "*hane*" meaning house in Persian. From an etymological point of view, the word library means "house of books", but in order for a building to be a library, there must be three main functions fulfilled [4]. Those are;


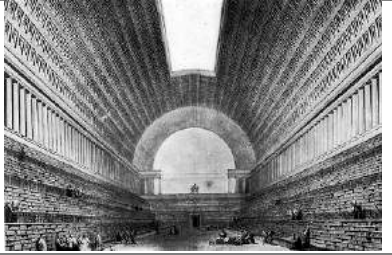
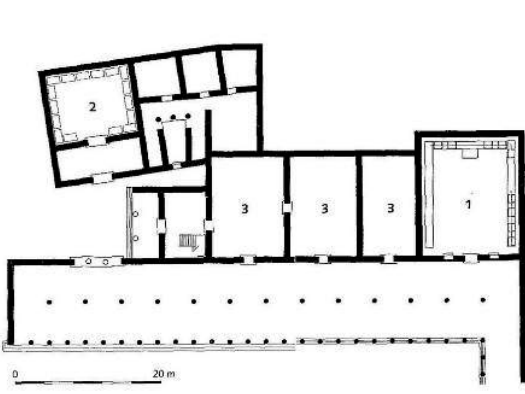
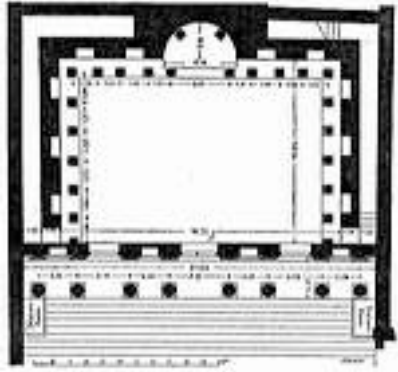
- Collection,
- Classification,
- Distribution.

In this sense, libraries can be defined as spaces where books, magazines, and similar written and visual publications are collected, stored and presented to the readers and researchers' use under a certain system.

### *2.1. Brief History*

The existence of libraries continues since ancient times. The first important libraries of the world were; the library built by Asur Banipal in Ancient Mesopotamia, Mousaion (The Library of Alexandria) and the Library of Pergamon in the Hellenistic era, and the Celsus Library in Ephesus in the Roman period [table 1]. In these libraries, where a tremendous contribution to the history of world's culture made, there also had been accommodation units to meet the needs of the researchers who travelled from the long distances. However, these places were only open to the use by the scientists. The first public library was seen in Rome [4].

Table 1. Historical Libraries

	
<p><b>Library of Ashurbanipal (7th-8th century B.C.) [5]</b></p>	<p><b>Mousaion (250 B.C.) [6]</b></p>
	
<p><b>Library of Pergamon (197-159 B.C.) [4]</b></p>	<p><b>Library of Celsus at Ephesus (110 B.C.) [4]</b></p>

After the end of the Roman Empire (395), the medieval scholastic system of thought increased the importance given to the church and, thus, monastery libraries appeared. The diversity in the libraries was followed by university libraries established for the scholars and students in the 12th century and the principality libraries [4].

In Turkish history, the first library was established in the Uighur Period (745-840). In the time of Gaznelis (963-1186), a grand palace library emerged, and in the Seljuk period, the libraries, which existed together with medreseh, became widespread. The first library established in the Ottoman period was the Topkapı Palace Library (1478), which was established after the Conquest of Istanbul. The first library to be open to the public is the library established within Eyüp Social Complex (1459). During the Ottoman period, whether in the complex or independent, the libraries were usually facing to a courtyard in order to control the noise.

In the Republican Period, with the closure of the Islamic lodges and monasteries the books of these libraries transferred to the ownership of the libraries of the Ministry of National Education, and during the period from 1930 to 1950, the Community Houses and Turkish Hearths functioned as libraries. The types of libraries that emerged in the Republic of Turkey are the national libraries, the public libraries, the libraries within the educational structure, and mobile libraries [4].

## 2.2. Types of Library

Since the architectural structures cannot be dissociated from the cultural, technological and social features of the period it belongs to, the libraries, which emerged with the invention of script and storage of the knowledge through books, have been developed and diversified in accordance with the terms of its time. In this context, modern library types of our times are public libraries, national libraries, university, school and private research libraries.

The public libraries are the kind of library that has the oldest organizational system in Turkey [7]. The philosophy of these libraries is being open to all and serve to all segments of



the society with no discrimination. It is stated that the Public Libraries are of great importance in raising the intellectual development of the individuals in the society and in the development of the country. The purposes of the public libraries, which are diversified as mobile and children's libraries, are stated in the UNESCO's Manifest on Public Libraries as Information access, continuous learning, cultural socialization, and entertainment [8].

The National Libraries are comprehensive library structures introduced in the national sense. The first national library in the world was founded in England in 1753 as a part of British museum. The national libraries monitor and purchase the publications about country's past and future both inland and abroad. The largest library in terms of capacity is the national library [9].

The purpose of university libraries, which are another type of library, is to provide opportunities for scientific studies and researches, disseminate the science data, and to contribute to the development of the university by working together with domestic and foreign institutions. The user profile often consists of the scholars and students of its university [7].

School libraries are the libraries built on the basis of curriculum and programs that are applied at primary and secondary schools as well as at high school and its equivalents allowing all students individually to conduct personal research and study. They are important in terms of providing equal opportunities for students, to gain reading habits and their skill development [10].





Lastly, referring to the private libraries, they serve to the public and private sector organizations for professional, commercial, economic, cultural, industrial, scientific and technological purposes. The private library provides sources of information on topics relevant to the organization of which it is part of, organizes them for service, and facilitates an easy access [11].

The findings from the literature survey on national, school, public and university libraries;

- Lack of spatial possibilities to socialize while reading books and studying,
- Although there are areas of activity in large-scale libraries, these units are considered independent from the library structure,
- Due to requirement of silence, group works are not allowed in the reading halls,
- The restrictions in terms of use hours,
- There are no eating and drinking allowed in the reading halls,
- Therefore, users are not willing to spend too much time in the libraries

The libraries and books have great importance on enhancing the intellectual level of the societies. However, it can be easily observed that use of the library is decreased in societies due to constant advancement of information and communication technologies. Therefore, a number of approaches have emerged abroad as an alternative to traditional libraries for the continuity of library use [table 2].

Table 2. Examples of Abroad

Mobile Art Libraries	Cafe-Libraries	Outdoor Libraries	Garden Libraries
 <p>With 20 m2 of the activity area, the mobile library is set up as a flexible and transparent platform related to the outdoors. It is designed with flexibility to enable cultural activities within the mobile building [12].</p>	 <p>This library, created by dynamic space setup, asserts that book reading should coexist with different functions. Reading areas can be converted into exhibition halls. Also, the relationship established with the streets aims to attract the people on the street to the library [13].</p>	 <p>Founded as a participatory library with the support of the surrounding community. With its temporary bookshelves and sitting spaces completed by filling of an urban void with idle materials, this library is created also to have outdoor activities along with reading books [14].</p>	 <p>This structure is a minimalist example of a vertical library. It aims to provide reading activity in an environment where structure and nature nested together and allows viewing the landscape in the upper-level reading unit [15].</p>

### 3. The Concept of Library-on-Duty

The first of the libraries-on-duty was established in 2013 as a social entrepreneurship project. The library-on-duty, defined as "the next generation social library", differ from the existing library structures in Turkey with flexible use hours, multifunctional structure, scale, interior decoration and participatory library concept [16], [table 3].

Table 3. Interior Photos of Libraries-On-Duty

	
<p>Branch of Nermin Topal</p>	
	
<p>Branch of Noyan Esen</p>	



Branch of Nevzat Karabulut

According to the interviews conducted with the creators, the aims of the formation of the Libraries-on-Duty can be sorted as follows;

- to enable the people who work from 10 AM to 2 PM use the library,
- to provide flexibility of the space for social, cultural and art activities,
- to create more intimate library settings with its interior space which is minimal in terms of dimension and decorated with warm materials,
- as oppose to existing libraries, to have no rule of silence in order to allow readers socialize while reading,
- to increase the sense of belonging the users with the user-centered library model where users are partner-participators in every work and decision related to the library.

In the scope of the study, the spatial readings of the libraries-on-duty in Adana were made specifically for the branches of Noyan Esen, Nermin Topal and Nevzat Karabulut.

### 3.1. Noyan Esen Library-on-Duty

Noyan Esen Library-on-Duty is located in the Çukurova district of Adana. The library creates a very intellectual showcase on the street with open reading space at the entrance. The building consists of open and closed reading room, free reading area, group study area, café, and office units. There is no sharp separation between the reading sections and the café. Flexibility is a primary concern in the spatial organization for allowing activities such as concerts, conversation sessions, etc. [table 4, 5].

Table 4. Spatial Plan Analysis

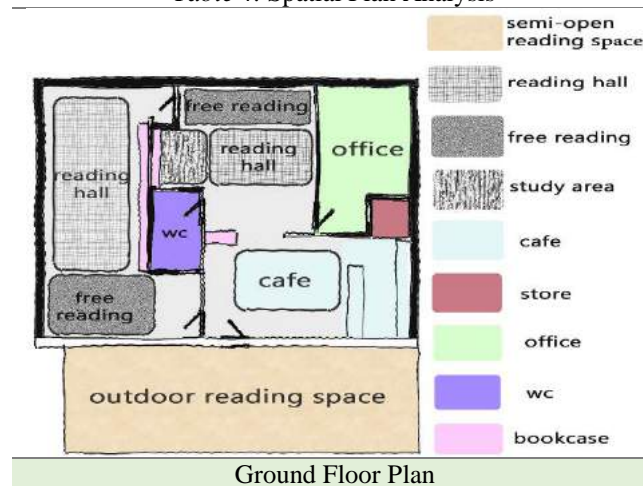


Table 5. Interior Photos of Noyan Esen Branch



Reading Hall

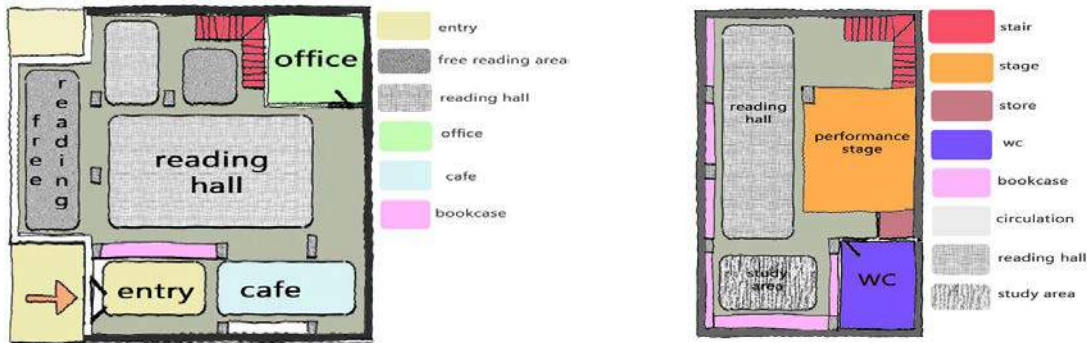
Free Reading Space

Activity Order Of Space (music concert)

### 3.2. Nermin Topal Library-on-Duty

Nermin Topal Library-on-Duty is located in Barajyolu Boulevard where students are concentrated. There is no divider wall between the reading room, the free reading area, and the café, and the separation between spaces are provided by the book shelves, which are the basic element of a library. Unlike others, the two-story library has an elevated stage on the basement floor [table 6, 7].

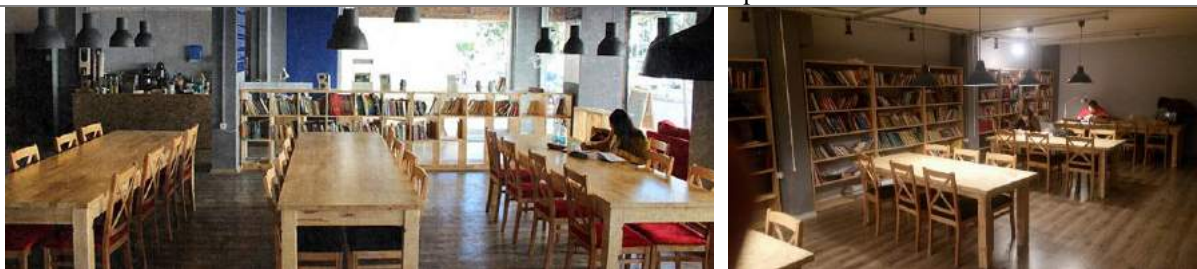
Table 6. Spatial Plan Analysis



Ground Floor Plan

Basement Floor Plan

Table 7. Interior Photos of Nermin Topal Branch



Reading Hall

Basement Floor

### 3.3. Nevzat Karabulut Library-on-Duty

Nevzat Karabulut Library-on-Duty, once again, is accessible from an open area that may be defined as a small reading showcase. What functionally differs this three-story library from the others is that there is a special space allocated as a screening room. Again, along with the reading and studying sections, in the café there is an elevated platform that can be converted to a stage as needed [table 8, 9].

Table 8. Spatial Plan Analysis

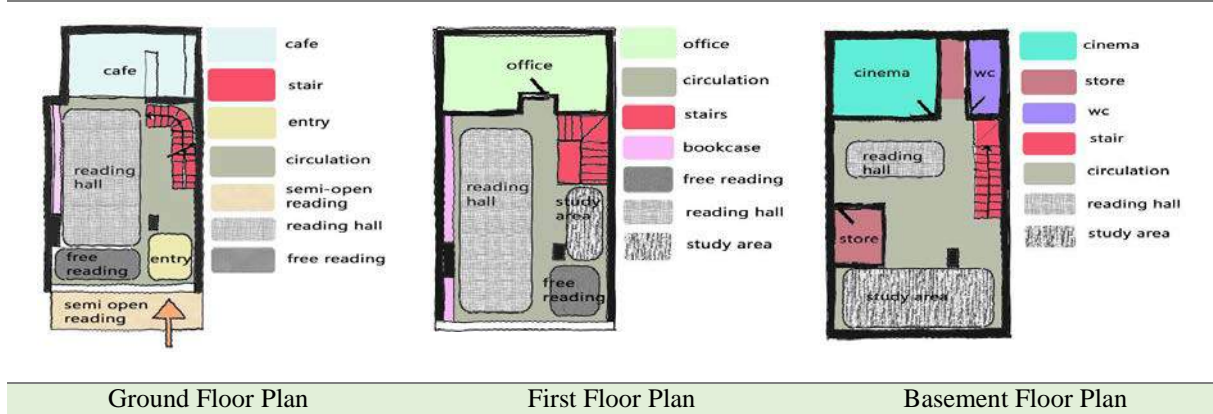


Table 9. Interior Photos of Nevzat Karabulut Branch



#### 4. The Method of the Study

Every form is an expression and contains meaning. With this feature, the architectural spaces are in constant communication with its users [17]. It is possible to make this communication more efficient and read the signs loaded on the architectural buildings by the method of semiology.

Semiology is shortly described as "solving the meanings behind everything that seems ordinary, and seeing the secondary meanings in their expressions". In this respect, we utilized semiology and its subtitles to discuss the nature of the Libraries-on-Duty, to reveal and interpret the semantic differences within them [17].

Semiology consists of semantic, syntactic and pragmatic. The meaning expressed by the object in the semantic dimension, the physical and formal characteristics of the object in the syntactic dimension, the relationship between the signs and the users of the signs and the behavior of the users in the pragmatic dimension are examined. The syntactic dimension was ignored because the semantical and pragmatistical perceptions of the library-on-duty users are questioned.

The scope of the study is to determine the semantical and the pragmatistical perceptions of the users about the library in the context of today's library-on-duty approach, which includes functional features such as gathering information, storage, distribution and sometimes accommodation in the historical process. In accordance with this purpose, in the pragmatistical context, surveys were applied to the users in order to make the pragmatistical inferences of libraries-on-duty, which consist of adjective pairs in the semantical context and reflect the emotional reactions of the users.

The findings of the libraries-on-duty were evaluated by using the "Thurstone's Law of

Comparative Judgment" method. Thurstone's method is used for analyzing pair preference and rank order judgement data [18]. In this study; there were a certain number of brands and a group of individuals were asked to rank these brands in the order of preference from 1 "More Preferable" to 6 "Less Preferable".

The process of study consists of;

- Literature research on the library,
- Photograph the libraries-on-duty and identification of their plans,
- Determination of libraries-on-duty with a pragmatic qualities,
- Detection of adjective pairs to determine Emotional Reactions,
- Preparing survey questions for users,
- Analysis of data obtained from surveys/interviews with users.

## 5. Pragmatic and Semantic Analysis of The Libraries-on-Duty

Signs in architecture are among the factors that most influence the emotional and behavioral reactions of the users. In the context of the study, the pragmatism analysis of the libraries-on-duty was carried out by using the behavioral principles of the users [19], while the semantical analysis of it was carried out by benefiting from adjective pairs in Michelson's work of "Behavioral Research Methods in Environmental Design"[20].

### 5.1. Preparing survey questions for users

The survey consists of two ranking questions, which question the semantical and pragmatism perceptions of the users. The sample group consists of users in three different branches of the libraries-on-duty. In order for the sample size to represent the library-on-duty, an adequate number was determined from the formula given below (1), taking into account the daily average number of users of the libraries.

N: Universe Size (Daily average number of users in all Libraries-on-Duty)

Z: Reliability Level (95% reliability = 1.96)

P: Probability of occurrence (0.5)

Q: Probability of event not occurring (0.5)

D: Accepted margin of error (5% margin of error: 0.05)

n: Number of samples

$$n = \frac{Z^2 \times N \times P \times Q}{(N-1) \times D^2 + Z^2 \times P \times Q} = 151$$

The user sample size was calculated as 151 users with a 95% confidence level and 5% error margin to represent the target group (N=250) identified in the study. In the survey; the respondents were asked to respond to survey inquiries by face to face interviewing with the users in the library-on-duty branches.

### 5.2. Pragmatic Analysis of the Libraries-on-Duty

The pragmatic analysis method used by the Okuyucu (2011) was developed and used while the pragmatic dimension of the libraries-on-duty was being evaluated. As a result of the pragmatic readings made by examining the accumulation, functions, requirements and usage purposes of the libraries-on-duty, inferences are obtained in a pragmatism sense. These inferences are as follows:

- Accessible in terms of location,
- Flexibility in terms of multifunctional space usage, using hours and operating mode,
- The sufficient size of the reading, group study and activity areas in respect of their usage capacity,
- The sufficiency of natural and artificial lighting,

- The ability to host cultural and social events,
- The presence of eating and drinking places that work together with the reading room,
- Visual aesthetics in interior decoration.

Surveys made to users in the context of these conclusions were evaluated by Thurstone's method. According to the result of the analysis, the respondents ranked the 'group work space' most preferable, followed by 'flexible hours' and then 'food space' that can be considered least preferable brand in Noyan Esen. In branch of Nermin Topal, the respondents ranked the 'location' most preferable, followed by 'flexible hours' and then 'social activities' that can be considered least preferable brand. Consequently in the branch of Nevzat Karabulut, 'social activities' most preferable, followed by 'flexible hours' and then 'visual esthetic' that can be considered least preferable brand [table 10].

Table 10. Pragmatical Analysis of Libraries-on-Duty

	Noyan Esen Library-on-Duty	Nermin Topal Library-on-Duty	Nevzat Karabulut Library-on-Duty
Behavioral Reactions	Group work space	Location	Social activities
	Flexible Hours	Flexible hours	Flexible hours
	Location	Flexible Space	Space Scale
	Space Scale	Space Scale	Group work space
	Visual Esthetic	Group work space	Ergonomic Features
	Food space	Social activities	Visual Esthetic

### 5.3. Semantic Analysis of the Libraries-on-Duty

The scale to be used to assess the semantic inferences of the libraries-on-duty and the user perceptions of the space was chosen from Michelson's adjective pairs in his "Behavioural Research Methods in Environmental Design". Some pairs of adjectives came to the forefront as a result of the surveys made with the users. The emotional response of the users to the spaces differs between the branches as it shown in the table [table 11].

Table 11. Semantic Analysis of Libraries-on-Duty

	Noyan Esen Library-on-Duty	Nermin Topal Library-on-Duty	Nevzat Karabulut Library-on-Duty
Emotional Reactions	Inviting	Adequate size	Inviting
	Simple	Multiple purpose	Cheerful
	Multiple purpose	Hospitable	Multiple purpose
	Lively	Lively	Flexible
	Hospitable	Attractive	Human Scale
	Dynamic space	Cozy	Dynamic space

These libraries with their users' participatory operational form have added a new meaning to the image of the existing library with the possibility of user interaction, usage hours, scale, various social activities taking place among the books, and the possibility of having something like home while studying.

## 6. Assessment and Conclusion

Although the carriers of information change rapidly today, and despite the variation in the line of library science and the scientific advancements the necessity and the main function of the libraries is the same and preserves its essence. Becoming dependent on electronics brought new approaches given to the status of libraries in our lives. As opposed to existing library

structures, pragmatic and semantic innovations brought by the Libraries-on-Duty examined in the scope of this study are;

- “flexibility” in the use of space (changing equipment according to activity), taking into account that socio-cultural needs or technical and functional requirements may change,
- Flexibility in the operation of the user-focused library allows people to gain sense of belonging to the library,
  - Speaking a broader audience with flexibility in hours of use,
  - Adaptability to new uses and new needs,
  - Minimal sizes in terms of dimension,
  - Include users with their individual comments while creating the alternatives for use,
  - A friendly environment created by interior fittings,
  - The idea of having a multifunctional interior that open to improvement and change.

As a conclusion, in the light of spatial reading and analysis conducted, it has been observed that this new social and multifunctional formation encourages the use of the libraries. In this direction, libraries must be perceived not only the places for reading and research but also the places where people go to have a pleasant time, meet their needs of information of everyday life, explore new things and evaluate their spare time efficiently.



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### Appendix A. Survey Questions for Users

1. In order to describe the libraries-on-duty, list the most appropriate ones from the following adjectives according to their importance, from 1“More Preferable” to 6“Less Preferable”.
  - Adequate size
  - Attractive
  - Cheerful
  - Colorful
  - Complex
  - Human scale
  - Inviting
  - Cozy
  - Inadequate size
  - Unattractive
  - Gloomy
  - Drap
  - Simple
  - Inhuman scale
  - Repelling
  - Monumental
  - Dynamic space
  - Distinctive
  - Hospitable
  - Free Space
  - Noisy
  - New
  - Multiple Purpose
  - Private
  - Static space
  - Ordinary
  - Inhospitable
  - Restricted space
  - Quiet
  - Old
  - Single purpose
  - Public
  
2. The pragmatcal features of the Libraries-on-duty are listed below. Please rank from 1 to 6 depending on the importance of the features that are effective when you choose this space.
  - Location within the city
  - Relationship with the street
  - Microclimatic Environment
  - Adequate lighting
  - Group work space
  - Social activitate space
  - Flexible space usage
  - Flexible hours
  - Food space
  - Ergonomic Features
  - Visual Esthetic
  - Scales of space

## INTEGRATION OF NEW VISUAL TECHNOLOGY EXPERIENCES INTO MUSEUM INTERIORS

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### Abstract

Museums are places where the products, ideas, and artworks deemed worthy of exhibiting are presented to the audience through appropriate exhibition methods. The exposition of a work is seen as a fundamental condition in the creation of the "art" category in the modern western world. The alternative exhibition strategies to the "white cube", which has been used since the modern era, aim to establish a context with the outside world in the new material environment where artworks are torn from the environment they belong to. From the exhibition point of view, this can be done through the use of new visual technologies and methods, as well as by attempting to revive the historical context of the works through typical information panels, documents, photographs.

In this study, it is aimed to investigate the ways and forms of new visual technology experiences integrated into the museum spaces which are the most effective structures in cultural conservation, by explaining the concept of culture shaped by the visualization with the literature review and observation method.

**Key Words:** *Visual technologies, augmented reality, haptic interfaces, virtual reality, rapid prototyping, museum experience.*

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### 1. Introduction

The role of museums and the question of how it will contribute to the society are of particular concern to museology. The most important factor that causes today's society to be formed by individuals with different expectations from the previous day is the technology that improves rapidly. The effect of technology on social life changes almost everything in terms of design and usage. Museums are also obliged to fall under the influence of technology to sustain its existence. Contemporary new museums, with a focus on interaction with the user, cannot turn itself off to the latest technological inventions and devices and digital communication technologies in order to be sustainable in current conditions. At first, it was assumed that virtual museum visits, virtual shopping of museum products, bookings made over the internet would reduce the rate of visits to museums. [1] Today, however, the active use of technology in the museums and the increasing user interactions on virtual environments show the opposite results to this expectation.

New museums use technology to interact, publish and announce on the internet, as well as in museum interiors, exhibitions, educational events and even production of artworks. They support museum collections with devices and applications such as moving visuals, digital sounds, interactive information cards, mechanical-electronic models, and lighting devices that provide different effects. It is inevitable that these products and methods to be used in museums considering similar technologies are now became the usual parts of everyday life even in our homes.

In this context; It is observed that complementary new visual technologies integrate into interior spaces of museums to provide the museum user with an effective museum experience within the scope of urban and economic development. In this paper, the concepts of "culture", "visuality" and "display" is questioned to understand the reasons for the use of new visual technology experiences in museums. The new visual technologies are described and their use in museum spaces is explained with contemporary examples. In light of this study, the question of "How will the museums be affected by the latest visual technologies?" is examined.

## **2. The Concept of Culture, Visuality and Display**

Culture is a complex concept that encompasses ideas and practices that shape social life. Although there is not a precise definition of the cultural hegemony, according to one of the major contributors to the concept of culture, cultural theorist Stuart Hall:

"Culture, it is argued, is not so much a set of things -novels and paintings or TV programs or comics -as a process, a set of practices. Primarily, culture is concerned with the production and exchange of meanings -the 'giving and taking of meaning'- between the members of a society or group... Thus culture depends on its participants interpreting meaningfully what is around them, and 'making sense' of the world, in broadly similar ways." [2]

Since the last quarter of the 20th century "visuality" is the base factor that influences the formation of culture. Although it was originally used in Thomas Carlyle's book "On Heroes" in 1841, the concept of visuality, which is known as a theoretical word of the postmodern era, [3] can be defined as the whole of the factors affecting the perception of things that the human eye can perceive physically. Hal Foster compares the concepts of "vision" and "visuality" as follows:

"Vision is social and historical too, and visuality involves the body and the psyche. Yet neither are they identical: here, the difference between the terms signals a difference within the visual - between the mechanism of sight and its historical techniques, between the datum of vision and its discursive determinations- a difference, many differences, among how we see, how we are able, allowed, or made to see, and how we see this seeing or the unseen therein." [4] According to Foster, "vision" is a social and historical concept; "visuality" is a combination of physics and mind.

The concept of visuality includes ongoing methods from the previous century such as television programs, photographs, advertisements, videos as well as current technological methods. The adaptation of systems that shape our experience in museums by changing the perception of space and time, has become inevitable since the emergence of the concepts of new media art or alias "digital art", computer art, multimedia art and interactive art. The development of computer technologies and the emergence of the Internet have influenced artistic production, has led to radical changes in access to and representation of art. The new media art movement has changed museum visitors from the passive audience to the active participant. [5] With the influence of the show culture, art is no longer a form of criticism but rather a consumed cultural commodity. [6] The method of exhibiting this consumption object has also changed with the same factors and the concept of "exhibition" has been questioned once more.

In the 21st century, museums have become brand-worthy buildings that change the city's landscape in which they were built. Hal Foster defined the museum as "an image that circulates in the media in the name of brand value and cultural fundamentalism". According to Foster, a modern museum is a place where visual memory is revived, on the other hand, today's museum is an exhibition form focused on visuality rather than memory. [7] The new museum reinterprets the classical museum concept and presents a visualization-oriented exhibition method. In contrast to the static exhibition and archival methods of the classical museum, today's museum has become an exhibition-oriented show image. [8] In order to respond to this expectation of the new museology concept, technological methods that dominate every field

of contemporary life are used.

### **3. New Visual Technology Experiences**

In the 21st century, the museum is educational. It aims to be equidistant to all segments of society and to provide this mission with events that will appeal to the audience from all ages. The key word here is "communication". The museums can only reach more people by establishing a strong communication network between the museum and the society. Communication technologies and multimedia systems are used effectively in almost every task of daily life. New museums use;

- Information technologies,
- Social media,
- QR codes,
- Internet/websites,
- Digitized art collections
- Online catalogs to provide a full museum experience.

The methods that strengthen the interaction in the museum interior and the experience of the place, which increases the interest of the user to the exhibited product by strengthening communication at museum interiors, can be defined as "new visual technology experiences". These experiences are provided by;

- Haptic interfaces
- Augmented reality
- Virtual reality
- 3d rapid prototyping techniques. [9]

Touch interfaces are methods used to experience the sense of texture or to create a sense of touch in 3d artificial environments. The touch interface devices allow for actions such as touching and gripping in an artificial environment. When these actions are supported by voice and visual support, the touch action performed with the touch interface allows the user to feel in an artificial environment, touching an object which is not actually touched. Although touch interfaces in the museums are not yet widespread due to their high cost, studies on this subject continue. [9] In some cases the museums do not hide exhibiting replicas in place of original works of art to avoid damage. [10] The use of touch interfaces will revolutionize the use of genuine artifacts that are protected by special care and methods in the museum's trenches to prevent damage due to environmental factors and which cannot be presented to the audience.

Augmented reality (AR) is a highly complicated system that integrates real-world elements with computer-generated sensory inputs, visual simulation, and digital synthesis. It combines real and virtual environments together and interacts in real time. [11] With the use of AR techniques, an experience-based and interactive learning environment can be provided [12] so it is gaining importance in museum exhibitions. Augmented Reality can be used through mobile devices like smartphones and tablets, on computers and connected TV players by manipulating a tracker in front of the screen and on head-mounted displays, glasses, and lenses. Today, researchers have produced advanced, easy-to-use, affordable technology, which allows users to easily create 3d models of real environments in just a few minutes or transforming a picture into a 3d model using 3d data-managing software. People can interact with artworks using affordable immersive devices such as Oculus Rift (Oculus, 2015). [9]

On the other hand, virtual reality (VR) allows completely digital experiences via VR head mounted displays and creates a strong level of immersion. VR offers a great potential for access and usage of art. Many museums can be visited without having to be in the museum building by using VR systems. It's even possible to take a tour on Mars experiencing a life-size version of the Mars Curiosity Rover using VR headsets at the Museum of Flight in

Seattle.1



Figure 6: Museum experience with Google Glass at Keith Haring Exhibition at de Young Museum, San Francisco on 2014. Resource: <http://glassalmanac.com/san-francisco-museum-first-offer-google-glass-powered-art-exhibit/6717/>, Access date: 06.02.2017

Today, it's possible to reproduce cultural heritage objects with three-dimensional printing techniques for the tactile perception of museum users and bring the museum experience to a new level. Objects designed in computer-generated programs (e.g. AutoCAD, 3d Studio Max) can be built by 3d printers and experienced physically at the museums. [9] Rapid prototyping allows a more enhancing experience of 3d models and it's possible to say 3d printing machines of the near future will get more realistic results. [13]

#### 4. Integration of New Visual Technology Experiences into Museum Interiors

The "Discovery Area" at the Louvre-Lens Museum of Art, founded in 2012 in Northern France, provides the opportunity to research different types of publications with large touchscreens. The glass windows that divide the space include the user even in the most private areas of the museum, providing an interactive flow of information about the museum archives. [14]



Figure 7: Louvre-Lens, "The Discovery Area", <http://www.louvre-lens.fr/en/-/l-espace-decouverte>, Access Date: 06.02.2017

Louvre-Lens has an application for mobile phones and tablets that contain many sources about the museum, as well as the digital technologies used in museum interiors. The museum experience is enhanced with digital, multimedia tour guides. Cleveland Museum of Art also uses new visual technology experiences in and out of the museum. The permanent collection of the museum can be examined both inside and outside the museum with a tablet application (ArtLens 2.0). The encyclopedic collection of interactive touch screens called the "Collection Wall" is a tool for the museum visitors. It serves as a mainstay between Gallery One and its permanent collection galleries. It is designed for the museum user to create their own customized visits by providing them with a different taste of the objects in the collection and, if desired, downloading them to their tablets.

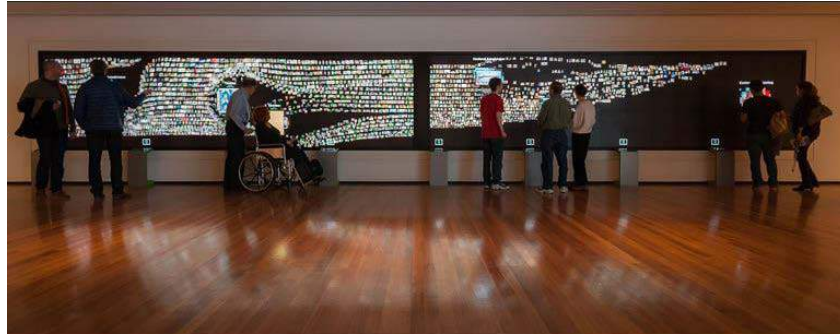


Figure 8: Cleveland Art Museum, Gallery One, "Collection Wall", <http://www.clevelandart.org/gallery-one/collection-wall>, Access Date: 06.02.2017

The user experience is not only getting information about the collections but also about creating a different type of entertainment. Museums aim to appeal to every segment of the society and aim to make the museum attractive to both adults and children with interactive digital technologies. Touch screens and digital collections are already a common feature for museums nowadays. However, the museums should also offer haptic interfaces, virtual museum tours, augmented reality applications and 3d printed artifacts to catch up with the technological developments. While virtual experiences can never fully replace on-site experiences, they do allow an immersive approximation. For about a decade it is possible to visit many museums such as Louvre Museum with online virtual tours. Head-mounted VR systems are being used in many exhibitions. To give an example from Turkey, an interactive virtual installation called "Mutant Space" designed by the artist Atıf Akın was experienced by the visitors at the 3rd Istanbul Design Biennial with head-mounted VR systems.<sup>2</sup>

According to the 2012 Mobile in Museums Study, 1% museums in the United States have started embarking on augmented reality as a mobile feature. [15] Today, a lot more museums offer AR feature as an experience with mobile applications inside or outside of the museum buildings. Despite being an outdoor experience, a recent example is the Chicago 00 Project made by the Chicago History Museum and filmmaker Geoffrey Alan Rhodes in 2016. The application is called "Chicago 00 The Eastland Disaster" and offers a customized AR tour as the users walk along the Chicago River a gallery of images appears, allowing users to experience the story of the disaster. [16]



Figure 9: Views from Chicago 00: Riverwalk visualized as a Google Streetview panorama, sited between LaSalle and Clark on the Chicago Riverwalk, superimposed with images of the SS Eastland disaster in the Chicago River (1915). Resource: <http://chicago00.org/>

Smithsonian National History Museum in Washington offers a mobile application which works as an on-site museum experience. The online downloadable application called "Skin&Bones" allows users to see and learn about the extinct animals in the museum with AR technology.



Figure 10: A visitor is using the “Skin&Bones” application to see an extinct fish in flesh at Smithsonian National History Museum in Washington, 2016. Resource: <http://naturalhistory.si.edu/exhibits/bone-hall/>, Access date: 08.02.2017

Museum artifacts are usually protected and displayed behind glass often too fragile and valuable to allow the public to handle physically making most museum artifacts for display only. Haptic devices and 3d printers allow the virtual handling of museum artifacts and touching the “untouchables”. This technology also provides the opportunity for blind and visually impaired museum visitors to ‘touch’ 3d scans or 3d printed replicas of museum artifacts. In 2013, Manchester Museum installed a unit called “The Probos” offering users the chance to have a 3d tactile experience of museum objects through fingertip discovery. The system features high-quality 3d scans of an object and offers additional audio/multimedia information and the ability to magnify and zoom in on details. [17]



Figure 11: Haptic unit "The Probos" in Manchester Museum, 2013. Resource: <http://futureofmuseums.blogspot.com.tr/2013/01/reaching-behind-glass.html>

Martinez, Berthaut, Karnik, Subramanian (2014) from the University of Bristol have developed interactive semi-transparent mirrors that allow people to ‘touch’ exhibits in museums that are behind glass, using the reflection of their fingers, to reveal information and manipulate inaccessible objects. By tracking the movement of their hands, the mirrors use augmented reality to let visitors pick up and rotate the virtual objects and get information about the selected object. [18]





Figure 12: "Through the Combining Glass", University of Bristol, 2014. Resource: <http://www.dailymail.co.uk/sciencetech/article-2782575/Museums-future-let-touch-treasures-glass-Semi-transparent-mirrors-illuminate-let-people-look-inside-objects.html>

## 5. Conclusion

As the main institutional resource in the transmission of cultures to large communities, museums have developed their presentation techniques in line with current needs. Worldwide, museums and galleries benefit from immersive, digital technologies in order to preserve and exhibit cultural heritage within the buildings as well as to announce these works and reach the large masses. As you can see in the examples, museums nowadays perform as a cultural, show center. The show is the key concept in order to define art in the age of mass communication. In today's consumer society, the show emerges as an image to stimulate consumption.

In this context, the reflections of the concept of the show in museum spaces are provided through short-time exhibitions where popular cultural items and current topics are discussed, and new visual technology experiences that transform the artwork into a showpiece by allowing the user to establish closer relations with places and artworks. Haptic interfaces, augmented reality, virtual reality systems, and 3d prototyping techniques allow users to reach the information, artworks and cultural heritage objects with a broader perspective and allow an interactive museum experience. Immersive, wearable technologies are generally gaining momentum and it will be crucial to design interactions that support new visual technology experiences in museums. Therefore, some visitors will only come and visit the museum out of curiosity for the new visual technologies. To conclude, museums should;

- Use interactive display systems to attract visitors.
- Make room for research areas that focus on the new visual systems to improve the museum experience.
- Use 3d prototyping systems to produce models of cultural heritage for tactile experiences.
- Allow easy access to information about the use of digital technologies not only in museum buildings but also using social media and attract a wide range of users in order to sustain its maintenance.

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## A NEW DESIGN APPROACH TO TV NEWS BROADCASTING STUDIOS: NTV NEWS STUDIO

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### Abstract

In this study, the design approach of NTV News Studio, which was called as a revolution in the news studios and chosen as the best set of 2011 in a competition called Set Madness organized by Newscast Studio in USA, will be examined. When looked at the news studio designs, despite some technological changes, it is seen that a tradition coming from that days still continues today. NTV's new news studio design brings a different and new approach to these traditional designs. The purpose of this study is determining these innovations brought by NTV News Studio and examine the reasons behind why it was called as "revolution". Within the scope of the study, initially general information about news studios are given and the designs of traditional studios are discussed. In order to determine the innovations brought by the design of NTV News Studio, Kanal D News Studio's design with traditional design approach is examined and compared. As the result of the examination, the most important innovation brought by the design of NTV News Studio is that the studios were entirely set up in a "transparent" environment. In this regard, conclusion part of the study focuses mainly on the transparency of the studio design, and the role of transparency used as an interior design element is interpreted with its positive and negative aspects.

**Key Words:** NTV News Studio; Kanal D News Studio; Studio Design; Interior Design; Setting

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### 1. Introduction

Nowadays, the most common, easiest and quickest way of getting information about global and countrywide events is the news programs. According to Cereci, the author of "Production of Program on Television", the news programs are the ones that are watched by the wider audience than any other TV programs. News programs have very busy schedule because current issues require constantly following [1]. For Cereci, features of news programs are gradable in following words: "They are presented as speech-form, generally they are broadcasted live, they haven't opportunity to recurrence and most of subject is fit in limited duration. News programs are the most serious programs that producers have to work on it very carefully. They have to be objective. They reflect television channel's prestige. They are more persuasive than other programs" [1].

Almost every television channel has a distinctive news program. As Monaco stated in his book "How to Read a Film", news programs are basic way of making differences to other television channels [2]. Also Byrne states in his book "Production Design For Television" that the news program is the situation in which the design of setting is most prominent to the eye of the viewer [3].

Studio designs are pretty effective as well as context of news programs to make a difference. The first television news studio in Turkey was established by TRT in 1968 for the program that was reported by Zafer Cilasun (Figure 1). Since that time, due to the acceleration in the initiation of private television channels after 1989, both the concept of broadcasting and consequently the approaches towards its set designs have been developed rapidly.



Fig. 1. The first Television News Program

## 2. Television News Broadcasting Studios

When looked at the design of news broadcasting studios in general, it is seen that a tradition coming from that days still continues today despite minor changes. In the traditional setting, as Füsün Ozangüç mentioned in her thesis, usually a system called AutoQ (which is a transparent camera screen) is used to reflect the news report that the anchorman should read (Figure 2,3). Anchorman reads the text from the screen towards the camera as if he was looking at the audience, meanwhile short shots such as live-view connections with related people or graphics, maps, tables related to the subject are transmitted to the screen during the speech of the reporter [4].



Fig. 2. The AutoQ System

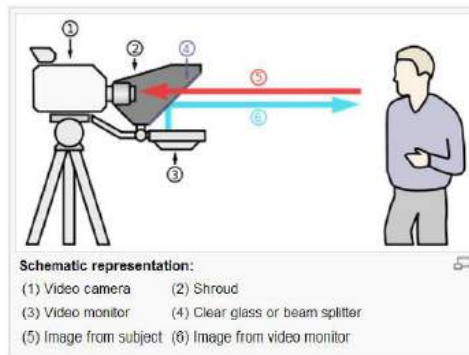


Fig. 3. The Relationship Between Anchorman and AutoQ

Anchorman has the same information in a written form as well; and he/she is continuously

in communication with the director during the broadcast by the help of headphones. There are also additional monitors in the studio: one that shows the current broadcast view and others showing the forthcoming ones. These monitors can be placed near the camera, or might be placed in the upper panel of the table. In news broadcasting, since cameras that only focus on the anchorman rarely move, the program takes a monotonous shape. In order to break this monotony, working with more than one camera is sometimes preferred [4].

In this traditional setting, many television channels use a flat and simple background on which the logo of the television channel and related shots about the news are being reflected with the Chroma Key method. This method, as Shultz explained, is a technique used for combining two frames: As the background of the anchorman, a blue or green screen is used during shooting, later this screen is replaced with another image as seen in the Figure 4 [5].



Fig. 4. The Chroma Key Method

According to Byrne, in the traditional settings the news program includes some sort of station identity material such as a logo, graphic representation of a city skyline, or other easily identifiable symbol that must be clearly seen and recognized to function properly [3]. And he also states about Chroma Key method: The treatment of the news backing must be recognizable in shot, but not obtrusive. If it is a station or program logo, it needs to be contrasted from the base tone of the background enough to be readable, but not so much as to come across in shot as a higher contrast image or a brighter image than the face of the newscaster [3]. Some factors such as format, context and technical features, have an effect on obtaining this tradition. As Byrne stated:

Typically, the program brief will be built around a number of people to be on camera (heads) and a description of their relationships to each other in the context of the program. A news program, for instance, will begin with either one or two anchors who are the principal news presenters. These are the people who open and close the show and who do most of the story introductions and hand off to the other on-camera people. Secondary heads might be the sports reporter; and any of a number of various feature reporters doing film reviews, human-interest stories, consumer reports, and so on. This formula is standard for most news broadcasts and varies little worldwide [3].

Considering many TV channels, although there are some novelties as required by the technology and time, the tradition has been maintained up to today. The designs of the news studios are based almost on the same reasoning, the differences being tried to be created on color, form, material, etc.

### 2.1 Kanal D News Studio

Kanal D, located in Doğan TV Center in Bağcılar, Istanbul broadcasts three different news bulletins as Morning, Mid-day and Main News Bulletins. Each bulletin is shot at different studios designed based on their content and duration, located in the same building. In this study, the studio design of the Main News Bulletin is examined. In this studio, only the set of Main News Bulletin is present. When looked at the interior design of the studio, it is seen that

the corporate identity was intensely used in the design. Logo and colors of the channel come to the front as the identifier items of the studio design. Blue shiny epoxy was used for the flooring. On the newsman's table manufactured with glass over MDF covering and in the background led illumination, blue color was emphasized (Figure 5 ).



Fig. 5. Kanal D News Studio

Back board was finished at a point that is beyond the view of the cameraman. Therefore the decoration does not cover all the walls in the studio, it is located only in the parts seen by the audience (Figure 6). There are monitors for news tracking and two prompters right in front of the newsman. Also there are two small screens under the glass table of the desk in front of the newsman. Entire decoration can be seen frequently during the news shooting. On the points where the decoration ends, wide angle cameras do steady shooting in certain locations in order to ensure that the back wall is not seen by the audience. Overall illumination of the studio is provided with 36 projectors [6].



Fig. 6. Kanal D News Studio

## 2.2 NTV News Studio

NTV is the Turkey's first thematic news channel that broadcasts 24-hour uninterrupted news. NTV News Studio is located in a massive glass cube named as “News Cube”. The architectural project of the cube is designed by Erik Ulfers from Clickspring Design office, located in New York, United States. The set he designed for NTV is chosen as the best set in the “Set Madness competition” organized by New Cast Studio in 2011, which is the most popular web site related to broadcasting in the United States. The “News Cube” is located in the Dogus Media Center’s new complex with the editorial and administrative offices and technical areas. In the cube, the designers locate both NTV and CNBC-e broadcast news studios. A huge stairs, which is located in the middle of the transparent cube, separates the two studios from each other (Figure 7 ). Erik Ulfers, who is the designer of the project, explains his project in following words:

Traditionally, production of broadcast news has been confined to “black box” studios, and although this arrangement serves the more pragmatic aspects of broadcast production (i.e. complete lighting, visual and acoustic control) there is a separation between the broadcast and

the world upon which it is reporting, wrote Clickspring Design. Dogus Media and Clickspring Design have brought this longstanding tradition into question by choosing to redefine the broadcast environment in ways that allow an interaction between a broadcast and its contextual surroundings. The studios are encased in a glass envelope, which is bisected by a public stair; the studios within the envelope and the public circulation along the grand stair and the perimeter

of the envelope begin to weave together in ways that demystifies and democratizes the broadcast production process. The high degree of transparency allows visitors access to view and understand the news from a unique perspective, since the previously hidden mechanics of editorial and production are in plain sight. Visitors and employees have the opportunity to become a part of the production by appearing on camera through the transparent envelope [7].

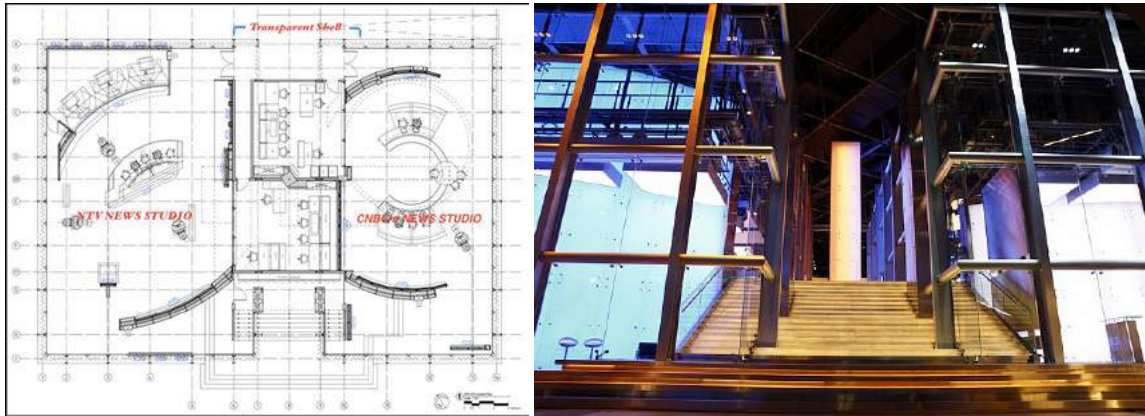


Fig. 7 . (a) The Plan of the News Cube; (b) The View of the News Cube

According to its designers and owners, the news-broadcasting studio of NTV brings a new and different approach to this traditional setting in the studio designs. This glass construction singles out within the traditional news studios with its transparent and innovative identity. That is why; Doğuş Media Group, who is the owners of the cube, describes the studios as the “News Cube revolution” in Turkey.

A total of 450 tons of steel, 1000 square meters of glass, 250 cubic meters of cable and 160 square meters of screen were used in the construction of the studio. In this studio, which is the first studio in Turkey that is entirely equipped with LED lighting, energy consumption has been degraded to 1 from 5, thus the resulting heat is also reduced, therefore the energy used for cooling is lower (Figure 8).



Fig. 8 . NTV News Studio Interior

When the arrangement of NTV News Studio is examined, it is really seen to bring a new and different dimension to the design of news studios with both its design and some technological properties it has. The transparency of the studio stands out as the most important element breaking the traditional settings. Its designers and users attribute this transparency as revolutionary. As it is asserted, the transparent broadcast environment they present, along with its visibility, also reflects their understanding of reporting and develops a different and positive point of view in the audience with respect to the programs and the channel.

As it is stated by its designer Erik Ulfers, when looked at the boxes, which are actually two cubes, they reflect different activities within the news department of the NTV [7]. The massive blue LED walls in the studio acts as a kind of barometer and when the newsbreak started to be broadcasting the blue walls are transformed into red as if warning the employees about the start of the program (Figure 9). Being transformed into a parametric scene, this wall creates a dynamic ambience for the audiences.



Fig. 9. The View of the News Cube

In the NTV News Studio, the “order” undergoes a constant change due to the technological features of the vertical walls. In addition to the LED wall, the anchorman’s desk is another feature that subverts the studio’s order into alternative settings. As this desk could be rotated in certain aspects, the camera looks towards a different background and the audience can perceive the different shots of the studio (Figure 10). In fact, every different position created by the desk evokes a different sequence of planes such as led walls, anchorman desk and the glass shell.

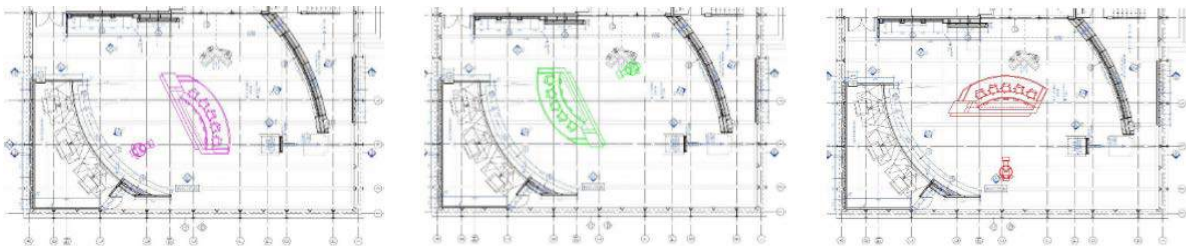


Fig. 10. Changing Location of the Desk

### 3. Conclusion

When observed the interior design of news studios, it is possible to say that certain design criteria from the past are still definitive and valid while designing the settings. These criteria can be listed as creating a studio environment that is entirely enclosed, the decoration is set up only in the areas within the camera's shooting view, choosing colors, forms, etc. that reflect the corporate identity of the channel and some technological details. Today, majority of the studios are designed with this approach. Kanal D News Studio examined in this study is an



example of studios designed with this approach. NTV News Studio claims that they have changed this understanding with its new design. When compared both studios, it is seen that there are different studios set up for different news bulletins in Kanal D studio, whereas in NTV the single studio can be used in different ways with factors such as a movable newsman desk, large size of the studio, etc. Even though there are some common technical aspects, technology used in NTV can be considered as a higher level. When looked at the lighting systems, overall lighting of Kanal D Studio is provided with projectors, whereas the NTV News Studio is the first studio entirely lighted with LED in Turkey. This makes the News Cube superior in terms of energy efficiency. The different design approach brought by the "News Cube", where the NTV News Studio is also located in, breaks down the understanding of a studio behind closed doors and places the studios in an entirely transparent cube. Thus, it supports the interaction of the broadcast process and the offices out of the cube where the news are prepared. In addition, this transparency enables the visitors and those outside the studio view the news delivery and see it from a different perspective. However, the users of News Cube approach the design rather critically. In the interviews with the employees, they mentioned that this transparency is somewhat inconvenient for them both in physical and in psychological sense. Here, the causes of this inconvenience can be epitomized under two categories: The first one is the technical disadvantages caused by the transparent shell. They remarked that during the broadcasting, the studio's transparency brings about various problems in regard to lightning and reflection due to the use of glass, which is a highly reverberating. The second one is, rather physiological. The independent and transparent form of the cube creates a kind of "panopticon" experience for the users: They stated that they were uncomfortable with the setup in general and expressed their dissatisfaction caused by the psychological discomfort either because it distracts attention or because it connotes the anxiety that the employees are observed. In other words, the users complained about the sense of surveillance, created by the studio environment.

In conclusion, the channel argues that, this transparent environment thus reflects their journalism approach. However, the claim that a news program can reflect its the sense of impartial and honest journalism by creating a transparent studio environment should be questioned.

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## THE EFFECTS OF GLOBALISATION ON INTERIOR ARCHITECTURE EDUCATION IN TURKEY

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### Abstract

Globalisation consists concepts such as the extension, improvement and intensification of political, social and economic relations; enhancement of capital mobility, prevention of any polarisation based on ideological differences; introduction of different social cultures, beliefs, and expectations (Dpt, 2000). Through globalisation – which is accompanied by multiculturalism and cross borders- national and international borders are exceeded and a system of global values is established. Globalisation influences education as well as social, economic and political fields. The accessibility of information from all around the world resulted in the competition environment. The only key to success within this environment is qualified education. The educational institutions make great effort to keep up with the standards of qualified education and they compete with each other within this scope. To them, it is crucial to make their students reach to a universal standard. When Turkey – which is in a constant state of change and quest- is taken into consideration, it could be suggested that globalisation is unavoidable and it is a significant tool for her to catch up with the international standards. This study investigates into the effects of globalisation on interior architecture within the scope of globalisation. It aims to identify the position of schools teaching interior architecture in Turkey by comparing them to their counterparts in developed countries. Therefore, examples are chosen both from the academic curriculum of certain American, European and Turkish University. The comparative analysis contains the recruitment and graduation criteria, periods of learning, professional requirements, ECTS and the distribution of studio courses and it aims to bring how globalisation influences interior architecture education in Turkey.

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**Key Words:** *Globalisation, Design Education, Education System*

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### 1. Introduction

Globalisation consists concepts such as the extension, improvement and intensification of political, social and economic relations; enhancement of capital mobility, prevention of any polarisation based on ideological differences; introduction of different social cultures, beliefs, and expectations [2]. Through globalisation – which is accompanied by multiculturalism and cross borders- national and international borders are exceeded and a system of global values is established.

There are two ways of improvement that springs to mind when one thinks of globalisation. The first one refers to the developments in communication of information and knowledge as well as in the technology of transportation and transmission. In other words, it stands for the constant interaction between the detached parts of the globe which gets smaller day by day. The second one applies to the consequences of worn out surveillance potentials of nation states regarding their nations and territories [1]

Power suggests that globalisation is a body of concepts like “shrinking space”, “diminishing time” and “vanishing borders” that connect human lives more rapidly, intensely and deeply or a group of multifaceted functions embracing changes which emerge as a result of new information technologies [5] [4].

The process of globalisation is supported by the progress in education. Education for future aims to establish concordance among human relations [4]

Globalisation penetrates into education as well as economics, politics and other areas. In today’s world, getting access to information is much easier and that brings along competition. Qualified education is the only way to success within the environment of competition. Therefore, educational institutions have to make great effort to catch up with the standards of education in order to compete with each other. It is significant to provide students with education that complies with international standards as it helps students move off easily.

The transition from industrial society to information society and globalisation that rises in parallel to that transition causes new necessities at educational systems in qualitative and quantitative terms. In addition, multidirectional communication possibilities of today raise expectations from individuals and accordingly from education [1]

The influences of globalisation can be observed firstly on the changes made in educational programmes by schools. Schools renew their programmes so as to compete and to catch up with a certain standard. Another aspect of globalisation in terms of education is that it trains students who think globally and take responsibilities and these students constitute a kind of youth that takes over responsibility on a local basis [3].

It could be observed that education programmes of different countries are similar to each other as another result of globalisation. Exchange programmes for students and academic members, internationalisation, standardisation, quality of education, equivalence and accreditation regarding the academic curriculum are subject matters that are getting more and more significant. Within this context, it could be suggested that Turkey, which is in constant change and pursuit of innovations, cannot avoid globalism which is a crucial tool to reach the western standards.

In accordance with the changes in the world, all kinds of interactions cause several professional education programmes to change with the aim of receiving an international standard. Consequently, architecture and interior architecture education as a discipline has to keep up with the contemporary developments. This study investigates into how interior architecture education in Turkey has been effected by globalisation.

When the education programmes of schools offering courses on interior architecture are examined, it could be observed that they are involved in an interaction with the programmes of architecture, art and design. It could also be noticed that they are close to architecture education. However, there are other modules that are applied by other educational approaches in the world, especially in the West. Since this study is on the important effects of globalisation, it tries to point out what these interactions are about. It focuses on design-studio courses which constitute the core of interior architecture education to investigate the influences of globalisation on educational approaches. For this reason seven schools from USA and Europe and eight others from Turkey are examined in order to determine the effects of globalisation on teaching design.

## **2. On Interior Architecture and Interior Architecture Education**

The Council for Interior Design Qualification [11] defines interior design as a multi-faceted profession in which creative and technical solutions are applied within a structure to achieve a built interior environment. These solutions are functional, enhance the quality of life and culture of the occupants and are aesthetically attractive. Designs are created in response to and coordinated with the building shell and acknowledge the physical location and social context of the project. The interior design process follows a systematic and coordinated methodology,

including research, analysis and integration of knowledge into the creative process, whereby the needs and resources of the client are satisfied to produce an interior space that fulfills the project goals. Interior design includes a scope of services performed by a professional design practitioner, qualified by means of education, experience and examination, to protect and enhance the health, life safety and welfare of the public.

However, interior architecture is defined in different ways. Problems regarding the interior space or a certain structure are tried to be solved within contexts of interior architecture, interior design and interior decoration. Brooker and Stone identify these approaches as follows [6]:

- Interior Architecture is only interested in reshaping the structures; and that is limited to the existing spaces, structures, principles of reusing and organising the buildings. This approach establishes the connection between architecture and interior architecture.
- Interior Design is an interdisciplinary practice that deals with manipulation of spatial dimensions, organisational changes regarding the furniture or surfaces, creation interior environments displaying the identity and atmosphere. Interior designers do not interfere with the structure of the building or they make very little changes.
- Interior decoration is the art of decoration interior space or rooms with an emphasis on certain characteristics fitting the architecture. Decoration concerns about the texture of surfaces, adornment, furniture, lighting and material.

The Council for Interior Design Qualification(CIDQ) [12] suggests that “Interior design is the art and science of understanding people's behavior to create functional spaces within a building. Decoration is the furnishing or adorning of a space with fashionable or beautiful things. In short, interior designers may decorate, but decorators do not design. Interior designers apply creative and technical solutions within a structure that are functional, attractive and beneficial to the occupants' quality of life and culture.”

Although interior architecture dates back to the beginnings of 20th century as a professional branch, it flourished enough to raise professionals and to be taught only after 1970's. Interior architects with the professional awareness emerged in 1980's as a result of organised education that came into being following the organisation process of the second half of the century. Evaluating the impacts of organisation and the design processes that develop under the leadership of these organisations keeps the profession within a contemporary structure [7].

The different approaches accepted within a professional sense cause changes on educational level. It is observed that there are different practices in terms of credits, course contents, missions, durations, and names at schools offering interior architecture education. It is useful to mention the interior architecture education both in Turkey and in the rest of the world to comprehend these differences.

### *2.1 Interior Architecture Education in Europe and USA*

One encounters the first interior practices at the beginnings of 20th century in the USA where the concept of professionalism developed and supported work fields and education. What is more it is the country where the theoretical and practical background of interior architecture as a profession was established and interior architecture education was first institutionalised. The initial education was in the form of short courses. Later, it spread into the fields such as art, architecture and human sciences.

While interior architecture education was a pioneer in the States, it emerged in Europe at a later period. New institutions were founded to focus on professional and educational research as well as how to train an interior architecture. European Council of Interior Architects is one of them.

According to European Council of Interior Architects, [13] Interior architects who are full members of a ECIA member-organization, shall comply with minimum education standards

as follows:

- 5 years of professional education in accordance with the ECIA Charter of Education plus 1 year of professional practice in an interior architects or architects office, or as a self-employed interior architect, proven by employers recommendation letter or by portfolio
- 4 years of professional education in accordance with the ECIA Charter of Education plus 2 years of professional practice in an interior architects or architects office, or as a self-employed interior architect, proven by employers recommendation letter or by portfolio
- in the case of insufficient education, 1,5 year of professional practice is needed as a substitute for every year of missed education, proven by employers recommendation letter or by portfolio and checked by an admission committee of the national organization.

These definitions are about the educational process and the formation that an interior architect goes through in an international level of education and they refer to a recent period in Turkey.

### *2.2 Interior architecture education in Turkey*

Interior architecture education in Turkey concern a more recent past and it started in 1925 at Sanayi-i Nefise Mektebi, which is now called Mimar Sinan Fine Arts University. Beaux-Arts was the dominant school adopted by the school for education at that time. In other words, workshop- studio model was the basis of interior architecture education followed by Sanayi-i Nefise-i Mektebi. The approaches embracing that French school retreated under the effect of the Bauhaus school which had developed in parallel to international improvements starting from the first half of the 20th century. The department of interior architecture which was founded at Marmara University in 1957 indicates to an authentic module of interior architecture undergraduate education free from the architectural discipline, its dominance and decisiveness [8]. The establishment of interior architecture education at Mimar Sinan Fine Arts University and Marmara University was followed by Hacettepe University, Bilkent University, Anadolu University, Karadeniz Technical University and Çukurova University. The Bauhaus school was taken over by the American counterpart together with the foundation of the department of interior architecture at Bilkent University. Interior architecture education in Turkey- as it was determined by YÖK (Institute of Higher Education)- is a four-year undergraduate programme. The number of universities offering Interior architecture education has risen due to its expanding popularity and there are nearly 60 universities offering that education.

## **3. Research**

### *3.1 Designing the Research*

The consequences of globalisation are felt more on architecture and interior architecture- which are directly affected by the developments in the world – compared to other fields. The reason for is that disciplines which are based on design are more likely to be influenced by social, economic, technological.etc. developments and that situation has an impact on their educational approaches. Within the scope of this study, the effects of globalisation on interior architecture education are examined through the analysis of 15 schools offering interior architecture education in the USA, England, Italy, France and Turkey. The schools constituting the sample case of this study are: 3 from the USA, 2 from England, 1 from Italy, 1 from France and 8 from Turkey. The reasons why these schools were selected are: they are long- established institutions in the world and in Turkey; they recruit students on a global level

and they are accredited by certain accreditation institutions.

- The selected schools are examined according to the following articles:
- The name of the university/faculty and department
- The credit/hour ratio of Design&Studio courses – which are the core of interior architecture education like in many other disciplines of design- to the total amount.
- Internship and its credit/hour equivalent
- Duration of education

The research follows a quantitative method and there are the two points that it draws attention to are design & studio courses, which constitute the theoretical and practical aspects of the action, and internship activity. The application of the education at each school has similarities due to the nature of interior architecture discipline while the educational approaches vary as a result of the mission and vision of each school. When these detected differences are considered along with the effort made to improve creativity in design education, the design & studio courses in their curriculum are focal points.

As Schön also pointed out, the design classes are the most important in design training programs and the design studios act as the place of practice of these classes [9]. The education should be designed on the design studios where especially the students who have not received any design education before meet with and experience the designing for the first time. Moreover, a new design language should be taught and integrated with the design education at the design studio. Therefore, the aim of the design studio should be freeing the students from any kind of conditioning, giving them the chance to use their imagination and self-expression and ensure their gaining new experiences for the future.

Regarding the design studios, Lawson and Dorst say that; “the design studio is not just a physical place but also a social and cultural one.” They also said “there are five major features of the design studio that we need to explore. They are co-location, learning by doing, unrestricted timetable, integration and mimicking practice [10].

Within this context, the dimensions of interaction between the Turkish and the other approaches to design&studio courses in the world are revealed and the differences are put forward together with the similarities. The education plans of schools constituting the sample case are examined and the design studio courses are tabulated as the result of course content analysis. (Table 1, Table 2, Table 4)

In addition to this, internship is a crucial part of interior architecture education as the simulation of design & studio courses in professional life. Students must experience the theoretical knowledge they gain at schools through practice within a professional environment. It could be observed that there are different approaches on different scales towards internship. For instance, the compulsory duration of internship might rise up to two years in the States and Europe to give the students the right to work while it is one of graduation conditions in Turkey. The Erasmus Internship Programme also indicates the importance given to internship activities. It is inevitable to consider internship as a criteria that should be examined within the scope of this study.

Under the light of abovementioned investigations, the study focuses on how globalisation influences – or does not influence-the education programmes of different schools and it could be evaluated as a preliminary study that might provide an insight to future studies on interior architecture education.

### *3.2 Analysis made within the scale of the USA and Europe*

The study starts with an investigation into American and European schools where interior architecture is firstly established. They are examined according to beforementioned criteria. The education plans and graduation conditions of these schools are examined and the

information on design& studio courses together with internship activity are given below.

Table 1: Design Courses in the curriculum of Selected European Universities

<b>England / Manchester Metropolitan University/ Manchester School of Art /Interior Design</b>			<b>England / University of the Arts London / Chelsea College of Arts/ Interior and Spatial Design</b>		
<u>Design Studio Courses</u>		<u>Credits/Hours</u>	<u>Design Studio Courses</u>		<u>Credits/Hours</u>
First year:	Inside(Out)	(30 credits)	First year:	Design Exploration	(40 credits)
	Object and Place	(30 credits)		Design Intelligence	(40 credits)
	Unit X	(30 credits)	Second Year:	Spatial Constructs	(40 credits)
Second Year:	Occupations	(30 credits)		Spatial Instruction	(40 credits)
	Unit X	(30 credits)	Third Year:	<u>Major Design Project</u>	<u>(80 credits)</u>
Third Year:	Site and Agenda	(60 credits)		<b>TOTAL: 240 credits</b>	
	Unit X	(30 credits)			
	<b>TOTAL: 240 credits</b>				
<b>Italy / Politecnico di Milano/ School of Design /Interior Design</b>			<b>France / Paris College of Art / Bachelor of Fine Arts in Interior Design</b>		
<u>Design Studio Courses</u>		<u>Credits/Hours</u>	<u>Design Studio Courses</u>		<u>Credits/Hours</u>
First year:	Drawing Studio	(10 credits)	First year:	Drawing I	(3 credits)
	Visual Design Studio	(10 credits)		City as Studio	(2 credits)
	Design Theories And Practices	(10 credits)		Materials and Dimensions I	(4 credits)
Second Year:	Graphic Space Representation	(10 credits)		Drawing II	(3 credits)
	Metadesign Studio	(10 credits)		Materials and Dimensions I	(4 credits)
	Interior Design Studio	(10 credits)	Second Year:	Project Fundamentals I	(4 credits)
Third Year:	Final Synthesis Design Studio	(20 credits)		Project Fundamentals II	(4 credits)
	<u>Workshop</u>	<u>(5 credits)</u>	Third Year:	Project 1: Permanent Space Design	(4 credits)
	<b>TOTAL:85 credits</b>			Lighting Design	(3 credits)
				Project 2	(4 credits)
				Furniture and Display Design	(3 credits)
			Fourth Year:	Team Project	(2 credits)
				Window Display Design	(3 credits)
				Final Individual Project	(4 credits)
				<u>Portfolio Preparation</u>	<u>(3 credits)</u>
				<b>TOTAL: 50 credits</b>	
				Internship	(4 credits)
				Internship:The course builds up towards a final individual project which is presented before a panel of critics, followed by a 6 month mandatory internship and thesis.	

Internship: The optional internship can be undertaken at any moment during the university course and up to 12 months after graduation and doesn't give credits.

Table 2: Design Courses in the education plans of selected American Schools

<b>America / Auburn University /College of Architecture, Design And Construction/ Interior Architecture</b>			<b>America/ Auburn University / College of Human Sciences / Interior Design Degree Program</b>		
<u>Design Studio Courses</u>		<u>Credits/Hours</u>	<u>Design Studio Courses</u>		<u>Credits/Hours</u>
First Year:	Introduction to Arch. Design I	(5 hours)	First year:	Studio I: Introduction to Interior Design	(4 hours)
	Introduction to Arch. Design II	(5 hours)		Technical Processes of Design	(4 hours)
Second Year:	Studio 1	(6 hours)	Second Year:	Studio III: Visual Presentation I	(4 hours)
	Studio 2	(6 hours)		Studio IV: CAD for Interior Design	(4 hours)
Third Year:	Studio 3	(6 hours)		Studio V: Visual Presentation II	(4 hours)
	Studio 4	(6 hours)	Third Year:	Studio VI: Lighting Design/Env. System	(4 hours)
Fourth Year:	Studio 5	(6 hours)		Residential Interior Design	(4 hours)
	Studio 6	(6 hours)		Commercial Interior Design	(4 hours)
	Thesis	(6 hours)		Business Practices in Interior Design	(3 hours)
Fifth Year:	Studio 7	(6 hours)	Fourth Year:	Hospitality Design	(4 hours)
	<u>Thesis Studio</u>	<u>(7 hours)</u>		<u>Studio XI: Health Care Design</u>	<u>(4 hours)</u>
	<b>TOTAL: 65 hours</b>			<b>TOTAL: 43 hours</b>	
				Internship	(8 hours)
				Internship: Exploration of career paths can be enhanced by using the summers of Years 1-3 to test drive different internships in preparation for their required professional internship in year four. Professional internships in firms across the country and internationally prepare students for high quality design-related positions. Students typically have at least one job offer at graduation.	



**America / New York School of Interior Design / Bachelor of Fine Arts in Interior Design**

Design Studio Courses		Credits/Hours
First year:	Basic Drafting	(3 credits)
	Color for Interiors	(3 credits)
	Visual Concepts	(2 credits)
	Construction Documents I	(3 credits)
	Residential Design I	(3 credits)
Second Year:	Design Process	(2 credits)
	Residential Design II	(3 credits)
	Construction Documents II	(3 credits)
	Lighting I	(3 credits)
	Contract Design I	(3 credits)
Third Year:	Residential Design III	(4 credits)
	Lighting II	(3 credits)
	Contract Design II	(3 credits)
Fourth Year:	Kitchen & Bath Design	(3 credits)
	Thesis Preparation	(2 credits)
	Contract Design III	(3 credits)
	Furniture Design	(3 credits)
	Thesis	(4 credits)
<b>TOTAL:</b>		<b>52 credits</b>
Internship		(2/3credits)

Internship: The NYSID internship program offers elective academic credit for college-monitored work experience. Students have the opportunity to integrate theory and practice and to gain professional experience. An internship for 3 credits consists of 240 hours of contact time at the job placement site. An internship for 2 credits consists of 160 hours of contact time at the job placement site. Students may take no more than one internship for credit towards their degree.

Table 3: Educational institutions in America, England, Italy and France

Country	University	Faculty/ College	Department	Total Credits/Hours	Design Studio Courses	Internship	Duration
America	Auburn University	College of Human Sciences	Interior Design	124 hours	43 hours % 35	■ 8 hours	9 semesters
	Auburn University	College of Architecture, Design and Construction	Interior Architecture	175 hours	65 hours % 37		11 semesters
	New York School Of Interior Design		Interior Design	132 credits	52 credits % 40	■ 2/3credits	8 semesters
England	Manchester Metropolitan University/ Manchester School Of Art	Faculty Of Arts And Humanities	Interior Design	360 credits	240 credits % 67		3 years
	University Of The Arts London	Chelsea College of Arts	Interior And Spatial Design	360 credits	240 credits % 67		3 years
Italy	Politecnico di Milano	School Of Design	Interior Design	180 credits	85 credits % 47	■ Up to 12 months	3 years
France	Paris College of Art		Interior Design	130 credits	50 credits % 39	■ 4 credits 6 month	8 s e m e s t e r s

### 3.3 Analysis made within the scale of Turkey

The second part of the study is comprised of an investigation into schools offering interior architecture design in Turkey. The selected schools are put in an order according to the years when they were established. Their education plans and graduation conditions are investigated. The information on design& studio courses together with internship activity are given below.

Table 4: Design Courses in the education plans of selected Turkish Schools.

<b>Turkey / Mimar Sinan Fine Arts University / Faculty of Architecture / Interior Architecture</b>			<b>Turkey / Marmara University / Faculty of Fine Arts / Interior Architecture</b>		
<u>Design Studio Courses</u>		<u>Credits/Hours</u>	<u>Design Studio Courses</u>		<u>Credits/Hours</u>
First year:	Introduction To Design I	(4 ECTS)	First year:	Basic Design I	(10 ECTS)
	Basic Education	(4 ECTS)		Basic Design II	(10 ECTS)
	Spatial Design	(4 ECTS)	Second Year:	Stüdyo İç Mekan I	(9 ECTS)
	Introduction To Design II	(3 ECTS)		Stüdyo Mobilya I	(9 ECTS)
	Professional Basic Education	(4 ECTS)		Stüdyo İç Mekan II	(9 ECTS)
Second Year:	Project I	(6 ECTS)		Stüdyo Mobilya II	(9 ECTS)
	Spatial Design I	(3 ECTS)			(9 ECTS)
	Project II	(6 ECTS)	Third Year:	Stüdyo İç Mekan III	(7 ECTS)
	Spatial Design II	(3 ECTS)		Stüdyo İç Mekan IV	(7 ECTS)
Third Year:	Application Project	(3 ECTS)	Fourth Year:	Stüdyo İç Mekan III	(16 ECTS)
	Project III	(8 ECTS)		Stüdyo İç Mekan IV	(21 ECTS)
	Project IV	(8 ECTS)			<b>TOTAL: 107 ECTS</b>
	Experimental Furniture	(3 ECTS)		Internship/ Practice I	(3 ECTS)
Fourth Year:	Project V	(8 ECTS)		Practice II	(3 ECTS)
	Furniture Application Studio I	(2 ECTS)			
	Furniture Application Studio II	(2 ECTS)			
	<b>TOTAL: 71 ECTS/63 hours</b>				
	Internship/Practice (Office)	(4 ECTS)			
	Practice (Construction Site)	(4 ECTS)			
<b>Turkey / Hacettepe University / Faculty of Fine Arts / Interior Architecture&amp;Environmental Design</b>			<b>Turkey / Bilkent University / Faculty of Art, Design and Architecture / Interior Architecture &amp; Environmental Design</b>		
<u>Design Studio Courses</u>		<u>Credits/Hours</u>	<u>Design Studio Courses</u>		<u>Credits/Hours</u>
First year:	Interior Architecture Basic Design I	(3 ECTS)	First year:	Basic Design I	(10 ECTS)
	Environmental Design I	(2 ECTS)		Basic Design II	(10 ECTS)
	Interior Architecture Basic Design II	(3 ECTS)	Second Year:	Interior Design Studio I	(10 ECTS)
	Environmental Design II	(2 ECTS)		Interior Design Studio II	(10 ECTS)
Second Year:	Interior Design I	(10 ECTS)		Lighting Design	(4 ECTS)
	Interior Design II	(10 ECTS)	Third Year:	Interior Design Studio III	(10 ECTS)
Third Year:	Interior Design III	(10 ECTS)		Interior Design Studio IV	(10 ECTS)
	Interior Design IV	(10 ECTS)		Detailing Studio	(4 ECTS)
Fourth Year:	Interior Design V	(10 ECTS)		Sustainable Design for Interiors	(5 ECTS)
	Furniture Design I	(5 ECTS)	Fourth Year:	Interior Design Studio V	(14 ECTS)
	Interior Design V	(10 ECTS)		Interior Design Studio VI	(14 ECTS)
	Furniture Design II	(5 ECTS)		Advanced Detailing Studio	(4 ECTS)
	<b>TOTAL: 80 ECTS</b>			Interior Design: Professional Practice	(4 ECTS)
	Internship/ Internship I	(4 ECTS)		<b>TOTAL: 109 ECTS</b>	
	Internship II	(4 ECTS)		Internship/ Summer Practice I	(0 ECTS)
				Summer Practice II	(0 ECTS)
<b>Turkey / Anadolu University / Faculty of Art, Design and Architecture/ Interior Architecture &amp; Environmental Design</b>					
<u>Design Studio Courses</u>		<u>Credits/Hours</u>			
First year:	Basic Design I	(8 ECTS)			
	Basic Design II	(8 ECTS)			
Second Year:	Interior Design Project I	(10 ECTS)			
	Interior Design Project II	(10 ECTS)			
Third Year:	Interior Design Project III	(9 ECTS)			
	Interior Design Project IV	(10 ECTS)			
Fourth Year:	Interior Design Project V	(9,5 ECTS)			
	Interior Design Project VI	(12 ECTS)			
	<b>TOTAL: 76 ECTS</b>				

**Turkey / Karadeniz Technical University / Faculty of Architecture / Interior Architecture**

Design Studio Courses		Credits/Hours
First year:	Basic Design	(8 ECTS)
	Interior Design Studio I	(6 ECTS)
	Interior Design Studio II	(8 ECTS)
Second Year:	Interior Design Studio III	(8 ECTS)
	Interior Design Studio IV	(8 ECTS)
Third Year:	Interior Design Studio V	(8 ECTS)
	Interior Design Studio VI	(8 ECTS)
	Furniture Design	(4 ECTS)
Fourth Year:	Interior Design Studio VII	(8 ECTS)
<b>TOTAL:</b>		<b>66 ECTS</b>
	Internship/ Professional Training - I	(4 ECTS)
	Professional Training – II	(4 ECTS)

**Turkey / Çukurova University / Faculty of Fine Arts / Interior Architecture**

Design Studio Courses		Credits/Hours
First year:	Basic Design I	(10 ECTS)
	Basic Design II	(10 ECTS)
Second Year:	Int. to Interior Architecture Design 1	(7 ECTS)
	Interior Architecture Design 2	(7 ECTS)
	Spatial design and Application	(3 ECTS)
Third Year:	Interior Architecture Design 3	(7 ECTS)
	Furniture Design 1	(3 ECTS)
	Interior Architecture Design 4	(7 ECTS)
	Furniture Design 2	(3 ECTS)
Fourth Year:	Interior Architecture Design 5	(12 ECTS)
<b>TOTAL:</b>		<b>69 ECTS</b>
	Internship/ Construction-site Training	(2 ECTS)
	Atelier Training	(2 ECTS)
	Office Training	(4 ECTS)

**Turkey / İstanbul Kültür University / Faculty of Architecture / Interior Architecture & Environmental Design**

Design Studio Courses		Credits/Hours
First year:	Interior Design Studio I	(9 ECTS)
	Basic Design I	(5 ECTS)
	Interior Design Studio II	(9 ECTS)
	Basic Design II	(5 ECTS)
Second Year:	Interior Design Studio III	(9 ECTS)
	Interior Design Studio IV	(9 ECTS)
Third Year:	Interior Design Studio V	(9 ECTS)
	Interior Design Studio VI	(9 ECTS)
Fourth Year:	Interior Design Studio VII	(9 ECTS)
	Finishes And Fixture Design	(5 ECTS)
<b>TOTAL:</b>		<b>78 ECTS</b>
	Internship/ Summer Training I	(3 ECTS)
	Summer Training II	(2 ECTS)

Table 5: Educational institutions in Turkey

Country	University	Faculty/College	Department	Total Credits/Hours	Design Studio Courses	Internship	Duration
Turkey	Mimar Sinan Fine Arts University	Faculty of Architecture	Interior Architecture	240 ECTS	71 ECTS % 30	■ 8 ECTS	4 year
	Marmara University	Faculty of Fine Arts	Interior Architecture	240 ECTS	107 ECTS % 44	■ 6 ECTS	4 year
	Hacettepe Üniversitesi	Faculty of Fine Arts	Interior Architecture&Environmental Design	240 ECTS	80 ECTS % 33	■ 8 ECTS	4 year
	Bilkent University	Faculty of Art, Design and Architecture	Interior Architecture&Environmental Design	240 ECTS	109 ECTS % 45	■ 0 ECTS 60 days	4 year
	Anadolu University	Faculty of Architecture and Design	Interior Design	240 ECTS	76 ECTS % 31		4 year
	Karadeniz Technical University	Faculty of Architecture	Interior Architecture	240 ECTS	66 ECTS % 28	■ 8 ECTS 60 days	4 year
	Çukurova University	Faculty of Fine Arts	Interior Architecture	240 ECTS	69 ECTS % 29	■ 8 ECTS 66 days	4 year
	İstanbul Kültür University	Faculty of Architecture	Interior Architecture&Environmental Design	240 ECTS	78 ECTS % 32	■ 5 ECTS 40 days	4 year

#### 4. Conclusion

Training individuals who are able to use the information that comes into prominence through globalisation and keeping up with the information technologies which are renewed constantly are musts for societies and these developments can be observed in the education plans and programmes of schools offering vocational training. The emergence of common features in education among universities during the global process is unavoidable. Likewise, when interior architecture programmes in Turkey and in the rest of the world are examined it could be noticed that they have differences and similarities in their approach to education.

It is easy to have access to information on the developments regarding architecture and interior architecture. This turns into a disadvantage if it distracts the disciplines focusing on design from locality. However, as mentioned before, globalisation necessitates the “local” to emerge as a new resource.

When comparison among the interior architecture education programmes in selected schools of the USA, Europe and Turkey are concerned:

- It was observed that there are differences what the interior architecture departments at the States and Europe are called and what their faculties’ names are. It is thought that this stems from the fast changes that interior architecture as a discipline has been through since its emergence and from the different missions and visions that schools adopt.
- Due to the Bologna process that Turkish schools went through, there is equivalence

between and others in terms of course credits, duration of education, graduation conditions and internship activity. It was noticed that the duration of education in the States is 4 years while in Europe it is 3 years.

- When the official education plans of Turkish schools were examined, the amount of similarity to the American ones was worth noticing. The reason for that is thought to be the establishment of interior architecture department at Bilkent University whose education was strongly influenced by the American educational model.
- It is a known fact that within the Turkish scale, interior architecture education was influenced by the architecture education. However, it is understood that interior architecture department of Mimar Sinan Fine Arts University and Marmara University differentiated themselves on the local scale and tried to maintain the approach of the schools they were influenced by and that they focused on art education.
- It was noticed that the highest ratio of design & studio courses to workshops was detected at the schools of England when the courses that triggered creativity the most in the education plans were investigated. It was noticed that instead of theoretical courses, like the ones in Turkey, giving basic information like computer literacy and instructional techniques, courses are all in form of workshops focused on projects. Therefore, it was concluded that schools in Turkey should give priority to project/workshop-based courses in order to reach that standpoint on a global level. Gaining information not through one direct way but through different indirect ways should be the adopted as the new target in the scale of Turkey because teaching student how to learn rather than giving the information directly requires the students to be more responsible.
- According to the research, the ratios of design & studio courses to total number of credits at Turkish schools are: % 45 at Bilkent University, %44 at Marmara University, %33 at Hacettepe University, %32 at İstanbul Kültür University, %31 at Anadolu University, %30 at Mimar Sinan Fine Arts University, %29 at Çukurova University and %28 at Karadeniz Technical University. The ratios of design & studio courses to total number of credits at American schools are: %40 at New York School of Interior Design, %37 at Auburn University Interior Architecture, %35 at Auburn University Interior Design. the ratios of design & studio courses to total number of credits at European schools are: %67 at Manchester School of Art and University of The Arts London, %47 at Politecnico di Milano, %39 at Paris College of Art.
- When schools are examined in terms of internship activity, schools in Turkey require internship as a condition of graduation. Internship takes place at the education plan as a course with its own credit. Likewise, in Italy and in the States internship is treated as a must for graduation, which shows that there is global similarity established. However there are differences in the arrangement of internship hours. Internship is applied in two parts from 40 to 60 days. In Europe and in the States however, internships are usually longer as they appear to be precondition for professional efficiency.

Last of all, when one acknowledges the power of globalisation influencing the quality of education, it is not surprising to see there are similarities and differences, which stem from the interaction. Keeping the fact that this paper is analytic and aims to be a preliminary study in mind, it could be suggested that a more detailed one might emerge when the contents, learning objectives, targets, graduation conditions of interior architecture programmes are investigated deeply.

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- [19] <https://www4.ceda.polimi.it/manifesti/manifesti/controller/MostraIndirizziPublic.do?evn default=EVENTO&aa=2015&k corso la=1153&lang=EN& pj0=0& pj1=2d8791f2dced60e8b62c7ff03142f168>
- [20] <https://www.paris.edu/programs/undergraduate-programs/interior-design/>
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- [27] <http://icmimarlik.cu.edu.tr/tr/detay.aspx?pageId=1496>
- [28] [http://www.iku.edu.tr/TR/ects\\_bolum.php?m=1&p=16&f=11&r=0&ects=ders](http://www.iku.edu.tr/TR/ects_bolum.php?m=1&p=16&f=11&r=0&ects=ders)

## HALLUCINATIVE PERCEPTION IN ARCHITECTURE AND EFFECTS OF HOLOGRAPHIC PLATFORM ON DESIGN PROCESS

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### **Abstract**

The hologram is a hallucinative image that produced virtually in yellow spot (macula lutea) and embedded in the physical environment with the help of photons. The hardware that creates hallucinative image is a portable head mounted holographic platform computer. The holographic platform computer senses the physical environment with the help of integrated cameras, sensors and lenses on it. The computer processes the information of the physical environment and integrates the information of the virtual environment into the physical environment and presents a holographic image to the user. In this way, it is possible to perceive the virtual environment which embedded in the physical environment and interact with the virtual environment.

Space perception is an important influence on designing and taking the final decisions in the architectural design process. In this work, firstly, the design ideas are expressed as sketches and technical drawings in the 2D digital platform. Secondly, 2D technical drawings transformed into 3D virtual models with the help of solid modelling programs. The virtual models have information about the physical environment such as light, color and texture. In this way, physical environment data is visualized in the virtual environment. Finally, produced models were modified, changes were made to the form and materials in the virtual environment to maximize the reality of virtual model. In this context, it is aimed to research the effects of the holographic platform on the architectural design process.

It is possible for designers, physically located in different locations, to co-exist virtually at the holographic platform at the same time and make modifications on the design. It is also possible for people in different disciplines who take part in the architectural design process to come together at the holographic platform to exchange ideas, design and work together at the same time. It is possible to produce solutions by interfering with the problems that may arise during and after the design process.

By using the holographic platform as a method in the architectural design process, it is possible to experience the ideas on the physical scale which have a direct effect on the perception. It is possible to experience the idea of architectural design at 1/1 scale when it is still in design process and to be able to reshape the design according to the ideas of experienced individual. By this means, the necessary modifications can be recognized and can be made at the design process. With using of the holographic platform in the architectural design process, the physical conditions have not been an obstacle to the cooperative work, high amount of profits has been gained economically and the time required to take final decisions of the design has been minimized.

**Key Words:** *Design process, hallucinative, hologram, physical environment, virtual environment*

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## 1. Introduction

The basis of the architectural design process is recognizing what is available now and producing new by inspiring from the past and present. It is necessary to understand the concepts of plane, dimension and space to understand what is available now.

Visualization is the process of transforming a spatial object in design process, construction and post construction into two or three dimensional models by using symbols, simulations and animations that can be perceived by the human mind [1]. Visualization includes perception, communication, presentation techniques, analysis and applications related to the form interpreted by the techniques of expression [2]. Visualization is needed to perceive plane, dimension and space. Visual information is needed for visualization. In cases where visual information can't be accessed directly, written or verbal information can be used.

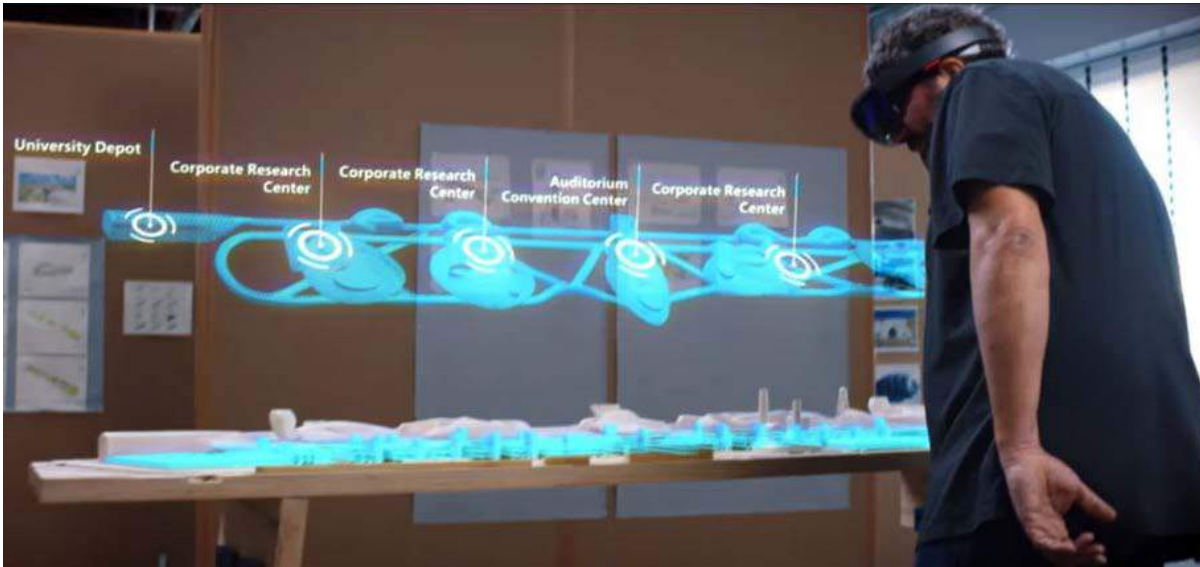


Fig. 1. Holograms [3]

Visual information can be created by examining written or verbal information. Visual information provides understanding of the space perception and the information about the space becomes meaningful. Different methods have been developed to create visual information and present it to the user's perception. Today, the most recent of these methods is the holographic presentation technique.

The hologram is a hallucinative image that produced virtually in macula lutea (yellow spot) and embedded in the physical environment with the help of photons. Holograms are produced in a holographic platform. The individual can perceive the virtual environment without being abstracted from the physical environment with the help of holograms (Fig. 1). The hardware that creates hallucinative image is a portable head mounted holographic platform computer.

Holographic platform computer (Fig. 2) has four sensors which scans the physical environment, one depth camera, one high definition video camera, and one inertial measurement sensor, one ambient light sensor which senses the physical environment light to calculate hologram brightness, four microphone and two optic see through holographic lenses [4]. The holographic platform computer perceives the physical environment data and transfers it to the internal processor which transform perceived data into digital information with the help of cameras and sensors.

The computer processes the information of physical environment and integrates the information of virtual environment into the physical environment and presents a holographic image to the user. In this way, it is possible to perceive the virtual environment which



embedded in physical environment and interact with virtual environment.



Fig. 2. (a) holographic platform computer; (b) optic see through lenses; (c) sensors [5]

## 2. Perception in Architectural Design Process

Space perception is an important influence on designing and taking the final decisions in the architectural design process. Perception in architectural design process means the review of architectural design expressions in the designer's mind. Design ideas become meaningful and design ideas can be revised. Therefore, after the first decisions of the design are taken and the design is shaped, the design can be re-examined and necessary changes can be made. By expressing architectural ideas in the digital environment, it is possible to make the necessary changes without waste of time. Thus, we can evaluate the widespread use of computers as a representation tool of architectural product drawings and digital thinking can be evaluated as an affective way of designing and producing the architectural design process [6]. In this work, firstly, the design ideas are expressed as sketches and technical drawings in the 2D digital platform (Fig. 3).

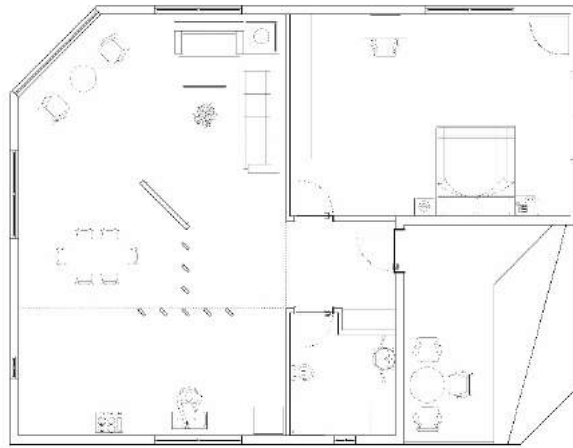


Fig. 3. 2D design

Expression of ideas in a two-dimensional environment was performed in two-dimensional vector drawing programs. With the help of these programs, ideas are transferred into the two dimensional digital platform. There are advantages and disadvantages of two-dimensional digital media because drawings can be viewed from a screen and the scale can be changed very quickly. It is the most important advantage that the entire architectural design can be seen as a whole. However, due to the rapid change of scale, perceptual distortions in the meanings of architectural proportions and dimensions can be observed. The designs expressed in two dimensions can only be perceived by individuals and designers who have knowledge in the field of architecture. For this reason, it is appropriate to add a third dimension to the two-dimensional drawings so that the design can be perceived more accurately. Secondly, 2D technical drawings transformed into 3D virtual models with the help of solid modelling

programs (Fig. 4).

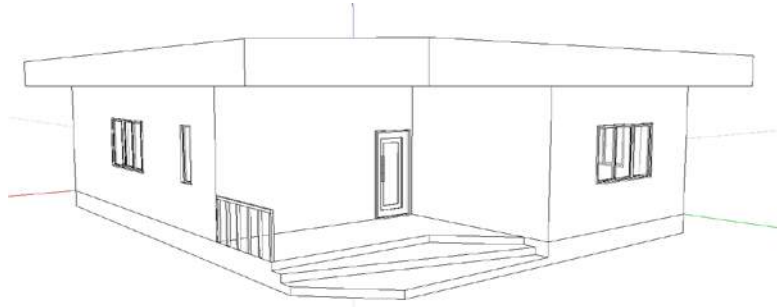


Fig. 4. 3D design

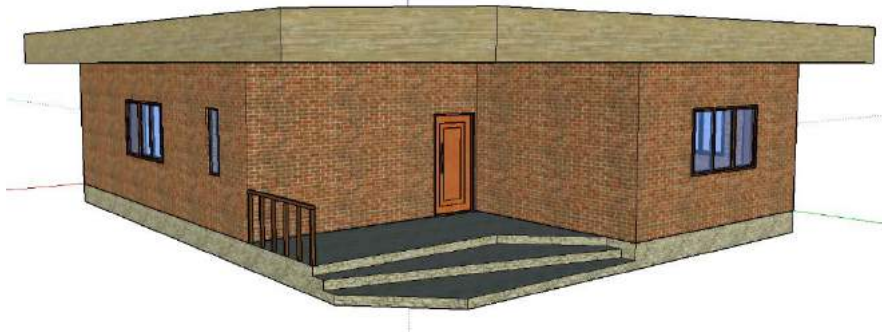


Fig. 5. 3D design with textures

While three-dimensional technical drawings were made, two-dimensional drawings used as a base and these drawings become boundaries in the second dimension of the design. Linearly expressed architectural elements are gained volume with the addition of the third dimension and become a simulation of architectural forms in the physical environment. According to the physical environment, color, texture and material coatings have been added to the architectural elements which become the solid model form (Fig. 5). Light source has been added to the architectural model to simulate physical environment lighting and shadows. Daylight tool was used as a source of light to simulate the sun rays. This tool provides the closest visual values to the physical atmosphere.

Thus, the virtual models have information about the physical environment such as light, color and texture. In this way, physical environment data is visualized in the virtual environment. After the third dimension is added to the digital design, it is possible to change scale so that the whole model can be perceived. However, even if the scale is changed, the degradation of the design that evaluated volumetrically is minimized. Thus, the individual and the designer can accurately perceive the architectural model. The connection between three dimensional solid model and the holographic platform was made by using a game engine (Fig. 6). Although game engines are not generally used in architecture, in this context they became a bridge between architectural design and holographic platform. The solid model, which was transferred into the game engine and contains the physical environment data, is transferred to the holographic platform computer.

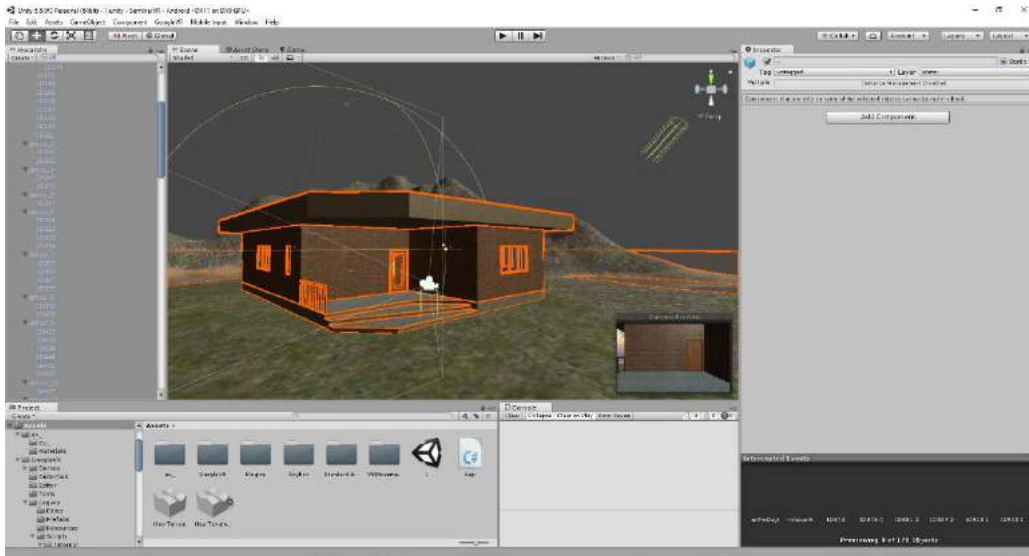


Fig. 6. Game engine interface



Fig. 7. Experiencing the design

The architectural model that created in the virtual environment have been experienced in the physical environment with the help of the holographic platform computer (Fig. 7).

Finally, produced models were modified, changes were made to the form and materials in the virtual environment to maximize the reality of virtual model. In this context, it is aimed to research the effects of the holographic platform on the architectural design process.

### 3. Collaborative Work

Cooperative design refers to a process that includes identifying common design goals, exploring solution possibilities, identifying constraints and developing solution proposals [7]. In this process, designers work collaboratively and communicate constantly. This process requires individuals to contribute to the sharing of information, to organize the division of labor and to regulate the resources so that everyone can reach resources [8]. It is possible for designers, physically located in different locations, to coexist virtually at the holographic platform at the same time and make modifications on the design.

Through the internet connection of the holographic platform computer, more than one designer can coexist in the same virtual environment at the same time. Using the internet connection, the holographic platform computer can virtually integrate other designers into the physical environment. Users who are integrated into the physical environment as guests can

view with the help of avatars or can participate in a video conference with the help of a virtual screen (Fig. 8). Thus, the common working place can be either a virtual environment or physical environment. So the design can be produced quickly with the collaboration of different designers.



Fig. 8. (a) the avatar view; (b) the virtual screen view [9]



Fig. 9. (a) Construction; (b) design office [10]

It is also possible for people in different disciplines who take a part in the architectural design process to come together at the holographic platform to exchange ideas, design and work together at the same time. It is possible to observe the carrier system integrated into the construction. So the architect and the construction engineer who designs the carrier system can compare design ideas, observe and choose design solutions virtually in the design at the same time (Fig. 9). It is also possible to observe the mechanical project and the electricity project integrated into the static project or construction. In this way designs of all systems can be compared and understood. It is possible to produce solutions by interfering with the problems that may arise during and after the design process.

#### 4. Experiencing the Design

In the architectural design process, perceiving and studying design at different scales is an important factor that affects success. In the traditional design process, designs were made with the help of sketches and physical models in different scales. However, it is not possible to express all the details on the physical models. For this reason, many details can be experienced during construction. Transferring the changes in design to the physical model causes designer to lose time and extends the architectural design process. Although, the important details of architectural ideas are only presented to the individual by making physical models with traditional methods, it is not possible to experience the design in different scales, especially on the real physical scale.

The changes in the design have quickly experienced by individuals with the help of computers. However, perceiving design from a screen is insufficient to experience of the entire design at the physical scale.

In the modern architectural design process, it is possible to experience the design ideas on the real physical scale with use of the holographic platform which directly effects the perception (Fig. 10). It is possible to experience the idea of architectural design at 1/1 scale when it is still in design process and it is possible to reshape the design according to the ideas of experienced individual. Experiencing the design at 1/1 scale has made it easier to understand proportions, sizes and architectural characteristics.



Fig. 10. (a) outside of the design; (b) entrance of the design; (c) inside of the design



Fig. 11. (a) Before gaze; (b) during gaze; (c) after gaze

It is also possible to perceive the design and experience as if the architectural idea was already constructed in physical environment while in the design process. During the design experience, the individual or the designer is not a passive observer. Interaction with the virtual environment can be experienced as in the physical environment while experiencing design.

Interaction can be with a door that opens with the individual's movement, or it can be a change in the design. On the holographic platform, the interaction of the individual with the virtual environment can be made by voice, gesture and gaze input. Individuals can interact with the virtual environment using with voice commands.

The holographic platform computer recognizes the individual's voice with the help of built-in microphones and transforms the sound to digital information with the help of processors. After that, processors perform the desired interaction in the virtual environment. The individual can interact with the virtual environment by using gesture commands. The holographic platform computer detects the hand movements of the individual with the built-in motion sensor cameras. These hand movements are already defined in the holographic platform computer. For this reason, the command operations of the hand movements are performed. The individual can interact with the virtual environment by using gaze input. Individual activates or deactivates the commands defined on objects by looking at them in the virtual environment. For example, when the gaze input method is used to enter a place, the door opening command is activated by looking at the door and the door opens so individual can enter the place (Fig. 11).

## **5. Conclusion**

The interaction between the design and the individual has created a new perspective in the architectural design process. It can be made with the holographic platform. It is possible to present detailed and high quality architectural ideas with the help of holographic platform. Thus, the individual can actively perceive the design. The link between the individual and the design has positively progressed with the help of interaction and the perception at 1/1 scale. Therefore, design ideas can be fully and correctly perceived by the individual. By this means, the necessary modifications can be recognized and can be made at the design process.

With using of the holographic platform in the architectural design process, the physical conditions have not been an obstacle to the cooperative work, high amount of profits have been gained economically and the time required to take the final decisions of the design has been minimized. Thus, the holographic platform creates a perceptible difference that effects in the architectural design process in the stages of design creation, experimentation, development and modification.

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## REPRESENTATION AS A THRESHOLD: 3D MAPPING

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### **Abstract**

It can be considered through the representation to discuss three-dimensional virtual spaces. The design process that started in mind can be considered abstract and virtual. And during this representation process, the space may also be considered both physical and virtual. When these representations are constructed, they acquire a concreteness and reality. But it can create a gap between this reality and the space created in the mind. For this reason it can be thought that there cannot be a one-to-one transformation in the transition from virtual to real. It can be argued that, if this were the case, the re-representation of the built space would be a virtual expression. Then, it can be said that representation stands in between reality and virtuality, as a threshold. In this sense, can the transfer status of these representations be considered as a kind of spaces without space? Three-dimensional representations of virtual representations are discussed through physical models or models. If the representation itself is considered to be a threshold state, can it be reshaped in three-dimensional representations? In this study, it is aimed to investigate the spatial transformations between reality and virtuality by using three-dimensional mapping as an alternative. Can such a state of representation be able to say a new word to express the mentioned relationship? In this study, firstly a literature review and then a case study will be done. A building will be selected for the case study and a group to be selected from this building will be subjected to produce three-dimensional mapping. It is considered that the status of the threshold situation of representations is evaluated with this case study. Therefore, the use of the representation language as the expression of three-dimensional virtual spaces is considered important for discussing spaces without space.

***Key Words:** Representation; Threshold; 3D-Mapping; Virtuality; Reality*

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### **1. Introduction**

It is argued that the representation is somewhere between reality and virtuality. This situation is considered as a threshold within the scope of this study. So the basic question of this study is that “Is it possible to think the transformation of representations as a kind of spaces without space?”. In order to discuss these spaces without space, a method has been followed through perceptual three-dimensional mapping. A case study was carried out through ITU Taşkışla by protocol analysis. It is aimed to examine the spatial transformations between reality and virtuality with use of three-dimensional mappings. The data in the case study have been evaluated by way of the table in Figure 1.



A Student	Recording	Sketch	Physical Model	Recording
Entrance				
Ground Floor				
1.Stairs				
1.Floor				
2.Stairs				
2.Floor				
3400				

Fig. 1. Sample table

## 2. Representation and Mapping

In the most general sense, representation is that someone or something is shown or described by a special way. Akın [1] has divided the representation into analog and symbolic. However, he is indicated that it is necessary to integrate these two representations in order to be able to solve a problem in the design process. From the architectural point of view, Vesely [2] stated that architectural representation is complex and ambiguous today. According to him, there is no clear notion about what architecture can represent, it can represent anything but itself. But architecture, even in the most abstract structures, has a definite physiognomy that cannot be denied. Oxman [3], on the other hand, described the representation as a 'design language', a symbolic and graphic form of design. In that case, the relationship with the representation reality in architecture reminds of the situation in which Magritte takes notice in the picture 'This is not a Pipe'. It is also associated with architecture as a design language. In a similar way, Rattenbury [4] expressed the relation of architecture with representation as peculiar, powerful and absolutely critical, and stated that all forms of representation have their own prejudices, preferences, cultural and personal drives, and representation will always be partial.

Representation techniques in architecture can be considered in two ways, two-dimensional and three-dimensional. Gürer [5] stated that two-dimensional representations gave more conceptual information and three-dimensional representations gave more perceptive information. In the architectural education, this kind of representation techniques and tools take an important place in order to gain awareness of students both conceptual and perceptual. Especially three-dimensional representations are used to provide visual, tactile and perceptual development in design studios. In this sense, perceptual/visual experience and cognitive development are considered important. Shapiro expressed the theories of perceptual experience and visual experience in the following way: "The psychologist J. Kevin O'Regan, together with philosopher Alva Noë, has developed a perceptual theory of experience in which the constituents of experience extend beyond the brain. The kind of experiences of most interest to O'Regan and Noë are *visual* experiences, e.g. the shape a circle looks to have through changes in perspective; the redness of an apple; the sense of seeing an entire cat rather than slices of cat when viewing the cat through a picket fence." [6].

Rattenbury's Deleuze study defines us the relationship between abstract and reality. She states this as follows: "Deleuze helps us understand ideas by giving examples: thousands of them, so that our minds continuously swing back and forth between the abstract and the real. Architecture similarly oscillates between the world of ideas and the physical world, thus his

writings seem to hold a highly specific meaning for architecture.” [7].

Given this aspect of architecture, can the relationship between the world of ideas and the physical world that Deleuze mentions read through virtuality/reality? The relations established with representations in architectural design studios make an oscillation between this reality and virtuality. It can be thought that the outcomes have emerged in the process of between physical and virtual rather than the physical reality. This situation basically overlaps with the role of mediator between this virtual and the physical to approximate representation reality, as Vesely [8] points out. It is thought to be defining as a threshold. In this sense, design process gains importance.

Can rethinking this process and attempting to reconstruct the means and methods of representation lead to an innovative and more liberal form of making? The study based on this question, the study aims to discuss the threshold state through a different representation method. The representations that can be separated into two and three dimensions are interpreted and used by many techniques. Within the scope of this study, a mapping method is considered.

In this case, the mapping method can be considered first. Corner described the mapping as: “Mapping is a fantastic cultural project, creating and building the world as much as measuring and describing it” [9]. However, the mapping method used as a representation technique in the architectural design process can be considered as cognitive mapping when it is desired to foreground the perceptual and sensory ones. Cognitive mapping is a graphic representation and analysis method aimed to investigate subjective judgments, beliefs and perceptions in a subject. Can such a technique be used as a design tool? Such techniques are important to be able to reveal a student's tacit knowledge/perception in the process of embodying a virtual thought. It can be considered as a means of discovery.

According to Wood [10], invisible, inaccessible or indelible, is conceived and transformed into a reality through mapping ability. This conversion format is that the mental one is externalized to the physical one. This externalization is a representation style. Corner [11] stated that the relationship between reality and representation could be looked at with spatial perception and cognition studies. He mentioned that maps are between reality and imagination. Meanwhile, the status of in-between is as a threshold for this study.

As a method, mapping is usually used in two dimensions and with a graphical language. It is a form of representation that makes the information/thoughts/senses in the mind visible with personal expressions. Therefore, a different version of this representation will be tried by making two dimensional and linear classical mapping methods to three-dimensionally in order to interpret it perceptually and cognitively. Therefore, perceptual and cognitive state is considered as a threshold between reality and virtuality, and this is represented as three-dimensional mapping.

### **3. Case Study: Taşkışla**

The state of being perceptual and cognitive finds itself between the idea world (virtual) and the representation world (virtual + real). However, this situation gains visibility in the transition between these two worlds. This defines a kind of threshold. While this threshold sometimes holds data from the physical world, it is sometimes nourished by personal perception, experience, and senses. However, both data are fed to each other and they co-exist cyclically together. In this sense, threshold can be considered as space without space. Various representation methods and tools are used to discuss these thresholds. Therefore, in this study, a case study has been carried out thereby a mapping tool, which is a means of representation, has been moved to three dimensions in order to discuss the threshold condition.

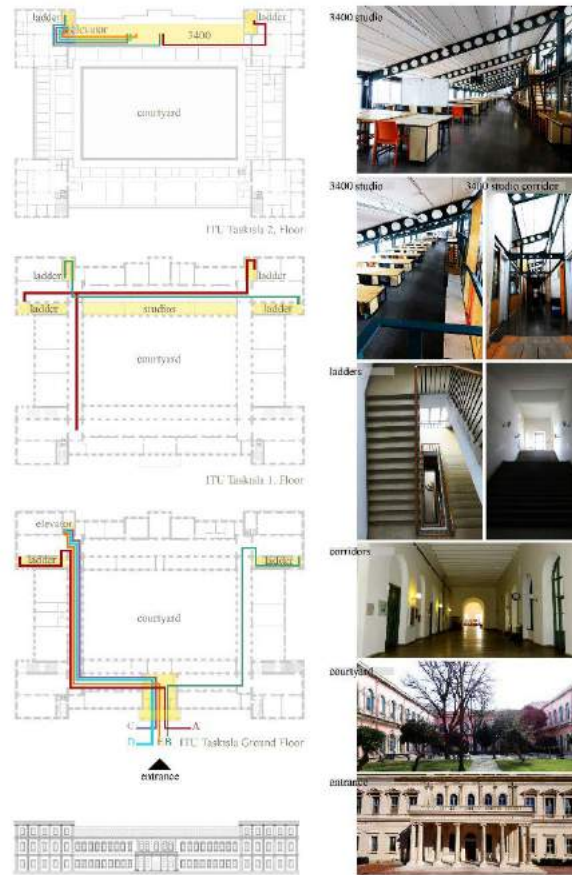


Fig. 2. Student route and Taşkışla images [12]

‘Taşkışla’ is chosen as an area where students can know and re-experience in case study. “Taşkışla was made by W. James Smith in 1846-1852 as a hospital and was used in various functions in the process. It has been used as the ITU Faculty of Architecture since 1950” [13].

Students have been asked to set a route on a priority basis, see Fig 2. While traveling on this route, they are expected to record what they are feeling, perceiving or thinking. Students who receive their record are asked to sketch this route. It is said that this sketch should be like a mapping. As a boundary, each student starts at the entrance gate and ends at 3400, which is the area (s)he most often used, (optionally the return route can be added). Later, a collective discussion made via sketches. Three-dimensional representations of two-dimensional maps are requested in the direction of discussions, see Fig 3. The students are released because the work was aimed at bringing personal perceptions and cognitive processes to the forefront. After their three-dimensional work, students are asked to describe their work again and recorded. The whole data have been resolved and tabulated in view of their similarities and differences. The identities of the students are expressed as A, B, C, D and E. A and B are second class, C, D, E are first class students. The solutions of all the documents of these persons can be seen on the tables, and sketches and models can be seen on the Figure 3 and tables.



Fig. 3. Student's sketches and physical models [14]

Table 1. Student A's data analysis

<b>A Student</b>	<b>Recording</b>	<b>Sketch</b>	<b>Physical Model</b>	<b>Recording</b>
<b>Entrance</b>	3 big door, light, Left corridor preference	expressionless	Customized entry	Open to courtyard, light, large space
<b>Ground Floor</b>	Equally spaced expression, intersection point	Orientation, Equally spaced expression, intersection point	Orientation, intersection point, Border creation, Openness expression,	Border creation, Openness expression, Space and transition area
<b>1.Stairs</b>	stairs: a cross between dimensions	stairs: intersection of two layers	Stratification of the ladder with a holistic expression	Planes as intersection points, Bending planes
<b>1.Floor</b>	Binary state: Bright(breeze)&dark (due to class)corridor	Binary state: closed geometry(dark sight)&semi-open geometry(light side)	Binary state: circular geometry(dark sight)&half-open geometry(light side)	Binary state: Expression of perceptual and physical bound(less)
<b>2.Stairs</b>	Differentiation of the ladder: Closure sensation	Differentiation of the ladder	Differentiation of the ladder	Differentiation of the ladder: gap, contrast, closeness. no place to be, complexity
<b>2.Floor</b>	3400 hall: windy, fluid	3400 hall: fluid	3400 hall: not specialized, different types of classes	3400 hall: spacious, unlimited.
<b>3400</b>	Large area, Absence of distance detection, Confidence between the two towers, relation of view and roof slope, freedom	In contrast to roof slope, turn to the scenery, overflow	Large area, In contrast to roof slope, turn to the scenery, overflow	Large area, In contrast to roof slope, turn to the scenery, overflow, independence from building

Table 2. Student B's data analysis

<b>B Student</b>	<b>Recording</b>	<b>Sketch</b>	<b>Physical Model</b>	<b>Recording</b>
<b>Entrance</b>	Turn right, Focus left(courtyard), Light	Turn right	Turn right, Different use of materials	A large area from human scale, Turn right, Light, Softness and orientation
<b>Ground Floor</b>	Equal spacing, Walking in the middle, Symmetrical, Change of flooring, Canteen: Bright-Busy	Equal spacing, Perception of symmetry, Closed spaces, Change of flooring, Canteen: Bright-Busy	Equal spacing, Closed spaces, Change of flooring	Equal spacing, Closed spaces, Change of flooring (just floor+me)
<b>1.Stairs</b>	Focus: window at stairs, White, Feeling not to end, Nice experience	Expressionless	Emphasize the feeling that the ladder will never end	Using transparent, long and steep surface for sacred, white, light stair.
<b>1.Floor</b>	Desire to go fast, Place of Venüs Statue, Shadows on stairs.	The expression of the boundaries of the corridors, Impairment of symmetry	The expression of the boundaries of the corridors, Impairment of symmetry	The expression of the boundaries of the corridors, Impairment of symmetry, Mixed
<b>2.Stairs</b>	As if different from Taşkılla, Scale perception	Expression of the differentiation of the ladder	Expression of the differentiation of the ladder	Expression of the differentiation of the ladder, More closer human scale
<b>2.Floor</b>	Corridor lights: Arrhythmia, Perceptually cold, 3400 Hall: immense, long, narrow.	3400 Hall: immense, long, narrow.	3400 Hall: immense, long, narrow.	3400 Hall: immense, long, narrow.
<b>3400</b>	Forgetting the length of corridor, Remarking İstanbul view, Warm as a feeling.	The lack of a complete spatial statement of 3400, Linearly remove borders.	The lack of a complete spatial statement of 3400, Linearly remove borders, Representation of beams	Forgetting the length perception, Remarking İstanbul view, Representation of beams, Immense

Table 3. Student C's data analysis

<b>C Student</b>	<b>Recording</b>	<b>Sketch</b>	<b>Physical Model</b>	<b>Recording</b>
<b>Entrance</b>	excitement, missing, impatience for the 3400 indecision for direction, choice: left side	Indecision for direction, its expression with different statement	Indecision for direction, its expression with different statement (density/sparsity)	Decision expression for direction, emphasis on passing with density /sparsity, choice: left side
<b>Ground Floor</b>	Passing the corridor by looking courtyard. Using elevator (but don't like). Impatience	Expression of passing the corridor by looking at the courtyard(shielding effect)	Expression of passing the corridor by looking at the courtyard(shielding effect)	Expression of passing the corridor by looking at the courtyard (with boundaries)
<b>Elevator</b>	Being dark	Expression of the elevator	Expression of the elevator (darkness, stratification, color)	Expression of the elevator (increasing the size, using colored acetate for floors, prison effect)
<b>2.Floor</b>	Corridor: as if maze, short but perceptually long, feeling impatience, very narrow, peaceful, warm, happy feelings.	Expressionless	Holographic expression. Being short but perceptually long.	Expression of width and limitlessness with small and large rings.
<b>3400</b>	Peace and happy feelings, Feeling of rest.	Expressionless	Expressionless	Expressionless
<b>Return</b>	Idle around while returning, 2.floor: foreign, opposite feelings(entering vs. returning)	Expression of the request to idle around while returning.	Expression of the request to idle around while returning.	Expression of the request to idle around while returning(with variable materials)

Table 4. Student D's data analysis

D Student	Recording	Sketch	Physical Model	Recording
Entrance	Gigantic entry, the different feelings that come together: distress, not knowing what to do, ordinariness	Expression of gigantic entry, emphasis on the idea of interior-exterior separation	Emphasis of the surfaces to be colored and black, size difference, interior-exterior separation, door & ladder	Emphasis of the surfaces to be colored and black, size difference, the opening of another world, the feeling of falling into the void
Ground Floor	Indecision for elevator use, self-search in the exhibition space, Sense of curiosity	Expression complexity, symbolic expressions	Self-search in the exhibition space (different color footprint)	Self-search in the exhibition space (different color footprint), being dragged along and discomfort feeling
Elevator	Feeling I can achieve while waiting. Hope.	Chaos	Using reflecting surface	Using reflecting surface., Add a modern touch.
2.Floor	Be in a brown study on the way to 3400 studio	Chaotic expression	Separation as corridor roundtrip, expression with different techniques	Flexible and inflexible yarns: the sense of incompleteness, self-questioning, awareness of the environment.
3400	Changing emotions and thoughts:(liking, distress). Atmosphere. View.	Use of colors and organization of them.	Cubic space perception. Color units in a enclosed volume.	Beautiful minds which are covering up over time. Sense of confinement. Confinement of the colors.
Return	Feeling haste going to lift. Fear of can't finish. Anxiousness when going to habitats.	Symbolic expressions.	Representations of narrowing with cubic units, disabled planes, a colorful expression	Sense of incompleteness. Wide roads towards to the narrow roads. Anxiety in the lift, distress. Increase activity of mind: explosion

Table 5. Student E's data analysis

E Student	Recording	Sketch	Physical Model	Recording
Entrance	Notice the first time of the ramp	Attempt to identify the entry, insufficient expression	Defining volume with vertical elements	Considered like a square. Central. Spacious
Ground Floor	Remembering the same exhibit when going to elevator. Two corridors: daylight&yellow dim lights	Representing a dual corridor and square, insufficient to expression	Transformation into a volume perception	Guide with intensive construction, a warm environment, rhythm and flow in the corridor
Elevator	Shutting doors of the elevator and moving quickly reminds The Great Budapest Hotel film. Dynamic space	Expressionless.	Expression with transparent planes, stratification exists.	Speed, dynamics, particle advance.
2.Floor	Sounds of the wooden threshold, disturbing, foot squeak.	Expressionless.	Using combination of transparent and rod elements	Wooden threshold, disturbing, dominant sound is footstep
3400	Colorful and dynamic space	Tried dynamic effect	Expression with colors and units.	Most intensive environment , dynamism, different planes, obstructing terrace wall, expression of open space (white&soft material)



Analyses of both the personal and group scale of the selected expressions in the tables can be seen in the result section.

#### 4. Conclusion

Vesely mentions that there is no clear notion as to what architecture should represent. This situation originates due to the nature of representation. So, the representation is something between the virtual and the real. Virtual things that are in the mind get reality/ physicality when expressed by any representation tool, but at the same time this physicality is virtual expressions for someone else. This situation creates a gap and illusion. And this gap is considered as a threshold for this study. Therefore, a case study, which has four steps, was made with a group of students. Firstly, perceptual situations of Taşkışla in students' mind were recorded, and then these situations were sketched on paper with the help of a route. Later, these sketches/maps were remade as three-dimensional. Finally, another record was taken via three-dimensional physical model studies. The aim in here is to be able to discuss what the transformation is when it is switched from one representation to another and whether these transitions cause a decrease or an increase. A three-dimensional perceptual mapping has been tried with this case study, considering the transitions between two-dimensional and three-dimensional representation. Because it is considered that a perceptual mapping can be between reality and virtuality. And its three-dimensional version is considered important in order to observe the different transitions between the representations and to translate the perceptual to the tactile one. In the case study, these transitions of the students can be read as follows:

When the records, two and three-dimensional maps of student A are examined together; the perceptual situations which they describe about their routes are beginning to disappear when they are sketching. But while the model is making, these situations begin to re-exist. The last recordings are expressed more detailed by means of the physical models. In this sense, while perceptual thoughts/situations are expressed more inadequately as two dimensional, they are expressed more visible as three-dimensional. For example in ground floor; when the light is an important factor in the first record, it is forgotten at the sketch, the physical model and the last record. However, the perception of perspective and direction of the place have equally spaced expressions in all the data. The presence of expressions such as boundary formation and openness is first expressed in the physical modeling phase. The space and transition area state is indicated in the last record as a new expression. In addition to the articulated situations, the presence of missing situations has also been observed. For example, 3400 class is described with "a wide area, lack of distance perception, confidence between two towers, the presence of the scenery and the orientation of the roof orientation, terrestrial boundaries, freedom" expressions at the first record. But the expressions of "expressing a large area, lack of distance perception, confidence between two towers" have disappeared at the other representations. Lastly, the definitions of stairs and floors show only partial changes when transferred to the other representations.

Looking at the table of student B's ground floor session, while (s)he mentions about the courtyard and light in the first record, there is no provision for this light emphasis in sketch and physical model phase. However, it appears that the light effect is re-emphasized after the physical modeling record. Perhaps this situation has existed in mind cognitively in the process but it has not found a physical response. The mind is still in its circular process. A similar situation can be seen in the part of describing the staircases. When talking about the feeling that will not end and the beauty of the staircase in the first record, nothing is expressed about the staircase in two-dimensional representation. However, representation of the staircase in physical model is almost the focal point of this three-dimensional situation. In the last record, this accentuation situation continues in the same way. The other parts' representations are generally approaching what s(he) thinks.

Again for the student C, similar situations can be mentioned. For example, the darkness of the elevator is tried to express in the first record and sketch. In its physical model phase, layering and color expression are added as well as being dark. At the same time, there are many positive expressions for the 3400 class in the first record. But these positive statements do not appear in the other data. It has been observed that perceptual expressions are fragmented in generally. However, a linear and holistic narrative technique can be seen in the sketches of student C. In addition to this, h(is/er) physical model has again fragmentary situations. The using of different materials may also have caused this. At the same time, can be assumed that the perceptions change very quickly for each data.

When student D's documents are examined, the statements in the first record are tried to be reflected to the other data. However, there are more symbolic expressions in the two-dimensional representation. In this sense, it can be said that the perceptual and the sensual things have some transfer issues while they are sketching. But when this sketch's physical model is made, the perceptual expressions become more visible and expressive. For example, the expressions that s(he) talks about walking around the floors does not reflect on the sketching, they become more visible in the physical model, even though it is sometimes symbolic. On the other hand, almost all the expressions used when describing the introduction section and 3400 class are also seen in other means of representation. Distinction, which emphasizes from the entrance gate, is drawn with colorful boundary or barrier line in the sketch. In the same way, the boundary/barrier sensation and the state of being colored are used in the physical model. The same situation can be seen in the sketch and model of the 3400 class. At the same time 3400 class is perceived as a place of imprisonment with the expression of the student. Taken as a whole, the approach of the student to the mapping situation is one-floor. However, the building studied is three floors. Because h(is/er) point of view of the places in the building - no matter which floor - is equivalent inasmuch as s(he) access between floors by using elevator.

When looking at the table of student E, similar situations can be seen with the other students. For example, there is no verbal expression about the entry section in the first record. However, when the sketch, the physical model and the last record stage are reached, the entrance space has begun to be defined and expressed in terms of volume. Looking at the other spaces in the building, memory-related data can be seen for the elevator in the first record. At the sketch stage, the elevator's perceptual data is forgotten but it was emphasized once again when it comes to the stage of physical modeling, and it is re-expressed in the last record. While s(he) is describing the 3400 class, she uses perceived data in the first record. And in the sketch study, this data is tested as a dynamic effect. In the stage of the physical model, it is completely turned into a focal point. Likewise, these expressions can be seen in the last record. The expression of the open spaces of the whole Taşkışla can also be found in the physical model and the last record. But it is not mentioned about these open-spaces in the first record and sketch. When we look at student E in general, the mapping state behaves linearly in verbal expressions. In addition, it is more voluminous/ holistic in its three-dimensional representation. However, although the physical model is expressed volumetrically, the mind is still in a linear state when the last record is examined.

When we look at all the students, it is observed that the transition between the virtual and the physical is experienced with the degree difference. The transitions of some of these students are more conceptual; some of them are more physical. For example, in the transition from first record to sketch of student A, the perceptual expressions are partially lost and reduced to the physicality of the space. From the sketch to the physical model, the same type of transition was observed except the entrance and staircase. But the entrance and the ladder stand at the threshold between virtual and physical. Similarly, the perceptions/senses of student C is emphasized in the first record. But when these senses are switched into sketch or

physical model, they are partially lost. But the 'thought of wandering' situation used in the turnaround can be viewed as a threshold in view of the physical model. Likewise, the state of 'indecision and orientation' in the introductory chapter is conceptually present. Student C's partial way of thinking is found in h(is/er) physical model, as well. But, it is successful in abstracting conceptual expressions. However, student D has remained more symbolic in the sense of abstraction. This is seen in many parts of the h(is/er) physical model, like footprint image. The threshold point for this student is to think and express the physical layers of the structure in a single plane. Students B and E are separated from the other three students at some points. For example, student B described the spatial and perceptual situations together on the first record, and he expressed this within the physicality of space in his sketch. But when he makes model, she completely removed from the physical reality and try to find the thing of sensory and conceptual within the making process. This searching can be thought of as the representation of the threshold state between the virtual and the physical. In this sense, the perceived space created a perceptual break in three dimensions in the context of physical boundaries. It can be thought of as the closest example to the three-dimensional mapping situation, since the linear/consecutive state corresponds to three dimensions. Although this fracture is maintained mentally in E student, it has not found its linear/sequential state especially in physical model.

As a result, the transitions between the representations were seen in different forms in the five students. In these transitions, students make the situation of being the threshold between virtual and physical in different forms visible. The idea of producing three-dimensional mappings, which are considered as a space without space, can be an effective method to extract the perceptive one when considering the case study. Contributions can be made in this direction by developing new studies.

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## 19-20. TH. CENTURIES NEW IDEOLOGIES OF ARCHITECTURE AND REFLECTIONS TO THE ISTANBUL AND END OF THE IDEOLOGIES OF AFTER THE 1950'S

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### **Abstract**

In the 19-20<sup>th</sup> century, some ideologies in architecture and planning arose from mostly based European ideas. Some of the new ideologies in the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century never been applied as an planning projects and remained only “utopia”. “Utopias” changed the society influencing their life style through planning. In the architecture, one large category which also decided to exclude what might be called “urban ideologies” was defied by Mannheim : “ideology” as thought which seeks to advance the interests of class or group within the context of an established social order. [7]- [8].

19<sup>th</sup>- 20<sup>th</sup> century, new planning approaches as context of the new ideologies in Architecture and its reflections had been seen in firstly in 19<sup>th</sup> century in Europe and all world and finally, 20<sup>th</sup> century in Turkey. 19<sup>th</sup> century’s innovative ideas first exposure in the “utopian” projects adapted the new “public health” norms. Likewise the 20<sup>th</sup> century’s some planners “based to “utopian” projects also had some references to European “utopian” [1]and Benjamin Ward’s “utopian” city (Hygeia) [9].

**Key Words:** *19-20 th Centuries, Europe, New Ideologies, Architecture, Reflections, Istanbul.*

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### **1. Introduction.**

In this article, focused on “utopia” and “utopias” which influenced the world as new innovative planning ideologies in 19<sup>th</sup> century and their reflections in Turkey through the European architects and planners. In this article, new ideologies once having been an utopia than defined as new ideologies were examined. Also, definitions of these ideologies and how and which way they came to Turkey and who were the architects and city planners have been examined.

#### *1.1. Utopia and Utopias Their Influences Creating New Ideologies.*

Some of the 19-20<sup>th</sup> century “utopias” which firstly had been arisen in Europe than influenced the whole world with their new, innovative planning ideologies. These new ideological influences were reflected to Turkey through European based architects and city planners through their plannings which still could be seen some quarters in Istanbul. These new ideologies had undergone change but still have continued to influence in Europe and Turkey in 20<sup>th</sup> century.

Utopians, were to express their faith and their will to transform society in the form of imaginary cities which thought different possessed a common spatial structure, in as much as a detailed description of each vision would be too lengthy we shall focus our analysis on the

characteristics of the common model they share. [4]

Some concrete determination of what is utopian proceeds always from a certain stage of existence it is possible that the utopias of to-day may become the realities of tomorrow. [8] So, according to Mannheim :

whenever an idea labelled utopian it is usually by a representatives of an epoch that has already passed, on the other hand, the exposure of ideologies as illusory ideas adapted to the present order is the work generally of representatives of an order of existence which is still in process of emergence. [8]



Fig.1. 19. th.century, Fourier, *Phalanstère*. (palace-house)

Bnf., Bibliothèque Nationale de France.  
URL-1, (<http://www.bnf.fr/fr/acc>), 2013



Fig. 2. 19th century, Godin, *Le Familistère*, (social-palace)

Bnf., Bibliothèque Nationale de France  
URL-2, (<http://www.bnf.fr/fr/acc>), 2013.

Also, many of these ideologies have never been applied as an architectural projects or city plannings remained only on theoretical basis. Thus, these projects whether architecture or city planning were divided into two groups, those who design them and those who implement them. Futhermore : also planner called two different ways : theoretians and practitioners.

### 1.2. 19-20<sup>th</sup> Centuries New Ideologies Influences of Society via Architects and City Planners in Europe.

Utopias, first arose as an utopia than effected the architecture and architectural theories even society.

“We could change the whole of society to-morrow if everybody could agree.” [8] The effects of utopians are first seen in society. The utopians first appeared to find answer the problems of the 19<sup>th</sup> century industrial society. Later, from the 19th century onwards, they developed new projects in order to find solutions to the problems of industrial society.

Innovative projects on the basis of utopia are studies that guide the development of urbanism towards the end of the 19<sup>th</sup> century, even though it was not possible to applied them in the first period. Being aware of the social problems underlying urbanization and social problems, the first utopians are called social utopians. These projects, although the first priority is seen as social utopia, succeed in attracting attention to social issues with the solution

### 1.3. 19-20<sup>th</sup> Centuries New Ideologies Influences of Housing Problem via Utopian Projects in Europe.

They are known as social utopians and they have searched for urban centers with "urban" writings and sought advanced solutions to the urban problems that have evolved with technology. [2] The projects of the utopians, especially for the 19<sup>th</sup> century industrial era, lasted for many years to find solutions to the mainly housing problem. These, 19<sup>th</sup> century utopian projects led to the emergence of innovative projects later even some influences have been seen in beginning of the 20<sup>th</sup> century.

The effects of Fouriér, which F. Choay stated that he uttered the utopia's foundations, echoes in the utopian discourse, and Fourier's ideal is developed and edited in the urban environment by producing new "palace-house" prototypes based on utopian discourse by social utopians. [3]

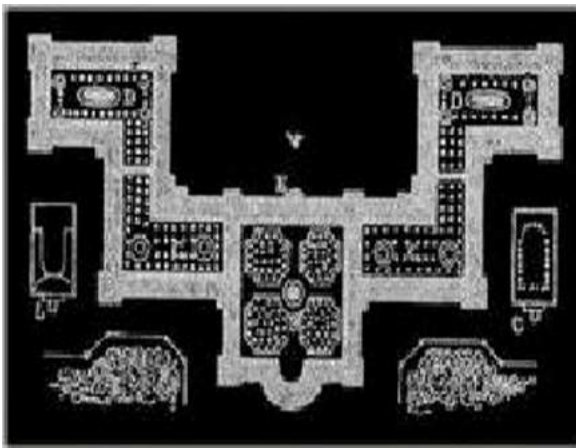


Fig. 3. Fouriér, Utopian planning, "Phalanstère".  
Habiter l'Utopie, p.23 .

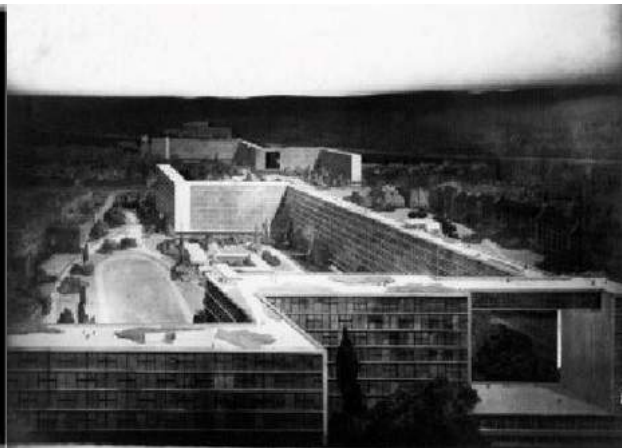


Fig. 4. Le Corbusier, Ville Radieuse.  
Fondation Le Corbusier.  
URL-3, (<http://fondationlecorbusier.fr/>),  
2013.

This "palace-house" which was originally planned by Fouriér had a model of house where many people lived there having resolved the problem of residence together. Between the 16-19<sup>th</sup> century : T.More, Ward, Owen, Fouriér known as utopians. Owen, Fouriér and Richardson's ideas are based on "public health" rather than a asthetics approaches. [3]

Charles Fouriér, had been influenced by density of population in large cities and its evolution. So, he aimed to design a residential with multi storey smilar to palace thus, many people could be lived in.

"As a result of the original idea "Phalanstère" (palace-house) occured.  
The ideal "urban" social evolution and part of the industrial society with  
Fouriér's philosophical view is reduced to one piece." [5]

## 2.1. Beginning of the 20<sup>th</sup> Century Reflections of the New Architectural Ideologies in Istanbul, Turkey and Some Planning Examples of the Followed “Utopians” Ideas.

The beginning of the 20<sup>th</sup> century, French planner Henri Prost was invited to Turkey for planning the Istanbul city context of the modernization project. Henri Prost’s planing idea derived from utopians ideas aimed to mainly “public health” based urban planning ideas. Likewise, Henri Prost’s planning idea was based to utopians planning methods : aimed to planning houses having 20<sup>th</sup> century “public health” standarts.

After the arrived Istanbul Henri Prost specified Levent Region as a new development city axis in his Master Plans. In Istanbul, as a new axis Levent Region was developed by extending the tramway from Taksim to Şişli quarter. Thus, in the 1950’s, the new Region Levent wanted to plan as a modern new settlement. Prior to the 1950 elections, in 1949, the Istanbul Mayor L. Kirdar was requested from Angel planning of the Levent Project while Henri Prost was in Paris. [1]



Fig. 5. Habitation Unit in Marseille, Le Corbusier’s On the column called *pilotis*



Fig. 6. Habitat Marseille. Fondation Le Corbusier. URL-2, (<http://fondationlecorbusier.fr/>), 2013.

Photog. By Coskun, 2011, Marseille.

## 2.2. Beginning of the 20.th. Century Istanbul, Levent Project : and Example of the “New utopians”.

In his Levent project, Henri Prost, aimed the firstly “public health” likewise “utopians”’s main idea applied reminiscent plans of the 19<sup>th</sup> century social utopians, where the many families living in same

building. But, this planning idea of the Henri Prost had not coincided with the idea’s of Municipality of Istanbul. [1]

According to Angel’s description: this project, planned by himself and Henri Prost, resembled the planning of Le Corbusier as a high-rise residential block built on columns called by Le Corbusier *pilotis* on ground. [1]

*Pilotis*: was allowed for the circulation of cars and other vehicles. [10]

Henri Prost and Angel’s Levent project was a modern model, similar to Le Corbusier’s Habitation Unit in Marseille raised on the ground with the columns of *pilotis* that actually designed as social utopians “phalanstère” (multi-storey residence-palace) model accordance



to understanding with different public life norms.

“In Levent project I had planned high rise buildings but, these buildings would not appear from the Bosphorus as a principle of the planning idea.

To avoid the seen in silhouette we had replaced the buildings in the lower areas of land.

Thus, there was nothing else on the ground level. All green could be seen.” [1]

“Down the buildings : garage and the cars would not be placed the ground level.

Garden, garage and laundry rooms would be placed in the building 6.5 m. up from the ground.” [1]

In the statement of Angel : “Prost's Levent planning where raised with columns on the ground called *pilotis* were a very modern planning likewise the Le Corbusier's, Habitation Unit in Marseille. This buildings model also, had some influences by the Prost and Angel's previous obscure utopian ideas and planning methods though Prost and Le Corbusier, basically, implement of very different planning methods.

In the mid-19<sup>th</sup> century, with new, innovative, radical lifestyle norms of social-utopians : "Phalanstère" (multi storey-residence-palace) building model was also reacted in Paris city due to its uncommon social communal lifestyle with have many common areas.

For centuries in the Ottoman Empire, residents had lived behind windows shutters *kafes* and wall with an indoor lifestyle, so, Prost and Angel offered a "phalanstère" (multi-storey-residence-palace) model based on social utopians very different norms of communal lifestyle : a cafe, a dining room, iron-laundry area with common social areas might have had a reaction by residents as an interfere of their conservative lifestyle.

### *2.3. Conclusion : Second Half of the 20.th. Century and End of the Ideologies in the World and Turkey After 1950's.*

In the 1950's, a great breaking point was been seen in all the world architecture and planning. Thus, previous planning ideas totally changed due to new liberal political view and globalisation of the world. In the 1950's, government social based political view and planning policy of social housing ended and after, new liberal political view was seen in the country instead of old social policies.

After the 1950's, responsibility of housing construction was given to private sector, thus, architectural and city planning policies changed aiming to build for rich people called mid-upper class people instead of lower income people of social class. Thus, due to radical change of social housing policies for low income people uncontrolled houses increased with mass migration in the old and new quarters of Istanbul creating new slum quarters.

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## EXPERIENCING ARCHITECTURE: BAYRAMPASA PRISON

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### Abstract

The basic aim of this work is trying to read the traces of experiences that begin with the search for meaning combine the continuation with the concept of space. There are some hidden meanings in the footprints of the lives driving on the environment surrounded by the physical building elements that making up the space. For the designer, the discovery of life restricted by these environmental conditions constitutes the meaning of design.

This work, which began with the search for the meaning of the space, tried to find its meaning by differentiating within its own dynamics. In this context, the meaning itself has been transformed into a method. Accordingly, the relation between language, dialogue, atmosphere, body and memory has been investigated and the space itself has been tried to be found.

Bayrampaşa Prison fieldwork is based on the principle of how these inquires can be transformed into a body in professional practice. Bayrampaşa Prison (Sağmalcılar Prison) was chosen to read the experimental relationship established between the user and space in order to examine the production of space through extreme spaces.

In this case, it would be more decisive to use the term "case study" rather than to name or describe it as 'example' in the context of "relationality".

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**Key Words:** Experience, architecture as extreme space, Bayrampasa Prison

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### 1. Introduction

The necessities for sheltering and protection, which are the most basic needs for the survival of the individual, do not simply refer to the physical environment. The conditions which are limited by the physical environment form the integrity of the space and acquire sense of expression through the concept of the meaning. In this context, the study tries to explain the efforts of the individual as a designer to understand how the individual experiences interact with the space conversely. The study also tries to read on the perception of relationship that arise from the "existence" of both the designer and the individual who are experiencing the space. Also, during this interaction, it has been attempt to discover the potentials of the spaces that individuals experience as they relate to each other.

Bayrampaşa Prison Case Study has become a center of life holding all the dynamics of the city concerning its periodical characteristics along with the development and growth of the city from a prison house which was on the periphery of the city over time. In this study, it is investigated whether the meaning of the bodies trapped in the spaces where the body turns into energies in the process of change and transformation or how they transform their meanings. The design process can be described as analyzing the process seeks to define the starting and ending points existing in itself, followed by the time period elapsed beyond the expression of the subject by expressing itself as the process. This dynamism, which arises from the fact that the space is constantly moving with the subject, transforms all of the situations encountered in different forms.

### 1.1 Methodology

As a methodology, research began with literature review. The literature search basically started with the concepts of Pallasmaa and developed considerably. Because, during the studies, the orientations and concepts of the Finnish theorist Pallasmaa have been directed. Pallasmaa (2011) reveals that architecture is not only expressed in terms of drawings and construction in technical terms, but that architecture exists together with philosophy and art. The orientation of Pallasmaa was chosen as a decisive factor, since it argues that the basic task of architecture must address all senses, not limited to the integration of host and subject with space.

After the introductory chapter of the "Experiential Architecture" concept, which is unique to the work, in the second part, mainly the concepts of Pallasmaa were presented to the reader. In the second part, readings were made on the spatial characters (graphs), space atmosphere, memory-space, and experience-body relations through the readings made by the spatial characters and spatial perception that the author experienced during the visit.

In the third chapter, Bayrampaşa Prison readings were made through these concepts. In the final section, the results of the thesis study were discussed and the relationship between the study and the interior architecture was discussed. The achievement of this experience or design process is also questioned in the network of relationships. Experiencing the space required long-term observations and interviews. The methodology of the study referred to observations and interviews after the literature review.

## 2. Experienced Architectural Concept

The concept of experience applies to all fields and all professions. However, the importance for practical areas such as architecture or interior architecture is increasing. Experiencing the spaces with the viewpoints of the subjects to use gives the interior architects the opportunity to do their work much more successfully. To experiment requires physiologically to measure more, to circulate in the circulation areas, tissue color and so on. , yet requires psychologically sensual experiences. Pallasmaa (2011) states that "sensual experiences are integrated through the body, more precisely in the structure of the body and human being... Our bodies and movements are in constant interaction with the environment; The world and the self-provide unceasing information and define each other". It is well known that creating this awareness is what designers do by recognizing and relating to their own language.

A designer move into that space, looks, touches, smells and starts the process of life by transferring the process to his sketches. The spaces start to form around a shell. The shell, together with the wall or other name, coats the top cover. The integral is neither refers to whole, nor the parts. The whole is a sum of parts, but it has a totally different meaning since it contains the differences of all the singularities of different features, that is, all the subjects. Each singular subject makes it possible to place its own essence in a blended form within the whole. When holistic relations are examined herein, attention should be paid to the contextual relationships among the singularities.

From the point of view of the subject, it can be said that the visible states of objects or situations can be understood as the expression of universal language that all individuals are able to understand. It can also be expressed as the widening of the meanings of visible and perceived world as subjects. Pallasmaa (2011),

"We look at the world with all our physical existence, touch, listen and measure, and the world of experience is organized and articulated around the body's center. It is our home, our body, our memory and the refuge for our identity. We are in constant dialogue and interaction with the environment so that it is not possible to detach the image of selfdom from its spatial

and situational existence” (Pallasmaa, 2011).

Describing the concept of experience best with the sense of touch, Ashly Montagu expresses the meaning that conveys for the sense of touch:

“Skin/body is our oldest and most sensitive organ, the first communication tool and the most effective guardian. (...) Even on the transparent layer of our eyes there is a layer of skin that has been transformed. (...) Our eyes, our ears, our nose and the mouth of our mouth. To touch is differentiated into other senses; It has long been evaluated that "the recognition of this phenomenon as the" ancestor of the senses “ (Montagu, 1986).

The concept of experience described by Pallasmaa deals primarily with users who will last their lives in spaces and addresses all abstract or concrete data they perceive in their lives; Accordingly, the designers exhibit the emotions of their experiences from the perspective of their own identities in one way or the way of life from the other side of the experiences from the perspective of the designers. The expressions expressed by Ashly Montagu are the definitions of our sense of touch that give meaning to the concept of experience.

### **2.1Relation of Memory and Space in Experienced Architecture**

The collision between the subject and the object, or in other words, the continuing shifts between slides, can be correlated as the stages of experience. All the memories that take place in memory are shaped together with the experience to provide the idea of space. According to Pallasmaa (2011), "the perception of the body and the image of the world turn into a single continuous experiment; There is no body separate from the place on the spot, there is no space unrelated to the perceiving self-consciousness of the unconscious ". With this expression, Pallasmaa (2011) witnesses the cycle of the body that forms the memory of subject together with other senses.

When the memory issue is addressed, it is perhaps right to speak of the atmosphere of the place. The atmosphere is everything that happens there. In fact, it is an attempt to explain existence of the individual who intrinsically substance, along with when it is found in which space.

"The moment that is becoming performative, it is now oriented to a simultaneous imitation. It is obvious, however, that such a memorial will produce a similarity of perception-immanence, in which such a "memorial of the present" will be utterly useless. The moment (synchronized) must be in accordance with a new present which allows it to be past, not according to itself, "(Deleuze, 2010).

The language, which made up of when the present encountered with the memories, seeks to refer the memories at present by trying to define the points of separation between substance and memory by actuating the memories of the space.

"There must be a difference in nature between matter and memory, between pure perception and pure memory, between now and past, just as it is between the two lines we have already distinguished. If we have such difficulty in thinking that the past lives in itself, the reason is that we do believe that the past has no longer existed, and that it ceases to exist. So we confuse it with the present being. But present do not exist ; it is fortiori always a pure form outside of itself. Past and present, it refers to two things that exist together, not one, but two consecutive moments, one that is now and lasts, the other is past, and always exists but allows all present to pass "(Deleuze, 2010).

The spatial perceptions that are perceived by the sense of sight, recorded in memory, and brought back to memory incidentally, are another dimension of memory.

It is better to use the concepts of outside and inside when opening the atmosphere of the place in the sample of Bayrampaşa Prison. The subject begins to approach all situations that create the space as a narrative, bringing the atmosphere of that space to the field. The prison phenomenon, which is an extreme place in the new world order that they try to read and understand with their visual and conceptual experiences, loses all internal and external data and points to the existence of that moment.

Bayrampaşa Prison can be expressed as a sum of all the times have been lived in itself together with the moment through the memory-space relation (Picture group 1). Time, with its creative dynamism, conveys a tangible reality, an inner state, in an abstract plane. Memory, with images and emotions that experience, is absent and has traces of being in existence.

In this new plane of images and senses, memory tries to preserve its presence by making sense with experience. The surfaces created by the intermediate planes that the memory creates, together with the reality of the space, emphasize the perceived existence of the volumes.



Picture Group 1: Scenes From "Bayrampaşa: Ben Fazla Kalmayacağım".

In the courtyard-ward-courtyard plane where life continues with existence, it is necessary to look for ways of being able to be "one" with it by being able to approach the object by approaching it with incompleteness. Perhaps the real aim is "a perception philosophy (perceived world)" that wishes to learn to see the world from the beginning.

### 3. Experienced Placed: Bayrampaşa Prison

The Subjects which define Bayrampaşa Prison as a house provide to reveal the new one with the memory of them in the footsteps of their experiences. Hence the memory for the

subject which is established with the world becomes a new union and integration through its senses and experiences. In the case of Bayrampaşa Prison, the traces of the struggle to survive with all the senses are concerned in all the places where everyday life lasts are read. The subject tries to express the movement in the space by determining the boundary of the visual entity that is related to the space. The most important determinant of the subject is the walls. The walls that make up the vacancies are transformed into a limited set of technical measures that fit the whole life of the subject in this sample (Picture 2). Through the walls, he continues to communicate with the world, puzzling the potential to translate his everyday life in a monologue into a dialogue. In particular, the ability to leave a message to the future by conveying the experiences from the past Bayrampaşa Prison case study emphasizes the importance of the wall writings in terms of relation with the space.



Picture 2: Bayrampasa Prison Wall writings as an example of experienced place (Hüma Bakır personal archive).

At first, this change only occurs with physical sensation of sight. There will be time to read architecture together with seeing a silence that will try to understand it in the outside world. Pallasmaa (2011) summarizes the reflection of the view of the subject as follows:

“Compared with the strong emotional engagement of natural and historical environments, one of the reasons for the architectural and urban environments of our time to feel like ourselves stranger is that they are lack of sight in terms of surroundings. Unconscious peripheral perception transforms retinal gestalt into spatial and bodily experiences. While peripheral vision integrates us into the space, focused sight pushes us out of the room, makes us a pure spectator (Pallasmaa, 2011).

In the continuation of these wall writings which are experienced and watched while visiting Bayrampaşa Prison, the subject of the experience of space, which starts with visual communication, drifts into another silence with the experiences memories that exist. The change that starts with the silence can also be explained as an expression of how the sense of seeing moves other senses.

### 3.1 Bayrampasa Prison’s Experience and Comments

In the project, concepts have arose as projections of cells that are arranged one behind the other. As can be seen in the Bayrampaşa prison example, the ward-courtyard-ward sequence in the design principle of the room has been highlighted and each ward has been tried to be described with a specific concept (Figure 1). The emphasis of the ward and court arrangement

that is behind the bars is one of the primary question has been asked in this study (Figure 1).

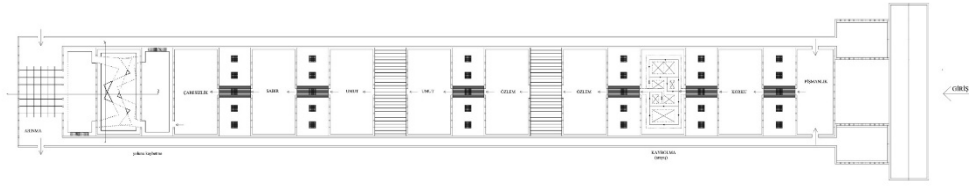


Figure 1: Description of the expressions of the concepts depicted by the courthouse courts in Bayrampaşa Prison : catharsis , rebellion, desperation, patience, hope, missing, being lost (search), fear, regret

The life in the wards and the breathing reflex, which is the most basic sign of life in man behind the fences is an indication that how the limits are determinant. For this reason, the concepts are arranged one behind the other. This continuity was obtained by describing the sentiments of the prisoner entering the premises. Concepts are creating narratives in places (Figure 2).

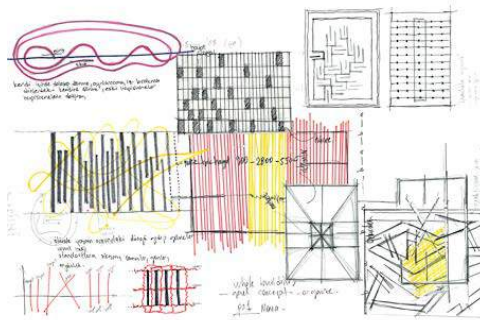


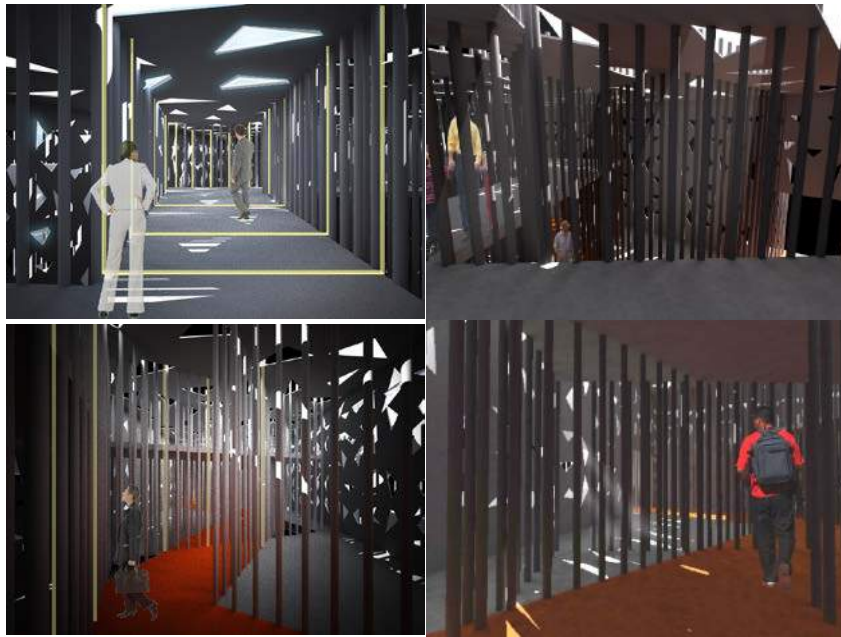
Figure 2: Transposition of conceptual sketch exercises into ward courtyard ward experiences

- Repentance: It appears to be the most basic feeling that is felt when the first step is taken and is constantly felt during the time spent there.
- Fear: The person who comes to realize where he is, meets with fear, one of the most basic feelings of mankind, developing instinctively. With this thought, the sense of fear, the floor covered with floor covering.
- Being Lost (Seeking): This process has been tried to be identified with the maze concept of experiencing all of the religiosity of religion, the cycle between death and life, and the mental shift to the previous life constantly.
- Missing: Only by the sense of smell it has been provided to experience the feeling. Pallasmaa (2011) describes the scent spaces as "the most persistent memoir of any space is often scent ... A special scent allows us to reenter a place where our retinal memory is completely forgotten; The nostrils evoke a forgotten image and we enter into a vivid daylight.
- Hope: The time, days, and lightness stuck in the standards are being questioned, and the only hope of acceptance and expectation is to live with hope.
- Patience: If you are alone before you go out, how long can you stay in this space where your conscience turns into energy? This is the new situation in search of the answer of the question. Only one spot is positioned in the light and old film tapes on the floor. The feeling of patience, tried to be reminded that everybody plays the role of their own movie, has been tried to be expressed in this section.



- **Desperation:** The Bayrampaşa Prison period is the beginning of a point where all of the remedies are wasted and hopes are over. There is no cure other than accepting the present situation. Everything in life has a remedy, but there is not for death.
- **Rebellion:** It was attempted to describe bridges extending to a life to be established between the past and the future. It was tried to question the relation of the lower and upper floors together with the bridges, just as in the bunk bed system in the prison, the feeling of seeing but being unable to touch was tried to be created.
- **Purification:** From the first time in prison, a certain time has passed and a significant turning point has been reached in one's life. It is about to begin of rehabilitation, decarceration and to start a brand new life, which are at the heart of prisons.

In accordance with the experience of the space that are presented with those concepts, with the closure of Bayrampaşa Prison, readings are presented to the works which are aimed to revive the memory of the people and to keep them alive who do not have their lives there anymore. It is the starting point of the work of dynamism born out of all the relations of the ending persons with the object, who have spent a certain period there (Picture Group 3). In this direction, the atmosphere of all the volumes was created and the volumes were designed according to these concepts, allowing the readers who will experience the place from the first entry into the space, to be conditioned and allowed to circulate in the field.



Picture Group 3: Inner view of the wards designed by authors

Since the concepts created in the frame of space are created by conveying the experiences of the subjects who have passed their real lives, it was intended that the subject re-experience the space by the feelings, breathing of the same senses. For this reason, the reader's experience in the places that started with remorse and ended with purification was held on the front panel. Sensual descriptions are also included with each reader reading the space through visual descriptions. It is planned to move away from the context of matter and time, and to establish their own sensory balances in the atmosphere.

#### **4. Findings, Conclusion and Discussion**

The spaces and the experiences here have been aimed to find their own meaning only by the existence of the individual, from the theoretical point of view. Beyond an intended end, it

is the expression of all the experiences encountered on the path to that outcome. It has become one of the decisive factors in terms of space concepts. Attempts have been made to describe the spaces along with open-ended investigations carried out within the framework of known networks.

The method used in Bayrampasa Prison has been the readings that the author made through the spatial characters and the spatial sensation experienced during the visit. At this point, it is understood what the experiencing person may be the things that trigger the imagination. The existing walls in Bayrampasa Prison and the graphite's made by these individuals on the walls of these houses constitute the basis of the experience element. At the same time, what is meant by the atmosphere of the place and how it can be reflected in that space is the creative formations of memory and time integrated through the courtyard. It was questioned where the inner-outer concept associated with the hunter was located on the level of interior architecture. In this level of relationship, as a method, the question is to continue to follow the reality of reaching the causes, which are the answers to the questions, rather than the answers. All of the experiences that started with tracing were actually one of the analyzes that the writer features with the subject's discovery of his own body.

The place represents over the world with itself. At the origin which starts with the representation of the world, concerning the body as the center of everything and rewriting it on the bodily experiences is actually the process of making the endless research into concrete.

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## MARKS THAT THE FURNITURE CARRIES

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### Abstract

In this study, it is aimed to examine the furniture in the communication axis and to classify the marks that the furniture carries. The resources which will form infrastructure for the subject have been examined; collected design examples have been analyzed and interpreted comparatively, and as a result of this, new definitions related to the furniture have been achieved. The research starts with the definition of the concepts of design, symbol and metaphor in communication axis and then propounded headings have been explained over examples. The classification of the indicators and symbols on the furniture by analyzing them can form resources for the designer trends and present a new series of concepts for the design readings and make contributions to the evaluation and design processes.

**Keywords** – Communication, Mark, Sign, Furniture, Symbol.

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### 1. Introduction

The element that ensures the information transmission in the design is the form language. The form language which ensures the communication via the carriage of information from one point to the other and playing an important role in the process of giving meaning to the objects is composed of the visual and perceptual clues which are directly or indirectly related to the certain concept and meaning essences (Athavankar 1989, pp. 1-31). When the design objects are examined by taking the components of the form language such as line, colour, shape, material, form and texture as bases; it has been observed that these components carry indicators which are related to function and some special messages. In this article, the *furniture* which is a design product has been examined on the axis of the indicators that it carries. The indicators available on the furniture convey information related to the use area, place, user and designer of the product with the functional and customized symbols defining the design.

The furniture is a communicative object, a tool which conveys message and meaning carrier in addition to its utility function. However, the messages that the designer gives in the furniture design are not always clear or the design can be the carrier of more than one message. The aim of this article is the examination and classification of the indicator and symbols available on the furniture. In this direction, it has been aimed to make contributions to the process by forming resources for the designer trends, develop a new series of concept, classification and method proposal for the design readings, to form systematic data for the researches in this field and open the priorities of the furniture design programmes to the discussion. In the study, firstly, the concepts of mark, symbol and metaphor ensuring the communication on the furniture have been given places, then the signs that the furniture carries have been classified.

### 2. Mark and Metaphor on Furniture Design

The furniture which always has a symbolic place in the living way and cultural accumulation of the human is also programmed with its communication function in addition

to its practical use function as of the first day on which it appears. In the furniture design, the communication is ensured with the elements, indicator and symbols forming the form language. The indicator (mark) which plays an important role in the process of perception and meaning giving of the individual can be defined as all kinds of forms, objects, words, appearances, properties or concepts which show something other than itself and make the individual think (Eco 1986, pp.15, Peirce 2000, pp.37). The symbol is the transformation of a mark having a meaning to a communal code by being generally accepted (Peirce 1955, pp.102). All alphabets, numbers, letters, shapes can be shown as examples to the symbols which can be defined as concrete objects or forms such as mark, nickname, exemplar, specimen mentioning a phenomenon, a person, a place or an event (Berger 2010, pp.14). Each one of all of the elements forming the design such as the form, colour, material characteristics, surface attribution is an indicator; and functions as a tool in the conveyance of all kinds of messages.

The furniture form sometimes makes a reference to a certain object, concept or phenomena via the semiotics it possesses. Such type of the references which is formed with the connotations being established on the similarity is named as *figure of speech* or *metaphor*. The designer puts conscious meaning on the form with the concern of communication on the metaphor. These analogies can be made to the real objects and they can also be made to the concept, thought, form, opinion, phenomenon, tradition and feelings. According to Hjelm (2002), the metaphor is the telling of the unknown via the known. According to Burke (1953), the metaphor is a concept, an abstraction and the identification of the object. According to another definition, the metaphor is using another thing which is resembled to it for telling a phenomenon (Gibbs 2008, pp.46). The metaphors are frequently used both by the designer (sender) and user (receiver) in the identification and interpretation activities. For the furniture to be preferred by the user, it is required to establish a communication between the object and the user. The designer aims to attract the attention of the user with the symbolic and aesthetical marks ensuring the establishment of this communication in the most effective way. The furniture conveys information sometimes related to its designer and sometimes related to its user via the indicators and metaphors.

### **3.Marks Which Convey Information in the Functional Terms**

When being examined on the axis of the marks that it carries, it is observed that the furniture primarily has a language conveying information related to its function. These characteristics which we can define as the functional communicatives reach to the user via the various senses and gain the usage value. For example, an element for sitting tells that it is an element designed for being sat with its form language, leaning surface and font. It is possible to say that these marks which give the information of *sitable object* to the person who sees it are related to the human's anthropometric and ergonomic sizes. A storage element conveys the information that it has the structural characteristics which can realize the storage function with its form with or without cover.

Another factor that plays a role as much as the anthropological and ergonomic sizes in the development process of the formal language is the social factors. Together with the socio-cultural and technological developments, the formal variety has increased and the form language that the user forms has become richer. In parallel to this, the functional marks which make the design meet with the user have differed and have become the determinant of the new requirements. While any elevation was defined as the element for sitting at the prehistoric periods, the developing functional and hierarchical needs have brought the furniture instead

of the elevation. The new production techniques which improve together with the social and communal developments have accelerated the formation of a new form language.

The symbols in the human conscious regarding the function have caused the design to be shaped with the different marks in every period. For example, in the Rococo Period, soft surfaces were formed on the upper sides of some armchairs for the people to lean while standing (Figure 1a). In the Figure 1b, a chair for knee bending that the people used for praying and belonging to the Directoire Period is seen. The low font of the design makes the knee bending of the people on this furniture having the form of chair. The furniture which appeared in the past periods, however then disappeared and having the alternative characteristics shows that the design-function relation can differ in every period and the furniture is carrier of the symbols related to the period in which it is produced. Today, it is seen that the functions on the furniture are programmed in a way in which it will respond to the diversifying social and physical needs of the user. The furniture presenting single function-multi function, changing-convertible, personalized and experimental use forms are examples to the leading function prioritized designs in the today's living conditions.



Fig.1 (a) Rococo armchair having the leaning surface on it (b) A chair for knee bending belonging to the Directoire Period

#### **4.Marks Conveying Information in the Spatial Terms**

In addition to the functional marks, the form language on the furniture also gives information in the spatial terms and conveys clues related where the product can be used. The material, size, form, soundness and similar physical characteristics have the attribution of means reflecting the marks to the form language which convey, to what need the furniture responds, the physical environment where it is and to which space the object belongs. Whether the design will be used at house, in the office, in outdoor, for resting, while eating meals, while working can be understood by evaluating these functional symbols. The furniture which has been produced with the materials which are resistant to the water and weather conditions such as the metal, impregnated wood, iron, concrete, stone conveys the information that the design is for outdoor such as the garden or street. If this furniture is used at the public space, it's usually fixed to the ground.

The furniture used in the office spaces in which the interpersonal interaction happens and which accommodates many people in a short time and reflecting the corporate image carries marks related to the interpersonal hierarchy in addition to the space. In the design of the office furniture which is customized according to the comfort criteria, the criteria such as the material, form and size are determinative. In the light of this information, it can be said that the furniture conveys the functional and spatial information changing according to the periods/cultures with their forms. By this way, the furniture designs appearing depending on the communal condition are the indicators of the current living conditions in social, economic and technological terms.

## 5. Customized Symbols

### 5.1. Marks belonging to the designer

The furniture appears to us as the carrier of some customized symbols in addition to the functional and spatial marks. These signs which undertake important roles in the conveyance of the identity and meaning on the furniture can belong to the designer and/or user. The definitions that the designer has made against the different function and design programmes are the important form determinants. The designer managing the design phase oriented for eliminating the needs by programming it within the framework of the scientific and artistic data starts the design process with a specific different definition and reveals his/her own identity to some extent with the methods that s/he has used in this process. The transformation of the designer identity to an individual symbol can happen with a new expression that the designer has developed; this expression appears to us at the linear, technical or philosophical dimensions; by this way, the designer and the form language that s/he uses become synonymous.

#### 5.1.1. Designer

#### Line

The *product line* which is reflected on the design with the knowledge, world view, sense of design, experiences and personality traits of the independent designers approaching to the form at the communicational dimension appears to us with the marks symbolizing the identity as the repeated form and the production methods. Another dimension in the design line is the designing of the products by the furniture producer firms in certain identities and transformation of these products to the marks defining the institutions. The designer line which is also called as the style or format forms a communication model between the user and the designer as a specific expression of the form language. That the form language of a designer or a designer group is evident means that his/her style or individual language is developed, this makes possible to read the designer identity on the designs. As an example, the designs of Zaha Hadid from the architecture to the furniture, and to various usage objects can be shown as examples to such line. The sharp lines and irrational forms that Hadid used on her products as highlighted are the indicators related to the designer identity. It is possible to say that in addition to the line used, the usage format of the color and material is also processed as the indicator of the designer identity. Karim Rashid who uses organic forms, plastic material and pink colour in his designs as the identity indicator is an example to this. (Figure 2). The designer line which is an original interpretation of the form language changes in parallel to the period conditions and personal point of view. The designer line as a factor determining the form appears to us as an element which is reflected to the products as style and distinguishing the furniture from the ones which are similar to it in the market, giving meaning to it and defining its designer. In addition to this, the companies also use evident lines for the distinguishing of their products from the similar ones in the market; and by this way, the designs are transformed into the symbols defining the company.



Fig.2. Designs of Karim Rashid

### *5.1.2. Philosophy / Art / Metaphor Usage*

The contemporary art objects in the form of furniture that the designers produce in the attribution of the discourse/ statement convey visual / intellectual information beyond the function and also become the identifier of the artistic / philosophical understanding. The designers who act as communication oriented can send messages oriented for the opinion, event, concept and identity with the conceptual objects that they produce. The most fundamental element that ensures the communication in the design is the metaphoric sending that occurs with the formation of the form characteristics evoking another object or concept. That the designers continuously use the same metaphors during the formation process causes the identification of these symbols with the designer. By this way, the selected metaphors are transformed into the tools expressing the philosophy and identity of the designer. In his work of art called 'Fat Chair' in which he expresses that the physicality of the human body, Joseph Beuys has placed a material which is a mixture of oil-wax on an old chair. Beuys has frequently used the oil layer as a metaphor symbolizing the human body in his works of art (Figure 3a).

Today, there are firms giving supports to the philosophical designs. In this regard, Droog Design which has been active since 1993 makes common works with the designers and in addition to its production in the field of design, it organizes exhibitions and organizations. The Jurgen Bey design 'Tree-Trunk Bench' which belongs to the company has been established with the placement of the bronze chair backs defining the different period and styles on a tree stump. In the design, there is the emphasis that a tree stump can also meet the function of sitting, the essence is to sit on a raw stump; and the reference is made to the transition between the nature and culture with the classical chair backs which are mounted on the wood (Figure 3b). Then, the furniture can give information regarding the designer identity and also can be transformed into a means highlighting the message that the designer wants to convey to the audience/user. The artists and designers using certain metaphors for expressing their opinions can transform the form language on the furniture to the symbol of the artistic/ philosophical expressions.



Fig.3. (a) Joseph Beuys, Fat Chair, 1964 (b) Jurgen Bey, Droog Design, Tree-Trunk Bench, 1998

### *5.1.3. Production Method*

The production methods of the furniture can also be transformed into the symbols and indicators emphasizing the designer identity. The symbolization can happen with making an innovation in technical dimension by the designer to the form and it can also happen with different way of handling the material. The important thing here is the development of a new statement/form language by the designer with the difference that s/he brings to the production. In many examples in the history and today, the association of the designer and production method is encountered. 'Thonet', being an example of this is a design definition which still stands today. Michael Thonet who produced the first industrial wooden furniture in the history



with the technique of bending the wood with the steam that he developed in 1850's and sold it by packing; started to work on this method in 1820's and by using sticks in the form of cylinder with the technique of bending with the steam, he achieved to form the whole skeleton of the furniture. The Thonet method giving its name to the design made the form based on the handwork unnecessary and the concept of the mass production of the standardized form appeared. (Figure 4a). The type of the material used in the furniture and way of handling it can sometimes be transformed into the marks defining its designer. The work of Shigeru Ban longer than twenty years on the structural usage possibilities of the paper which is a recyclable material in his architectural and product designs has caused the paper and its derivative materials to be associated with the Ban's designer identity. Today many designers introducing experimental production methods are remembered with the techniques they develop. Front Design which transfers the hand sketches made in air to the computer environment via a special pencil and then producing the Fast Prototyping machine has gained new dimensions to the design-form relation with this method that they have developed (Figure 4b).



Fig. 4. (a) Michael Thonet, Chair No:14, 1859 (b) Front Design, Sketch Furniture, 2005

As a result, the lines determining the form language on the furniture and philosophy / art / metaphor usage and production methods can be transformed into the symbols describing its designer depending on the knowledge of the person using or evaluating the design. The transformation of the designer identity to an individual symbol is possible with a new statement that the designer develops. This statement appears to us sometimes in a formal / technical dimension and sometimes in a philosophical dimension; and it makes the design and the designer associated.

## 5.2. Marks belonging to the user

When examined in terms of the communication characteristics, it is also observed that the furniture can convey information belonging to the user. The identity-related indicators which can be analyzed under three main titles as individual identity, corporate identity and communal identity appear to us as being coded on the furniture.

### 5.2.1. Individual identity

It is observed that the certain criteria take part in the formation of the user needs and preferences affecting the selections on the furniture and these criteria change depending on the user's identity, socio-cultural structure, personality, age and gender, way of living, habits and value judgments. The *identity* which is conditionally a design resource, a communication resource, and collective or individual behaviour resource is a system of values and an indicator of a cultural structure ensuring the persons to define himself/herself in the general sense (Erataç, 2003). The identity factor which plays an important role at the point of being preferred of the design causes the user to decide in the direction of his/her identity and experiences to select or not to select the product. In the product selection, the marks responding to the

personal likes which are also defined as the aesthetical function in addition to the practical function step in and these indicators also define the user of the product. Showing difference of the aesthetic likes according to the persons is the most important factor in the inclining of the users to different forms. As an example to this, the likes of vivid coloured furniture by a young person and the preferring of classical furniture in the office by a status owner person can be shown. Some people can select modern furniture and some can tend to the classics. Some can stick to the traditions and some can look for the new one. Different user groups mean different identities. The user details participate in determining the form indirectly. The aesthetical variety of the marks is possible with the detailing of the subtitles of the identity groups. The identity group/user profile requested to be achieved by the designs is called as the *target group* by the designers. The determination of the target group is important for designing of a product oriented for the user expectations. As an example to the effect of the target group on the furniture forms, desks designed for the users at different ages shown in Figure 5 can be given. Even though both of them have been designed for working purposes, there are many differences in functional and formal terms between the office furniture on which comfort, seriousness and status criteria are read and study desks and chairs that children use at home.



Fig. 5 . Desks intended for different users

The needs and preferences of the target group are determined by the designer beforehand and the form language is defined; at this point, the marks symbolizing the identity characteristics are programmed on the design object. According to this, the furniture is shaped according to the user's characteristics such as identity, personality, way of living, gender, age, socio-economical level and socio-cultural situation. The designs which are made by taking such factors as bases are shaped and identified over the general acceptances changing according to every community. The expression of seriousness by black, the youngness and/or childishness by pink; defining of the circular, oval and wavy forms as feminine and usage of the cornered forms commonly on the products oriented for men are the formal symbols which are frequently applied in the furniture such as in most of the design products.

The age factor takes part in the determination of form on the furniture and conveyance of the individual identity. When considered in functional meaning, the needs arising at different ages bring different physical characteristics and different function solutions and when considered in the aesthetical meaning, they also bring different likes. For example, while a bed which can be widened longitudinally is the most important form determinant for a baby who was newly born and is growing rapidly, the aesthetic characteristics (being coloured/toy) of the bed are in the foreground for a child at a certain age and who can establish communication with his/her surroundings. At this point, the gender factor also steps in and appears to us as an individual identity and a descriptive factor on the designs. It is emphasized in various studies that girls and boys are interested in different forms and women and men show different consumption behaviours (McDonagh, Hekkert, van Erp and GYI2004, pp.97). The knowing of to which age interval and to which gender the furniture is addressed is directive for the designers for forming the products

The furniture also carries marks belonging to the socio-cultural level, economic level, way of living and habits of its user in addition to the identity and personality. When it is considered that people from the same social class, subculture and even from the same profession have very different lifestyles, it is clear how deeply the lifestyle of the person affects his/her activities, interests, ideas and furniture preferences in parallel to these. As the habit causes the emotional affiliation as a behaviour form, it is oriented for protecting the existing. An armchair belonging to the grandfather and a chest belonging to the grandmother are still kept in the living room even though they are not in harmony with other items of the house. In such examples, the furniture becomes associated with persons and becomes a symbol of adherence to the past and is transformed into the elements carrying emotional symbols. Bilgin (1983) says that every individual has the tendency to attribute some feelings and values to the item as being at different scales in the various situations and communities. This tendency can be attributed to the *emotional energy creation* according to Freud and to the opinion of *topological value attribution* in the field theory of K. Lewin. The individuals develop adherence to the objects having special meaning from them (Kleine and Baker, 2004; Schifferstein and Hekkert 2008).

When considered in the economic terms, the consideration of the furniture among the identity groups as a status indicator beyond responding to the requirements plays an important role in the attracting attention of the furniture which is produced with valuable materials and designed by a known brand or designers. Whichever social class the user is included, s/he needs social acceptance and prestige in his/her community; s/he may meet this need via the designs that s/he uses. The special collection made with the reproduction of some classical furniture by using Swarovski brand crystals by an Italian design company Edra, addresses the user group preferring luxury and vanity elements. By this way, Edra bringing a different interpretation to its classical furniture with the ‘The Diamond Collection’ makes also emphasizes on the originals of the designs (Figure 6a).

When looked into the history, definition of the user identity by furniture is also encountered. The lounge chair form on which Jeanne Françoise Julie Adelaide Bernard Recamier who lived in France in 1800’s sat in the painting made by Jacques Louis David was called as ‘Recamier’ as dedicated to her and made its user a design definition (Figure 6b). This definition is still continuing to be used for the similar forms today (Uzunarslan, 2006).



Fig. 6. (a) Edra, The Diamond Collection, 2007 (b) Jacques Louis David, Madame Recamier, 1800

The examples show that various marks are attributed to the furniture according to the user identity in the direction of the communal acceptances; and users make their furniture selections in parallel to their own personalities, likes and needs. By this way, the designs are transformed into individual marks defining its user; and by this way, user profiles can be read over the designs. Parameters such as personality, age, gender, way of living, socio-economic situation give identity to the furniture; indicators changing in the axis of the material, colour, size, form and function are programmed in different ways for different target groups.

### 5.2.2. Corporate Identity

Today, furniture can be used as defining the corporate identity by the companies. The furniture which has or does not have a practical function; that is sold, exhibited or used in the introductory advertisements of the company functions as a symbol reflecting the corporate or institution, its values and statements. The production and exhibition of i.e. a yellow furniture by a company selecting the colour of yellow as the corporate identity can be shown as an example. In this case, the furniture functions as indicators highlighting the company's corporate identity. Today, there are many private institutions, non-governmental organizations, event owners, films, brands and companies using the furniture as an identity defining symbol. Most of these produce symbolic furniture as a result of their cooperation with the designers. DuPont Company requested Ron Arad to make a furniture collection by using Corian material in the year of 2004 and aimed to show the easy formability characteristic of the material and that it can be used in every field. The Corian and Ron Arad produced 'Oh Void1', 'Oh Void2' and 'Lo-Rez-Dolores-Tabula-Rasa (Figure 7). With this furniture having the attribution of symbol, the designer highlighted the formability opportunities of the material and gave an identity to the product and made its promotion. Furniture can be used as the symbol of institutions, private organizations, non-governmental organizations, fairs and events. Companies working with designers transform the furniture form into an indicator defining the corporation with its symbolic function by using the size, colour and form references.



Fig. 7. Ron Arad, Lo-Rez-Dolores-Tabula-Rasa and Oh Void 2, 2004

### 5.2.3 Communal Identity

Furniture also conveys information based on the identity of the community and country producing and using the product in addition to expressing the individual identity and corporate identity. These marks can be associated with belief, communal identity, ethnic structure and tradition as well as geographical conditions. Generally, furniture forms different systems according to the various socio-cultural environments. Namely, the diversification in the furniture is dependent on communal characteristics of the groups. The characteristics of the living forms of every group, community or community segment ensure the separation of this group or segment from the others; and every community produces, purchases and uses furniture in the direction of their own characteristics (their beliefs, lifestyles, worldviews, needs..etc). In the contemporary social sciences, for every community, every group and even every individual, the existence of a set of values which are changing in some extent and which are interdependent is accepted. The human nature, human-nature relation, time and space understanding, value given to the richness, interpersonal and person-community relations and thoughts are values related to the communal identity. As an example to this, the Eastern life adapting a way of living which is compliant to its surroundings in an ecological integrity can be shown. The concept of continuity that the Eastern way of living which is defined as *human-time-continuity* in various resources life brings harmony with the nature. The appearing furniture also has nature-compliant and ecological attributions depending on this. In interior sections of the traditional Japanese houses, there are doors with paper slides, ground covered

with the tatami mat, and furniture close to ground and made of plain and organic materials.

As being related to the communal identity, another fact which affects the furniture form is also the belief. The belief factor shaped the symbols used on the furniture since the old ages; people used symbols sometimes for protecting from badness, sometimes for chance and sometimes for keeping the events under control (Zapçı 1996, pp.69). On the traditional Cameroon stool which is an example to this, the bearing structure is composed of the crocodile figures symbolizing the immortality and force in the community where it is produced (Doğan 1984, pp.242) (Figure 8a). The cultural structure forms the thinking systems of the communities and forms the common and individual identities as depending on this. In today's capitalist communities, the communal identities are also commoditized like everything; and transformed into objects which are purchased/ sold/ exhibited and which people use for defining themselves. The use of a national common symbol such as the flag on the furniture is an evident example of making the communal identity a consumption object (Figure 8b).



Fig.8. (a) Traditioanl Cameroon stool (b) U.S. Flag Folding Chair and Italian Pride Vermelha Chair

The furniture is the carrier of marks belonging to the community/ nation/ culture in which it is present. Every community produces and uses furniture in the direction of their own needs, communal acceptances, ethnical/ cultural characteristics, geographical conditions, beliefs and opportunities; by this way, the furniture which is shaped with different indicators as a result of changing parameters is transformed into the symbols defining the communal identity.

## **6. Conclusion**

In the communication axis, design brings along many sub-information in addition to the functional marks. At the point where design meets the user, communication process also starts; communication marks step in as depending on the knowledge and cultural accumulation of the user and ensure conveyance of the information such as designer identity, user group, class, the period to which the design belongs via visual perception. The symbols that the design incorporates are conveyed to the user with a visual language and at the same time, a symbolic function is attributed to many design elements defined as texture, material, form, line, color and they support the communication phenomenon. By this way, a form language ensuring the communication is formed. The form language which is a tool that ensures the products to be known and evaluated by the users is also a way of expression of their products by the designers and an identification action.

When being examined in the communication axis with the form language, it is observed that the furniture conveys information to the user related to its function and area of use as an object having practical function as well as many messages stepping in depending on the knowledge and cultural accumulation of the persons using/observing the design with the aesthetical and symbolic marks that it carries. The furniture making references to certain meanings with the indicators it carries can carry periodical/spatial information and it expresses the designer line, philosophy and technical characteristics with the symbols on it; and it can

define its user in the cultural, economical and social terms.

The researches realized till today are generally on the functional, ergonomics, anthropometric dimension of the furniture and its historical development process. Some researchers have examined the evolution process of the action of sitting as being related to the factors such as the status, age, and gender and have attracted attention to the dynamic structure of the human body and have made new suggestions related to the action of sitting (Cranz 1998). Some of them have examined the relation of some production furniture with the market and some researchers have concentrated on the realization of the special/serial production designs. (Opsvik 2009; Lovell 2009, Byars 2006) However, studies realized are lacking in the analysis of the symbolic dimension of the furniture. With this research, making an analysis of the furniture-symbol relation has been aimed; also, it has been aimed that this study can be directive in the design readings and formation of the new design methods. (Özçam 2013) In this article, the marks available on the furniture have been analyzed. The indicators available on the furniture also bring along the functional and customized symbols defining the design; the furniture as a design object which also undertakes the aesthetical and symbolic functions in addition to the practical usage value can make references to the time and space to which it belongs with the form language and on the other hand, it can also convey information belonging to its designer. In addition to this, the furniture is also a communication object which also defines its user in the cultural, economical and social terms with the marks it carries.

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## DETERMINATION OF COLOR HUE PREFERENCES ON GENERATING HARMONY IN THE CASE OF INTERIOR ARCHITECTURE STUDENTS

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### Abstract

Color is one of the most important elements of design. The aim of this study is the determination of interior architecture students' preferences of color usage in their designs and of the level of persistence in their preferences for different harmonies. The survey has been conducted with 500 students from "Interior Architecture" and "Interior Architecture and Environmental Design" undergraduate programs in Turkey and TRNC. In this study, for which survey was used as the data gathering method, the questions consist of three parts. In the first part of the survey, the students were asked for their demographic information and the favorite colors they prefer for their daily personal belongings. In the second part, the students were given seven criteria, which are likely to influence their color preferences in design and were requested to prioritize them. In the third part, an eight-sliced color chart was given and they were asked for choosing colors to create monochromatic, dyad, multi-color and complementary color harmonies in design. As a result of the study, it has been observed that, along with the designer identity, several factors such as the function of design and dimensions of space, user age and gender profile, psychological effects of colors that mainly affect the color preferences of students. In addition to this, it has been determined that, Interior Architecture students usually prefer to use their favorite colors in generating harmony for their interior designs and tend to maintain their preferences for different harmonies.

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**Key Words:** *Interior Architecture; Color Preference; Design; Harmony; Color*

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### 1. Introduction

Colors are used for stimulating a mood or emotion [1]. Dynamism or the monotone character of the emotion which is desired to be created can be provided with conscious color preferences. Design atmospheres with high visual aesthetics can be created by using different tones of one color hue or multiple color hues together. In order to create the targeted effect, the harmony between the colors should be built correctly. The concept of harmony can be defined as the accord and balance between at least two different colors. When the colors are brought together, they interact with each other and visual aesthetic is achieved [2]. Using different types of colors together can create relaxing effects in the design, also striking and stimulant effects can be achieved. This variety can be created by using various harmony types within the design.

### 2. Harmony Types

While diversifying color harmonies, color positioning on the color circle is based on. Depending on the closeness or distantness, and warmth and coolness of colors, as well as the number of color hues are used in the harmony, it is possible to make harmony classifications.



Combinations created by bringing multiple colors together can be named as *dyad* for two colors, *triad* for three colors, *tetrad* for four colors and *hexad* for six colors [3].

### 2.1. Monochromatic Harmony

This is the harmony type that created by using different values and saturation of a single color hue on the color circle together. This is one of the easiest and risk free methods to apply among harmony types. A relaxing and calm effect can be created with this harmony type [4]. The monotone effect of the harmony can be broken by emphasizing the differences between the values and saturation of the colors.

### 2.2. Analogous Harmony

This is the harmony type where a color on the color circle is used together with its adjacent colors on the circle. Even if the color hue is different, the color transitions will be close; therefore this harmony application is one of the easiest ones like monochromatic harmony. It is possible to create nice looking color combinations with this harmony type [5].



Fig. 1. (a) Monochromatic Harmony; (b) Analogous Harmony

### 2.3. Complementary Harmony

This is the harmony type where the opposite colors on the color circle are used together. Since the colors are complement of each other due to their attributes, they strengthen each other when brought together. Created visual effects can be controlled by adjusting the size, value and saturation of the colors. This is one of the harmony methods usually used for creating stimulating effects [6].

#### 2.3.1. Double Complementary Harmony

This is the harmony type where two component color pairs on the color circle are used together. In terms of number of colors, this harmony type is in the tetrad group, but its difference from the tetradiadic harmony is that there isn't equal distance between different color pairs. Considering that using complement colors is challenging already, using two complement color pairs is a more challenging harmony method to apply.

#### 2.3.2. Split Complementary Harmony

This is the harmony type where a color on the color circle is used with two color types which are adjacent and equal distance to that complement color.



Fig. 2. (a) Complementary Harmony; (b) Double Complementary Harmony; (c) Split Complementary Harmony

#### 2.4. Triadic Harmony

This is the harmony type where three different color types with equal distance to each other on the color circle are used together. It is created by using three primary or three secondary colors together simultaneously [7]. Since the number of types is increased and there isn't any opposition between the colors, this is one of the difficult harmony method to apply.

#### 2.5. Tetradic Harmony

This is the harmony type where two different complement color pairs with equal distance to each other on the color circle are used together.



Fig. 3. (a) Triadic Harmony; (b) Tetradic Harmony

### 3. Research Method

Within the scope of the study a survey involving 500 students studying in the "Interior Architecture" and "Interior Architecture & Environmental Design" graduate programs in Turkey and Turkish Republic of Northern Cyprus was conducted. Survey questions are divided into three sections.

In the first section, students were asked about the university- department they study at, academic periods, genders, their favorite colors used in the personal belongings they use in their daily lives. A total of 8 colors were presented, where 3 primary colors were *Red*, *Yellow* and *Blue*; 3 secondary colors were *Green*, *Orange* and *Purple*; and 2 achromatic colors were *Black* and *White*, and they were asked to make a selection. Also, in order to allow them make additions to the colors given, the "other" option was added.

In the second section, seven different criteria that may affect the color preferences in design were given and they were asked to sort these criteria based on the degree of importance to them. While sorting, they weren't allowed to list multiple criteria with same level of importance. Besides, in order to allow them make additions to the criteria given, the "other" option was added. Criteria given in this section are listed as below;

- Your designer identity (Your favorite color)
- Psychological effects of colors
- Age and gender profile of users
- Conditioned reflexes
- Architectural trends
- Function of the design / space
- Dimensions of the design / space

In the third section, a color circle divided into eight pieces was given. They were asked to make selections from the regions of the circle depending on the scenarios where they will apply to the design with monochromatic, dyad, multi-color and complementary color harmonies. Color circle used in this section is as below:



Fig. 4. Color circle with eight pieces

#### 4. Findings and Comments

A total of 500 students, of whom 375 were female and 125 were male, were participated in this survey. 330 of these students continue their education at the “Interior Architecture” and 170 of them continue their education at the “Interior Architecture and Environmental Design” departments (See Fig.5).

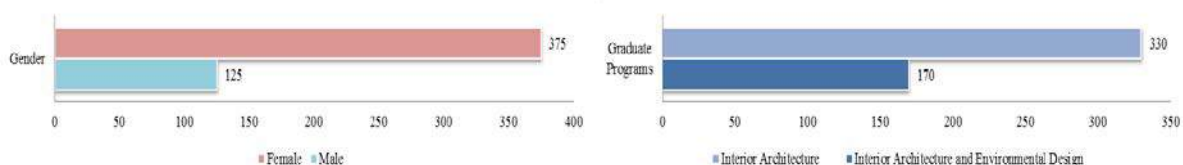


Fig. 5. Distribution of students participated in the survey based on their gender and graduate programs

For the question asking the favorite color they prefer in the personal belongings which they use in their daily lives, *Black* was chosen by 198 students (39.6%) and determined as the most preferred favorite color. *Blue* was chosen by 79, *White* was chosen by 43 and *Red* was chosen by 31 students, constituting the majority of preferred favorite colors. Favorite color distribution of female and male students participated in the survey is given in Fig. 6.

Answers given to the “Other” option in the question have demonstrated that students might prefer using different colors as their favorite color too. It has been observed that the answers given consisted of achromatic color *Grey* and secondary colors. Most preferred color in the “Other” option was *Grey* with 20 preferences. It was followed by *Brown* - chosen by 14, *Pink* - chosen by 10 and *Maroon* - chosen by 8 making the majority of choices in the “Other” option.

These colors were also followed by Navy Blue, Turquoise, Cream, Golden, Earth, Saxe, Plum, Marsala, Tobacco, Fuchsia, Emerald, Lilac, Mustard and Beige, respectively.

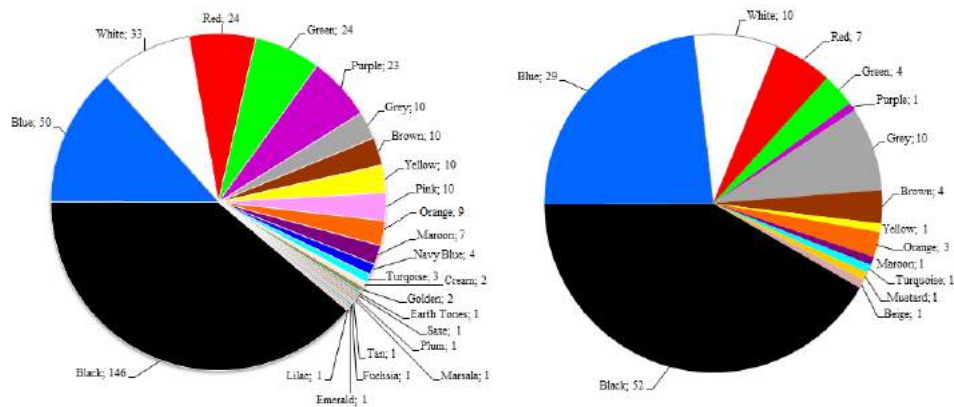


Fig. 6. Distribution the favourite color preferences of female and male participants

When the level of importance to the criteria affecting participants' color preferences in the design was observed, it was seen that the criteria were mostly ranked as 1 (Most Important) below respectively;

- Function of the design / space (%63)
- Dimensions of the design / space (%50,6)
- Age and gender profile of users (%45,6)
- Psychological effects of colors (%41,2)
- Your designer identity (your favorite color) (%39,4)

On the other hand, two criteria were mostly rated as 5 (Least Important) are as below.

- Conditioned reflexes (%16)
- Architectural trends (%11,6)

Rating distribution of each criteria rated between 1 and 5 are given in Fig.7.

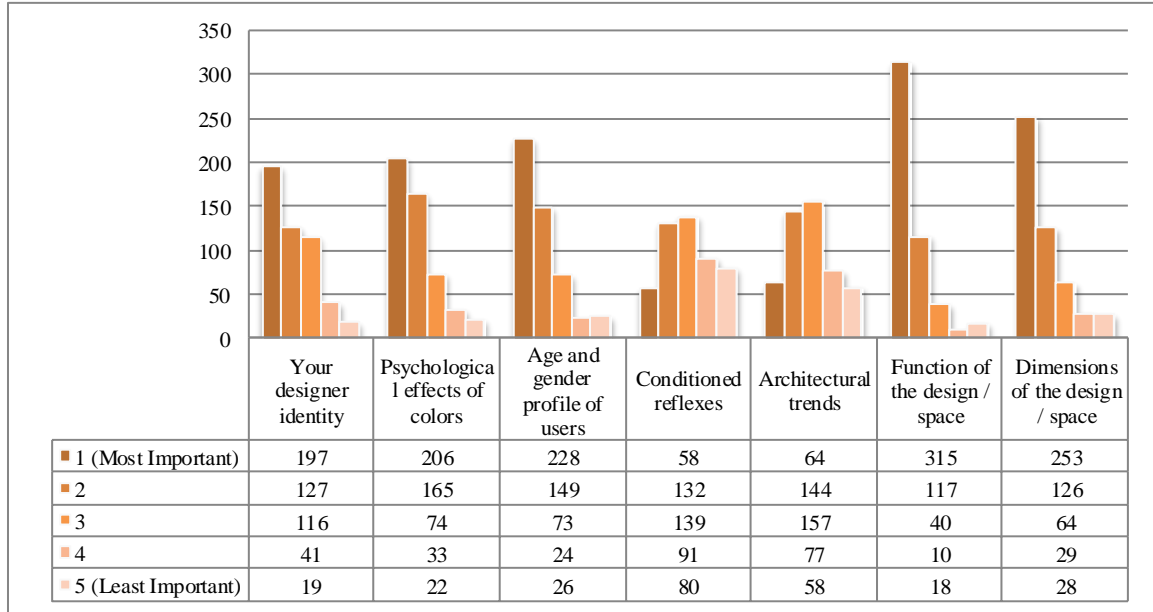


Fig. 7. Distribution of participants based on the ratings of design criteria

In the first question of the third section, where color preferences in different harmonies were determined, students were asked to make color selections for the monochromatic harmony. When observed with regards to the number of students, the 5th region in the circle has been the most preferred area in the monochromatic harmony by a total of 155 students (31%), of whom 112 were female (30.13%) and 42 were male (33.6%). 4th region in the circle has been the least preferred area in the monochromatic harmony by a total of 34 students (6.8%), of whom 27 were female (7.20%) and 7 were male (5.6%).

When observed in terms of gender, most preferred ones stayed the same, whereas the results of least preferred ones have varied. Among female participants, 3rd region was the least preferred region in monochromatic harmony by 24 female (6.4%); whereas 2nd region was the least preferred region in monochromatic harmony by 4 male (3.2%). In this section, it was observed that the most preferred region in total for monochromatic harmony contained cool colors, whereas the least preferred region mainly included warm colors.

Distribution of color preferences of the participants in the monochromatic harmony are given in total and based on gender in Fig. 8. Most and least preferred regions by the participants within the monochromatic harmony in total are given in Fig. 9.

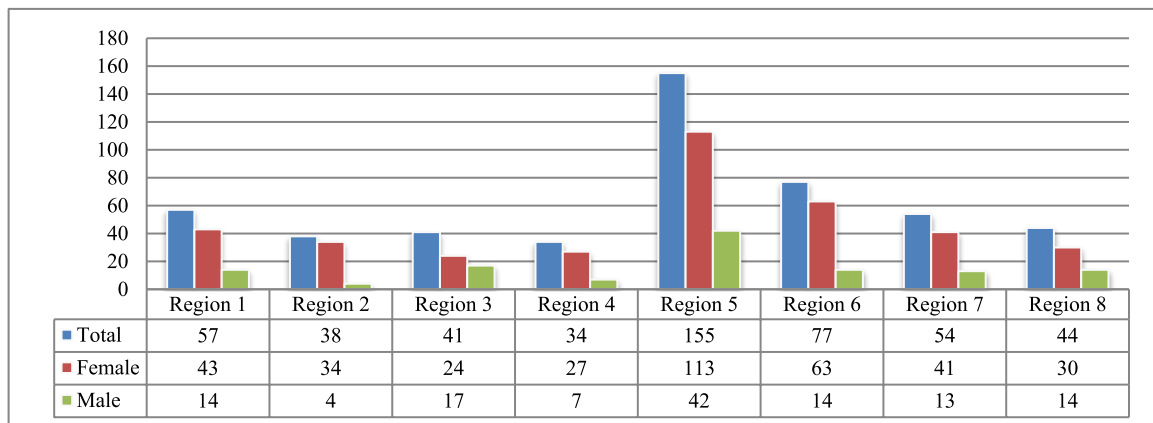


Fig. 8. Distribution of participants based on their color preferences in monochromatic harmony



Fig. 9. For monochromatic harmony; (a) most preferred region in total; (b) least preferred region in total

In the second question of the third section, the students were asked to make color selection for the dyad color harmony. When observed with regards to the number of students, the 4th & 5th regions in the circle have been the most preferred areas in the dyad color harmony by a total of 49 students (9.8%), of whom 38 were female (10.13%) and 11 were male (8.8%). 3rd & 6th regions and 3rd & 8th regions in the circle have been the least preferred areas in the dyad color harmony by a total of 7 students (1.4%), of whom 6 were female (1.6%) and 1 was male (0.8%). In this section, it has been observed that the most preferred region in total for the dyad color harmony included “cool-close colors”.



Fig. 10. For dyad color harmony; (a) most preferred region pair in total; (b)-(c) least preferred region pair in total

In the third question of the third section, the students were asked to make color selection for multi-color harmony. When observed with regards to the number of students, the 5th & 6th & 7th regions in the circle have been the most preferred regions for being used together in the multi-color harmony by a total of 37 students (7.4%), of whom 25 were female (6.67%) and 12 were male (9.6%). 1st & 2nd & 7th regions and 3rd & 4th & 8th regions in the circle have been the least preferred area in the multi-color harmony by a total of 2 students (0.4%), of whom 1 was female (0.26%) and 1 was male (0.8%). When observed in terms of gender, there wasn't any difference in the results of most and least preferred results. In the most preferred region triad in this section, cool-close colors were preferred along with Blue as the main color. In the least preferred region triads, it was observed that “warm-close colors & cool secondary color” and “cool-close colors & warm-primary color” combinations were preferred.



Fig. 11. For multi-color harmony; (a) most preferred region triad in total; (b)-(c) least preferred region triad in total

In the fourth question of the third section, the students were asked to make color selection for the complementary color harmony. When observed with regards to the number of students, the 4th & 8th regions in the circle have been the most preferred areas for being used together in the complementary color harmony by a total of 80 students (16%), of whom 61 were female (16.26%) and 19 were male (15.2%). 3rd & 7th regions in the circle have been the most preferred area in the complementary color harmony by a total of 43 students (8.6%), of whom 32 were female (8.5%) and 11 were male (8.8%). When observed in terms of gender, female students' preferences were equal (61 female - 16.26%) in 1st & 5th regions in the most preferred results, and there wasn't any change observed in the least preferred results. Most preferred region pair for the complementary color harmony in this section were “warm-primary color & cool-secondary color” regions. In the preferences of female students, “cool-primary color & warm-secondary colors” were preferred in the same ratio. In the least preferred region pair, it was observed that “warm-secondary color & cool-secondary color” region pairs were preferred.



Fig. 12. For complementary color harmony; (a) most preferred complement region pair in total; (b) most preferred complement region pair in female participants; (c) least preferred complement region pair in total

When the color preferences of the students participating in the survey in harmony types were observed in general, it was observed that a total of 367 students (73.4%), of whom 273 were female (72.8%) and 94 were male (75.2%) maintained their color preferences at least in 3 different harmony types. Numeric distribution of harmony types where the color preferences were maintained is as below:

- A total of **106 students**, of whom 81 were female and 25 were male, maintained their preferences in monochromatic, dyad color, multi-color and complementary color harmonies,

- A total of **173 students**, of whom 124 were female and 49 were male, maintained their preferences in monochromatic, dyad color and multi-color harmonies,
- A total of **16 students**, of whom 12 were female and 4 were male, maintained their preferences in monochromatic, dyad color and complementary color harmonies,
- A total of **17 students**, of whom 14 were female and 3 were male, maintained their preferences in monochromatic, multi-color and complementary color harmonies,
- A total of **55 students**, of whom 42 were female and 13 were male, maintained their preferences in dyad color, multi-color and complementary color harmonies.

Total 239 students involving 186 female and 53 male students stated a color other than *Black*, *White* and *Grey* as their favorite color. It has been observed that a total of 179 students (74.89%), of whom 141 were female (75.8%) and 38 were male (71.69%), among the students who chose a chromatic color as their favorite color preferred their favorite colors at least in one harmony type. A total of 60 students (25.1%), of whom 45 were female (24.19%) and 15 were male (28.3%) did not choose to use their favorite colors in any harmony type.

## 5. Conclusion

As a result of the study, it has been observed that Interior Architecture students preferred to use Blue and its tones for harmony applications in the design. Since the most preferred chromatic color among the favorite color selections was Blue, it has been concluded that the favorite color was preferred primarily for creating harmony. In color selections in single, dyad, multi-color and complementary color harmonies, *Blue* included regions were chosen mainly; therefore it is possible to say that students had the tendency to maintain their color preferences for different harmonies too. This determination stands out when the characteristics and relations of regions that preferred for harmony applications have been examined. The most preferred region for monochromatic harmony includes cool colors. The regions that include cool-close colors were mostly preferred in dyad color harmony. Similarly, the regions that include cool-close colors were mostly preferred for multi-color harmony. When all these findings have been evaluated it has been determined that cool colors were mostly preferred for all harmony applications and close colors were preferred when the quantity of color hue increases.

It has been concluded that students preferred very close color harmony types in the color selections among dyad and multi-color harmonies, therefore they tend towards less risky and clam harmony types. However, in addition to their designer identities, variables such as function of the design and dimensions of the space, user age and gender profile and psychological effects of colors have been the criteria affecting the color preferences of students.



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# PREDICTIVE VALIDITY OF THE STUDENT SELECTION AND PLACEMENT SYSTEM FOR ACADEMIC PERFORMANCE OF FIRST-YEAR INTERIOR DESIGN STUDENTS

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## Abstract

With the aim of assessing and understanding whether or not admitting applicants to a design-oriented undergraduate programme on the basis of their Student Selection and Placement System (ÖSYS) results is a valid method, a study was carried out in the Interior Architecture and Environmental Design Department of Bahçeşehir University. In this study, students' ÖSYS scores, ÖSYS success rankings and first-year course grades were retrieved and analysed. It is evident from the results that there is not a strong statistical relationship between ÖSYS performance and academic achievement. Therefore, it is possible to infer that relying solely on ÖSYS results for making decisions about prospective design students' suitability for admission is, at least, questionable and that more research is needed for further elucidation of the subject.

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**Key Words:** *Interior design; ÖSYS; academic performance; predictive validity; correlation*

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## 1. Introduction

About two years ago, it was reported that 11 different art and design departments in Turkey, including interior design, would no longer examine applicants by means of their special aptitude tests (SATs) and only use the results of the ÖSYS for admission [1]. Even though this change has been neither partially nor fully implemented yet, it is more than likely that it will be implemented by the interior and industrial design departments in 2017 in accordance with the decision taken at the Higher Education Executive Board meeting on the 1<sup>st</sup> of September 2016. This anticipated change is of particular importance since it raises the issue of whether or not being successful in ÖSYS examinations and performing well in a design-oriented programme such as interior design are inextricably linked.

## 2. Undergraduate Admission Policies and Practices for the Interior Design Departments in Turkey

Universities having interior design programmes constitute a considerable percentage (31%) of the institutions affiliated with the Council of Higher Education (YÖK). While there were only four universities (Mimar Sinan Fine Arts, Marmara, Hacettepe and İ. D. Bilkent) providing interior design education until 1990 in Turkey [2], it is evident from Table 1 that there are currently 56 universities having active interior design programmes and offering 4372 new places for first-year students [3]. It is noteworthy that, recently, we have not only witnessed a significant increase in the number of interior design programmes but also a substantial change in evaluating and admitting prospective students.

Table 1. Universities having active interior design programmes in 2016 [3]

Afyon Kocatepe University	European University of Lefke	İstanbul Esenyurt University	Marmara University
Akdeniz University	Fatih Sultan Mehmet Vakıf University	İstanbul Gelişim University	MEF University
Anadolu University	Gedik University	İstanbul Kemerburgaz University	Mimar Sinan Fine Arts University
Antalya International University	Girne University	İstanbul Kültür University	Near East University
Atılım University	Girne American University	İstanbul Medipol University	Nişantaşı University
Avrasya University	Hacettepe University	İstanbul Sabahattin Zaim University	Nuh Naci Yazgan University
Bahçeşehir University	Haliç University	İstanbul Technical University	Okan University
Başkent University	Hasan Kalyoncu University	İzmir University of Economics	Özyeğin University
Beykent University	Işık University	Kadir Has University	Selçuk University
Cyprus International University	İhsan Doğramacı Bilkent University	Karadeniz Technical University	TOBB University of Economics and Technology
Çankaya University	İstanbul Arel University	Kırıkkale University	Toros University
Çukurova University	İstanbul Aydın University	Kocaeli University	Yaşar University
Doğuş University	İstanbul Bilgi University	KTO Karatay University	Yeditepe University
Eastern Mediterranean University	İstanbul Commerce University	Maltepe University	Yeni Yüzyıl University

If we look at the figures for the last five years, it is apparent that there has been a dramatic shift in the method of admission. While it was preferred by 21 universities to use ÖSYS scores for admitting students, rather than using SAT results, in 2012, it is clear from Figure 1a that this preference increased by 71% from 2012 to 2016 and was shown by 36 universities offering undergraduate interior design education in 2016 [3-7]. Moreover, there has been a similar trend in the use of distinct ÖSYS scoring systems (MF-4 and TM-1) measuring different aspects of knowledge and cognitive skills (see Table 2 for the subjects for which examinees are tested and their influence, which are expressed in percentiles, on MF-4 and TM-1 scores). In 2012, 11 or 52% of the universities admitting applicants on the basis of their ÖSYS scores calculated according to the TM-1 scoring system as opposed to the remaining 48% of the institutions utilising MF-4 scores for admission [7]. Figure 1b demonstrates that the number of these universities increased remarkably by 91% throughout the last five years and became 24 in 2016 [3-7].

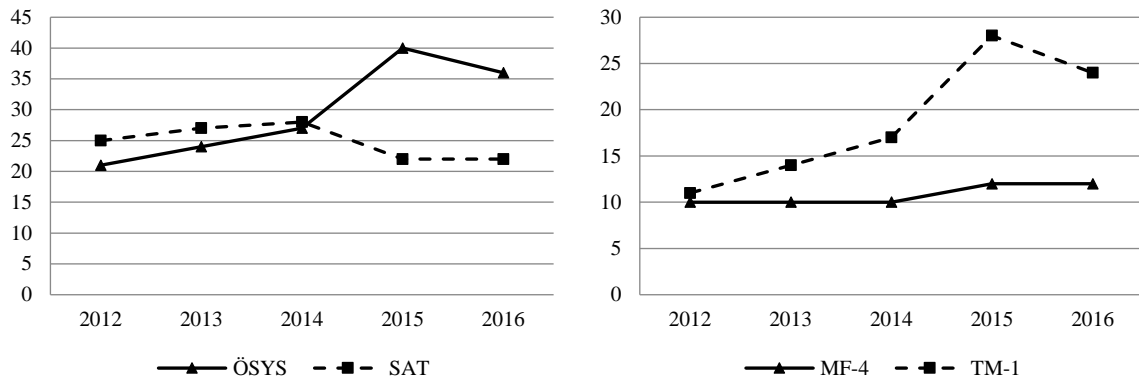


Fig. 1. (a) number of universities admitting students on the basis of their ÖSYS and SAT results; (b) number of universities admitting students on the basis of their MF-4 and TM-1 scores [3-7]

Table 2. ÖSYS examination subjects and their influence, which are given in percentiles, on MF-4 and TM-1 scores

Score Type	Subject*									
	1	2	3	4	5	6	7	8	9	10
MF-4	11	5	16	8	39	0	0	10	6	5
TM-1	14	5	16	5	33	20	7	0	0	0

\*Subjects: (1) Turkish; (2) social sciences; (3) basic mathematics; (4) natural and applied sciences; (5) mathematics; (6) Turkish language and literature; (7) geography; (8) physics; (9) chemistry; (10) biology

Given the expected change in admitting prospective interior design students and the above-mentioned tendency to utilise TM-1 scores for determining more academically meritorious or suitable applicants, it is crucial to assess and understand whether an applicant's performance in ÖSYS examinations is a good indicator of his/her future academic success. Even though establishing the possible correlates of academic success has been a subject of considerable debate for a long time [8], our knowledge in the predictive capability of ÖSYS examinations is scarce and incomplete. It is mainly based on a recently published research that was conducted by Cubukcu and Cubukcu [9] for the assessment of ÖSYS exams' predictive validity. Although it was demonstrated that there was no statistical relationship between grades of architecture and city planning students and their ÖSYS scores, it is unlikely, or at least not safe, to draw any general conclusions about the subject matter of interest.

Since there is a lack of compelling evidence to either advocate or oppose utilising ÖSYS results, it is necessary and also urgent to explore the relationship between prospective interior design students' ÖSYS results and their academic achievement after admission. Because of these reasons, a study was carried out in the Department of Interior Architecture and Environmental Design at Bahçeşehir University. The results of this study are presented and discussed in this paper.

### 3. Method

#### 3.1. Protocol

The ÖSYS scores, ÖSYS success rankings and first-year course grades of 169 interior design students currently studying at Bahçeşehir University were retrieved from the Registrar's Office database in January 2017 (see Table 3 for the course details). The data gathered were only for second-, third- and fourth-year students since the grades of first-year students were not available at the time of data collection.

Table 3. Course details

Semester	Course Name	Details
1	INT1001 Basic Design	Must course
		2 theoretical + 6 practical hours
	INT1013 Introduction to Design and Architecture	5 national credits
		Must course
	INT1033 Visual Media in Design I	2 theoretical hours
		2 national credits
	ENG1003 Communication Skills in Academic Reporting I	Must course
4 practical hours		
TLL1003 Turkish Language and Literature I	2 national credits	
	Must course	
HST1001 Atatürk's Principles and History of Turkish Republic I	2 theoretical + 2 practical hours	
	3 national credits	
2	INT1002 Interior Design Studies	Must course
		2 theoretical + 6 practical hours
	INT1014 Introduction to Interior Architecture	5 national credits
		Must course
	INT1034 Visual Media in Design II	2 theoretical hours
		2 national credits
	INT1052 Construction for Interior Architecture I	Must course
		4 practical hours
	ENG1004 Communication Skills in Academic Reporting II	2 national credits
		Must course
TLL1004 Turkish Language and Literature II	2 theoretical + 2 practical hours	
	3 national credits	
HST1002 Atatürk's Principles and History of Turkish Republic II	Must course	
	2 theoretical hours	
		2 national credits

### 3.2. Statistical analysis

In order to analyze the collected data, students' ÖSYS results and their grades for the first-year courses were grouped on the basis of each student's first enrolment year indicating the year when the ÖSYS examination was taken. Then, grade point averages for the first (GPA 1), second (GPA 2) and these two (CGPA) terms were calculated. The statistical dependence between students' ÖSYS results (ÖSYS scores and success rankings) and scholastic performance (first-year course grades) was determined by obtaining Pearson's correlation coefficient. All statistical analyses were performed with SPSS Statistical Software Package

for Windows (version 22.0; SPSS Inc., Chicago, IL, USA). The level of significance was set at  $p < 0.05$ .

## 4. Results

### 4.1. Descriptive statistics

It can be seen from Table 4 that the highest and the lowest ÖSYS score obtained are 449.1 and 230.1, respectively. Students' ÖSYS success rankings, like their ÖSYS scores, vary substantially from 432536<sup>th</sup> to 9748<sup>th</sup> (Table 4). It is also evident from the table that students' mean grade point averages for the first year are generally well below the passing grade of two, or C. While the lowest mean  $\pm$  S.D. grade point average is  $1.1 \pm 0.8$ , the highest one is  $2.1 \pm 0.7$ .

Table 4. Descriptive statistics for students' ÖSYS scores, ÖSYS success rankings and grade point averages

	Enrolment Year	n	Mean	S.D.	Minimum-Maximum	Median
ÖSYS Score	2010	18	345.4	55.2	274.4-455.9	335.9
	2011	30	304.3	46.6	261.9-468.2	290.2
	2012	45	283.0	58.8	229.8-448.6	267.2
	2013	39	284.5	60.8	234.1-449.1	263.5
	2014	37	301.1	72.3	230.1-429.8	265.9
ÖSYS Ranking	2010	18	-	-	17286-432536	211104
	2011	30	-	-	13117-409618	301322.5
	2012	45	-	-	9748-361269	242421
	2013	39	-	-	6210-348526	242155
	2014	36	-	-	14675-380917	232104.5
GPA 1	2010	18	1.5	0.9	0.3-3.6	1.5
	2011	30	1.3	0.8	0.1-2.9	1.4
	2012	45	1.6	0.7	0.0-3.0	1.8
	2013	39	1.6	0.7	0.0-3.1	1.7
	2014	37	2.1	0.7	0.8-3.3	2.2
GPA 2	2010	18	1.3	0.9	0.1-3.4	1.0
	2011	30	1.1	0.8	0.1-2.7	0.8
	2012	45	1.5	0.7	0.0-2.9	1.6
	2013	39	1.5	0.7	0.0-3.1	1.4
	2014	37	1.8	0.7	0.4-3.2	1.7
CGPA	2010	18	1.4	0.9	0.3-3.4	1.2
	2011	30	1.2	0.7	0.1-2.5	1.0
	2012	45	1.5	0.7	0.0-2.9	1.6
	2013	39	1.5	0.7	0.0-3.1	1.5
	2014	37	1.9	0.7	0.7-3.2	2.0

### 4.2. ÖSYS scores

The analysis results indicate that there are statistically significant positive correlations between students' ÖSYS scores and grade points averages. It can be seen from Table 5 that the highest significant correlation ( $r=0.721$ ;  $p < 0.01$ ) is between the ÖSYS scores and grade point averages obtained in the second term and that the lowest one ( $r=0.345$ ;  $p < 0.05$ ) is between the ÖSYS scores and the first-term grade point averages. It is also evident from the table that the correlations reached statistical significance are only for the data from the students admitted in 2010, 2013 and 2014. A further analysis of the statistical relationship between the ÖSYS scores and first-year course grades of the students admitted in 2010, 2013 and 2014 reveals that the obtained significant results are not consistent and differ for the students who

were admitted to the university in different years (Table 6).

Table 5. Correlations between students' ÖSYS scores and first-year grade point averages

	ÖSYS Score				
	2010	2011	2012	2013	2014
GPA 1	<b>0.622**</b>	0.147	0.243	<b>0.345*</b>	<b>0.564**</b>
GPA 2	<b>0.721**</b>	-0.072	0.275	<b>0.379*</b>	<b>0.585**</b>
CGPA	<b>0.693**</b>	0.034	0.267	<b>0.377*</b>	<b>0.596**</b>

\*p<0.05; \*\*p<0.01

Table 6. Correlations between students' ÖSYS scores and first-year course grades

	ÖSYS Score		
	2010	2013	2014
INT1001	<b>0.514*</b>	0.208	0.182
INT1013	<b>0.644**</b>	<b>0.420**</b>	<b>0.510**</b>
INT1033	0.441	<b>0.493**</b>	<b>0.552**</b>
ENG1003	<b>0.471*</b>	0.021	<b>0.346*</b>
TLL1003	0.290	0.225	<b>0.727**</b>
HST1001	<b>0.484*</b>	0.157	<b>0.366*</b>
INT1002	<b>0.707**</b>	0.108	<b>0.331*</b>
INT1014	<b>0.499*</b>	<b>0.338*</b>	<b>0.628**</b>
INT1034	<b>0.470*</b>	<b>0.632**</b>	<b>0.639**</b>
INT1052	<b>0.716**</b>	0.210	<b>0.365*</b>
ENG1004	<b>0.498*</b>	<b>0.600**</b>	0.198
TLL1004	0.394	0.002	<b>0.464**</b>
HST1002	0.415	0.175	<b>0.463**</b>

\*p<0.05; \*\*p<0.01

### 4.3. ÖSYS rankings

The analysis results show that there are statistically significant negative correlations between students' ÖSYS success rankings and grade points averages. It can be seen from Table 7 that the highest significant correlation ( $r=-0.611$ ;  $p<0.01$ ) is between the ÖSYS rankings and grade point averages achieved in the second term and that the lowest one ( $r=-0.505$ ;  $p<0.05$ ) is between the ÖSYS scores and the first-term grade point averages. It is also evident from the table that the correlations reached statistical significance are only for the data from the students admitted in 2010 and 2014. A detailed analysis of the statistical relationship between the ÖSYS rankings and first-year course grades of the students admitted in 2010 and 2014 reveals that the obtained significant results are not consistent and differ for the students who were admitted to the university in different years (Table 8).

Table 7. Correlations between students' ÖSYS success rankings and first-year grade point averages

	ÖSYS Ranking				
	2010	2011	2012	2013	2014
GPA 1	<b>-0.505*</b>	-0.140	-0.213	-0.282	<b>-0.542**</b>
GPA 2	<b>-0.611**</b>	0.017	-0.259	-0.305	<b>-0.576**</b>
CGPA	<b>-0.577*</b>	-0.061	-0.244	-0.305	<b>-0.581**</b>

\*p<0.05; \*\*p<0.01

Table 8. Correlations between students' ÖSYS success rankings and first-year course grades

	ÖSYS Ranking	
	2010	2014
INT1001	-0.399	-0.126
INT1013	<b>-0.591**</b>	<b>-0.525**</b>
INT1033	-0.290	<b>-0.481**</b>
ENG1003	-0.384	<b>-0.387*</b>
TLL1003	-0.247	-0.702
HST1001	-0.445	<b>-0.435**</b>
INT1002	<b>-0.641**</b>	-0.319
INT1014	-0.419	<b>-0.601**</b>
INT1034	-0.317	<b>-0.571**</b>
INT1052	<b>-0.610**</b>	-0.310
ENG1004	-0.373	-0.262
TLL1004	-0.414	<b>-0.546**</b>
HST1002	-0.335	<b>-0.422*</b>

\*p<0.05; \*\*p<0.01

## 5. Discussion

Given the lack of conclusive evidence, it is not possible to state with certainty that the anticipated change in the method of evaluating and admitting prospective interior design students in Turkey has a sound basis. Until we have a more thorough understanding of the predictors of academic success in design-oriented programmes, one of the most important questions that scholars and educators have to answer urgently is whether or not being successful in ÖSYS examinations can be closely linked to performing well in interior design and other related programmes. The above-mentioned study findings indicate that there may not be a strong link, and they are in line with those of Cubukcu and Cubukcu [9] and other researchers [10, 11] investigating the predictive validity of the ÖSYS in terms of academic achievement in various undergraduate programmes such as guidance and psychological counselling, physical therapy and rehabilitation, law and pre-school teaching. Although it is evident from the study findings that there are statistically significant correlations between students' success in ÖSYS examinations and their first-year grade point averages, the expected benefits or outcomes of achieving higher scores and better rankings are inconsistent throughout the years and generally confined to theoretical non-studio courses such as INT1013 Introduction to Design and Architecture and INT1014 Introduction to Interior Design. Therefore, it seems reasonable to suggest that applicants' ÖSYS results should not be the sole determinant of their suitability for admission and that YÖK's decision on the selection and placement of prospective interior and industrial design students may need reconsideration.

It is important to mention two limitations of the conducted study. First, the analysed data is from a single interior design programme in which TM-1 scores are utilised for admission. Due to this fact, it would be incorrect to reach firm conclusions for other undergraduate interior design and design-oriented programmes to which applicants are admitted on the basis of TM-1, MF-4 or other score types. Second, since the first-year grades are the most revealing indicator of a student's successful transition to university [12], students' first-year course grades were only retrieved and compared with their ÖSYS results. Therefore, it is clear that more research is required to understand the true nature of the relationship between interior design students' ÖSYS achievement and academic performance.



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## STREET ART AS A SPATIAL COMPONENT

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### Abstract

Street art as a type of contemporary art that is thriving in the city is an anonymous provocation which can be applied by rich application techniques and an exclusive form of expression of society which enables people to reflect their cultural backgrounds and their qualities to the areas they interact.

The aim of this study is to show street arts' artistic value (city, building and interior scale) and its effects of reflecting subcultures' and people's identity to the areas where they live in and spend their time.

Within scope of the article, explications are made as to how street art emerged, types of street art and their contribution to public spaces based on the concepts they are related to as well as the new spatial context they create.

The influences of street arts on urban identity and social identity based on street art practices, which find range of application of different scales, constitute the subject matter of the said explication. Street arts' communication and interactions (user, observer, implementer) between space and users are focused on as part of the explications.

**Key Words:** *Street art; public art; public space; urban identity; interaction space-users*

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### 1. Introduction

Street art gives meaning to where it is performed; it gives meaning to where it is applied and makes it vital. It extends time where people spend time in that space and the major of it all it saves the urbanized from just to be a watcher and embody into the design of the living place. Street art implementations and the wall is not a simple element anymore; it is an instrument of expressing one self. Street art both aestheticize the architectural and urban space and play a role in the formation of the identity of the users enhancing their sense of belonging.

Street art transforms urbanized location as well as altering through art. It becomes an urbanized instrument beyond a rustic mural painting with its dynamism and authenticity by breaking through stillness of the location it uses.

Hence in contrary to the common estimation it should be paid attention that street art is not just a branch of plastic arts, its value as a spatial component shall not be overlooked as well.

#### 1.1 Street Art

Street art as a form grew in urban environments by the extraordinary application techniques of the art; it does not just consist of picture, stencil, writing, sticker or poster, it is defined as anonymous provocations made in the places where everyone can see and it has no limitation in terms of tool. [1]

The street art occurred at the ends of 60's and its aim is generally to reclaim what is purchased by advertisers and the big corporations or change the dynamics of these spaces with a set of visuals. [1]

The method of street art in the year of 80's consist of many art movements such as Pop Art, Surrealism and Cubism and organized by practical methods as a protest demonstration purpose, today grew even bigger in the parallel of the modern urbanization and transform

streets into an art gallery; in time it become the most rebellious movement after punk. [3-4]

The documentary “Exit Through the Gift Shop” that many graffiti and street artists took place including famous street artist Banksy, both achieved to announced world-wide echoing works of street artists to the masses and draw attention to the usages of the street art in 21. century as a means of communication. [3]

1.2 Concepts that are being associated with Street Art

In researches made and literature survey Street art is especially associated with vandalism, sub-culture, situationist and punk. These conceptions are examined in terms of their relation to street art:

Vandalism: To be a vandal and vandalism is defined as “the idea and act to destroy and burn old culture and art monuments”. [5] In the years of subsequent periods of French Revolution when it was emphasized that destruction of French civilians shall be prevented, the term “vandalism” was used for the first time ever, today it is used almost in the same meaning. The street art that evaluates illegal practices as vandalism; street art distinct from vandalism because of consisting adoption of space by its reason of existence and motivation. [6]

Sub-Culture: A society, includes many sub-group each of them has a way of thinking and action which is idiosyncratic. These cultures that are placed in the cultures are named as cultures as well. [1] Street are is one of the most influential method for sub-cultures in order to express themselves.

Situationist (Situationist International): It is an opponent organization that targets an aesthetic and politic revolution in daily life; which was active between the years of 1956-1972. [7] The beauty that is based on temporality that situationists are looking for, is the vice versa of settled and corporational life style and the situationists thought just as the street artists that the wall was one of the most efficient medium to make a production that is temporal, real and close to life. [8]

Punk: The Punk stage-punk music at the end of 1970’s in England is accepted as the core essence of Punk stream. The common thought of white punk youth who was a member of lower-class had detrimental effect suffered by the economic situation was “They had no future” and that their life was already determined from the very beginning by the society of which ruled by people who owns what they don’t deserve so have advantages such as (money and political power). Same way Punk music returned rock music back into the streets and articulated revolt of the punks; street art grab the art out of the big museums and brought it into the real centre of life, the streets. Street art that is performed without seeking to make a profit, by an individual creativity, is the reflection of Punk principle “do it yourself”. Punk is observed on Fanzines, concert posters, t-shirts, jackets and stencils made on the wall, which constituted thought-exchange between punks and also contributed to formation of graphic aesthetic; therefore street art aesthetic. [1] Table. 1.

Table 1. Concepts that are being associated with street art

Concept	Its Relation to Street Art
Vandalism	Their illegal aspects are alike but street art distinct from vandalism due to street art consist of space adoption by its reason of the existence and motivation.
Sub-Culture	Street art is used in sub-cultures as self-expression.
Situationist (Situationist International)	Situationists and street artists use wall as a place of expression.
Punk	By not having an aim to make profit, protest attitude and philosophy of do it yourself it is similar to street art.

### 1.3 Types of Street Art

Any art facility such as graffiti (tag, piece), stencil, sticker, poster, mosaic, 3D chalk art, mural-mural painting, yarn bombing, the guerrilla gardening and street installations; a music played in the street or street theatre is defined as street art. [1-9]

#### 1.3.1 Graffiti

Graffiti which is adopted as an urban art and generally embraced by the youth living in the ghetto; they are usually defined as writings and drawings drawn on a wall or surface, mostly available in a public spatial, scratched or sprayed in order to express personnel or individual opinion. [1-10] Graffiti that is assumed to go back to the figures drawn on cave walls to wall writing in Pompeii and Ancient Egypt Era; exploded in 1970's in New York in today's meaning; by being transferred from urban walls to urban and metro walls spread to whole ABD. [8-11] Graffiti typically includes letters and characters or the simple signatures known as tag. [2] As names and competition increase following "tag" throwing; by applications called "piece" started to be performed; symbols and interesting pictures are added to the signature of graffiti writer. [1-6-10] The most frequently used materials in Graffiti applications; spray paint and board marker (a type of board marker) are the most frequently used materials. [6] Graffiti is applied on various surfaces such as on shutter, transformer, and urban furniture surfaces, in building generally on in and out wall surfaces and sometimes it is used regarding façade spaces. Fig. 1.

#### 1.3.2 Stencil

Stencil, is defined as the pictures transferred to the surface where it is applied by paint inside the stamping die as; caricature, digit, letter, picture; which are formed cutting of the materials such as paper, cartoon, and metal materials. [10-11] Stencil that its quite colorful applications available is preferred usually by political artists due to rapid and convenient use. [6] It emerged in the 80's years as a result of differences occurred due to message as well as technical differences. [11] These stencil pattern made by the arranging drawings and symbols in order; it is the extension of do-it-yourself philosophy in punk culture and can be prepared by simple materials available at home. Today it can commonly be achieved by the process of spraying the spray paint through these spaces, by airbrush technique or by using sponge with acrylic. [1] Although there are so many various application places they are applied on in and out wall surfaces. French street artist "Blek Le Rat" and "Mis.Tic" and English street artist Banksy are among famous ones. [6] Fig. 2.



Fig. 1. (a) graffiti "tag", Berlin; b) graffiti "piece"; Paris; (c) The walls of the underpass are covered in graffiti; (d) The door is covered in graffiti; (e) The water drainage is covered in graffiti



Fig. 2. (a) a work by Blek le Rat; (b) a work by Mis.Tic; (c) a work by Banksy

### 1.3.3 Sticker

Sticker, ready to attach, to draw a tag (initial) or pattern on cut paper; sometimes applied to the surfaces of ready-made sticky surface graphics. [10] Avant-garde conveys the political messages of the art and his interpretations of the press. They are an extension of street art. They are used to display various images or messages clearly. They are preferred because they have a much lower risk of being caught and less harmful than other work produced within the context of street art. [1] Road signboard, transformer, city furniture etc. The sticker applied to the surfaces is usually applied on the inner and outer wall surfaces in construction and sometimes as a street installation element. Fig. 3.

### 1.3.4 Poster

The poster is to glue the paper materials to the surface with glue. [1-10] Posters that are becoming widespread with hippie culture are suitable materials for artistic work or to publish a political statement. They can be applied quickly, such as Medium sticky or stencil techniques. Costs are low because they can be reproduced by photocopying. In the technique called paste-paste, various images are applied to the surface as if it is in the poster technique without writing. [1] Poster applications are usually on the inner and outer wall surfaces of the building; sometimes in vertical circulation elements. American "Swoon" is one of the most famous poster artists. [6] Fig.4.

### 1.3.5 Mosaic

The technique of creating a picture by bringing stone, glass or ceramic materials of different colors in a side by side on a surface in small and three dimensional pieces is called mosaic. [9] As a street art type, ceramics are applied by attaching mosaics to the surface. The most famous mosaic artist is Invader. [6] The mosaic works which are usually applied to the flat surfaces are applied to the inner and outer wall surfaces or the vertical circulation elements in order to be able to attach the ceramic material. Fig. 5.



Fig. 3. (a) sticker art, Portland; (b) sticker art, Paris; (c) a sticker on the wall of a underpass; (d) a sticker on the wall of a building



Fig. 4. (a) a poster by Swoon, Berlin; (b) a poster by Swoon, Paris; (c) a poster by Swoon, Paris; (d) a poster by Swoon, New York



Fig. 5. (a) “Pac-Man” by Invader; (b)“Aliens” by Invader; (c) “Thomas from Kung Fu Master” by Invader; (d) mosaic stairs, San Francisco



Fig. 6. (a) a work by Julian Beever; (b) a creative work in Seoul; (c) a creative work for UNICEF; (d) an interesting work on the door



Fig. 7. (a) a work by Ella&Pitr; (b) a mural on the stairs; (c) a mural on the wall ; (d) a mural on the façade; (e) a mural on the façade

### 1.3.6 3D Chalk Art

3D chalk art is the drawing of pictures on pavements that look three-dimensional when viewed from a specific angle with chalk. [6-10] By examining the anamorphic technique used in the Renaissance and Baroque period paintings, the drawings drawn on the 2-dimensional sidewalk in the street are based on the principle of attributing 3-dimension. It is a kind of street art that is preferred especially in street art festivals and for promotional purposes. [12] During the application, it is first decided how to look at the picture from the angle. In the construction stage, the sketch is first prepared, and after it is drawn with the chalk, it is checked how it looks from certain points. After all the arranging is made, the drawn image is colored. In the coloring stage, the design of the 3D areas is re-determined and the drawing process is restarted. Because of the time spent, 3D chalk applications cannot be illegal. The most famous 3D chalk artist is Julian Beever. [6] They are applied on vertical circulation elements, building elements and vertical resurfacing elements, as they are mostly applied on pavements. Fig. 6.

### *1.3.7 Mural-Mural Painting*

They are paintings with acceptable artistic value that have legal status, such as walls, ceilings or any large and lasting surface, which often apply to building facades. [2-9] It is a kind of street art that is applied by large scales from small scales, usually with 2D applications, which can be 3-D sometimes, and it is widely used today with water-based paint technique. [9] Due to their size, cost and the work force they need, they are often sponsored by local government or companies or sponsors. [1] Visual effects are often directed at attracting social attention to social problems. They can be an effective method for liberation or political purpose in social life, so they are often preferred by street activists. [1-9] Although it has protest attitude of street art, the visual and artistic values of the murals have priority over it. [9] Fig. 7.

### *1.3.8 Yarn bombing*

The main material of the yarn bombing technique is balls and knitting needles in different colors. The artist's expertise in knitting techniques is directly related to the complexity of the product. Although it does not show any similarity with other street art types technically, when it is sociologically evaluated, it intersects with street art types in terms of giving positive feelings as individual. [13] In the bombardment, the message to be given can also be for political criticism or protest, and is independent of the knitting technique of the artist. [19] The Yarn Bombing has a wide application area from city furniture to apartment facades. Fig. 8.

### *1.3.9 The Guerilla Gardening*

Guerrilla horticulture is the practice of planting and re-planting a region where a group of volunteers do not like or find it unsatisfactory in their surroundings. Because it is completely illegal; the possibilities for implementation are rather limited and night time is generally preferred for on-site applications. The "seed bomb" method is preferred by those who are not able to practice on site or who want to do it like a real guerrilla. [14] Guerilla gardening is perhaps the most protest and illegal type of street art, with debates about whether it is art or not. [15] There is a wide range of applications from cobblestone, building wall, vertical circulation element to any place that is thought to create visual pollution. Fig. 8.

### *1.3.10 Street Installation*

Street installation is the placement of three-dimensional, large or small objects in a landscape or in a certain building in a particular building. There are examples of the use of existing features of nature and of the environment, or of applying the space feature of some space. It is not possible for street installations to cause any harm to the environment. It can even be said of its contribution to the environment in terms of harmony with the environment, giving it meaning, creating a focal point. The permanence in the place it is based on depends on whether or not the applied art is protected because it is usually made without permission. Nowadays, there are examples of social content that develop beyond the scope of individual projects. [9] Fig. 9.



Fig. 8. (a) a “bombed” benche; (b) a “bombed”house; (c) a seed bombe; (d) guerilla gardening in Liege; (e) guerilla gardening in Paris



Fig. 9. (a) a street installation on the road; (b) a street installation in the garden; (c) a street installation on the building façade; (d) “Social Exclusion Project”, Gothenburg, Switzerland



Fig. 10. (a) Light in Babylon, Istanbul; (b) a street theatre, Porto; (c) a street theatre, Ankara, Turkey

### 1.3.11 Street Music

Street music is the expression on the street of classical art. Every social culture has a cultural structure that is unique to the street. [6] While street musicians perform in many countries including Turkey, England, Austria, street musicians can perform their work if they follow certain legal limitations, which can be enforced such as having the necessary licenses and as long as they don't exceed the specified volume limitation. [16] Fig. 10.

### 1.3.12 Street Theatre

The Street Theater is an open-air theater in which street games are exhibited. It is usually exhibited by young communities who aim to send a message by choosing the short-way expression style. They are often exhibited in improvised parks, semi-busy streets and similar spaces, often in 10-20 minute games. [6] Fig. 10.

## 2. Public Location-Urban Identity and Street Art Relation

Users interact with that space that surrounds them during the time they create and use that space. They shape what they do in existing spaces in order to sustain the lives of the individuals who make up society; it allows the transfer of the features that the social structure possesses.

A city; If we have distinguished two subcategories of the spatial environment and the continuing lifestyle within that city; we can separate a city's identity into two sub-titles, social and spatial identity. Migration in the social structure, economic changes and constant changes taking place due to political reasons; The need to constantly renew the identity of the city.

No matter what society is; all the differentiations that take place in the social structure of a society are reflected in the places of the city where the society lives. The point that should



not be ignored here is that the social change may be delayed relative to the space due to the participation of the space, and that the spatial effects to be realized may vary according to the feasibility level of different societies. [17]

The level of feasibility in a city can only be measured by the level of democracy in that city. In a democratic city, public places are the places where the citizens' availability rates are most apparent. As a matter of fact, the lack of these ideal public spaces, which are longed for today, causes the freedom of individuals to be more and more restricted every day, causing people to search for new and different ways of expressing themselves. [11-17]

Since the ancient times, there are wall paintings and street art; Voicing the problems in the environment where the inhabitants of the city today live; Increasing their feasibility and expressing psychological exploration and shouting. Whether the street art is legal or illegal; it brings artistic value (visual culture) to the space without discriminating the scale. [11-18]

However, while this acquired quality of plastic is sometimes confined to a personal uprising of the current building stadium, And sometimes on the masses in terms of social content. In the light of the sample examinations made; does not allow the reaction of the subculture they want to express to be sabotaged due to the concern of extinction; Large-scale implementations of artists who do not compromise on the idea of defending are more successful in expressing the user dimension of space; It is seen that most of these projects are legal applications because of their scale.

### *2.1 Street Art Implementations that are come to the Fore in Respect of Urban Identity*

This section focuses on the social messages that are chosen and intended to give social contexts, especially on a large scale, where they are applied, and where they have a great impact all over the world, so that street art can understand urban artifacts.

Identity Series: Cuban-born American street artist Jorge Rodriguez-Gerada is involved in projects that enhance the social dimension of public spaces. In the project "Identity Series" the artist painted flare portraits of unfriendly people and applied them to the walls of the existing buildings in a measure that we could call gigantic. Attention has been paid to the fact that the portraits used are very expressive of the social side of politics, challenging in their faces, symbolizing pride and honor. What is important in the project is not drawing. The artistic process of the project begins with the choice of the city, the building, and most importantly, the person. The most important point to note is that the chosen person acknowledges that the work of art to be implemented evokes the sense of belonging to the city to be found and that it becomes a monumental (heroic) hero after the application to be made. Here the people from the people are now representing other users as a city hero who stands against the insanity of politics and advertising. [19]

"Yousif" portrait, which Gerada did in Bahrain's Manama city within the scope of the Alwan 338 festival, was the most famous of his works. The artist remembers the big class differences in Bahrain and instead of a pleasing photo in terms of aesthetics; the audience will emotionally capture them from different points. Yousif is a traditional Bahrain fisherman with only a few faces left behind. [20] Gerada has implemented similar mural implementations in major cities such as Barcelona, London and Paris. [19] Fig. 11.

The artist's work, "Okiki", which will be held in 2013 with the support of Global Street Art in London, demonstrates the struggle of families from another country to give their children a better life on the wall of the factory where they are made, and is referring to hope for people in the same situation. Fig. 11.

Identity Composite Series: Gerada has been questioning the social solidarity in the society in the context of the Identity Composite Series Project, which is the continuation of the Identity series, which was started to take place in Badalona, Spain in 2010. 3D scanning

of 34 persons in 34 different districts in Badalona was conducted; these scans were used to create a hybrid face for the city (composite face) with the help of an algorithm program developed by researchers from the Universidad Autònoma de Barcelona. The resulting final image is applied as coal wall paintings; every settlement has its own self transformed into a sculpture that everyone could refer to as a piece. [19-21] Fig. 11.

*Terrastral Series:* Gerada criticized marketing under the project "Terrestrial Series". The artist decides to do something that will challenge them by using the same codes used by advertisers, such as scale, visibility, and eye-catching images; Placed iconic images in strategic locations; location, scale, and materials used highlighted what is being tried to be expressed in each application. [19]

"Expectation" is a beach-shoring practice in Barcelona that looks like Barrack Obama with enormous dimensions. It was made using 650 tons of sand and coins before the US presidential election. When referring to size and choice will affect the whole world; has become the symbol of hope; On the other hand, the use of sand metaphor has been referred to how hopes can fade away at any moment. [19-22] Fig. 11.



Fig. 11. (a) "Yousif" by Gerada; (b) "Okiki" by Gerada; (c) "Composite Identity" by Gerada; (d) "Expectation" by Gerada



Fig. 12. (a) "The Wrinkles of the City", Cartegena; (b) "The Wrinkles of the City", La Havana; (c) "The Wrinkles of the City", Istanbul



Fig.13. (a) "The UNFRAMED Project", Vevey; (b) "The UNFRAMED Project", Sao Paulo



Fig.14. (a) An immigrant family; (b) Hygiene Conference delegates; (c) "Immigrants about to head back to their starting point"

*The Wrinkles of the City:* The French artist JR aims to attract the attention of people in the street, unlike the typical art lovers going to the museum. [23] In the project "The Wrinkles of

the City", the artist reflects the reactions of the elderly to changes and confusion in the cities they live in. In Istanbul, which connects Asia and Europe as the last leg of the project in 2015; within the context of the implementation of the 15 thousand people in the regions identified as problematic, especially after 1924, the modernization of the city was emphasized. Huge portraits to express the change in architecture have been applied in the districts of Balat, Haliç, Beyoğlu and Eminönü.[23-24] Fig. 12.

*The UNFRAMED Project:* JR has turned the city into an open air museum as part of The UNFRAMED project, which began in Vevey in 2009. For the first time, the artist used photographs of the Musée de l'Élysée in Lausanne, which he did not shoot in his work. By rearranging the photographs, it gives new meaning to the icons that use the facades of the buildings as exhibition walls. Project was first applied in Vevey, then in Sao Paolo, Marseille, Baden Baden and finally on Ellis Island. [23] In 2011 the practice in Sao Paolo; The desire to protect the struggle and traditions of the farmers against deforestation are exhibited. [25] Fig. 13.

The practice in Ellis Island in 2014 was aimed at reviving the historical memory of the island that the millions of immigrants had entered into America. These people, who come from many parts of the world, and who fear their retirement and their backgrounds, are shaped again by the people who have been abandoned for 70 years, how they shape modern American identity. The artist tells the stories of these people through art. In an interior space application, the space is animated with the portraits of the person applied, and the human factor lost by the space is restored. [23-26] Fig. 14.

### 3. Conclusion

Art has vital importance in terms of the city. While the works of art contribute to the qualities of the urban space on the one hand, the daily life styles, the social point of view and the opposition express the spatial organization.

The works of art contribute both to the qualities of the urban space and to the expression of daily life styles, social point of view and opposition to spatial organization. It is based on ancient times that art is used as a means of communication, a protest, by meeting the street with the wall. With the development of street art in the present sense in the 1980's, new surfaces, new application techniques and materials were added to this protest. It is divided into several subheadings over time with the use of different expression forms. Street art today is often played on streets, such as graffiti (tag, piece), stencil, sticker, poster, mosaic, 3D chalk art, mural, yarn bombing, guerrilla gardening and street installations, street music or street theater. You do not realize what kind of street art is; it helps the artist to express behind the sight of the plastic display and sometimes to emphasize the meaning of the place. In light of examination made, Applications often supported by private institutions or the state; The community stuck in the rigid mass of the city; who are more influential in reflecting the longing and anticipation of the past, and sometimes today, of the future. These practices that strengthen the sense of belonging in public spaces are also important in terms of urban identity. Street art urban space; It is the most aesthetic way of incorporating the design of the voice that the user has not had the opportunity to express himself but wants to announce to the whole city or even to the whole world through the artist.

As a result of the different examples examined within the article, the street art genres used by the artists as means of expression are not only limited to these genres; As well as work to be done in the future; It was also possible to divide into subcategories under the titles of content / discourse, form / application, application field material, contribution to urban space. Table. 2.

Table 2. Examination of Street Art

Type of street art	Content/discourse	Form/application style	Application field	Material	Contribution to urban location
Graffiti	Personal opinion	Letter, tag, piece	Urban furniture, building wall façades	Spray paint drawing	It is integrated to urban location, it can also be individual
Stencil	Political message	Figure, caricature or picture by mold	In-out wall surfaces, building façades	Spray paint airbrush, sponge	It is integrated to urban location,
Sticker	Press release, political comments of Avant-garde art	Picture, writing	In-out wall surfaces, urban furniture	Sticker	It is integrated to urban location,
Poster	Artistic works	Picture, writing	Wall surfaces, circulation components	Paper pulp	Individually free
Mosaic	Artistic works	Picture	Wall surfaces, circulation components	Stone, glass, ceramic	Individually free
3D Chalk Art	Artistic works	Picture	Ground and wall surfaces	Chalk	Changes the perception of the space/location
Mural	Artistic works	Picture	Building, wall façades	Water based paint	It is integrated into the location using architectural components
Yarn bombing	Social and protest message	Knitting cover	Urban furniture, building façades	Ball knitting	It is articulated to the space
Guerrilla gardening	Visual pollution and criticism not having green environment	Landscape implementation	Any surface where plant grow	Seed plant	Changes and transforms the space/location
Street Installation	Social discourse	Quite various	Empty areas and surfaces	Any kind of material	It is integrated into the location filling the empty location

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## BEING PARTICIPANT AS A USER AT THE CONTEMPORARY FURNITURE DESIGN

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### Abstract

Furniture design has been one of the main equipment of interior design. Designers have to learn and understand problems of users and find suitable solutions for them by using such materials, forms, shapes, construction and colours. Space, form and line, also colour, material and texture have been very important tools for designers. Some designs give opportunities to participants as users because of their variabilities they have gained. Also it could have been an apportion identity according varying needed by increasing functional resolutions.

At the proceeding, design process of furniture design will be handled under the title of environment & design, sustainability by giving examples.

**Key Words:** *Contemporary Furniture Design, Manufacture, Interior Design, Designer, User.*

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### 1. Introduction

Dictionary and encyclopedic sources use words like, accessories, equipment, and movable objects to define furniture. Words can describe the performance and physical characteristics of furniture, but those who design, make, and use furniture know that furniture design extends far beyond dictionary or encyclopedic definition. Furniture design concepts lead to production of useful items that result in tactile experiences. In early every case, furniture is something people experience through direct human engagement. In addition, one understands and knowledge of furniture evolves with use and overtime [1]. Also it plays very important role at space design for interior designers as a design object. Furniture itself can be designers' experimental item for users to discover new approaches for different needs they had. The furniture which can be used as sitting element, coffee table, playing table, flowerpot, advertising board (bulletin board), lighting fixture, clothe hanger, bookcase, etc. could has been preferred as redesigned unit by only changing its general form by adding or taking out one unit without terminating the basic design.

### 2. Design Process

Furniture mostly has been designed and manufactured for people who will use them for such activities like sitting, resting, working, playing, organizing or displaying items, etc. Those actions are all the results of function, utility and social factor that forms the performance of furniture. Furniture design mostly bases on the principles of design: theory, material, construction, texture and color. Also the items we have expressed at the bottom could be differed to environmental design conditions, manufacturing technologies and social-economic conditions (Figure 1).

Considerations that influence what we think about and feel regarding furniture design include:

- a. *Aesthetics (meaning of form)*
- b. *Historical precedent (examples from the past)*
- c. *Principles of design (i.e., unity, harmony, hierarchy, spatial order)*
- d. *Function and social use (ergonomics, comfort, proxemics)*
- e. *Design processes (sketching, iterative overlays, model studies, digital modeling, full-scale working prototypes, college assemblies)*
- f. *Material (classification, characteristics, properties, availability, cost)*
- g. *Fabrication processes (hand, power, digital)*
- h. *Environmental design matters (sustainability, renewable materials, off-gassing)*
- i. *Surrounding context (the spatial setting for furniture)*
- j. *Professional practice (economic, legal, and business decisions)*

A goal in designing furniture is to consider all design aspects in a comprehensive and integrated manner, while maintaining focus and critical engagement upon the primary concepts and ideas that inspire design [1].

The concept of design is totally a result of a process coinciding creative thinking and being brilliant at all. Designer combines her/his technical information gained by design education. Design includes both social and physical abilities at the same time. Thus, designers who could use their both sides of their brain have been more successful from other colleagues.

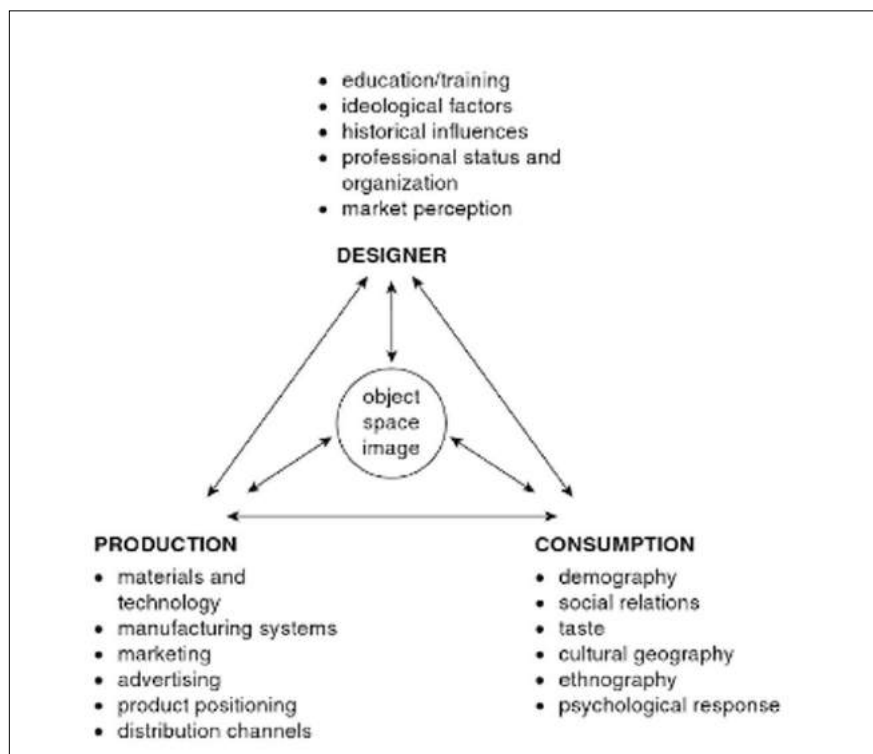


Fig. 1. Domains of Design Culture [2].

At the core of designing furniture is a body of knowledge and the skills necessary to integrate the tangible and intangible aspects that become furniture (Figure 1). Tangible aspects include:

- *Materials (characteristic, workability, and finish qualities)*
- *Fabrication processes (tools, performance, quality, and limitations)*
- *Resources (time, money, and access to equipment and supplies)*

Intangible aspects include:

- *The program (intention, purpose, function)*
- *Theory and history (inquiry, rationale, precedent)*
- *Ergonomics and proxemics (designing for set activities, within the limit of the human body and the study of how people communicate in and through space)*
- *Knowledge about the human body and the human condition*
- *The design process*
- *Marketing and branding strategies*
- *Professional practice [1].*

### 3. Manufacturing Process

Designers explore and experiment with materials and fabrication techniques rather inductively. Through the process of experimenting with materials and methods of fabrication, designers can discover fascinating applications and opportunities for utilizing materials to achieve innovative performance in design. Mapping information can indicate relationships between fixed and variable conditions and help to visualize data within the constraint of an established framework such as time, place, or cost [1].

Designers need a good understanding of material and manufacturing parameters to communicate productively with engineers and ultimately to produce designs on brief and within budget for client. Furniture design is by no means an exhaustive guide to design and manufacturing, but as a companion for designers it provides an easy-to-access resource of furniture design knowledge [3].

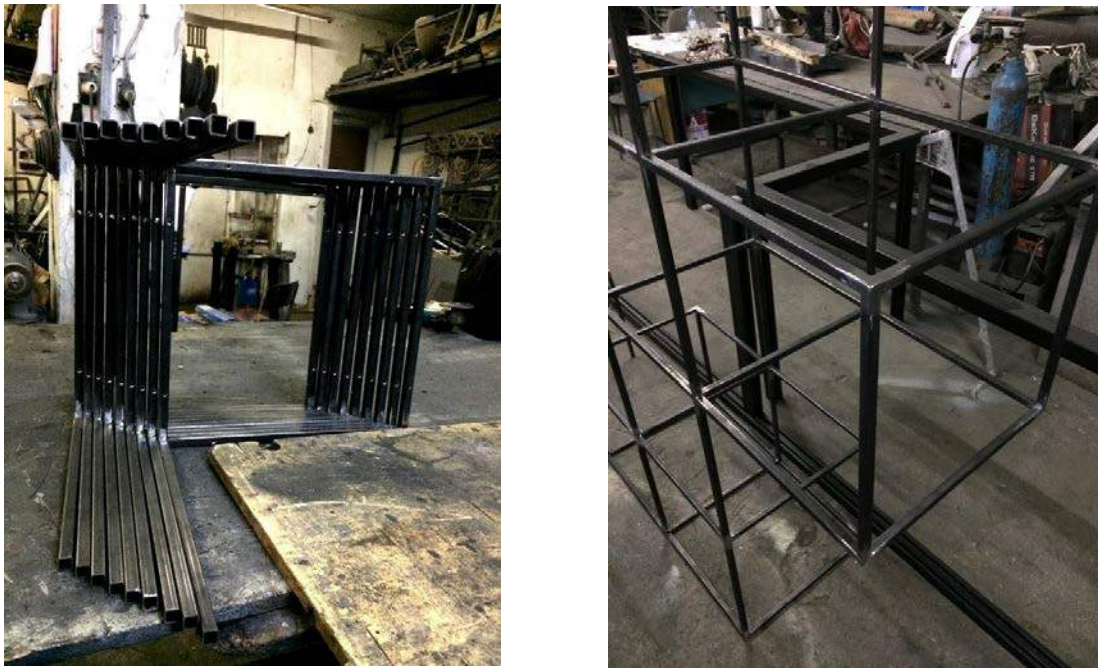


Fig. 2. (a) Manufacturing Process of 4Corner Furniture Design Exhibition (b) Manufacturing Process of Furniture Design Exhibition [4].



Also designers should consider that to where and for whom they will design. These two questions are very important which shapes the design and manufacturing process. There has been a lot of good design which gained a prize by current design foundations. However one design which has perfect concept at all could not be as right as for other countries, climate and material conditions. Thus, designers have to be a good researcher to design suitable furniture or spaces for the users' needs and conditions. Materials are very important equipment which makes furniture as a design item. If you have designed furniture with a very unusual and expensive material it will take a long time to produce it. Therefore designers also have to be gained by material and production techniques information not to waste time while manufacturing. In figure two there can be seen the manufacturing process of 4Corner: Furniture Design Exhibition at metal factory.



Fig. 3. Manufacturing Process of 4Corner: Furniture Design Exhibition [4].

While choosing a material or a manufacturing process can be a rational and objective exercise, these is nearly always more than one solution to creating a form, structure and aesthetic, or to reducing costs or improving interaction (Fig. 3, 4). Any design process is the cost of manufacture in relation to the number of units to be produced and the target retail price. It is also imperative to consider the most suitable materials and approaches to manufacturing. Choosing the correct manufacturing process for each component upfront for large industrial manufacture can be significant. There are, however, restrictions and

limitations when using lower-cost manufacturing technologies, both in visual refinement and the tolerance available [3].

#### 4. Relation between User and Furniture Design

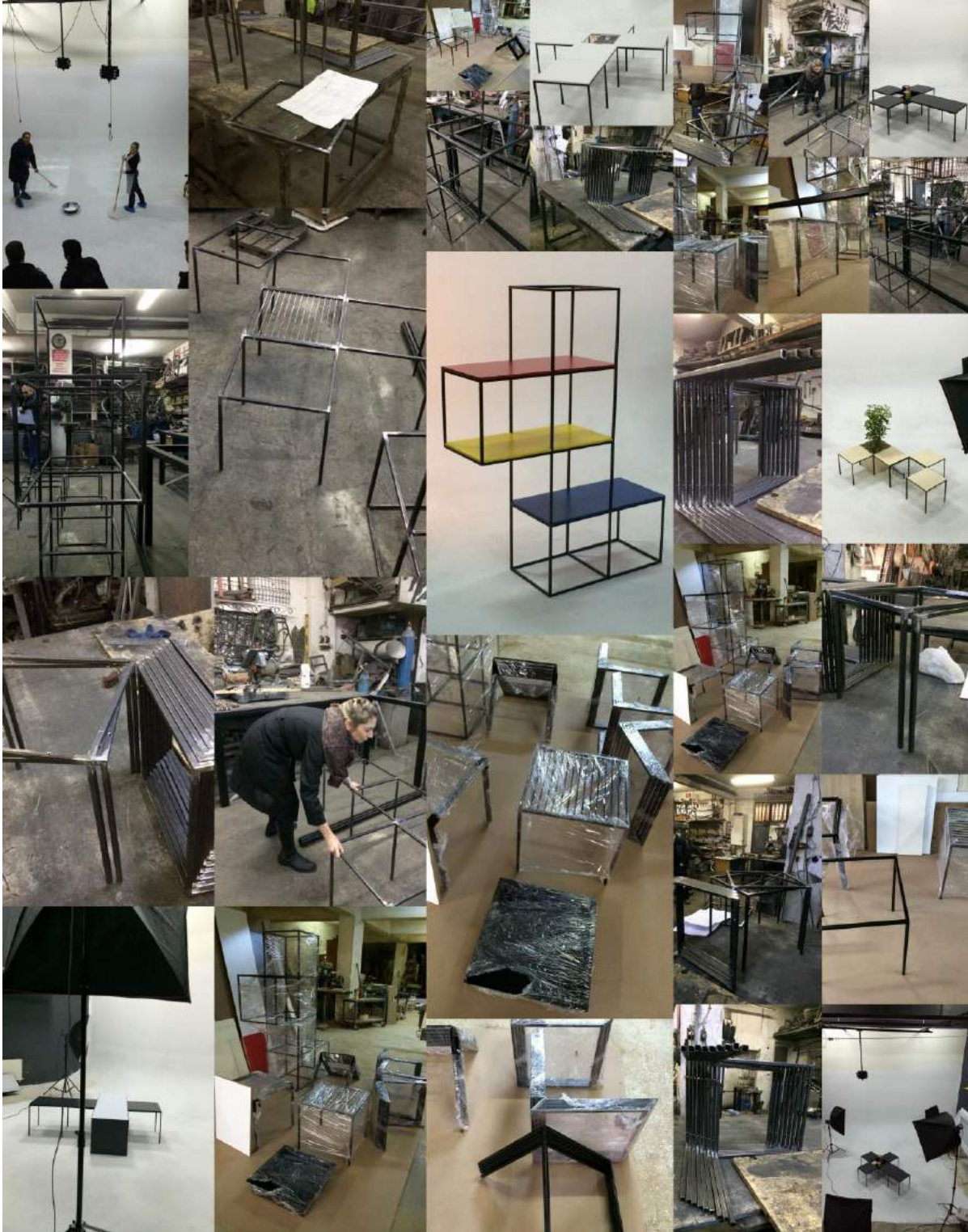
Interior designers organize spaces in which can be livable by people by creative approaches. The construction of furniture has to be easily understood that this makes furniture more successful from the other examples. Also designing systems can be changeable because of production and shipping conditions as well as materials and finishes that were used at furniture.

Multifunctional furniture originated from the need to meet the many different needs of users. These needs appeared for a number of reasons. The first were the dreams of wealthy clients of having products that were unique in form, with surprising technical solutions, and enabling users to meet several practical administrative needs. Modern multifunctional furniture pieces are often adapted by necessity to minimum living space, nature of work and financial possibilities of future owners (Fig. 5).



Fig. 4. Manufacturing Process of 4Corner: Furniture Design Exhibition [4].

Modular furniture is designed on the basis of a body with a universal structure of elements, which maintains unified and repetitive closed dimensions in universal templates, with the possibility of any completion and decompletion of the system. Completion of systems can be done vertically, horizontally and matrix wise by using a system of simple connections between the elementary solids of furniture [5].



g. 5. Process of 4Corner: Furniture Design Exhibition [4].

#### 4.1. An Experience: 4Corner: Furniture Design Exhibition

Furniture supports the human body in course of sitting, reading, dining, working, resting, and sleeping. Many people spent 75 percent of their entire day (from dawn to dusk) in or on some of human body support. It is important to consider the spatial and temporal context in which furniture is used, and how it is used. Activities, body movement, and body posture are important to consider in design. At a minimum, human body supports should enable five conditions:

- *Body movement*
- *Support the weight of body as evenly as possible*
- *Maintain the natural curvature of spine when standing while being seated (lumbar lordosis)*
- *Avoid inward compression of the lower vertebrae of spine (kyphosis)*
- *Minimize uncomfortable pressure points*

Conventionally, furniture serves to keep people and activities off the ground [1].

4Corner: Furniture Design Exhibition, seen in figure six, is exactly makes definitions about this topic. Exhibition was organized at Sakarya University, Fine Arts Faculty, Sakarya-Turkiye in 2015 by interior designer Muge Goker Paktas. There are ten furniture, which are multiplied from one of the three dimensioned form: cube and its technical development at all. It can be reconstructed in several times easily by user. In the exhibition there can be seen different kinds of furniture for varied function by using the same unit: square. This furniture can be used as bookcases, playing table, sitting elements, lighting fixtures, lounge tables, showcases by adding the same unit to each other.

Form of 'square' multiplied from one unit at three dimensional spaces, have been constructed by possibilities comes through side by side. This verified presentation makes user being a participant of the design object. The possibilities of the units coming next to each other, increases also the functional solutions of set. Therefore, the exhibition apologize the sharing identity which has been varied to needs of users.



Fig. 6. 4Corner: Furniture Design Exhibition [4].

The units forms the all system, produced from the combination of metal and wooden materials, supports the simplicity of modular forms. It presents simplifivative solutions at the process of transporting and reconstructing. '4Corner' series emphasize the importance of the keywords environment-design and sustainability which forms contemporary design, with the process of bringing user in transporting and reconstructing directly.

Designs have been engaging users' attention to be multiplied from one unit, in another words form from modules for different kind of functions at spaces. These furniture have been answered to our daily activities, we have needed during our lives at several spaces. Also give opportunities to user to live active experiences at all.

## **5. Conclusion**

The word of furniture which mostly derived from European nouns or verbs, references to the verb furnishing. In Turkish furniture named as 'mobilya' that refers to be movable as in other Latin languages. Most of the languages translate this word as furniture generally. This definition gives us very important information about furniture that, it has been movable elements at interior spaces. Totally they are necessary equipment that completes interior space design.

Designers have been playing very important role over users, understanding the functions of furniture at interior design. They also consider different kind of functions for different kinds of people for different kinds of spaces. They should follow and be gained about new contemporary techniques and materials for the manufacturing process. You can be a very brilliant designer however, if you cannot produce it with suitable material and have problems while manufacturing it, being a good designer will not be enough. The user has wanted the right furniture consequently. Thus designer has to be a hard researcher for this process.

In the exhibition of '4Corner' the concept of design refers to be modular and gives a chance to user being a participant of it. All furniture can be reconstructed for many times in very simple way. Also there are different kinds of modules for different functional activities that user can select his/her necessary act, using the same units maybe only using verified materials used over them. At the design process form of cube is used as open or close form at the surfaces. Sometimes one of them can be constructed to wall directly and other can be take place on its own at the space. This opportunities show user that they can be reconstruct several furniture using only one unit and it multiplies of it. Also one of the important items for basic design theory is colour that, at exhibition saturated and natural colours are used at the surfaces of furniture.

In the future designer will be more in search over new approaches at design, because of the changeable conditions of social environment. Also high development process at techniques at manufacturing and material may be making us to think different opinions to be more creative at design world.

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## An Experimental Study Performed With Students: Stage Design For A Theatre Play

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### Abstract

Theatre which is defined as the art of narrating human to human in a humane way, is a stage art in which people express their feelings, thoughts and opinions about public events.

Theatre, past of which is dated to ancient times and therefore has existed for a very long time in history of humanity, left the place of its stages defined by its audience to stages converted into defined spaces. These spaces which develop and change from past to present converted from outdoor theatres in ancient ages to magnificent spaces in middle ages and finally to modern performance buildings.

The design of these spaces varied and developed according to time but the fact that stage designs play an important role in accurately conveying the idea to be transferred, has not changed. Correct design of a stage in which a theatre play is portrayed, contributes in indirect or direct reflection of the message that is aimed to be given by the play, integration of space and story strengthens the cogency of the story.

The study is the term project made under the scope internal space design lesson in Çukurova University Architecture Division. Students were requested to design a stage for a theatre play, which they will select by themselves.

Aim of the project is to express the dreamed / created stages of the selected theatre play by space setup. In stage design, the aim was to be creative so as to support the feeling aimed to be given by the play spatially. In order to strengthen the applicability and practicalness of the study, students were requested to use an existing theatre building.

Under the scope of the study students selected the below pieces of art.

- "Cyrano de Bergerag" play written by [Edmond Rostand](#)
- "Hisseli Harikalar Kumpanyası" a musical play written by Haldun Dormen
- "Diary of a Madman" single person play of Nikolay Gogol
- "Victim" play written by Güngör Dilmen
- "Hans was Heiri" by Zimmerman & de Parrot and
- "Robin Hood" classical play.

Students handled the stage as a 3D space and used light and shade elements as design input.

In this experimental study performed with the students, the aim was to express a theater play with 3D and create the internal space setup and to develop the fictional space design skill of students for an existing story.

**Key Words:** Theater Stage, Stage Design.

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### 1. Introduction

Architecture includes principles becoming integrate with theater in the association of art, design and architecture. For this reason, the space-stage contextual design relation between architecture and theater, which is the art of animation, constitutes the main starting point of the study. By this study performed with architecture students, it was aimed to ensure the architecture student comprehend the relation between this kind of art branches and architecture

/ design education, and manage to define design data in this context. With the design of the stage of theatre, which is a stage art, where people express their feelings, thoughts and their social events-related ideas; it is expected ensuring the story that is intended to be told in the play, to be expressed correctly and effectively. In this empirical study performed with the aim of upskilling of design development that will satisfy a particular problem, the stage design was made for the theater play that architecture students selected personally. information analyses about the theater concept, description, history, stage design was primarily made in the study, subsequently, the stage designs that the students made were criticized in the scope of the game context.

## 2. Theater Concept and its Emergence

Theater is defined as the art of visualization of events that exist or likely to exist in human life, in a particular space, in front of a particular community, by the way of living, analogy, and emulation. The art of theater, which is an analogy of life, is one of the most colorful and interesting one in fine arts, due to including motion, liveliness and dialogues from human properties. Besides, theatre is regarded as a comprehensive art integrating art branches such as theater, literature, music, dance, painting and architecture [1].

The theater word is derived from the words "theastai = to see and theatron = sight place " in Greek. While Theatron is the name given by Greeks to the hill where audiences sit on, the meeting place of two foothills; in our day, this word include not only audience sitting area, but also stage, change rooms, briefly all theater spaces [2].

Theater emerged in the 6th century in religious ceremonies in ancient Greece for the first time, and have become a type of art. Over time, it has turned into a "game", being evaluated with aesthetic criteria, not with religious or practical criteria [3]. The emergence of the theater art is based on the festivals organized in the name of Dionysos, entertainment and fancy god. Theater art first started as a tradition, in which people tell funny and amusing stories that come to their mind during these entertainments. Over time, this narrative has been acquired for some people as an profession, and thus, one-man plays (monologos) emerged. The number of people in the theater which existed as a single player for a while increased to two, and thus, dual conversation (dialogos) began to occur. The theater has reached to an artistic level with the inclusion of trio conversation (trialogos).Particular audience areas were allocated for audiences in theaters, being located in the areas called agora in ancient Greek and being staged on stages elevated half a meter from the ground, and audiences occupied around this stage [4].

During the early period of the theater, two main theater types were staged. The first one of these types, besed on two contrasts in the lives of people, is comedy, which means laugh and humour, representing happiness and joy; and the other one is tragedy, which means cry, representing pain and sadness [1][Figure 1].



Fig.1. Komedya and Tragedya Mask in Greek Art [5]

The Turkish theater started to appear in the early ages through religious ceremonies, it started to be staged for entertainment purposes in Seljuk period, getting beyond a religious item. However, the theater elements still retain their existence in the religious ceremonies in the Mevlevi and Alevist cultures of the Islam religion in the Turkish geography. In the



Ottoman period, the most popular type of the theater was "*ortaoyunu*", and only one folding screen and one seat are needed to stage the play. Another theater type that is common in this period is "*The Karagoz-Hacivat*" game called shadow game [1] [Figure 2].



Fig. 2.(a) Karagoz Hacivat [6] (b) Ortaoyunu [7]

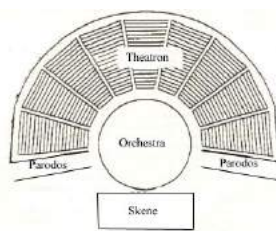
As a result of the theatre –oriented increased interest, and of the interest of the Sultan Abdulmecit for the theater art in the Ottoman period; a theater was built in Dolmabahçe Palace. The theater education spread around the country with the opening of community centers in the republic period, State Conservatory was established by order of Ataturk. in 1936 [1].

### 3. Brief History and Transformation of the Theatre

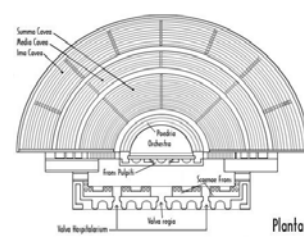
In prehistoric times, the theater was defined as a place that was instantly shaped by the presence of actors and audiences. With the emergence of the concept of “theater building” for the first time with ancient Greece, the theater space became stable and perceived as a “building”, and began to be a urban, monumental, and social value in agora [3]. Theaters in ancient Greece were not only the places where tragedy and comedy plays were displayed, but also, were multifunctional spaces used as meeting and visual training areas, at which announcements, festivals, celebrations, and feast were held [2]. Open air theatres appeared in this period emerged with the development and being adopted of the theater as an art, and has reached the capacity to address very large masses. These spaces which are defined as amphitheatres, are theatrical buildings that can reach a capacity of twenty thousand people [1] [Figure 3].



Fig. 3. (a) Agora [8];



(b) Greek Amphitheatre Plan[9];



(c) Roman Theatre Plan[10]

The theater existed in Rome as a commercial phenomenon based on only entertainment, not a social institution unlike Ancient Greece [3]. In Roman theater plays, in contrast to the Greek period, rather gladiator plays based on power and war were exhibited. [1]. The Roman theater buildings which are located singularly within the city evolved from Greek theater buildings architecturally. Roman theater constructions have quite advanced features. Three times higher stage side, designed so as to allow exhibition of more complex scenes, constitutes a background suitable for action. Moving panes that will help to gain third dimension, elevators that will raise actors and animals existed in terms of stage design; moreover, the stage space could be filled with water for the portray of naval battles [11].

The middle ages' scholastic thought building also influenced the art of the theater, the church forbade the art of theater for over a thousand years. But, the church also paved the way for the recreation of the art although forbade it. Religious propaganda dominated in the middle ages theatre, and with the support of the church, religious subjects were staged to ensure people to comprehend [1]. Theater plays in the middle ages were played in spaces such as churches, town squares, courtyards and feast halls. Stage designs were divided into two groups as moving and stable. In both cases, middle ages stages existed as temporary stages. Stable stages consisted of courtyards and temporary staging areas established in urban squares, and the moving stages consisted of a mobile stage-setting built on a horse carriage [11].

In the Renaissance period, which means rebirth, Ancient Greece was dominantly returned in thought and art. It was paved the way for the creation of stress-free artwork in the Renaissance period, opera and ballet art emerged during this period [1]. Roman theaters were started to be built in Italy by translating the work of the Roman architect Vitruvius entitled “Ten Books on Architecture” into European languages. The 'Olimpico Theater' in Vicenza, the product of these studies, designed by the Venetian architect Andrea Palladio and completed by Vincenzo Scamozzi in 1585, is the oldest extant closed theater in Europe. Renaissance design in general is based on the invention of perspective rules and their application to architecture. Accordingly, Renaissance's pictorial approach was influential in the design of the theater stage [3]. Increased interest for machines and striking effects in the 17th century increased the use of illusion, and light began to be used as an important design element [11] [Figure 4].

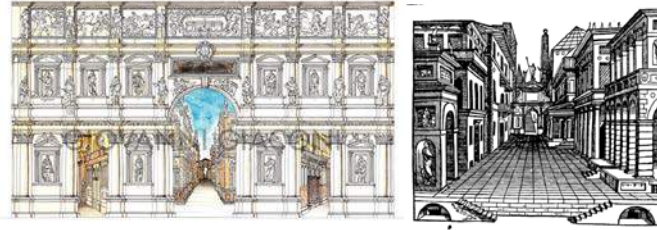


Fig. 4. (a) Olimpica Theatre [12] Rönesans Dönemi Tiyatro Sahnesinde Perspektif [13]

In the 18th and 19th centuries, the influence of classicalism, romanticism, and realism trends was respectively seen in the stage space design [3]. The stage elements which were generally used as paintings on boards until the period of realism, were begun to be used as three dimensional in this period, thus, the approach of using scene as a space became most common in this period [14].

With becoming widespread of the concepts of standardization and mass production in architecture, modular and interchangeable stage formation emerged in the 20th century modern stage design [2]. In theatrical buildings turning into contemporary performance buildings in our day, stage designs have been at a quite advanced level about sound, light, space transition and mechanical equipment by means of using the facilities of technology.

#### 4. Stage Design Criteria And Relation Between Architecture And Stage Design

Stage design showed difference and development over time, but, the fact that stage designs play an influential role in correctly delivering the thought that is intended to be transferred. The correct design of the stage in which a theater play is exhibited makes contribution to the directly or indirectly transfer of message intended to be given to audience by play, thus the integration of the space with the story strengthens the credibility of the story [15].

In stage design; stage transitions, accessories, decorations, sound, costumes and lights are perceived as a whole, and these visual components are targeted to tell a story. Space setup in stage design consists of the components such as line, shape, size, position, color, value, texture, etc., and get integrated with costume, lighting and sound design.

Stage designer Puigserver, drew attention to the common points between stage design and architecture, and stated that the most important elements of both art branches are concepts and materials. As well as he emphasized that both are based on a rational thought system, he also expressed that architecture responds to public and functional needs, and stage design responds to the requirements of dramatic text [16].

The standard measures of stage dimensions that must be followed in stage design vary according to the type of theater and play. The stage dimensions of a chamber theatre and the dimensions of a theater in which a comprehensive opera is exhibited differ in size. In this study made by students, students were asked to make the stage designs as if the theatre plays they selected would be exhibited in a theater stage that exists in real life. Thus, the stage designs of the selected theater buildings were made in the framework of the stage measures.

## **5. An Experimental Study on Architectural Design Education: Stage Design**

The study consists of term projects made in the scope of Çukurova University Architecture 2016-2017 Fall Semester MİM 277, Interior Space Design lesson. Students were asked to design a stage for the theater plays that they would select personally. The goal of the project is to express the imagined / created stages of the selected theater play with space setup. The stage design was targeted to have such quality and creativity that it would be promotive for feeling that is intended to emit by play. The students were asked to use an available theatrical building in order to strengthen the applicability and realism of the study.

The study was proceeded, considering the evaluations of jury. With this experimental study performed with students, it was tried three-dimensional expression of the theater play, and the creation of interior space set up, the development of students' fictional space design skills for an existing story.

Within the scope of the study; the theater play named "Cyrano de Bergerag" written by Edmond Rostand, the musical show named "Hisseli Harikalar Kumpanyası" written by Haldun Dormen; the solo named "The Diary Of A Madman" written by Nikolay Gogol; the theater play named "Victim" written by Güngör Dilmen, "Hans was Heiri" created by Zimmerman & de Parrot and theater performance named "Robin Hood", classic were selected by the students. The students considered the stage as a three-dimensional space, and used the light and shadow components as design inputs when designing the stages of the selected plays.

Table 1. Cyrano de Bergerac

Play Name: Cyrano de Bergerac		Work Group: S. Ülger- A. İnan – B. Gürbüz
	<p>Play Type- Story: Chivalric Romance</p> <p>Cyrano with so big nose can not confess his love to Roxane, his great love. Roxane is in love with another swordsman, Chirstian. Chirstian and Roxanne's feelings are mutual, but Chirstian can not express himself. The Story is fictionalized on Cyrano’s telling his love to Roxane via Christian</p>	
	<p>About Design:</p> <p>The starting point in the stage design is Cyrano’s big nose The forms appearing on stage were created, abstracting the nose form.</p> <p>Sharp and hard forms were preferred to strengthen the expression of conflicts.</p> <p>Besides, the deconstructivism movement became instructive in the stage design.</p>	
	<p>In the first part, souffles given by Cyrano and the serenade of Chirstian for Roxane standing on terrace are told. The terrace design was made on the first stage.</p> <p>The second scene tells Christian's frontal conflicts at war. The war, took place on the bridge, was fictionalized on the second stage.</p> <p>The third stage narrates the death of Cyrano in Roxanne's arms</p>	
		
Stage 1	Stage 2	Stage 3

Table 2. Hisseli Harikalar Kumpanyası

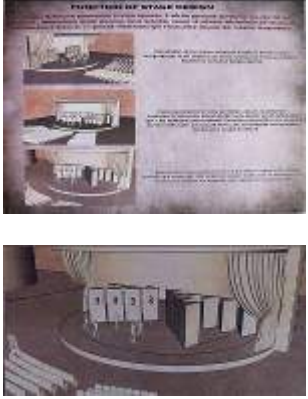
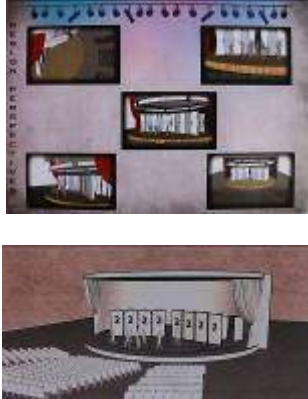



Play Name: Hisseli Harikalar Kumpanyası		Work Group: B. Özer- İ.
Ekici – N. Hiçyakmazer		
		<p><b>Play Type- Story:</b> Musical</p> <p>When the star performer of The Joint Venture Company of Wonders that takes place in a tent theater in Anatolia, is transferred to a big casino, urgently a star performer is needed to be found, and when the headman of the village where the company demonstrates gets in love with new star performer, things get suddenly mixed up...</p> <p><b>About Design:</b> The stage can turn around its own axis by means of a system located in the center. Besides scenes can also turn around their own axis to provide stage shifts.</p> <p>There are actors and a narrator character on the stage. The narrator's platform moves independently from the stage, and interior stage and narrator platform move together in the stage shifts.</p> <p>The lighting component is an important input of the design</p> <p>Movable top hoop and lights used for stage lighting are important inputs of the design.</p>
		
Stage 1	Stage 2	Stage 3

Table 3. Diary Of A Madman

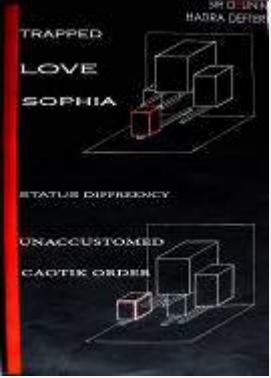




Play Name: Diary Of a Madman		Work Group: E. Eryılmaz -
		<p><b>Play Type- Story:</b> Solo - Dram</p> <p>The play narrates the confine of an ordinary officer who is constantly taunted by his surrounding, to a mental hospital in the direction of his changing dreams after learning that her platonic love, a bourgeois girl Sophia fell in love with a nob.</p> <p><b>About Design:</b> Four moving cube cages were used in the stage design of the play, taking place in four different places.</p> <p>These cages were shaped according to the mental state of the character in the play. The cube cages move forward in each different place. The emphasis of the play increase with light-shadow plays</p> <p>Between the designed cube stages, the spaces that player can pass through were defined.</p>
 <p>Stage 1</p>	 <p>Stage 2</p>	 <p>Stage 3</p>

Table 4. Robin Hood - Revolving Theatre






Play Name: Robin Hood-Revolving Theatre		Work Group: Y.
		<p>Play Type- Story: Musical</p> <p>Robin, who is sought as an outlaw hides in the forest and gathers people, downtrodden and sought as outlaw, around to himself. He by force receives the money of those who persecute the poor, and help the needy.</p>
		<p>About Design</p> <p>A revolving auditorium is a mechanically controlled seating area within a theatre which can be rotated in order to manipulate the change of scenery and stage sets during the performance. Revolving auditoriums are favoured by open-air theatres in particular, because they are ideally suited for the use of natural scenery as an integral part of the set. The first revolving auditoriums in Europe were built in 1959 in Finland and the Czech Republic (then Czechoslovakia), respectively.</p>
		
<p>Photo 1</p>	<p>Photo 2</p>	<p>Photo 3</p>

Table 5. Victim

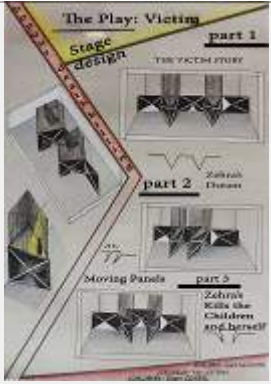
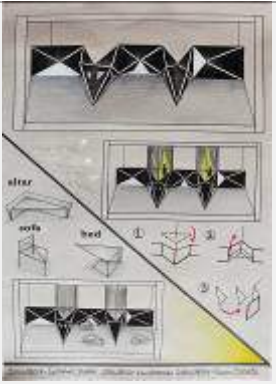




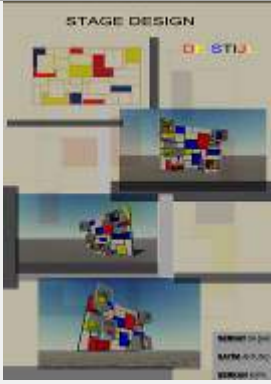



<b>Play Name: Victim</b>		<b>Work Group: G. N. Celhan – G.</b>
		<p><b>Play Type- Story:</b> Drama</p> <p>In the victim play which features the tragedy of Ancient Greece with its dramatic structure; the resistance of Zehra to morals and traditions, a female figure oppressed under the pressure of male dominated societies, is narrated.</p> <p><b>About Design:</b> The game consists of three parts. The first part is the victim stage, the second part is the dream stage, and the third part is Zehra's suicide stage.</p> <p>Stage design was fictionalised through moving panels that can move according to the shift of these three stages. There are gaps, that will allow passage, between these platforms consisting of triangular surfaces</p> <p>Besides, for portraying oppression from outside that is an other important factor; an actor's terrace elevated over the stage is available.</p>
		
Stage 1	Stage 2	Stage 3



Table 6. Hans was Heiri

Play Name: Han was Heiri		Work Group: S.
		<p>Play Type- Story: Drama</p> <p>Hans, Heiri is a tragic story narrating a funny, lively portrait of human relationships with a humorous, natural language. If basic needs and desires are aimed , it narrates distinctively that all people resemble each other over time .</p> <p>About Design: The original of the play contains a four-chambered moving stage scene with shifts between each other. In design, these moving spaces were extended to take place in the whole stage.</p> <p>The boxes can move right, left, up and down with the help of an existing system behind the stage and can turn around its own axis.</p> <p>De stijl movement also became instructive in stage design.</p>
		
<p>Stage 1</p>	<p>Stage 2</p>	<p>Stage 3</p>

## **6. Conclusion**

The study have the characteristics of the applications that will be performed to increase the skills of students regarding the three-dimensional formation of the story that is intended to be expressed in the theater play, the creation of a temporary/fictional interior space design, and of design skill that will satisfy specific problem. Thus, by this experimental study, which is included in the design education; the student's acquaintance with the theater, a branch of fine arts, have been strenghtened; has been leaded in increasing the student's interest in the field of stage design, and the student's fictionalizing design parameters such assshape, color, material, light, motion in the stage design has been provided.

Consequently, to establish the relationship of architecture with performing arts, other architectural art branches, and performing experimental studies on this field during design education will provide student 's integrity with different disciplines. Thus, with these kinds of studies to be done with different art branches in design education, it will be possible for the student to do different design experiments.

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## MIMESIS AND CULTUREL CODES IN ARCHITECTURAL DESIGN PROSES

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### **Abstract**

All disciplines that have similar modals in the nature have common rules for producing or designing and those rules are explained as mimesis by Quincy [1] Mimesis is deemed as the natural mimic rules that brings all arts together on the common ground of similarities. Halliwell [2] states that mimesis did not mean just mimicking even in the ancient times and that it defines many similarity, equality types from visual similarity to behavioral imitation and metaphysical compatibility between the real and ideational. However, philosophers such as Rousseau, Frazer, Taussig evaluated mimesis within the context of culture. In his "On the Mimetic Faculty" named work, Benjamin [3] states that humans are the most mimetic creatures and our ability to identify or produce the similarities is actually the need of humans to be similar and behave mimetic. Or the 20th century philosophers such as Dawkins Blackmore, Dennett who discuss mimesis within the context of culture introduced a mimetic construct that they explained as source of the continuity and reproduction of the ideas.

However the architecture discipline is much more different than the cultural, identity, rhetoric, theatric or biological mimetic descriptions. Unlike other disciplines, it contains more parameters, more references and most importantly it includes an imaginary thinking process, meaning a designing process. For example there are many parameters included from physical context, scheme of need, historical meanings or culture to the world view of the architect, what the designs are accepted as. Therefore thinking architecture as an independent branch of art or considering architecture as a discipline that brings forms together means to ignore all the values of architecture such as creativity, identity, culture.

For those reasons, in the overall study; the focus is the idea that the designers transform the cultural values into mimetic imitation codes during the architectural designing process and that they perform their designs by imitating those cultural codes in their mental designing activities whether consciously or unconsciously. For this, an evaluation will be made on structures such as Axel Schultz (Berlin Crematorium), Renzo Piano (Jean-Marie Tjibaou Cultural Center), Peter Jumthor (Grande Palace Chapel), Turgut Cansever (Demir Holiday Village), Behruz Cinici (Council Mosque). With this, the aim is both to evaluate the cultural codes that guide a designer within the context of designing process and also the discussion of mimesis as a designing method in terms of designing process, designer, architectural product. In the light of those findings, mimesis has been evaluated in terms of visual, conceptual, creative values of architectural designing practice and it is regarded as a designing tool.

***Key Words: mimesis, culture, design proses, architect***

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Today's practices are entering a new turn with the help of science, genetic studies or the possibilities of technology. The whole system is reproduced at any moment, from these dynamic artistic works, which are constantly mobile, to everyday ordinary life, from ideas to the forms in which they energize in fields like architecture discipline. Thought from a discipline is re-fictionalized by other disciplines and transformed into architectural forms,

artistic objects, or literary books.

This order, which has become a fiction of the times, affects many disciplines as well as causes the question of designing, thinking or producing within the discipline of architecture to be questioned in different contexts. In particular, the relationship between the design process and the thinking systematics of the architectural form, which is regarded as the final product in the time when the spiritual, social and cultural components of architecture are taken into consideration, is discussed. However, the majority of these architectural discussions or discourses are based on architectural form. In his book titled 'Architecture as a Metaphor' (2006), Kojin Karatani and Charles Jenks, who assessed the architectural formations of recent years in his book 'Iconic Buildings' (2005), are particularly considering the idea of creating sensational form in architecture.

According to Quincy [1] 'there are common rules for producing or designing all the disciplines with similar models in nature', and explains the partnership of these rules as mimesis. Mimesis accepts all arts as natural imitation rules combining similarities in common. When it comes to designing style in architecture practice, architectural style from the analogical design methods to the conceptual approach leads to the appearance of mimesis as a method of designing in the discipline of architecture that the concept of mimesis is at the basis of many production practices and that it has brought the technological data of the past or science to the discipline of architecture.

### ***1. Arguments on Mimesis; Antiquity and on its path...***

*The book named "State" is the first book where mimesis is described by Plato, and it is actually much more art than the description of mimesis. According to Halliwell [2] some researchers accept that art theories begin with Plato's thesis of mimesis. In the State, Plato generally states that what poets, writers, actors and artists do is clearly out of the ideal state, since there is no truth and no contribution to it. For example, when you do not welcome actors, your music must be distant and measured from sensuality, comparing the picture or sculptural reality with its reflection. The image that appears in the mirror is not real for Plato, it is a copy of a derived form and truth [4]. In short, Plato's mimesis regards them as representations that resemble, or mimic, the form they are derived from, but are revealed in detail. The mimetic world, or representational world, contains imitations that are always at a lower degree than the original and naturally have to be second-degree.*

*Another text that should be assessed together with Plato's State is "Poetika" by Aristotle. Aristotle perceives mimesis as a fundamental impulse which is unique to man. Despite the mimesis approach that Plato regards as a negative activity, Aristotle regards it as a fundamental motif that is embedded in human nature and provides all the information [5]. When two texts are compared, we see that the perception of mimesis is passive in State, whereas it is effective in Poetika [6]. However, the general argument regarding the mimesis debates in antiquity is that mimesis has a very strong connection between artistic representation and human behavior. In this context, these two thinkers' perceptions of mimesis have influenced many thinkers, researchers, or authors [2].*

*Rather than reinterpreting the concept of mimesis, they have assessed it in their own research cycles or have provided the concept in order to support the formation of their own study setups [7]. For example; according to Seneca 'the best imitation is both similar to the original and different from it'. In his work on bees, he considers that the principles of conversion, selection and regulation of bees should be taken into account, and that different types of food are successful mimetic activities when they become an integral part of each other in order to be beneficial to the body at the moment of digestion. Potolsy evaluates Seneca mimesis argument as the imitated role that they have established with the past to be very unclear when creating a new place of the unconditional surrender or trust development*

towards the model [7]. According to another researcher Winckelmann 'the only way to be great or if possible unique for us is to imitate the antiquities' [8]

It is also in the works of Lukács 'Studies in European Realism' and Erich Auerbach 'Mimesis', which advocates Aristotle's suggestion of mimesis and are considered to be the two most important works of realism. Both Lukács and Auerbach believe that realism is the most accurate and definitive way to describe the world and they support traditional methods for it. While Auerbach [9] rejects Plato's conclusion about the forgery of art, Lukács [10] argues that authenticity can be determined by the aims and intentions of many artists rather than the artwork in emphasizing honesty, sincerity and objectivity underlying realism.

## **2. Arguments on Mimesis; In Modern Period and within the context of culture...**

Contrary to the theorists who have tried to explain human thought and actions by maintaining the tradition of mimesis initiated by Plato and Aristotle; it lost the strong setup in antiquity due to the skeptic perceptions of modern era. The thought of individual freedom and the stance against tradition and social restraint has influenced the formation of a different mimesis in the modern period. This period reveals that what appears to be autonomous action, preference, or individual approach is in fact a mimesis.

Heynen [4] exemplifies modern artists such as Brecht, Loos, Klee and Scheerbart in his book 'Architecture and Modernity' and summarizes the mimesis perception of the period as 'humanity is embracing the facts of its own times, even though it is dirty and ugly, opposed to the traditional humanist view'. Mimesis, which is associated with the theater in antiquity and considered as an artistic and behavioral problem, has been evaluated in the context of identity and culture in the modern period and thus it has been associated more with human.

Rousseau is first among researchers who claim that mimesis is on the basis of social life and explains the concept within the context of culture. According to Rousseau, who indicates Plato's mimesis as a source, mimesis is both necessary and misleading at the same time. For this reason, mimesis is a way to act as something in fact we are not and also the reason for non-sense and dangerous feelings [7]. Another researcher who evaluates mimesis in the context of culture is Taussig [11] and he says: "Mimetic competence is the feature used by culture in order to generate a second characteristics; it is the competency of copying, imitating, modeling, searching the difference, catching up and being the other. The miracle of the mimesis is that the presentation of the character and the power of it allows the copy on the character to be drawn and in the strength of the original '.

*'Mankind is the most mimetic kind, yet our ability to discern and produce similarities is merely the basis of a strong constraint to' be similar and mimetic '(Benjamin, 1978)*

According to Benjamin [3] humans possess the highest mimetic ability to produce similarities in nature. Heynen [3] states that Adorno (1995) based his critical relationship between art and social reality on mimesis. According to Adorno [12] art creates controversy and this controversy needs to have a mimesis. However, it is expressed that the control mechanism of art is the intellect, and art is not merely mimesis, but it transforms into a form of mimesis through intellect.

According to Deleuze [13] one of contemporary thinkers, there are copies which are well formed and guaranteed by similarity in one side; and there are simularcas which look like a copy but differ from the original in vital sense on the other. Although the Simularcas seem to copy the look of the original, the distinction between copy and simularca has profound implications. For this reason, neither the differences nor the repetitions are meaningful in themselves. According to Potolsky [7] both the repetitions and differences depend on mimesis. Baudrillard [14] thinks that we live in a world that resembles the original in the whole world, and thinks that all existing objects actually produce their identical. Baudrillard [14] describes 'to dissimulate' as a trick, to pretend that one does not have something possessed, to pretend

to simulate, to pretend to have something that is not possessed.

In his work titled 'The Selfish Gene', the zoologist Richard Dawkins, who has tried to analyze the mimesis with the help of biological data, says that "the physical life is governed by the tiny molecules that direct the body to produce certain proteins and the intellectual and social life is governed by imitation units named as "meme" '. Memes are used to indicate all the ideas that are added one another and multiplied. Memes that have a lifespan in this sense can die for any reason, for example, when they lose interest in the public. The death of the memes actually describe a situation in which a certain group can survive while others die [15]. Suzan Blackmore [16] in her book Meme Machine says that the argument of Memes by Dawkins come from the Greek origin 'mimeme' and are thus directly related to mimesis. Trying to understand the concept of Mimesis presents an important background for anyone working on various methods related with memes, which is a concept of mimesis that evolves over time [17], [7].

Table 1 . Arguments on Mimesis; In Modern Period and within the context of culture

	Concepts of Mimesis	Tools of Mimesis	Mimesis Methods-Forms
Callois	Historical and Developmental	Vital forms	Repeat
	Reason of loss of identity	Self and environment	Establishing Similarity
	Mimesis setup based on imitation of vital forms (which provide adaptation into environment)		
Girard	Formed as desired by others	Objects that belong to other	Desiring-Approaching Systematically
	Roots of violence and conflict	Desires of individuals	To Create a Difference
	No Distinction between Original and copy	Differences; Different models created by different desires	Competition-conflict
	The mimetic thought of desires (that create the Cultures)		
Frazer, Taussig	A mimetic texture- network	Local tribes	Modeling
	The reason for the formation of identities	Everything that exists on the world	To Show the Difference
	Change that creates the cultures	Results- reasons	Being the Other
	The power of Original	Image-matter / Truth-dream	Producing Similar
	Mimesis thought of similars		
Benjamin	Change of Experience	Life experiences	To Generate Comparisons
	Competence of the subject	Self and Other	To Generate Identifications
	Renewed by modernity	Individual's feeling, experience and knowledge	To Create Experiences
	Problem of Tradition	Unity of Old and New	To Adapt the Differences
	Capacity of being Other	Reasons, Contents, needs	Establishing Similarities
	Mimetic thought of Experiences (that terminate the aura of art)		
Deleuze	No distinction between original-image, model-copy	Existence- Things Fantastic Simularcas	Approaching in a Formalist and Integrative way
	Differences	Art Work	Approaching by Origins
	A Paradoxical Order	Images- Eilastic copies	Approach
	Neither original nor similar	Differences Repetitions	Establishing Similarities - Generating Difference
	Mimetic thought of differences (released from dependency to original)		
Adorno	Linguistic theory	Modern; Tension, Despair Paradoxes	Repeating the Differences
	Case of Knowing	Existence- representation cycle Old- fake cycle Production- consumption cycle	To Generate Uniqueness
	New design of the old		Generating Controversies
	New, a fake external view	Attraction of new	Identification

		Desire of temporary	
	Mimetic thought based on imitation of modern		
Derrida	Analogy- metaphysics based on similar	Modern Imaging	Making Analogy
	Setup similar with metaphors	Relation between Copy-Simularcum	To Identify
	Setup dependent on Reality	Metaphors	To Distinguish
	Rel. with repeat mechanism	Distinctions (Essence-coincidence / appropriate- not appropriate)	To Repeat; Image, imitation and non-productive
	Mimetic though of repetitions (related with all philosophical arguments)		
Baudrillard	World producing its Twin	Objects- Model	Producing Similar
	Second degree reality	Existence	Producing Intrinsicness
	System that makes Objects Eternal	Simetric Setups for Reality	Generating the Twin
	World without distinction	Identical copies with Similar	Copying
	Mimetic though of reality (where a second reality is generated)		
Dawkins, Blackmore, Dennett	Intellectual Life of Person	Cultures	Creating endless units
	Theory of biological culture	Biology- Organisms	Mutation/ to change
	Culture generated by Memes	Memes; ideas, songs Ritual, thoughts,	Independent approach
	Natural and living continuity	anything that remains standing with imitation	To preserve the similarities
	Mimetic thought of scientific-biological culture		

### 3. Discussions on Mimesis; in rchitecture...

The *Discussions on Mimesis*; mimesis concept that contains imitation of nature, reality and beauty is also an example of imitation of everything in the world we live in, such as human behavior and actions, ideas and works [7]. Therefore, merely literary, the representation or reproduction of a certain reality, is not considered as a mimesis approach. Therefore, it is quite meaningless to abstract the practice of architecture from the works of mimetic origin in recent times or from the mimetic discourse (memes) which is the reference area of scientific developments. In short, mimesis is an important concept in the evaluation of architectural structure as well as in the evaluation of artistic [18].

However, architectural discipline should be a mimesis that has a much different meaning than culture, identity, realism, theatrical approach or biological studies. More parameters include more references, and most importantly, the process of a fantasy thought process, design in short. For example, there are many variables, from the physical context of the work, the program of needs, historical meanings or culture, to the architect's world view, what he considers as his designs. For this reason, accepting architecture as an independent art form or simply as a discipline that thinks or brings together forms is to ignore all the values of architecture like creativity, identity, culture.

#### 3.1. Discussions on Mimesis in Architecture; In pre-modern era ...

When we look at architectural history in general, the mimesis of ideal beauty of nature and the integrity of nature is the topic in question for the Greek architecture. According to Winckelmann [19], there is a mimesis in Greek culture and architecture which is in parallel with Plato's or period's idealist mimetic discourses and which is also similar with artistic areas. In addition, they have succeeded in revealing themselves as a different aesthetic although they have not been seen clearly in Greek architecture as typologically imitating the periods that preceded them [19].



The architectural structure in Roman culture, which is a transition from the good and noble in Greek culture to beneficial and attractive, has turned into the symbol of power. Both Halliwell [2] and Gür [19] indicate that the architecture was in utilitarian structure during the Roman period and therefore had a more technical rationality than Greek culture. For this reason, the few and rare numbers of aesthetic architecture in Greek era were replaced by more coarse buildings. The structure of the Roman architecture under the influence of the ideal of Roman culture for creating a great city has gained importance in the analysis of the relations between the complex structures.

There are two mimetic objects in Gothic period architecture: nature and construction. Both the moving and asymmetrical art traditions of European tribes as well as the realistic mimesis of nature tradition can be seen in Gothic architecture. For this reason, it has appeared as a result of clash and synthesis of two opposite worlds of Middle Ages: the rational and positive Greco-Roman world of ideas and forms and the abstract and idealist Christian world. However, in Baroque culture life was taken as a reference and its excitement, irregularity was taken into consideration. For this reason, a fragmented structure, asymmetry, open forms and space, moving lines were used and imitated.

Renaissance, on the other hand, is dominated by a solid geometry because it is believed that some limitations are necessary. In this way, both tradition and art are respected [20]. A closed matrix with a harmonic mathematical structure in which solid geometric forms such as squares and cubes are used [21]. In short, in Renaissance architecture, it is possible to observe the consciousness and antiquity without observing it while using mimesis intelligence and logic, or using solid and rational geometries.

### ***3.2 Discussions on Mimesis in Architecture; During the Modern period and afterwards...***

Gür [19] states that the perception of mimesis in architecture, especially in the scientific context, has become possible only with the beginning of modernity. Modernity changed the system based on authority and religion in antiquity architecture, replacing it with ordinary people and its future. Yürekli [18] accepts the changes of the modern turn of architecture as parallel to the foreground of mind within the modernity. For this reason, the search for identity and self-realization is a model of mimetic behavior in modern-period architecture, and the most prominent mimesis in this period is individualism [4].

Particularly noteworthy for the modern period image, Tanyeli [22] states that modernity, which has destroyed traditional meaning structures in order not to innovate, distinguishes them from their cultural ties. The mimetic dominance of nature and history in antiquity has left the modernity to an activity of collaging the place between the images. For this reason, any designing event has been transformed into a selection among free circulation images, combining them in the form of new totals, exactly and / or deforming them [22]

*'which anticipate the antiquity in the face of modernity afterwards, the use of references to historical heritage and antiquity is indeed a necessity'* ( Rossi, 1996), (Venturi,1996).

Korkmaz [23] explains that Rossi was arguing for an architectural practice through the Aristotle's mimesis argument and pointed to the cyclical production of imitation by the words 'the city produces and reproduces itself'. The anti-historical purity, novelty, benefit and formality offered by modern architecture and the deconstruction of exaggerated, coincidental and local as revealed by postmodern architecture has been transformed into analytical and abstract concepts, partial/non-partial forms and generation with technology [18].

Table 2. Discussions on Mimesis in Architecture; In pre-modern era




















HELLENIC				<p>Greek culture, ideal beauty of nature, the integrity of nature, the perception of beauty, artistic, intellectual, form-spirit relation, human body, details of form, proportions</p>
RENAISSANCE				<p>Pure geometric form, solid and rational geometry, scientific logic, intelligence, order of rationality, tradition, artistic perception, subjective-individual, rhetoric, holistic, architectural discourses, ornaments, old structures</p>
ROME				<p>Roman culture, rhetoric, religious exaltation, rational mind, structure, technical perception, thinking of city creation, power symbolism, Greek culture</p>
BAROQUE				<p>Life excitement, irregularity, effect, life, organic forms, natural forms, asymmetry, order of tradition</p>
GOTHIC				<p>Gothic culture, realistic imitation of nature, structural elements, construction, Greco-Roman culture and Christian culture, art-technical adaptation, scientific theories</p>

Table 3. Discussions on Mimesis in Architecture; During the Modern period and afterwards

Modern Period	
Postmodern Period	 <p>Contradiction-uncertainty, exaggerated formalism, format, icons tectonic, cultural elements, items, diversity, random</p>
Dekonstruktivist period	 <p>Defective ideal definition, undated, experimental, unfounded architecture, chaos - complexity, difference, dilemmas, analytic abstract concepts, incompatibility, transience, variability, technology, construction systems, fragmented-undefined forms</p>
evolutionary architecture	 <p>fractal, evolutionary, heterogeneous, algorithmic logic, formless, repetitions, nature, sameness</p>

**4. Mimesis discussions; Architectural design practice and culture ...**

In this work, mimesis was accepted as a universe [2] which describes the way we actually know and understand things, rather than a reflection of the world as it is by copying the material reality in the external world. Indeed, according to Yim [24] which states that philosophical or artistic analysis of mimesis must be separated from architecture, the purpose of mimesis in the practice of architecture is to ensure the spatial experience for users. This spatial experience in architecture resembles the relationship established between the audience and the work of art in other branches of art.

However, architectural discipline contains much more social and cultural parameters than philosophy and visual arts. For this reason, it is only possible to discuss architecture and mimesis in the same way, but by discussing the conceptual and cultural infrastructure of the

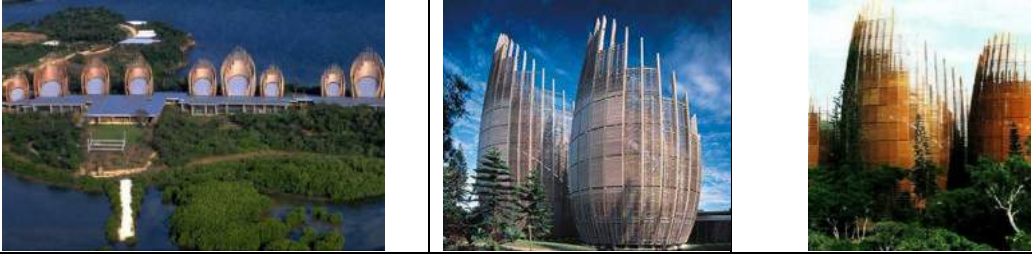




discipline of architecture, not just the formal structure of the discipline. Because the architectural form of mimesis makes it possible to express the meaning of the existence by the parameters of the architect himself.

In this context, it is aimed both to evaluate the cultural codes that guide a designer in the context of architectural design process and to discuss the mimesis as a designing process in terms of design process, designer, architectural product.

For this purpose, the conceptual cultural codes of ten architectural structures selected randomly among the works of Western architects or architectural offices, which were frequently encountered in the image pool of Internet from different periods and which were awarded and criticized by architectural critics, were followed.

Table 4. Mimesis discussions; Architectural design practice and culture

<p>B. Tschumi / New Acropolis Museum</p>		<p>Urban and ancient Greek culture / harmony of modern and ancient / pure concepts / simple materials / Mathematical and conceptual clarity of Ancient Greece / Athens / Acropolis / Antiquity</p>
<p>D. Libeskind-Jewish Museum</p>		<p>German and Jewish cultures / Star of David / Moses and Aaron opera / interaction of lines / Gedenkbuch / Einbahnstrasse / One way road / Berlin wall / two structural roads / space</p>
<p>R. Koolhaas-Netherlands Embassy</p>		<p>Berlin life culture / Berlin city architecture and planning approaches / Lineament / journey / Le Corbusier and Villa Savoye / boxed cube / interior staircase and ramps</p>
<p>Z. Hadid- R. Contemporary Art Center</p>		<p>Contemporary art culture / The identity of the Rosenthal Center for Contemporary Art / flow / volumetric mass / sculpture in urban carpets / urban spaces</p>

<p>R. Piano- Tiibaou_cultural</p>	 <p>Canag Culture / incomplete house construction / Diagonal cut cylinders of Le Corbusier / "New" / Traditional Canadic crib / culture updated in a new language</p>
<p>A.Schultz-Berlin krematoriumum</p>	 <p>Antique architecture / Saqqara / columns / cosmic contrast between soil and daylight essence of architecture / sanctity of space / silence of walls</p>
<p>P. Eisenman-Galiçya Cultural M.</p>	 <p>Santiago Medieval street plan / computer software / topography</p>
<p>P.Jumthor-Grande Palace Sabel</p>	 <p>Bruder Klaus / mystical and conceptual interior space / Solid geometric mass perception / building emotional connection / daylight</p>
<p>Toyo Ito-Tod's Omotesando</p>	 <p>Cross-lines / crust / shade of trees / light / surface / Public and private space / modern japanese culture / context / structure</p>

### 5. Conclusion

From the simplest life forms to societies, complex forms, from memes to architectural design practice to complicated processes; it is related to some points with mimesis, or it bases its entire existence on the mimetic system. In this context, the follow-up of mimetic partnerships makes it possible to explain both the vital forms of life and the formal forms of architecture.

Although architecture is classified with music, poetry and fine arts as an instrument of individual artistic expression, it is actually much more than these. People need buildings for shelter and architecture represents a world-class building industry that is constantly looking for prototypes to imitate. Whether commercial or local, the vast majority of buildings require reproducible typologies [15]. For these reasons, it is possible to say the following:

Throughout the ages, all civilizations are well suited to describe the imaginary, conceptual and cultural background of the architectural form that has spread by imitating mimesis.

The image of architectural design emerges in the line of mimetic cultural codes as it is in many other disciplines

Mimesis offers a holistic design method for many variables such as the conceptual, cultural, perception of form during the age or the possibilities of technology in the design process of designers.

In almost every period, architectural imitation is transformed into new imagery in the line of different cultural values, and activity is reduced with time and replaced with new ones

The mimesis provides a 'naturally evolving prospect of existence' to follow the traces of cultures in architectural image.

**Note:** This work was prepared with reference to the work named 'mimesis in architectural design; An evaluation of archiprix projects'.

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## THE VISUALIZATION OF THIRD SPACE THROUGH MARCUS HARTEL'S STREET SHOOTS IN NYC

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### Abstract

Henry Lefebvre builds the production of space on three moments. These are perceived, conceived and experienced spaces. These three moments conceptually correspond to space practice, space representation, and representational spaces. Edward Soja develops his concept of thirdspace on Lefebvre's three moments. Third space is the intersection and even combination of perceived and conceived space. The intersection and combination is lived and experienced space. He defines trialectics of being and trialectics of spatiality by setting out a voyage through Lefebvre's works. He addresses to Foucault's concept of heterotopia. According to Soja, experiencing serial movements of a user create a new phenomenology. However, how is it possible to capture the instant image of serial experience of a space? Street photography can capture the instant images of people's experiences in spaces without costume and fiction. In photos, we sometimes see much more than the explored, conceived and perceived spaces. This study aims at exploring the instant images of user's serial movements in terms of making sense of Soja's concept of thirdspace. It uses visual material to give meaning to a phenomenological concept rather than reaching precise and constant results. Ten photos from Marcus Hartel's Black and White Street Photograph, and Color Street Photograph portfolios were chosen. As a method these photos are read through the context of thirdspace by evaluating the key concepts of their phenomology. After an introduction part, in the second part of the study space production of Lefebvre, in the third part heterotopia of Foucault, in the fourth part Soja's thirdspace are examined. In the fifth part, Marcus Hartel's street shoots are read again through these concepts. The instant exploration of user's serial movements in perceived and conceived space include context and meaning by referring to the intersection of perceived and designed space. The contrasts used by photography artist correspond to dual contrasts criticized by Soja. Hartel's photos taken in New York also refer to heterotopia concept of Foucault (Soja refers to heterotopia, as well). Within this context, this study examines the problem of how the space is read and produced through three moments of Henry Lefebvre, heterotopia of Foucault, thirdspace of Edward Soja, and street photos of Marcus Hartel. This study neither seeks precise results nor make an effort to produce an artistic output, the study only tries to produce the concept of third space through lived spaces snapshots. In other words, it is suggested to acknowledge this study as a third research.

**Key Words:** *Experience, Heterotopia, Photograph, Production of space, Thirdspace*

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### 1. Introduction

What do architects design? What does the production process of a space constitute? How is a space read and analyzed? Precise and constant answers aren't given to these problems in design principles. However, there are some quests, methods and models to produce and read a space. Lefebvre asked the same question in his book *The Production of Space* [1].'' Does it



make sense to speak of a 'reading' of space? Yes and no. Yes in as much as it is possible to envisage a 'reader' who deciphers or decodes and a 'speaker' who expresses himself by translating his progression into a discourse. But no, in that social space can in no way be compared to a blank page upon which a specific message has been inscribed (by whom?) [1].'' But space as a subject, before thinking design process, it must be accumulated that its content.

According to Descartes, everything is substantive, and empty space is logically impossible [1]. For Hegel, an epistemological abstractness exists. It is the idea that creates the world [1]. Everything is in a cycle, and the mind recreates the idea. Space is mathematical in Euclid's works. It represents production in Marx and Engels.

Architects, interior architects and urban planners put the forms together during the design process. It is designed space. Space is a place that presence exists in any form. So presence lives the space. However, a number of concepts and definitions in the lived space have an effect on the production process of space.

When the studies on space are examined, it is observed that the works of Henry Lefebvre, Michel Foucault, and Edward Soja are milestones. Lefebvre regards the space as the process of social production. Within this context, a trialectic model is established. This model is composed of perceived space, conceived space, and lived space. A number of studies are grounded on Lefebvre's trialectic space production model (perceived, conceived, lived) with social moment. Avar [2] and Schmid [3] use it through space dialectic. Basa [4] also uses it through the experience of sustainability of urban memory and architecture studio. Prigge [5] examines urban revolution, space and representation using the trialectic model. Stanek [6] examines space as concrete abstraction through modern urbanization of Hegel, Marx and Lefebvre. Lehtovuori [7] uses it through experience and conflict. Erkılıç and Bayraktar [8] examine ecumenopolis as a method (Constantinos A. Doxiadis's notion of Ecumenopolis implies the enlargement of cities to such an extent that they become a single city without borders) through the trialectic model.

Michel Foucault forms the concept of heterotopia against utopia as other spaces [9]. Radfor Radfor and Lingel examine libraries through the experience of library surroundings as heterotopia [10]. They examine the Museum of Lord Foucault through difference, representation, and genealogy [11]. To understand Foucault's museum she defines museum as a space of representation and a space of difference. Sudradjat examines the relation of contemporary urban space with human behavior by associating Foucault's heterotopia [12]. Topinka examines the production of knowledge in other spaces through the concept of heterotopia [13]. Johnson defines the relationship between utopia and heterotopia by formulizing a variety of time and space concepts [14]. Boyer reveals the architectural reflections of the concept of mirror in heterotopia. Within this context, he composes the dialectic of imaginary space of our childhood and the real space of our adulthood [15].

Edward Soja's milestone work thirdspace is based on space production model of Henry Lefebvre. At the same time, it addresses to heterotopia of Foucault. Third space is the intersection and even combination of perceived and designed space. The intersection and combination is lived and experienced space [16]. Kaygalak focuses on Soja's concept of thirdspace within the context of reflections of postmodern criticisms of geographical thinking and novel space understanding. Moreover, he examines the new content of space as structure and design [17]. Bustin uses the concept of thirdspace as a basis in classroom-based activities of students at the age of 14-15. It focuses on perceptions of urban space which are conveyed through the 'Thirdspace' of illicit drug users in Edinburgh [18]. Anderson examines the concept of environmental resistance by integrating it into politics with the concepts of secondspace and thirdspace [19]. Moles examines the concept of walkability in thirdspace through the context of space-human communication [20].

## 2. The Production of Space

Lefebvre's space is the social space that presence exists. And there three moments are visible in his model for process of space production, which are perceived space, conceived space and lived space. Lefebvre's all philosophic (Soja called metaphilosophers) researches are composed of key concepts, moments. For example, a philosophical moment, a literary moment, a historical moment, a political moment are there in a city as a social laboratory. Lefebvre dealt with the concept of production of space in a Marxist way of thinking. For this reason, his concepts can be used as a template for trialectics of history, culture and space. When we evaluate the city from an epistemological and theoretical aspect, consuming its foreground of shape, it gives us significant amount of data. According to Lefebvre, city is the center of creativity. But he doesn't think of it without new arguments. He tries to connect history with the spatial, mental, cultural, social one [1]. The way to understand the historical starts with now, goes back to past and for new foresights of future again returns to everyday life of now .The production of space produces its own space [21] . Space doesn't exist by itself so it is produced. In this context, he warns us about the concept of u-topia and a-topia. He defines u-topia as fictional construction for verbal void. And for a-topia the term refers destruction of concrete space to create a social void. He thinks that firstly space was considered as a geometrical meaning. Then for Euclidian understanding, space had a mathematical meaning so the social meaning of space wasn't considered. Then, it was considered that space had a mental meaning. When the subject is concerned the dual contrast of practical space and theoretical space unite. At this point Lefebvre's moments are of importance. There are three dialectics (trialectic) between perceived space, conceived space and lived space.

*Perceived space*; it is the space where the everyday reality, which is called as spatial practice by Lefebvre, and urban reality are combined and all of other differences are vanished.

*Conceived space* (Representations of Space); conceived space and representations of space are in the field of professional disciplines. These professional disciplines can be defined as architects, interior architects, city planners, technocratic subdividers, and social engineers [1]. Conceived space has a dominant role in social life. Space has hegemony.

*Lived Space* (Representational spaces); it is the space where it is lived with all of the images and symbols involved by the space [1].

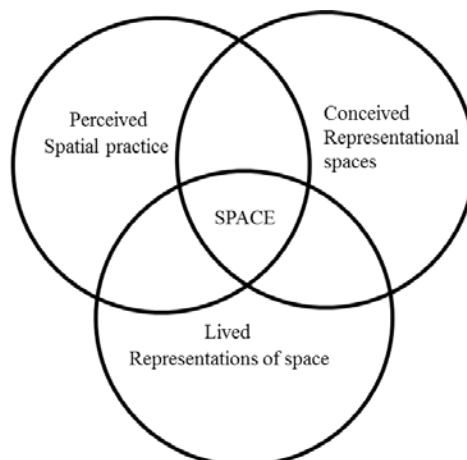


Fig. 1. The Production of Space

Lefebvre refers to the body in order to make sense of three moment social space. The level of relationship between the subject and the space make it possible for the moments in social structure to close up each other. At the same time, switching of the subject through moments without losing its own reality secure the body's position in three moment social life. At this point, the question of Lefebvre is what the difference between representations of space and representational space is.

'Save for the fact that there is very little to be said - and even less to be 'lived', for lived experience is crushed, vanquished by what is 'conceived of'. History is experienced as nostalgia, and nature as regret - as a I

horizon fast disappearing behind us [1].'

Within this context, it is possible to see Lefebvre's reaction against the notion that the lived space falls behind other moments. According to Lefebvre, the designed space is always superior. For Hegel, it is the idea that creates the world [3]. Everything is in a cycle, and the mind recreates the idea. For Marx and Engels, production is richness. People reproduce history, consciousness, life, and the world. Lefebvre presents the concept of production in social space. Determining that the nature constitutes the human presence and everything repeats itself in a cycle supports the three moment social life. They are the designers that produce the space in the concept of production. It includes both the concrete space and the space produced by designers in their minds. The space is also produced by people. Of course, this is expressed by living reflex. Lefebvre summarizes his hypothesis as follows:

City creates a production tool.

The issue is the space. The space problematic displaces with the industrialization problematic by involving the problematics of urban and everyday life.

Marx replaced the things dealt with themselves by producer activities.

A novel approach is required to reveal social relations.

Space production is a response. It is a production for both formal and social practice content.

Space is formed by defining the pieces. It is divided into partial spaces and defined.

### **3. Heterotopias**

Heterotopia is a spatial term used by Foucault in order to represent real spaces against utopia. It derives from the medical word heterotopy (which means a condition in which normal organ is misplaced). Foucault uses this term in three different time and place. Firstly, it was used in his book entitled "Words and Things" [22]. He argued that the things in Borges' book are placed in so different spaces that it is impossible to define a common space. The term utopia is used when the things don't have real spaces. However, all of the things are placed on plain and magical space, such as large avenues, cities with well-cared gardens, and countries that are reached easily. He named these spaces as heterotopias. The second use of heterotopia term took place in his paper called "Of Other Spaces, Utopias and Heterotopias", which was published in *Architecture/Mouvement/Continuite* journal [9]. The third one was used in a conference given to a group of architects in 1967 [14].

Foucault refers to *The Poetic of Space* of Bachelard. It emphasizes that we don't live in a homogenous and empty space. Bachelard fills the space with his phenomenology. According to Foucault, utopias exist first. They are unreal spaces. However, they are associated with real spaces. Heterotopias stand up against utopias. These are the highly real spaces. In the mirror sample, the space obtained through the mirror experience is both utopia and heterotopia. Indeed, there is no space behind the mirror. Therefore, it is the utopia. However, in reality, that space exists in terms of my perception and presence. As a result, it is heterotopia. Foucault explains heterotopia in six principles.

First principle; heterotopias exist in every culture, but in different norms. Foucault divides the heterotopias in the first principle into two. The first one is crisis heterotopias. In cultures, there are spaces which are forbidden or privileged for people in specific periods (adolescents, menstruating women, pregnant women). Boarding schools and honeymoon hotels are among the examples. The second one is heterotopias of deviation. The examples of second one are rest homes and psychiatric hospital.

Second Principle; each society produces the heterotopias of some functions in different ways within the historical process. Foucault exemplifies cemetery for this type of heterotopia.

Third Principle; Heterotopia is capable of juxtaposing in one real place several different spaces that are in themselves. Cinemas and theaters and Persian gardens are given as an example of this kind of heterotopia.

Fourth principle; Heterotopia is capable of juxtaposing in one real place several different spaces that are in themselves incompatible like cemetery. There are three kinds. The first is including loss of time. Museums and libraries are given as the examples of this kind of heterotopias. The second is festival heterotopia. Noted are the festival sites, the fairgrounds, the vacations or leisure villages.

Fifth principle; in these heterotopias, the time of opening and closing is determined. Military quarters and prisons are among the examples. Foucault uses the term purification in these heterotopias. Hammin of the Muslims and Scandinavian saunas are among the examples.

Sixth principle; Heterotopias have a function in relation to all space that remains. They create a space of illusion.

According to Foucault, brothels and colonies are the extreme examples of heterotopias. Within this context, spaces such as ships, museums, libraries, gardens, and cemeteries are demonstrated as examples of heterotopia.

#### 4. Thirthing As Othering; Thirdspace

In his own words, Soja thinks that the concept of thirdspace encourages the readers to think differently on the meaning and indicator of space, which constitutes the spatial side of human life and is related to the concepts formed. The concepts are place, location, landscape, environment, home, city, region, country, and geography [16]. According to Soja, spatial measures of our lives have never become that much practical and political. Within this context, the concept of thirdspace involves ideas, events, appearances, and meanings. The concept of thirdspace is looking from a postmodern perspective. It has social, historical, and spatial dimensions. Thirdspace is the space where the race, class or gender, or being Marxist, materialist, idealist, and structuralist makes no difference, and all of them live together. At the same time, it is transdisciplinary. Transdisciplinary is a strategy to prevent spatial knowledge. Thirdspace is based on Lefebvre's space production model. Foucault's heterotopia is used in order to demonstrate the boundaries of thirdspace. Soja names Lefebvre as metaphilosopher. According to Soja, Lefebvre defines the limitless size of social space. Within this context, Soja builds trialectics of being and trialectics of spatiality.

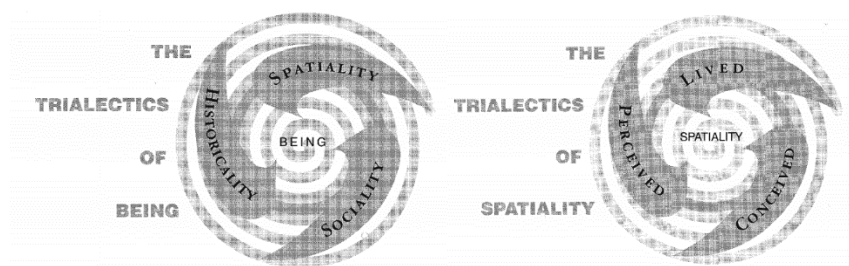


Fig. 2. (a) The Trialectics of Being (b) The Trialectics of Spatiality

The third term is the other. Aleph is place (Borges story) where all places seen from every angle all time past and present and future coexist simultaneously. The third is a possibility but not only in between position but also totally in a both and also position. Everything comes together in thirdspace. Subjectivity/objectivity, abstract/concrete, real/imagined, knowable/unimaginable, repetitive/differential, structure/agency, consciousness/unconscious, disciplined/transdisciplinary, everyday/unending story.

Soja focuses on the feminist theory for increasing the openness of thirdspace. He is influenced by the paradox of being within the same/other and also elsewhere by Gillian Rose along with other writers such as Cristine de Pizan, Dolares Hayden, Christine de Pazan, Barbara Hooper (especially about the body), Gloria Anzaldua (the borderlands), Gayatri Spivak (the reworldings), Edward Said (the imaginative geographies), Homi Bhabha (thirdspace) [16]. As expressed by Bhabha, Soja's epistemological trialectic of space means disabled, otherness, being hybrid, and openness to and involving everything simultaneously.

First space is the space of practice where space-spatial forms and concrete material are mapped on. The secondspace is the space which is designed on the minds of professional groups in design principle. Soja's definition of secondspace involves urban space as well.

Flexcity; A productively postfordist industrial metropolis

Cosmopolis; A globalized and 'glocalized world city

Exopolis; Acityscape turned inside-out and outside in through the radical reconstruction of urban form

Polarity; A social mosaic of increasing inequalities and polarization

Carceral city; A fortified Archipelago where police substitutes for polis

Simcity; A hyperreal scampscape of simulations and simulacra.

As it is in Lefebvre's concept of center /periphery, a dual dialectic exists between conceived and lived space. Thirdspace is the lived space which is between or covers perceived and conceived space. He defines thirdspace as another way of understanding and acting to change spatiality of human life.

## 5. Visualization of Thirdspace Through Marcus Hartel's Street Shoots

According to Soja, experiencing serial movements of a user creates a new phenomenology. However, how is it possible to capture the instant image of serial experience of a place? Street photography can capture the instant images of people's experiences in places without costume and fiction. In photos, we sometimes see much more than the explored, conceived and perceived spaces. In the field study, the shoots of Marcus Hartel, who is a street photographer in New York, were chosen [23]. Marcus Hartel started his career after moving to New York in 2003. His catch-phrase is "streets are belong to me". His photos were published in a variety of publications such as Time, Street Photography Now, Wings Magazine, Digital Photographer, Stern, Afisha, Vision, Manhattan Times, and Classic Motorcycle. Ten photos from Marcus Hartel's Black and White Street Photograph, and Color Street Photograph portfolios were chosen. The photos are read through Henry Lefebvre's model of space production, Foucault's heterotopia, and Soja's thirdspace.



Fig. 3. (a) Photograph1 (b) Photograph 2 [23]

In photo numbered 1, three different spaces with reflections take place in frame. He touches different lives by the cat seen on the reflection, the man walking, the man carrying a cup of café and much more. Like the Foucault's concept of heterotopia, the photo forms different spaces within a real space. Photo 1 also refers the mirror functions as a heterotopia. It makes this place occupied at that moment when absolutely real connected with surround spaces and absolutely unreal passing through this virtual point which is over there so the photo is declaration of thirdspace with all virtual affluence. In photo 2, the imaginary tour of the child in the train collides with illusion of adult reflected on the train. Articulating complex relationships between past and future, the photo involves imagination, reality, and memory without a permanency in time. Trilectics of being occur with its social, historical and spatial part and the photo scales down the form and scales up the emotion .



Fig.4. (a) Photograph3 (b) Photograph 4 [24]

In photo 3, two different people move on the street with help. The child moves on a stroller with the help of possibly its mother while an old man moves on a wheelchair possibly with the help of his daughter. A strong time collision is present in this photo. Mother/child and father/daughter collide in the same space in different periods of their lives. Foucault's heterotopia offers multiple possibilities within which a spatialized "otherness" can flourish [12]. Childhood and senile are referred as otherness in the society. Third space is combination of dual contrasts and base on otherness (thirthing as othering) so the photo reflects the thirdspace of social otherness. In photo 4, a handicapped man without his feet stands upright while the artificial legs stand upside down. The concept of heterotopia is medical in terms of etymology. It is a condition in which normal organ is misplaced The state of having and not having is reflected on artificial and natural photo, compensating for not having is possibly an artificial formation, which is considered.



Fig.5. (a) Photograph5 (b) Photograph 6 [23]

In photo 5, a dog is on the fuse box. It is a space where a dog shouldn't normally be. At the same time, a man with women's clothes and earrings which are made of donuts is walking. The space in the photo involves everyone that can live together no matter what their race, gender, and species are. It is the thirdspace. In photo 6, a pregnant woman is resting in front of a billboard, which displays a woman with cleavage. Foucault defines the first principle of his concept of heterotopia as the crisis of heterotopia. This definition includes pregnant women, adolescents, and menstruating women. He mentions about some prohibited and secret spaces. The pregnant woman on the photo and the contrast involved in billboard constitute the thirdspace.



Fig.6. (a) Photograph7 (b) Photograph 8 [24]

In photo 7, a kid riding a bike in a subway is seen. As in the ship example of Foucault, subway is a moving space. It is a space without space. It exists by itself. It is closed in itself and moves on to different spaces. The bike ridden in subway presents a different type of experience for the space. Within this context, the photo has a rich content on movement. In photo 8, the perception of environment is seen from inside of a car, which is a space itself. This perception changes at any moment and creates different spaces. Both photos are the postmodern interpretations of space. They are also real and lived space.



Fig.7. (a) Photograph9 (b) Photograph 10 [25]

In photos 9 and 10, living bodies are seen in front of two billboards, which present different lives. While the bodies in the first photo are walking, the bodies in the second photo are living in different spaces in virtual world. The term hyperreality is the lived space of exact copies of originals that no longer exists or never really existed. Soja gives meaning to this term referring the works of Baudrillard and described as real-imagined [16]. Both two photos can be defined by hyperreality as thirdspace.

#### 6. In Lieu of a Conclusion

This study was carried out in order to make sense of the works of three metaphilosophers, who explore contexts, meanings, visuals, and lived spaces in cities. Each photo indicates a different space in terms of content. They are the thirdspaces of postmodern city which changes, differs, and grows at any moment since they are the instant records of the lived space. The instant exploration of user's serial movements in perceived and conceived space include context and meaning by referring to the intersection of perceived and designed space. The contrasts used by photography artist correspond to dual contrasts criticized by Soja. Hartel's photos taken in New York also refer to heterotopia concept of Foucault. The links between photos and thirdspace are summarized below.

Photo 1 -the mirror functions as a heterotopia.

Photo 2 -trilectics of being occurring with its social , historical and spatial part.

Photo 3 -thirdspace of social otherness.

Photo 4 -The state of having and not having

Photo 5 -livability no matter what their race, gender, species and choices are

Photo 6 -Crisis heterotopia

Photo7 -Rich content of movement and no-space

Photo 8 -Perception change at any point creates thirdspace

Photo 9- Hyperreality as thirdspace

Photo 10- Hyperreality as third space

This study neither seeks precise results nor make an effort to produce an artistic output. Within this context, it is suggested to acknowledge this study as a third research.



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## RE-FUNCTIONING IN HISTORICAL STRUCTURE: AN EVALUATION UNDER THE SCOPE OF STUDENT PROJECTS

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### Abstract

Historical environments demonstrate all social, cultural, economic and technologic data of the period to which the city and civics belong. Importance of preserving historical elements can be classified under three general aims:

- 1) Conveying the historical heritage to future generations
- 2) Ensuring cultural continuity
- 3) Allowing new life opportunities to modern people together with their history

Historical structures are important urban memories which make us understand the conditions of the era it was built and on the other hand which are evaluated together with the modern structures fulfilling our requirements today. The aim of this study is to contribute to the sustainability of historical environments, to redound historical structure consciousness in students, to incur new functions to historical structures and redound them to the environment they belong to. The study is an evaluation study including the term projects conducted in internal space design lesson in Çukurova University Engineering-Architecture Faculty Architecture Division. In the study, local and international literature researches were conducted related with re-usage of historical structures, study area was determined and the design period of students was initiated. The students were requested to bring new functions to the structures specific to the structures in the given study area and support their projects by drawings and visuals.

The structures given to students include the residence and warehouses in Döşeme neighbourhood of Adana province in Turkey. These structures were handled under the scope of relievio restoration lesson in Çukurova University Architecture Division. This is one of the oldest neighbourhoods of Adana and urban conversion has been initiated in the neighbourhood. The area was selected due to the necessity of preserving the historical structures during the urban conversion process. Lesson progress method is poster introduction in weekly lesson hour and the progress made by the students was supported by lesson conductors through the critics they made and the stage reached in the study was documented by the final submission.

The expected result from this study is refunctioning of these structures, which define their era and therefore have an important documentary property, by additions and / or changes without damaging their identities and in this context, the area will be re-motivated. Anticipatorily aims are using and developing the ideas produced by students together with a cooperation to be made with the municipality.

**Key Words:** *Historical Structure, Re-functioning, Sustainability*

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### 1. Introduction

Each architectural form contains a definition related with human life, meaning and interpretation. Again, architecture is one of the most reliable witnesses of its time. Moreover, architecture affects the lifestyles of communities by defining physical places. From this point of view, the structured environment, which provides tangible data about the period in which they were produced, constitutes a discourse carrying the character of a historical document

similar to the art of painting and writing.

Historical environments are also the areas formed in conclusion of physical, social, cultural, economic and technological conditions of the periods or periods that created them. In historical environments or historical buildings that sustain their singular beings, which are judged together with modern buildings that respond to today's needs and provides us to understand the conditions of the period, are important urban memories.

For this reason, the preservation, development and survival of all the values that form the historical environments have great importance. With these kinds of studies done in design education, it is proposed to develop historical environmental consciousness and to be unique in design without being disconnected from the context of universal design principles.

## **2. Historical Environment Concept**

Historical environment defined as 'site' in law of the Protection of Cultural and Natural Assets' numbered 2863. The site is the product of various civilizations from the prehistory to the present day and is the remains of the city and the city that reflect the social, economic, architectural and similar characteristics of the periods they lived. It is the place where cultural assets have been the subject of intensive social life or where important historical incidents have taken place and it is necessary to protect them with the nature features determined [1].

In the scope of this definition sites are grouped as archeological, historical, urban and natural site according to their qualities and the values they contain.

Archeological site: Areas within the city where the remains of an ancient civilization or ancient residence in rural area,

Urban Site: Areas that cultural and natural environment elements which including architectural, domestic, historic, aesthetic and artistic features, are together,

Historical Site: Areas where important historic events take place,

Natural Site: It is defined as areas that need to be protected with its natural features and beauties. Also there are areas such as Urban archaeological site, cultural landscape, rural site, complex site (including multiple sit-in) where they are formed as a result of horizontal and vertical associations of these values [2].

## **3. Design Approaches to The Preservation and Reuse of Historical Building & Environment**

Conception of protection developed in the early ages of Christianity, depending on religious factors. When it comes to the 1600s, the concept of preservation in countries such as Sweden and Denmark had been carried more to protect the movable ancient artifacts and it had become widespread with the commands of the king. The protection activities during these periods were only repairs and restorations. The first cultural comprehensive protection thought was born in response to the destruction of the French Revolution in Europe in the 18th century [3].

In the past, different categories of buildings were thought worth preserving at different times- mainly because they reached an age at which they were regarded as venerable. By the late nineteenth century, medieval buildings were sufficiently esteemed to be preserved for their antiquity. The first protective legislation was the Ancient Monuments Act 1912, which served to preserve decayed and obsolete structures that had artistic or historic interest [4].

There is no regulation in Turkey before 1869 in the name of protection. Initiatives of local legal authorities are dominant in decisions about ancient artifacts. Books related with islamic law (Fiqh) mention ancient artifacts as "movable good that property owner is not clear". Even in the Land Code of the Ottoman Empire, there is no provision related to this issue. According to the provisions of Islamic law (Fiqh), immovable ancient artifacts are considered to belong to foundations, private people or the state, and two features are introduced for immovables. These are: the necessity to have islamic confession of faith, or another mark known to Islam,

on the work [5]. There are many legal arrangements in Turkey that are directly or indirectly addressed in relation to the protection of movable and immovable cultural and natural assets. The basic legal document in this area is the 'Act on the Protection of Cultural and Natural Assets' numbered 2863, which entered into force on 27.7.1983 [6].

The threats to historic urban areas generated by modern urban planning have been of concern to the conservation community since the mid 1960s. Since that time, evolving concepts of urban heritage conservation and its role in urban rehabilitation and regeneration have been addressed through international, regional and local principles and guidance, driven largely by conservation practitioners. Over the last decade, the urban conservation challenge has grown critical due to rapid urbanization and the resulting growth and transformation of cities worldwide. Conserving historic urban environments is currently one of the most universally urgent and challenging cultural heritage conservation issues [7].

The values that protect the historical landscape were divided into three main headings as emotional, cultural and usage values by Bernard Feilden. Subheadings have been divided into the following:

1. **Emotional Values;** wonder, identity, continuity, respect and veneration, symbolic and spiritual values
2. **Cultural Values;** documentary, historic, archaeological and age, aesthetic and architectural values, townscape, landscape and ecological, technological and scientific values
3. **Use Values** are; functional, Economic (including tourism), social (also including identity and continuity), educational, political [8].

The above mentioned protected values of the historical area can be achieved with 4 different design approaches today. These are:

1. **Imitation:** Common space organization in that region, facade editing, evaluation of carrier system and material properties in the direction of the analyzes made in the historical texture and It can be defined as a method of reproduction of a similarity of other structures existing in the texture on parallel to these detections.
2. **Emulation (analogy):** The new structure to be built in the historical environment is designed by benefiting of the same or similar facade and mass influences via the traditional texture. Modernity of the new structure must be revealed in the type, color or mode of used material.
3. **Respectful (Calm Approach):** Designs that are simple, modern and respectful to historical texture can be obtained with this approach. Also the method both causes to formation of nice background for the historical structures and increase in the emphasis of the historic building. In this approach, philosophy is the new structure should be produced in a simple form and not to get ahead of the historical structure. Again important thing is historical structure and texture.
4. **Contrast:** This approach helps to perceive new and historical structures separately. It makes people feel the change that the architect has had throughout history. While the composition, material, proportions of the current architecture are being rejected, the harmony is sought about the width and height of the building. Contrast should not be random, it should consist of rhythmic surfaces which has integrity in itself also it must be supported by material and color contrasts [9].

It is aimed to preserve the historical-cultural values via the above-mentioned approaches when new structure, restoration of historical building and / or the construction of the additions are made in the historical environment. These common aims can be listed as follows;

- Environment, the condition of the structure to be implemented additions or changes made should be designed considering the structure-environment relationship,

- The annexes are built without exaggeration and dominating to the historical structure,
- When designing a new structure or crop, the relationship with the environment must be considered,
  - Local characters, properties must be recognized and protected,
  - For the residents of the region and from the outside, the social image should be raised and not only material but also spiritual gains,
  - The existing historical building structure should be brought to a healthy state and be able to be regained,
  - The sense of belonging to a place should be provided and local, regional, national sense of identity must be improved,
  - Our past, present and our future extending local values, should be kept alive, and to be reflected forwards for the future generations,
  - Thus, social consciousness and prosperity should be increased [10].

#### **4. Historical Environment – Interior Relation**

Historical environment or historical buildings in the historical environment, which are judged together with modern buildings that respond to today's needs and provides us to understand the conditions of the period, are important urban memories. Historical buildings wear in time, weaken the functional properties not adapt to present conditions or lose their function. For this reason, in order for the urban memory not to disappear, interventions to both historical building and environments become obligatory over time. It is aimed to bring the new functions into historical buildings and restore them to the surrounding area where these structures exist.

During the architectural education, the above-mentioned historical environment - conservation of the structure, consciousness and design approaches are tried to be given in different courses. In this study, experimental studies were carried out by the students in order to re-functioning the historical structure within the scope of the Interior Design Course of the Department of Architecture of Çukurova University Faculty of Engineering and Architecture.

With this study;

- To awake consciousness of historical buildings among students,
- Establish an respect to history and historical artifacts
- To enable them to have ideas and knowledge in the context of universal design principles such as sustainability and accessibility in the re-functioning of historical structures,
- In new design approaches; Providing disabled-friendly solutions, evaluating environmental data and making designs that respect the existing environment,
- Contributing to the sustainability of historical environments,
- It is aimed to provide infrastructure for course curriculums in the future of students who are currently in training.

The aim of the study:

- Research on building in order to find out which function can be used again in the historical environment and sociological context,
- Examining the approaches to acquire new functions in the historical structure and conducting trial works in this context. Therefore, while the historical structure has a new function, formation of the design which in the context of the preferred architectural approach,
- To carry out an interior analysis of the building
- The reconstruction of spaces according to new functions
- Re-functioning of the spaces via re-equipped,
- The effect of refunctioning on venue setup in interior design should be analyzed and

designed on the basis of shape, color, material and production.

### 5.Student Studies

This research consists of evaluation of the studies made by students take MIM 277 interior design lesson in 2016-2017 fall semester in architecture department of Çukurova University the faculty of engineering and architecture.

At the initial stage of the study, students are divided into groups that consists of three members, domestic and foreign literature review was desired from them for the usage of historical structures again. Then obtained information is evaluated.

Work area covered the döşeme neighborhood, were determined by lecturers at the second phase. Relievo of structures that were given to the students, had been made by third class students in 2015-2016 spring semester within the scope of relievo-restoration course at architecture department of Çukurova University. The state of their construction at the time of their construction was interpreted through restitution projects. In the scope of the study, the buildings given to the student groups are built as masonry bricks and their functions are residence and ginning factories. All constructions are proprietary and none of them are used.

The Döşeme neighborhood is located in the province of Adana in Turkey and is one of the oldest neighborhoods of Adana. So this region were chosen as work area. On the other hand, the process of urban transformation began in the neighborhood. The research was shaped by taking into consideration the needs of the region in order to protect the historical buildings in the area and to participate in social life again.

Existence of the döşeme neighborhood was known from the 1910 years. After the occupation of Adana in the neighborhood, it was named as "Döşeme-Street neighborhood" in the 1918 map that the French had done. It is seen that there is a German Factory in the north of the map, Simyonoğlu (Milli Mensucat Textile Factory) plant in the west, the old station in the south, and a Greek Cemetery and a lake in the east. It is thought that döşeme neighborhood is made up of houses built for workers working in Simyonoğlu (Milli Mensucat) factory which was founded in 1906. When you look at how the houses are located on the parcel, it is seen that they are structures that settled in the direction of climatic data to leave the courtyard or the garden in the south. It is seen that the constructions are mostly constructed to define the grid street texture, to the street side and the courtyard to be at the rear [11].

When the layout of the houses is examined, it is seen that the entrance floor plan is designed as an inner sofa. Dwellings are generally directly related to the street. Therefore, it is thought that the users are composed of non-Muslims, which reinforces the claim that the localities were formed for the settlement of the Armenian population [11].

Progressing method at other stages of study were consisted of student poster presentation in weekly class hours, the stages of the students' progress were criticized by the lecturers and final delivery had documented the progress of the work. Six of the student groups were evaluated in this study.



Figure 1 a) Döşeme Neighborhood [11].



b) Döşeme Neighborhood Layout [12].

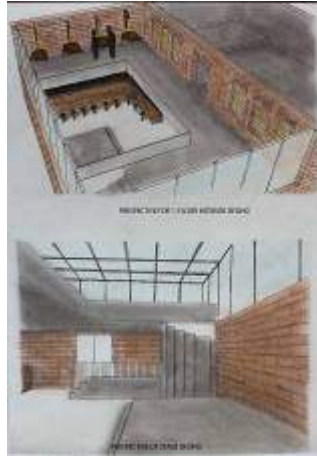
Table 1. Used Structures in Döşeme Neighborhood For The Study

NO:8			
NO:13			
NO:44			
Middle Part of Ginnery Factory			
NO:45			
NO:73		 <p>KUZEY CEPHE 100      GÜNEY CEPHE 100</p>	



Table 2. Student Project - Retro Pub

**Working Group :** S. Özkanbaş- K. Bolat- İ. Serbest



**Design Approach :** The building located in the 8 parcels of the döşeme neighborhood had been re-used as a retro bar. In the direction of the new planning, the courtyard was included to the place editing and it was rearranged as scene of the retro bar. Gallery space was resolved at the scene partition of the top floor and roof of this partition was arranged as glass to benefit from natural light. A separate section was solved in the plan at the top floor for the karaoke in the project.

Table 3. Student Project – Library


**Working Group:** S. Akbaş- İ. H. Yıldız – E. Çınar



**Design Approach :** The building located in the parcel 13 of the döşeme neighborhood was used as a residence and has two floors. It had been re-used by the working group as a library. This floor was arranged as a free work area in the project by making additional floor to the building. Considering the disabled individuals, the structure which was entered with the difference of elevation was made lift. Also elevator and handicapped wc were made in the room and attention was paid to access them.

Table 4. Student Project - Dental Polyclinic

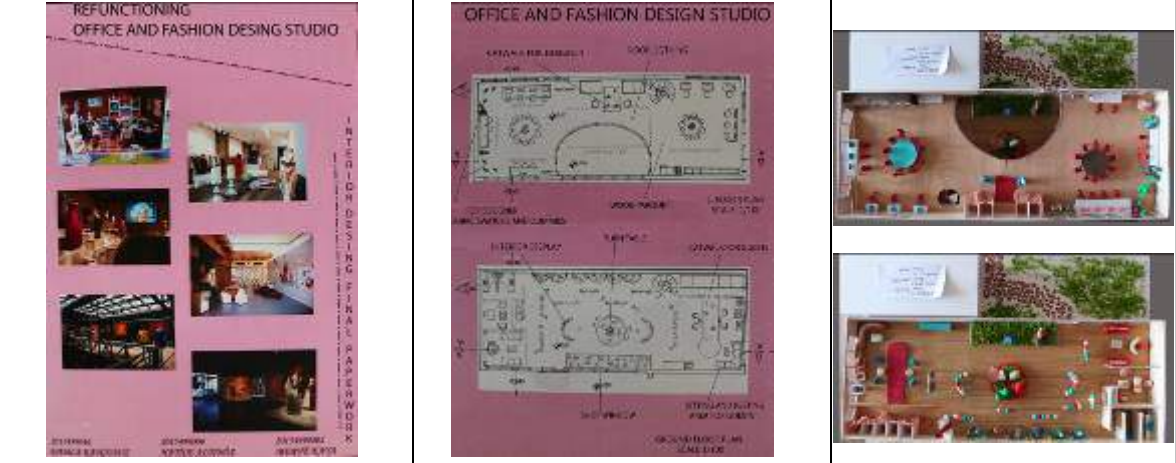
**Working Group: F. Ağtaş- M. Kapcı- İ. Ülger**



**Design Approach :** The house located in the 44 parcels of the döşeme neighborhood ; has two floors with a courtyard . The structure were refunctioned as dental polyclinic for the ground floor and living space for the top floor. The legal arrangements that should be made in the dental clinic of the space organization were taken into consideration.

Table 5. Student Project - Office and Fashion Design Studio

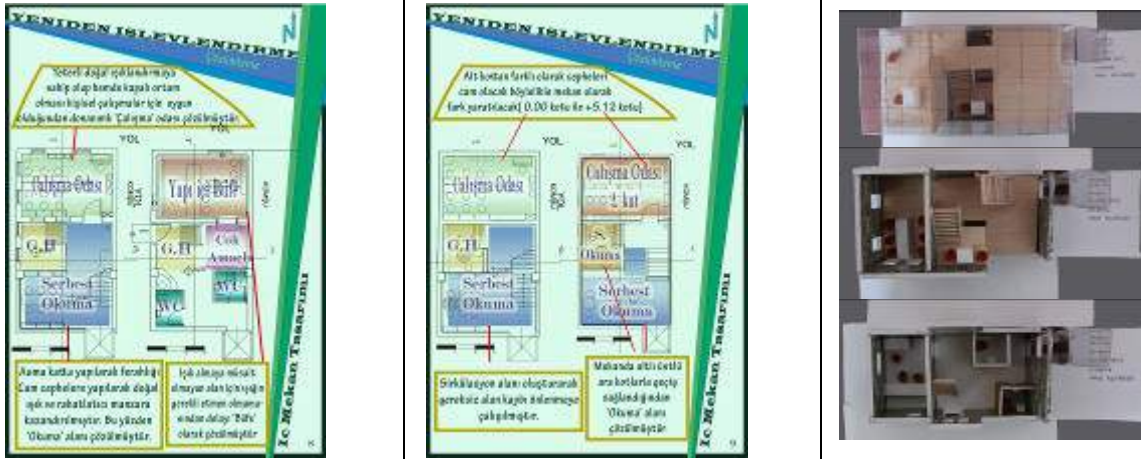
**Working Group: D. Kaygusuz- H. Altınöz- M. Kaya**



**Design Approach :** Old ginnery factory that was located in döşeme neighborhood, was refunctioned as a fashion and design workshop. The ground floor was used for exhibition purpose and it was planned according to the guests in the resolved project with mezzanine and gallery space depending on the height of the floor in the workshop. On the upper floor, functions which were mainly designed for designers and design students, were defined.

Table 6. Student Project - Library

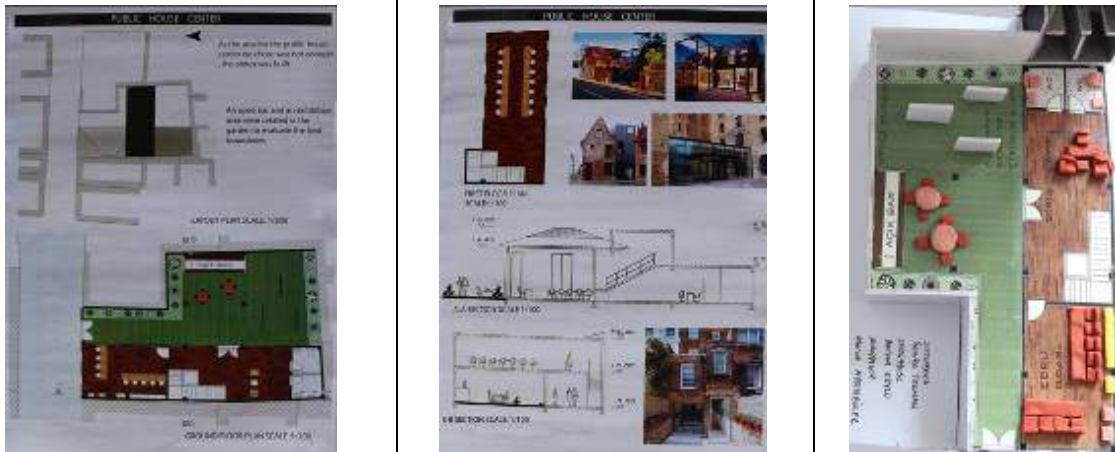
**Working Group:** O. Aslıyüksök-M. Kiri- Z. İ. Deniz



**Design Approach :** Two-storey structure that was located in the 45 parcels of döşeme neighborhood was arranged as a library for children in this region by the students. In addition to the existing levels of the original plan, new levels were added and therefore different solutions were tried to bring to the plan. Also an additional layer had been constructed and this section had been arranged as a free reading and study area.

Table 7. Student Project - Public Education Center

**Working Group:** S. Tekman- B. Köylü- M. Aydıngüler



**Design Approach :** The building located in the 73 parcels of the döşeme neighborhood has two floors. The building that was used as a residence, were refunctionalized as public education center. Due to the fact that the rooms of the house were very small, the ground floor with 4 rooms was re-organized as 2 rooms. Also a new addition was made on the upper floor, and the garden of the house was re-arranged to serve both the exhibition and the buffet.

## **6. Conclusion**

It is an important input of design education to ensure that the design trainee understands the responsibility for public good, respect for the historical / cultural heritage and raising the quality of life. With this experimental study included in design education;

- The awareness of the students about the texture-structure necessary to be preserved as historical heritage has been increased and raising the awareness has been ensured,
- In the context of universal design principles such as sustainability and accessibility, it has been tried to add to the historical structure and / or teach what to do when bringing in new functions.
- In all the design approaches in the study, it was noted that the students should bring disabled person friendly design solutions. Both wet volume solutions and designs supported by disabled lifts had been made accessible to everyone.

As a result, while trying to reach the above-mentioned targets with this study, the result expected from this work that the re-activation of the region by re-functioning of these structures which describe the period from the other side and therefore serves as an important document. Going forward, there are goals of the study for usage and development of ideas produced by students through joint cooperation with the municipality.

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## FORMAL ALGORITHMS IN A RULE-BASED BASIC DESIGN STUDIO

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### Abstract

Basic Design in Schools of Architecture is mostly argued to rely on conventions, experience and intuition [1]. Yet it is also a rational process which is not explicitly revealed. This study is inspired from the presence of both intuition and reason within the design environment characterized by the ill-defined nature of a design problem [2]. It seeks to find formalisms of reason within this ill-defined setting from which intuition cannot be held separately. The study adopts a rule based design approach in an ill-defined setting; first to introduce novice designers with computational thinking in the absence of computers [3] and second, to identify the oscillation between reason and intuition as part of a greater conversation between the designer and the materials of the design situation [2].

In the pursuit of rule based design, in this study a scholar attempt is made to understand the rationalistic aspects of Basic Design Studio. The paper presents the methodology followed in the Department of Architecture at Doğuş University, where students were asked to develop formal algorithms for each and every one of the exercises given throughout the semester. Formal algorithms were required to have both verbal and visual instructions, in such a way that a third person can draw (2D) or build (3D) designs without the help of the designer. As such, all the moves of the design process must be included in the formal algorithm since skipping even the small steps of the design process would prevent proper drawing/building of the design by the third person.

At the end of the semester, an online questionnaire was distributed to all of the students. This questionnaire aimed to comprehend (a) how individual design experiences differed, (b) how ‘see-move-see’ [4] process worked in the design process, and (c) which architectural terms were mostly used in algorithms. The results were reviewed in an open coding process and sub-categories were identified.

Initial assumption was that designs of the exercises as well as the accompanying formal algorithms would not be successive events; rather the process would require a ‘see-move-see’ approach. The results supported the assumption. Most of the students developed algorithms in coordination with their see-move-see design processes. Another significant result of the study was that, architectural terms used in the Design Studio were frequently included in the algorithms where thereby a bridge between the *abstract* (like concepts) and the *actual* (like dimensions) properties of the designs could be linked. Final conclusion relates to one of the inherent characteristics of the Basic Design Studio: difficulties of ill-defined problem definitions in Basic Design Studios can be overcome by use of algorithms as students become able to de-compose and re-compose the design process into successive steps and instructions.

**Key Words:** *basic design; formal algorithm; intuition; rationalism*

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## 1. Introduction

Ill-defined nature of the design problem allows for a multiplicity of approaches in design teaching as well. Two ends of design teaching method in studio are intuitive and rule-based studios. Although each one puts weight on a distinct property of the design process, they cannot be separated completely. It is to say that each intuitive act is regulated by a rule (or limit) and each rule is evaluated with intuition. The study aims to fill the gap between these seemingly far apart approaches. In order to understand the character of a rule-based design studio, retrospective descriptions of the design process reported by the students enrolled in first year design studio are analyzed in terms of Schön's see-move-see cycle. The results are expected to provide clues regarding the similarities between the design processes in either approach.

## 2. Theoretical Background

### 2.1 Seeing in design

Many researchers define architectural design problem as an ill-defined problem [5]. In an ill-defined situation, the designer does not search for the single one correct solution; but an optimal one. Neither the problem nor the end is not definite. Therefore, every architect follows a unique design path with certain similarities [6]. Ambiguities involved in the design problem yield a conversation [4] between the designer and the object during the design process. The conversation evolves as the designer reflects on the design object, re-interpreting forms, shapes and relations. According to Goldschmidt [7] „*the dialectic between arguments of „seeing as“ and „seeing that“ during the process of sketching allows the translation of the particulars of form into generic qualities and generic rules into specific appearances.*“ Similarly, Schön and Wiggins suggest that a design process evolves through a see-move-see cycle [2] in which the designer makes a new design move as a result of visual feedback.

### 2.2 Intuitive design studio

Architecture (and design) is an intellectually rich field that requires experimenting and it is driven by curiosity [8]. In addition to this, qualities of design problem and setting mentioned in the section above, make design activity an intuitive process. In the seventies, design process had been defined as a “*black box*” where more recently, Yürekli [9] has defined it as a “*black hole*” where each and every piece of information and experimenting are melted in to end up with an unpredictable solution. Yürekli [10] suggests, in more detail, that design studio is a „space for change, invention, spontaneous shifts, that can serve as a catalyst drawing out the unique elements“.

All this raise the question whether design can be taught? Architectural education takes architectural design to its center as it needs all the experimenting possible because it cannot be taught [11] [12] [8]. Learning by experience lets students not only deal with “*subjective meanings / intuitive descriptions*” but also “*objective aspects*” of design simultaneously [13]. This is the reason why a designer oscillates between dialectic relations of objectivity and subjectivity. This kind of co-existence between subjective and objective aspects of design contribute to new ways of thinking about design teaching [13].

## 2.2 Rule-based design studio

Rule-based design studios are one of such new ways of thinking about design teaching. Although computers and computational processes were introduced into the field of architecture in 1960's, they still remain to be a part of later phases of design. Designers benefit the speed and effectiveness of a computer when producing construction documents or graphic representations. However, computational approach is seldom considered when dealing with creativity during the early phases. Pantazi [14] addresses the gap with the contrast between well-defined nature of the algorithms the computer uses and the ambiguous character of design, caused by ill-defined nature of the process. This signifies a distinction between explicit and implicit ways of defining a solution by rules in the field of computation, and intuition in the field of design. Similarly, conventional design tools utilized during the early phase of design, are related to designer's intuition and allow for the use of implicit actions; and the new computational tools use explicit steps, rules, to systematize the ambiguity [14]. According to Cross [15], what makes design problems hard to address with systematic methods are designers' tendency to proceed with „*ad-hoc*“ ways. Therefore, there have been attempts to re-define the design process with more explicit steps in pursuit of systematizing the ambiguity.

Various design methods were developed to deal with the ambiguity of design process and rule-based design is one of these methods. Rule-based design method provides an algorithm, a recipe that makes the design process explicit [14]. The two components of this approach are vocabulary and rules. Vocabulary refers to parts that the designer will work with. And the rules are the limits set by the designer to define the relationships between the parts.

Rule-based design approach does not necessarily require use of computers, rather, a computational thinking. Computational thinking consists of moving according to certain rules that can also be implemented by hand [14]. Similarly, Stiny [16] describes computing as “*a way of thought reasoning*”; and Özkar [3] realizes the benefit of, “*conveying the understanding of design as computation and computation as reasoning precedes the use of computer tools as a strategy to integrate computation to studio*”. Along the same lines with Stiny, Özkar and Pantazi, in this studio, the instructors have requested the students to work with rules by building physical models and sketches, and not the computer, in order to make sure the students take their time to compute (or to reason) while acting.

The underlying intention here is to travel the distance between intuitive and rule based design. It is achieved by steering the students to think with design rules which are inherently set with intuition; let them make formal explorations with the rules; see and reflect on the rules, based on the visual feedback from a two dimensional graphic or a three dimensional physical model. Although a definition of vocabulary and a set of tight rules could easily turn design into a mechanical process by completely excluding ambiguity, it is actually expected to trigger a reflective process followed by re-definition of vocabulary or manipulation of rules. In order to track the design process of students, Schön's see-move-see approach is adopted as an indicator of a designerly way of experimenting with the basic design studio.

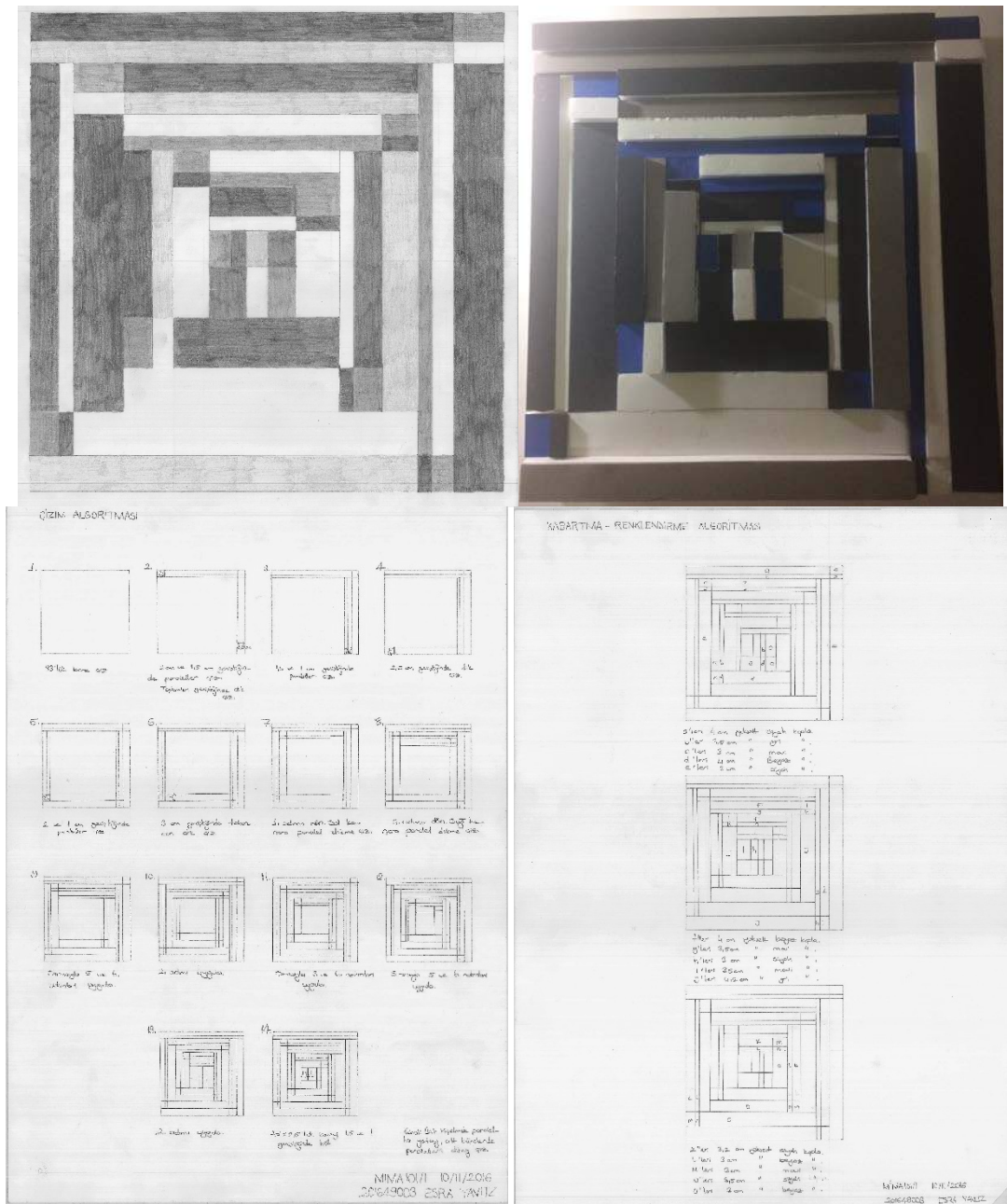
### a. ARCH 101 at Doğuş University (DOU)

A total of 84 freshman Architecture majors were enrolled in ARCH 101 Architectural Design Studio in four sections where same curriculum was followed. Student projects were assessed within common jury presentations. In the pursuit of rule based design, in ARCH 101



Studio at Doğuş University an attempt is made to understand the rationalistic aspects of Basic Design Studio. This methodology primarily rested on developing “formal algorithms” for each and every one of the exercises given throughout the semester. Algorithm is defined at Merriem-Webster Online Dictionary as “a step-by-step procedure for solving a problem or accomplishing some end especially by a computer”. Formal algorithms, however, required to have both verbal and visual instructions, in such a way that a third person can draw (2D) or build (3D) the associated designs without the help of the designer. No computer tool could be used. As such, all the moves of the design process must be included in the formal algorithm since skipping even the small steps of the design process would prevent proper drawing/building of the design by the third person. An example student project from 2D composition to relief design and associated algorithms are given in Photo 1.

Photo 1: 2D composition, relief design and associated algorithms



Final assignment in ARCH 101 Studio was to design a maximum of 30 m<sup>3</sup> living unit, which was supposed to be built on Mars, in such a way that a person could have private, semi-private and common areas. Models were developed without using glue; only way to build up was plugging 2D basic geometric forms into each other. Exceptions were made for students using curvilinear forms where plugging may not a proper way to make the models.

After individual submissions, selected eight projects were built in ½ scale (Photo 2). Groups for the assembly process were formed randomly in order to avoid any bias. Not only the design but also the assembly processes were described in formal algorithms.

Photo 2: Selected works in ½ scale: plug-in and out using orthogonal units and using curvilinear units



### 3. Methodology and data

#### 3.1 Data and the method

In this study, a descriptive study is carried out depending on a qualitative survey which was distributed at the end of the semester. The questionnaire included nine open questions all descriptive in nature. In order to ensure adequate time for answers, students filled in the questionnaires online. As all the students were included the survey study, the representativeness of the data is argued to be sufficient.

As independent judges, two of the instructors skimmed and scanned the answers in order to increase the trustworthiness of the study. This process enabled making categorizations out of the raw data. No computer tools were used in this process. Questions were evaluated separately and therefore missing cases, if any, are dropped from that particular answer column rather than permanently deleting from the data set.

Depending on the Rule Based Basic Design Studio at DOU, three research questions were central to the analysis: (a) how individual design experiences differed, (b) how algorithms and 'see-move-see' processes worked in the design process, and (c) which architectural terms were mostly used in algorithms.

### 3.2 Assumptions

Regarding the research questions, the following a-priori assumptions were made. Students may experience completely different processes depending on many parameters, yet it is possible to construct categories out of these unique paths. The answers of students were analyzed in depth hence, a number of design paths in the form of decision trees were obtained (Table 2). Second assumption is that algorithms help to guide students so that they develop design skills to control the design process in a better way. Algorithms therefore serve as a formal medium revealing all the back-and-forth steps of students and accompany the see-move-see process. Algorithms are beneficial in a rule based design studio not only for the students to manage their design processes but also for the instructors to evaluate student performances. Final assumption is that terms used in problem definitions and jury evaluations determine implicitly the vocabulary used in the problem definitions. This may orient students to give priorities to some particular aspects while it may also prevent them to explore other design perspectives.

## 4. Results and Discussion

### 4.1 Research Question 1: How did individual design experiences differ?

Students emphasized by far the *learning by doing* process of the design studio in their answers. Each student has his/her own learning. Therefore, each design process is unique and there are as many design paths as the number of students. Three random students described their design paths as follows:

#### **Design path 1 (Student 1):**

Thinking and understanding the problem  
Sketches  
Trial and error  
Final product

#### **Design path 2 (Student 2):**

Research  
Drawings  
Developing initial designs  
Changing the unit and developing again  
Prepare the algorithm  
Develop the design again  
Determine the dimensions  
Drawing sections  
End Product

#### **Design path 3 (Student 3):**

Develop 3 modules  
Producing many units for developing 3D models by hand  
Concentration on developing spatial hierarchy  
Developing models again and again with small additions and corrections  
End Product

Student 2 never mentions about the ideation whereas Student 1 does not tell much about steps of the trial-and-error part. Likewise, Student 3 describes his/her design process by providing details. Table 1 tells us that it is difficult to form categories from such answers. One difficulty of this analysis was that every student focused on different aspects of the problem definition and described their design process accordingly. Additionally, students use different means to represent their ideas. Therefore, answers reflected different concepts, priorities and methods implicitly. Another difficulty is that not every answer has same level of information: some provided more detailed information while some did not.

Depending on the answers, however, these individual paths could be grouped into broader and comprehensive categorizations. Primary individual design path categories found out of the data are given in Table 1.

Table 1: Design paths

Design paths according to Q9

Sketching %45.1	Evaluation %25.8	Model Making	Rule	Evaluation	Rule									
		Rule	Null											
			Sketching											
			Rule	Mmaking	Rule	Mmaking								
	Ideation %3.2	Mmaking %9.6	Mmaking	Rule	Evaluation	Rule	Mmaking							
			Evaluation	Rule	Evaluation	Rule								
	Rule %6.4	Mmaking	Sketching	Evaluation										
			Evaluation	Rule	Mmaking	Evaluation	Rule	Mmaking						
			Rule											
	Rule %9.6	Evaluation %6.4	Rule											
Ideation														
Mmaking %25.8	Evaluation %9.6	Rule %12.9	Mmaking	Evaluation	Rule									
			Evaluation	Rule										
	Sketching %3.2	Evaluation	Mmaking	Evaluation										
			Null											
Ideation %19.3	Sketching %3.2	Evaluation %3.2	Sketching	Sketching	Rule									
			Sketching	Mmaking	Evaluation	Ideation	Rule							
	Mmaking %12.9	Evaluation	Ideation	Rule	Mmaking	Evaluation	Mmaking	Evaluation	Mmaking					
			Null			Rule	Evaluation	Sketching	Evaluation	Rule	Mmaking			

Table 1 branches to its right from larger square units to smaller individual squares each containing a phase of design activity. Sketching, Rule and Model Making are taken as indicatives of design decisions that Schön refers to as “moves” and evaluation indicates “seeing”.

Evaluation of decisions have yielded new moves as 85% of the design paths followed consists of at least one instance of evaluation and other moves afterwards. In 37% of the design paths, evaluation appears at least twice, further emphasizing the cyclic manner in which rules are applied, evaluated and re-interpreted.

Here, the rules are associated with objective approach that the rule-based design offers, On the other hand, evaluation cannot be regulated with rules thus; they are associated with intuition. The table not only helps us to visualize the multiplicity of design paths but it also helps us to visualize the cyclic relation constructed by see-move-see steps or, objective and intuitive parts of design.

#### *4.2 Research Question 2: how algorithms and 'see-move-see' processes worked in the design process*

Students described the relation between algorithms and their designs in one particular question of the survey. Three primary categories were observed. Accordingly, 65% of the students formulated their algorithms formulated again and again in the design process. While on the other hand, 15 % of the students stated that they developed *algorithms after the design* was completed. The rest, almost 20 % of the students developed *algorithms prior to the design* and strictly obeyed the initial rules.

Answers of the majority (*see-move-see*) worth mentioning:

Student 4: *As the design changes and improves, algorithm changes accordingly.*

Student 5: *You cannot start designing without an algorithm but this algorithm changes continuously in the process. You develop numerous rules and then forget them totally and re-write new rules again. ... It is like the map of the design process.*

As algorithms were compulsory in the submission list, in some instances developing an algorithm was viewed as an *end* rather than the *means*. Some students told they changed their designs in such a way that an associated algorithm can be developed easily.

Student 6: *While designing, I attempted to make such a design that its algorithm will be easily developed.*

Student 7: *I avoided doing.... otherwise developing the algorithm would be difficult.*

Student 8: *When I could not go further in the design process, I put the units together in such a way that its algorithm could be developed.*

In some instances, students may have given up their ideas for the fear of failure. As the Student 8 states:

*Although beautiful to me, I did not choose some of my ideas as it did not comply with my algorithm. I thought I could fail to develop both the design and the algorithm simultaneously, so I made sacrifices in terms of my design for the sake of obeying the rules of algorithm.*

#### *4.3 Research Question 3: which architectural terms were mostly used in algorithms?*

Hierarchy, fractal, rhythm and algorithm were the mostly used terms when students were asked to describe their final projects. Following those terms, several design principles like symmetry, balance and order were mostly referred (Table 2).

Table 2. Most referred terms in the algorithms

Term	Number of Cases
Hierarchy	52
Fractal	50
Rhythm	45
Algorithm	43
Relief	39
Symmetry	32
Balance	31
Pattern	20
Order	19
Module	18
Iteration	14
Unit	12
Monotony	12
Exercise	10
Repetition	10
Critics-evaluation	9
Sketch	9
Structure	9
Frame of reference	6
Section	6
Plan	6
Jury	4
Variety	3
Diagram	3
Mutation	1

These terms are parallel to the aims of the design studio and they are mostly derived from problem definition of projects. Most of them are conceptual terms, while some are related with assembly and presentation methods and materials.

The results of the study point out relevant information regarding rule based design studio which can be summarized as follows:

- Formal algorithms enforce students to put rules and obey them.
- Algorithms do not *necessarily* involve a see-move-see process.
- Developing and representing algorithms are themselves design problems which enhance the students' design skills.
- Creativity is not limited in a rule based design studio. Creativity is limited when the reflective nature of design (see-move-see) is not successfully managed by the designer.

## 5. Conclusion and future research

This study is a preliminary step towards a better understanding of the rule based design studio. Results reveal the positive effect of use of algorithms. Algorithms support see-move-see process and enables students manage their design paths, benefiting both the intuitive and the objective aspects of design. Use of algorithms also pays a tribute to the mathematical-rationalistic grounds of Architecture discipline. Students remember their analytical capacities and build step by step instructions with ideas, concepts, dimensions, positions and relations included. This can be viewed as a bridge between the *abstract* (concepts like spatial hierarchy)

and the *actual* (concrete like dimensions and positions).

The survey study definitely opened up new perspectives for this purpose and yet, in-depth interviews are needed for a more comprehensive analysis. A full content analysis can then be carried out. The continuity of the design studio from ARCH 101 to ARCH 102 by the same instructors offers a possibility to develop the analysis with reference to ARCH 102 Introduction to Architectural Design Studio course.

Final conclusion relates to one of the inherent characteristics of the Basic Design Studio: difficulties of ill-defined problem definitions in Basic Design Studios can be overcome by use of algorithms as students become able to de-compose and re-compose the design process into successive steps and instructions.

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## THE CONCEPT OF CHANGE IN GARDENS WITH HISTORICAL PROCESS: EDIRNE CASE STUDY

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### Abstract

Culture is one of the most important tools to hand down all the material and spiritual values, formed in the historical and social development process, to the next generations. Cultures change and evolve over time. Important information on culture can be gained by examining the gardens. The gardens are the places that reflect the cultural and social experiences as well as the economic structure and regional characteristics [1]. The historical process changes gardens the as well as changes the culture. Edirne is a city that has hosted different civilizations for centuries and is dominated by different cultures one after the other and at the same time ruled together. Located in a strategically prime position, the city gained importance during the Romans period. In the Ottoman period, maintained its characteristics that is the most important city the state has opened to Europe. Became the capital city, Edirne hosted the castle, palace and many cultural buildings. With this study, the effects of the present cultural richness on Edirne's gardens will be emphasized [2].

In this context, firstly Edirne's urban fabric, social and cultural life since Ottoman period was investigated with literature review. Palace Garden, Külliye (Islamic-Ottoman social complex), Kaleiçi region, traditional Turkish dwellings gardens; also Christian and Jewish minorities' settlements, in the example of Karaağaç neighbourhood housing which is on the border of Greece are examined.

Since Republican era, social changes in the city and residence gardens in newly constructed neighbourhoods such as Şükrüpaşa, Fatih, I.Murat, Kocasinan districts have been researched. Especially since the 1970s, with the increase of population and the change of social life, the concept mass housing has emerged. In Edirne, gardens of mass housing estates such as Binevler, Avrupa Kent have been examined and the effects of the gardens on human life have been determined with various interviews.

At the end of the study, the changes of socio-economic and cultural life in Edirne and the reflection of this changes on Turkish Gardens are revealed from past to present. Suggestions have been made for the conservation of historic gardens.

**Key Words:** *Gardens; Historical Landscape; Edirne*

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### 1. Edirne

The city of Edirne is the center of a wider geographical entity in the eastern Balkans called Thrace. This is the area which lays immediately to the west of the well-known capital of the Ottomans, Istanbul, stretching well into the fields of modern Bulgaria, ending up, all the way south, at the shores of the Aegean Sea. This geographical entity was of prime importance due to its fertile land and its geographic position, suitable for the accommodation of trade. Thrace connected Europe with Anatolia through its very important land arteries, like the Via Egnatia and Via Militaris, both in use since the Roman period. The latter was of particular importance because it was the main land connection between the heart of the Ottoman Empire and Europe, a path frequently crossed by armies, travelers and traders alike

[3].

Edirne has been an important city ever since the primeval era and during the Ottoman Empire and Republic of Turkey. Edirne has been under the influence of the cultures that existed during these periods. The city has hosted various civilizations and as a result of this, owns a rich history and culture. It served as a capital for 92 years during the Ottoman Empire. Due to its position on the mandatory passage roads connecting Anatolia to the Balkans, it has great significance for the cultural history of the Thrace region. It is a crucial geographical area where many types of interactions took place including the migrations between Europe and Southeast Europe, invasions, trading and cultural exchange [4].

Edirne has exchanged cultures between Anatolia and Balkan countries and has become a cultural and educational center prior to and during the Ottoman Empire period [4]. Today, Edirne ranks as the third city after Istanbul and Bursa in terms of the Ottoman art works and there are 606 Ottoman-Turkish cultural art works in the city. Some of these valuable major monuments are Selimiye Mosque, Eski Mosque, Üç Şerefeli Mosque, Beyazid the 2nd Mosque and Social Complex, Rüstempaşa and Ekmekçioğlu Ahmet Pasha Hostels, Covered Bazar, Ali Pasha and Arasta Arcade, Sokullu Bath, and Meriç, Tunca and Gazimi Affair Bridges. These structures still stand and are used today. Repair and restoration studies of some of them are still underway [5].

#### *Edirne province before the Ottoman period*

It was uncovered that Edirne and the first settlements around it were established and occupied for certain periods by Odrys, a Trak clan, during 5th Century BC [6]. During 123-124 AD, Roman Emperor Hadrianus admired Odrys for its strategical significance during his Eastern voyage and with his orders, the village developed and turned into a city and became a defense center. The city was named Hadrianapolis after the Emperor Hadrianus. When the Roman Empire was divided into two in 395 AD, Hadrianopolis city was owned by Byzantium (the East Roman Empire) similar to the entire Balkan Peninsula and the city entered into a period when it changed hands frequently. During this period, Hadrianopolis witnessed many battles in its environs and became the focus point of these battles in times, went through many invasions, lootings and attacks and was vandalized [7].

The inner fortress (Kaleiçi) district has experienced the longest history of the city and was the settlement location of Byzantium people during Edirne's conquest, and Genoese and Jews. Kaleiçi was known to have approximately 15 thousand people living in 10 districts and was virtually a religious center during Byzantium period. There were 15 Byzantium churches and Tekfur Palace within the fortress during this period [6].

#### *Edirne province in Ottoman period*

Edirne was conquered by the Ottomans in 1361 AD and started to develop rapidly. Prior to the Ottoman ruling, Edirne comprised of three churches and five to ten districts, including Kaleiçi district and "Aina" district at the other end of Gazi Mihal Bridge, and new settlement units started to be established out of the fortress with the initiation of the Ottoman ruling. During this time period, numerous hostleries, bath houses, mosques, soup kitchens, hostels and schools were erected and introduced to the socio-economic life of the city as to make up the main physical structure of the city and to improve economic vitality [7].

Edirne played a primary role during the Rumelia conquest by Turks and became a central base of operations. Turkish legions stopped over here during their excursion to the West. The city was in a poor situation when it was conquered and it was reconstructed based on the plans prepared by Turks. As a result of this policy, Edirne progressed immensely in a short time and ornamented by mosques, palaces, hostleries, bath houses, madrasahs, mansions, bridges, roads, etc. and took place among the renowned cities mentioned in the world history [8].

Edirne developed rapidly during the 16th century and built magnificent monuments. During

the second half of the 18th century, the city regained great significance due to the settlement of the Ottoman Sultans here. The excursions that started towards the end of the 18th century to Austria and the defeats experienced as a result of this affected Edirne unfavorably. The 18th century was a regression period in Edirne. In the great fire in 1745, nearly 60 districts turned to wreck and in the earthquake in 1751 many buildings were demolished. The city could not heal this deep wound caused by these incidents for a long time [8].

After Edirne started to be ruled by Turks, it was invaded for the first time during the Ottoman-Russian Battle in 1828-1829. This war unsettled the Ottoman Empire and Edirne substantially. The invasion of Edirne by enemy troops, massacre, atrocity and other afflictions caused by the war made Turks leave the city and its environs [8].

Evliya Çelebi, the renowned Turkish writer and explorer during the 17th century, mentioned especially the visual beauties of Edirne with praises and narrated the mosques, palaces, bazars and gardens of this city in length. Furthermore, he purported that this city, which had a deep-rooted history, earned a city identity to perplex the viewers by improving its wealth even further by magnificent architectural structures erected during the Ottoman period [9].

As deduced from the descriptions of the bazaars narrated by Evliya Çelebi and indicating the economic and social life here, Edirne continued to sustain its property of being a crucial city economically during this period. Moreover, he mentioned the hostelries and guest houses in Edirne, which was an important trading center during this the period [9].

Evliya Çelebi described the life in Edirne this way and commentated on the workers and artisans living in the city. Based on this information, he remarked that the physicians specialized in their field and working on a specific salary in Edirne and the imams and orators had deep knowledge and he characterized the city as the source of merits and the cradle of poets [9].

Edirne was the capital of the Ottoman Empire and an attraction center in the fields of science, culture and arts throughout history and in addition to the institutions including the palaces, mosques, madrasahs and hospitals, its geographical structure that functions as a bridge between Anatolia and the Balkans played a major role in the socio-cultural texture of the city [5].

Edirne was one of the most populated cities in the Ottoman State in the 16th century. Edirne was used a military base during the conquest movements made to Rumelia by the Ottomans and the city gained more importance when the Sultans started to live in Edirne instead of Bursa. As a result of this, the city population boomed. Edirne became the fourth largest city in Europe in the 17th century with its 250 thousand population following Istanbul, Paris and London [4].

Table 1. Religious and Ethnic Distribution of Edirne Central Sanjak Population by 1893 Population Census

	Female	Male	Total
Muslim	57.162	60.046	117.208
Greek	37.449	40.381	77.830
Armenian	1.917	1.914	3.831
Bulgarian	14.708	16.213	14.708
Catholic	136	173	309
Jewish	4.370	4.548	8.918
Protestant	18	24	42
Total	115.760	123.309	239.069

As it is seen, Edirne has witnessed the occupation of societies with various socio-cultural structures and establishment of various civilizations during its historical progress. The distribution of people in the 20th century is an indicator of a different socio-cultural structure

(Table 1) [5].

In 1901 it was seen that the Muslim population ranks first and is about half of the total population. It is observed that the Greek population (85,258) is in second place in the population data of province-wide. Immediately following this, the Bulgarian (36.684), Jewish (10.075), Armenian population (4.021), Catholic (741), Protestant (70) and Latin population (4) follow [4].

The submit of two districts (Dedeğaç and Gümülçine) of Edirne to Bulgaria as a result of the Balkan War in 1913 and the desertion of the entire right bank of Dimetoka and Maritza Rivers in 1915 and in addition the migration that took place because of the war led to a great population loss in the city [4].

Kaleiçi district has hosted the religious structures of the Jewish and Christian cultures up until today because numerous different ethnic elements and cultures lived in the city in peace and serenity during the Ottoman period. These structures are Italian (catholic) Church and the Great Synagogue [6].

The Great Synagogue was erected to take place of all small synagogues during Sultan Abdulhamid Khan's ruling following the destruction of all synagogues in the great fire in 1903. Moreover, a Rabbi Lodging and a school for the Jewish congregation were built in the Synagogue [6].

Edirne consisted of two or three churches in Kaleiçi district and five to ten districts until it was conquered by Turks. Non-Muslims in the city settled mostly in Edirne Fortress district and Aina district at the west bank of Tunca River. When Edirne was conquered by the Ottomans, the native Christian community was allowed to live in its places. During the 16th century, the non-Muslims in Edirne consisted of mainly Christians and Jews [2].

The Muslim and the Christian folks were never separated from each other. There were also Christians in the neighborhood where Muslim Turks live. There were also four neighborhoods where Christians sit outside the castle walls. There are different kinds of information about the number of Christian, Jewish and Muslim neighborhoods in the castle, as well as twenty neighborhoods, including five Muslims and fifteen Christians, according to the Tahrir books [2].

### *1.1 Edirne province in Republic Period*

Human groups followed one another and reached the Thrace region and Balkans via Anatolia and joined the native cultures and developed on new geographical regions. In addition to these interactions, the migrations received in the Thrace region from various places of Rumelia were the most significant factors for formation of today's living style in Edirne. The progress of the city population depended strictly on the historical, social, political and economic developments made in Edirne. Edirne was the largest city and the capital during the Ottoman period and the population movements took place irregularly [10].

Another example of population movements was seen during the World War II. A section of the civil society left the city as well during the following period when the war continued severely. Hence, an absolute regression occurred in the city population during 1940-1945. Edirne was deserted during the World War II because the city population migrated to the interior regions of Turkey due to the arrival of German troops to our western border [4].

Since Edirne has a lively industrial and economic structure, the share of its population within the total population has been above the average of Turkey always. After 1960, the population has not migrated from Edirne any longer and the city started to receive migrants. Today, its provincial population is 173,037 and there are 228,664 people in its villages and its total population is 401,701.

During this period, the city has entered into a rapid urbanization process due to reasons including the placement of Edirne among the prioritized cities and counties in terms of

progress, the positioning of the city in an attractive point and its initiation to develop industrially. The wish of the dwelling residents to live in more spacious buildings in time has led to rapid construction activities and spread and development of housing construction in a very short period. Even the reached protected area decrees were not able to hinder this progress [11].

## 2. Gardens in Edirne

It was observed that the development of Edirne in the Ottoman period was also reflected in the garden art. Edirne Palace garden, Complex of Sultan Bayezid II courtyards and traditional house gardens can be given as an example of garden art in Edirne.

### 2.1 Edirne Palace Garden

The new palace in Edirne, which was completed by Fatih Sultan Mehmed in 1454, was located on a forested plain on the north side of the city, covering 3,000 m<sup>2</sup> on the west of the Tunca River. The difference of Edirne palace in other Ottoman palaces is that it is located in wide gardens with a common settlement and an area surrounded by walls in the immediate vicinity of the city. The two parts, including the official function, which can be entered and which cannot be entered inside the buildings of the Sultan's private life; Edirne Palace is a "palace city" with pavilions where the buildings identified in the courtyard system that follow each other hierarchically and pavilions where the special taste of the Sultan is also effective [12].

The settlement plan of the Edirne palace has a function diagram that is closing in itself. The general scheme is made up of five courtyards which are juxtaposed (four sides are bounded by stone walls or the main walls of the square) and a private door between them called "center"[5].

Because of the extraordinary beauty of the garden, the palace which is also known as the "Hünkar Garden Palace" has proverbial attar of roses made from the Edirne roses. There are also vegetable and fruit trees that give very good products in the palace area. Edirne Bostancı Ocağı is the organization that carries out the maintenance and arrangement of these beautiful gardens. It is registered in the palace books that 467 people worked in this organization in 1577 (Fig 1) [13].



Fig. 1. Edirne Palace Garden [5]

### 2.2 Edirne Palace Courtyards

Great importance was attached to aqua architecture in the palaces. Aqua elements including fountains and pools were important Turkish landscaping factors and started to be used from the second courtyard (Sand Square) [14]. Moreover, in Edirne palace gardens, the rivers were

benefited for irrigation as well as for relaxation, and water was used for music, shadows were used for cooling, and flowers were used for coloring and scenting, and music was used for ear and sole joy. Such a usage type was one of the fundamental principles of the Ottoman gardens [13].

Edirne Palace functioned as a typical Ottoman palace for 425 years and a section of it was used as an armory during the Ottoman-Russian War in 1877 and exploded because of burning of the armory as a result of an unfortunate decision and Edirne palace complex demolished except for 4 to 5 ruined walls [15].

### *2.3 Complex of Sultan Bayezid II Courtyards*

During the 8th to 13th centuries, Islamic medicine went through a golden age which influenced medical education and practice in the Ottomans, who conserved fundamental features of Islamic civilization. A külliye is an Ottoman architectural concept that designates a complex with a central mosque and a series of ancillary buildings surrounding it. Sultan Bayezid II Külliyesi of Edirne, Turkey is an early characteristic example with its sections, and in particular, with the medrese (medical school) and darüşşifa (hospital). The other constructed units were built to complete the hospital service in social, cultural, religious and financial aspects [16].

The medical school consisted of 18 student rooms and a classroom surrounding three sides of a courtyard with a shadirvan (fountain) in the middle. Darüşşifa is the health center of the mosque where spiritual patients are treated with music. In addition to music, water and beautiful scent was also used in the treatment. The voices of the water springing from the fountain constituted a significant part of the cure, and the patients settled in peace (Fig 2) [5].

### *2.4 Edirne house garden arrangements*

House and garden arrangements during the Ottomans period developed based on the family structure and social and economic statue and in the framework of protection and climate. The most influential factors among the social statue were Islam and its fundamental philosophy and the traditional life style of Turks. These are the significant factors for shaping houses and gardens. Therefore, the houses and gardens were sacred (hidden) and inward and there was a 'house-garden' synergy. There were an entrance section and a front garden in other words 'hayat' or 'avlu' in the houses which were built in almost all climates (the Mediterranean, Central Anatolian) [17]. The courtyards were surrounded entirely by high walls and covered with plants and trees. The courtyards were regarded as a covered, sacred, calm, shadowy, green and special outdoor living area and they were adopted and applied extensively by especially Turks during the old eras [18].



Fig. 2 Complex of Sultan Bayezid II Courtyards [19]

Turks attached great importance to living outdoors as a reminiscent of their nomadic life. Therefore, they paid attention to primarily the general position, slope and view of the land during location selection for the smallest housing and palaces [20].

The typical characteristic of the conventional Edirne houses is their placement within large gardens owing to limited settlement area. Their character is similar to cottages rather than town houses. Even the smallest houses have quite large gardens. This settlement model makes up a horizontally dispersed texture for certain. Owing to this, the most pleasant times of human life pass within houses [5].

Considering the life style in the past era, it is seen how the families integrated with their living area. The former Turkish family locations consisted of generally two sections: the first section was made of a large courtyard and a covered part around it. The daily activities took place and guests were welcomed here and it was called 'selamlık'. The second section comprised of a part ensuring family secrecy (harem). The windows of these rooms faced the garden. The gardens were surrounded by high walls and the entrance was possible only through a large door and some of the house windows faced it. Today, there are only a few of these houses in the center of Edirne [21].

The great majority of the Edirne houses which are not examples of Turkish architecture, are houses made by Bulgarian, Greek, Armenian and Jewish masters, and non-Muslim groups lived in them. These houses, mostly dating from the 19th and 20th centuries, reflect the cultures and lifestyle of the period they were built [5].

Although the homes are sometimes users of different beliefs and ethnic backgrounds, the house is made up of solutions that respond to the lifestyles of families in all subcultures. In addition, the houses are dominated by a sense of flexible use, in which there is no room division between the male and female in the family, and the courtyard-sofa-rooms and service spaces have a layout that transitions from hierarchically open spaces to closed spaces [22].

The traditional Edirne houses are located in wide gardens and are characteristically close to the country house from the town house. The exterior of houses is away from ornament, the architectural style is very elegant and all the houses are made up of two parts. These two parts combine with a narrow passage, with a large courtyard in front of the first part and covered galleries around it. Also items located in the gardens such as courtyard, stone, fountains, pools, and Divanhane (a kind of kiosk in the garden) [5].

The courtyards are the garden parts of the house where the large doors are opened in harem and selamlık (the portion of a house reserved for men). Some houses also have small but spectacular pools in the middle of these courtyards. In some houses there are small but spectacular pools and arbours decorated with fragrant flowers and vines in the middle of the courtyard (Fig 3).



Fig. 3 Courtyards in Edirne houses [5].

And in the courtyard of the harem selamlık large door, there were two wickets on the way to pass each section. The harem parts of the houses are located in the garden area as they can not be seen from the street and these gardens are surrounded by very high walls. The large street gates are opened directly to a large square called "taşlık" on the lower level of the house.

The floors are laid in marble or Roman pavement style. Entered by the passenger cars are fitted with the Roman pavement and the width of the place is enough to leave, turning the inside of the car.

The use of green tissue in Kaleiçi houses is only seen in the gardens. The gardens are located at the back of the houses to protect the privacy of the houses. In Kaleiçi district, there are houses with side gardens except for the ones with backyard.

There are also many historical structures in the settlement as indicators of the social and cultural life of the city at the end of the 18th century and beginning of the 19th century. These structures are houses and mansions with gardens and summer, winter, open and closed parts. These structures are separated from the streets by walls, have one or two stories generally and consist of harem, 'selamlık' and courtyards and their gardens consist of fountains and various ornamented pools and there are water dispensers in their summer parts [5].

### 2.5 Gardens in Edirne after Republic

Since the 1980s, with the immigration has increased from small cities to the city center and establishment of the university in Edirne, the residences in Kaleiçi and the old city center have started to be inadequate. However, some of the people preferred to live in apartment buildings because the traditional houses in Kaleiçi were inadequate to meet the requirements of modern life and the maintenance costs were high.

The Akıner apartment building, which was built between 1980-90, can be given as an example of this transition. The majority of the apartments built in Kaleiçi are attached buildings, that do not have a garden on the front or back side.



Fig. 4 Attached and ungardened buildings in Kaleiçi today

At the end of the 80's, housing began in the new settlement outside the old city center. An example of this is the Tuna apartment in Kocasinan district. This is a small garden located behind the building, however, it is used as a parking lot, not for recreational activities.

Following the monolithic construction, the tendency of mass housing took its effect in Edirne with the 90's. The first mass housing of Edirne is Binevler. The Binevler housing cooperative is so unique that it develops in the direction of members' own desires and expectations and is shaped by direct participation of design members through criticism, which is the only example in Turkey.

It was inspired by the traditional Ottoman street texture in the layout plan prepared with basic principles in terms of urban design. It is aimed to surround the masses each other and create courtyards in their own inner regions. These courtyards are intended to evaluate the children's playground and recreation areas.

It seems that landscape designs and green spaces in the areas between the houses have a lot of place and importance. In addition, sitting and playing areas where children can spend time



with their parents are considered.



Fig. 5 Binevler housing co-operative and its gardens

Another example of mass housing is Avrupa Kent Housing Cooperative. Avrupa Kent Housing Cooperative is the first example of mass housing in Edirne, consisting of two-storey detached houses. The basic idea of the formation of the settlement is a return from a result of urbanization to a life integrated with nature in the urban areas. The pond located within adds natural beauty to the area besides allows the residents to enjoy their leisure time by walking in nature [11]. However, outdoor spaces which many recreational activities can be carried out and residents can spend time together has been created.

### 3. Result

In the society, the cultural phenomenon directly affects the garden art. Edirne has become a city that was remembered by military traces in history and preserved its reputation as the city of the sultans during the Ottoman period. As a result of this, garden art began to develop late and as became the capital, gardens of many buildings, especially palace gardens, came to the forefront.

During this period, whether Muslim or not, it is dominated by self-enclosed way of life in the community and all of the houses have gardens. The gardens became one of the most important parts of the house, as the people satisfied the needs of spend time in open spaces with the gardens.

With the change of culture and lifestyle during the Republican period, people started to live more outwardly. In this process, they separated from their garden houses for various reasons and found living in apartments more attractive.

Falling short of open and green areas in the city, the process of transition to mass housing with green areas has begun. So people have the opportunity to spend their leisure time in their own home garden again.

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## SPATIAL SPEECH SHOPPING & EXPERIENTIAL MARKETING

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Physical spaces have a spirit of language, style, culture, and expression, extending into behaviours.

The language of space and its style can create a positive on the observer which is proportional to its comfort, being a natural function Venues communicate certain values and they send 'messages'. The venue designer creates 'spaces' with a spatial identity which enable particular activities to be carried out.

A spatial identity framework considers the identity of shopping venues. It strives to develop a language and a message. It seeks to reach a positive harmony resulting in a sense of well-being for those inside, customers and sellers. The shopping notion, today touches every aspect of life, and has had a critical position in developing modern societies. The general speed of change in retail is itself speeding up.

Pure 'shopping' involves "buying goods". If only this approach is used sales and profits are not adequate. A new order is called for. To do better, the selling method must be indirect and appeal to the heart indirectly.

Visual perception begins with the brand / store / shopping center orientation and is reinforced by the appeal to other, non-visual, senses, resulting in sales

People who experience these senses, brands and malls feel an affinity for and identification with the mall and what it contains.

Called 'experiential' or 'lifestyle' marketing, this approach uses a variety of methods to address the emotional state of mind. A narrative is created which meshes with the brand perception.

***Keywords: Space, Spatial Speech, shopping, experiential marketing***

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Physical spaces have a spirit of language, style, culture, and expression, extending into behaviours. So much so that they develop an identity. However, some fail to do so. All venues express an idea or values but some do so clearly while others are incoherent. People are affected by this are sometimes aware of it, or sometimes not. The language and style of space is very important.

The language of space and its style can create a positive on the observer which is proportional to its comfort, being a natural function Venues communicate certain values and they send 'messages'. The venue designer creates 'spaces' with a spatial identity which enable particular activities to be carried out.

In the design process, it is enough to achieve the desired style, creating a pleasant environment with a specific color and form, using a specific style and perhaps theme. Achieving the correct balance of functionality together with form and ecological considerations is vital. So the element of space must also be taken into account together with its physical properties. Spatial aspects will help to manage behaviour and enhance the various activities within the complex.

A spatial identity framework considers the identity of shopping venues. It strives to develop a language and a message. It seeks to reach a positive harmony resulting in a sense of well-being for those inside, customers and sellers.

Today's fashion is for shopping centres. The shopping environment should be seen in historic terms. Initially in terms of exchange and barter of basic needs, then covering the needs of other activities beyond these. For thousands of years societies have been changed profoundly in this process. It has taken the concepts of civilization and has evolved into many further concepts. As far as shopping is concerned it appears to be an important building block of social behaviour. The exchange of goods, starting with bartering precious metals and other commodities which gave way in turn to exchange in modern currencies, today touches every aspect of life, and has had a critical position in developing modern societies.

The first stage of this exchange between individuals or small groups, emerged historically as the adoption of established market places in specified times and places. The felt need to take their goods to those who might want them led to a search for the best facilities in which to market them. Such market places have survived until the present day. Becoming a permanent market place makes sense, developing the concept of market. Located in the agora the marketplace generated a crucial social development in history. The agora structured public discourse to shed light on the meaning of the city. The agora has existed as a distinct arena with columns and a veiled manner. The agora and its physical placement, comprising independent shops within an overall shopping area. A combination of similarities in terms of the goods they sell and the trading times of the shops in the bazaar and the implicit relationship with its environment emerged as the arasta (Ottoman bazaar). Redefining the concept evolves into a shopping sales area. Fabrics, precious stones, jewelry were bought and sold within the central concept of the bazaar, especially in the east where it is called 'bedesten' (Covered Turkish bazaar). Usually it featured vaulted and domed roofs covering many shops (e.g. in the Grand Bazaar). The first large-scale stores were in Paris (Bon Marche) and then department stores. The first examples of shopping malls in the United States and these have spread all over the world. Shopping centres have enabled a new experience of shopping. Created by the logic of catering for everything from food to cars in these centers, there is almost every product from building materials to furniture; hairdressers and the gym, the aquarium and the ski slopes. Small buffets and upscale restaurants, theaters and auditoriums of the theater and a wide variety of services are available including playgrounds to keep the children occupied.

Shopping activity is seen as a purely commercial activity. However there is a parallel need for the stimulation of the appetites of consumers through advertising and promotional marketing. Shopping centres are an important part of this. They implicitly claim to answer a felt need for customers of the centre to access goods within a particular kind of environment. The consumer emotionally responds to this stimulus. They wish to be part of this total shopping experience.

The general speed of change in retail is itself speeding up. What was current ten years ago is no longer acceptable. Fashion is the driver here. Fashion drives the felt need for new and different experiences. The aim from a commercial point of view is to make the consumer feel cosseted and somehow different and privileged. This calls for a continually renewed experience in the mall and in the goods and services on sale there. It is this that drives forward the push to develop new malls and new mall experiences. Everything is changing in line with broad retailing strategies – nothing is left to chance. Excess supply in the market place is distributed skillfully and purposefully. The forces of direct competition come together to drive the urge to purchase.

What are these retailing strategies?

In this new scheme of things, the usual vending / marketing strategies no longer serve. Creative elements that stand out in the struggle to create a difference are in conflict with each other. Rational methods of marketing are no longer effective. Now the physical location is the message. Technical and emotional factors as well as architecture are at work here.

Pure 'shopping' involves "buying goods". If only this approach is used sales and profits are not adequate. A new order is called for. To do better, the selling method must be indirect and appeal to the heart indirectly. This is where the architecture and internal design of the mall enter into consideration. The aim is now to differentiate between goods and services as a complete sensory experience. Creating brand loyalty by addressing feelings is part of this process. and make sales. Human emotions, feelings, and behaviour are the locus of the action here.

Customer considerations affect the spatial and architectural design as well as the basic elements, of mall design . They call for an inviting and safe shopping environment.. Thus, people who reach the sales area, when faced with other surrounding interests, should encounter a sense of abundance leading to a readiness to pay Money. They experience empathy and a willingness to buy products. Such factors include delicious smells or other indirect sensory cues to the goods on offer –a basketball field in sports shops, treadmill, etc., Cafe / restaurant / grocery can be used to sell food products. All of these attract attention by appealing to the senses and to create an emotional bond between the brand and the purchaser.

The common goal of all these activities is increased sales to the brand's target audience. Of course, identifying the target audience and the degree of the product's appeal to this audience is difficult – a major task in itself. Media advertising focused on the specific sections of society in the target group prepare them to part them from their money. There are dozens of determining factors. An accurate target audience definition means determining which instruments will be employed in achieving the goals. Slogans will appeal to the target audience, logos and visual studies are crucial for the finessing and management of audience perception. Designers contribute to the development of sensory and emotional experiences when designing spaces for suitable brands. They create a sense of curiosity about the goods or services displayed inside.

Visual perception begins with the brand / store / shopping center orientation and is reinforced by the appeal to other, non-visual, senses, resulting in sales. Brand identity feeds the visual perceptions of approaching customers by emphasizing the spatial integrity of this perception. There can be an olfactory component which combines with the feeling of the marketing place leading to a sense of being identified with the brand. When the customer later and elsewhere encounters this smell they will think of this brand. Thus, certain brands / places are linked to this smell and so impact the target audience. Similarly to certain brands / places an auditory effect such as sounds / music / jingles serves as a reminder of the brand wherever it is encountered. The tactile appeal - the sense of touch - is also used in various ways.

People who experience these senses, brands and malls feel an affinity for and identification with the mall and what it contains. When this happens they are now lifelong customers. Sometimes the interests of people who have a fleeting contact, as at airport shopping malls, are addressed. so. For example, restaurants can be used as a space in which is preserve dthe elemental senses of earlier times and ages. Customers are dressed as rulers reflecting that era, medieval clothes are worn and a total sensory experience is created which customers find appealing. Similarly, shopping malls can recreate the specific time period for older customers. Time travel into the future can be another theme. All these make a difference in the shopping experience which serve to distinguish competitors from each other so as to influence sales.

Called 'experiential' or 'lifestyle' marketing, this approach uses a variety of methods to

address the emotional state of mind. A narrative is created which meshes with the brand perception. This experiential marketing is a new development in marketing in order to achieve greater sales.. Mall design is an important part of this.

Shopping venues vary according to the specific store or mall to create lasting memories and emotions. These create ILMA in consumers. Suitable areas are set aside for these experiences to strengthen the brand image. For example, sports products might call for litter baskets for balls, volleyball nets, marching bands for shoes, meeting famous athletes on certain days and special meetings. All are valid possibilities for furthering the branding experience.

The first point of interaction is the shopping mall facade and its entrance. An effort is made to intrigue the potential client and to invite them inside with a reception area which integrates the outside with the inside experience, and thus an internal-external interface is ensured. Customers are invited into the internal space to view the products sold. In this arena of experience there is a spatial integrity in live emotions touching and viewing the products up close. The ambience creates an experience which the customer generalizes to the entire design space, imbuing it with the particular experiences of the initial interface area. The sensory experience of this space becomes an integral aspect of the brand. It may also strengthen brand perception with the help of music. Sometimes the point of sale is revealed to the customer as a workshop, where the products will be sold. This experience is internalized by the consumers who they are receiving something special created specially for them. Sometimes non-food sales integrate the particular tastes of a customer and creates thus a bond. This emotional bond creates continuous customer loyalty – the aim of all marketing. Another way of bonding customers is to distribute symbols. This is a cognitive experience method. Designated shopping spaces in appropriate fields and the decor used are part of the total customer experience. Perceived ownership of the retail space gives rise to customers feeling connected to the brands on display.

Coming in from all directions and changing perceived consumer needs to make people feel special employs a broad range of experiential tactics and strategies. This marketing strategy must be in line with the corporate identity of such shopping venues. The mall designers draw upon sophisticated customer profiling data. This enables the mall designers to create a 'dream' – a narrative that will extend beyond the physical limits of the mall and enrobe the brands on sale within with a consistent quality. Customers so affected by this experience a given place now internalize a narrative about it based on memories and experiences and bonding them to those brands in the future. Ensuring the integrity and homogenization of this narrative plays an important role in keeping it alive. Real life experiences in the customer's shopping space create a dynamic interaction supported by subconscious elements. This profound interaction and dynamism helps internalize the parallel brand advertising.

Shopping venues designed to promote experiential marketing, create a positive impact on the customer articulate a language and style that appeal to his needs. Thematic identification of shopping malls helps to develop brand identification and brand awareness. The total experience of that mall promotes a holistic experience that draws on many elements including basic design.

Following design principles creates a total participation in corporate identity. The correct use of design and spatial layout internally extends to the exterior of the complex. The exterior creates a sense of curiosity verging on wonder at what is showcased therein. The outside design must support the overall narrative creating a consistent total experience. The external design must set up a series of visual clues leading to certain expectations as to what is enclosed therein. The internal design spaces must pick up these cues and must fully meet and expand upon them.

Successful design correctly analyses and identifies the target audience. It uses a multiplicity of means drawn from myriad sources to get its narrative across to them. Lifestyle marketing

is used extensively to promote emotional bonding with the core brand identities. Celebrities and fashion models are used as a method of influencing the consumer. By extension the shopper is invited to feel as beautiful as a well-known model, to 'borrow' the physique and implied other qualities of the well-known sports personality. People are – by implication – invited to partake of their experiences – to be successful, artistic, athletic, desirable. Adroit marketing sets up an 'image' and then grants access to and use of that image. All the features of the mall must focus on and succeed in attaining that goal. The successful employment of all these factors in creating a total experience in line with the brand owners' and mall owners' intentions results in brand differentiation and brand bonding. The physical intimacy of the closed mall enables this transaction of values and feelings to take place.

Consistency in achieving the goal of brand identification and bonding is all-important. In this way the consumer of products is invited to partake of a long-term sharing of values with the core brands. This results in the potential of 'brand extension'. Here, products within a given corporate envelope come to be viewed in the same light as the original products though manifestly new products. Consumers now 'trust' that company to provide / create further innovations in the same mold subject to the same overall expectations as the original products.

The language of space arises from the intimate sense of 'place', helping buyer to meet seller in an appropriate manner. This means that technical and functional criteria and expectations must be met. It is no good having a wonderful 'narrative' if the reality fails to live up to the dream. Quality control must be undertaken to guard against brand damage because of faulty goods. Everything must agree with the central narrative, even the building design. Everything must be the outcome of detailed planning processes which incorporate extensive data analysis. All contributes to the 'meta-story' of the brand owners.

Accordingly, building design and function must further this narrative. The importance of psychological factors, product branding and the psychology of intimate selling spaces – the 'points-of-sale' – develop and enhance the total message. Together with this, the psychology of the architecture and the internal layout and decoration have a large role to play. Enclosed shopping places are the 'arena', along with the media, to carry out the demands of the companies selling goods and services inside. A language and logic of spatial awareness incorporated into design and architecture is the key to the modern shopping mall. It is uniquely the place where the intentions and designs of the corporations which ultimately call the shots, are realized. They are the physical places where intention is translated into reality and advertising into sales and profits. All means available are employed. The narrative gives rise to physical form here. Product placement and brand differentiation are articulated here as nowhere else.

The inbuilt synergies of the mall and the logic of its physical layout and intimacy enable a transformative magic to take place. All products and services contained inside are sprinkled with the same stardust. From the physical security of the building and the shelter from the weather to the closeness of sales areas for completely different products, everything that takes place therein is calculated to produce one total effect. All contributes to the central narrative which drives sales and profits. It speaks the language of commerce and the market place, the 'agora', the 'pazar', but now in new places and in new buildings. New building design must take its stylistic cues from this.



## APPROACHES TO EQUIPMENT OF SPACE: ITS EFFECTS ON PERCEPTION OF SPACE AND PRINCIPLES

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### Abstract

Spaces are defined as volumes that ease and facilitate people's activities and their interaction with other people, beings, and objects. While determining the quality of life, spaces define health, safety, accessibility, comfort and well-being. Spaces exist with their built-in equipment, which could be any object specially designed or chosen for them. Equipment includes objects that are necessary or even compulsory for healthy, safe, convenient and efficient uses of spaces.

Arising out of the need for individual, social or cultural accommodation or being together, and appearing as the most concrete form of daily life, space is a key phenomenon of life. If we follow our thoughts further, space cannot be isolated in a static condition. Space, which is productive on its own in Lefebvre's (2014) studies, is inseparable from the concrete in its physical form. It is comprehensive as it is universal, and it boasts abstract and philosophical dimensions thanks to its conceptual quality. Considering its historical development, urbanity and new perception of space, which transformed with the impact of modernity and capitalism, appear as a tool with which the social relations of production in daily life need to be reconsidered again in a new dimension of modernity and the perception of space changes again. Further, the originality of the paper is supported with samples from the studies of students in "Space Equipment and Furniture Design" course available at FSMW University, Faculty of Architecture and Design, Interior Design Department.

*Key Words: Approaches to equipment of space, the perception of space.*

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### 1. Introduction

Spaces, the dynamic areas where social and cultural interactions or individual behaviors occur in continuous reiterations, cannot be separated from equipment. Yet it can be said that there are dynamic spaces where groups of people throng together, and interactions among people nevertheless continue without equipment. However, considering longer periods of time, and people's physical, psychological, and social needs, spaces cannot do without equipment: even the plainest space requires equipment that could fulfil such basic needs as resting for a few minutes, looking around, and drinking a sip of water, etc. Laden with a plethora of meanings both concrete and abstract, the concept of space will manifest various characterizations in this paper. In this respect, firstly the concept of space and subsequently the concept of equipment will be considered. Further, the concepts of space and equipment will be considered in a historical process for better comprehension.

#### 1.1 Objective and Method

The objective of this paper is to provide a multidimensional definition of space; and from the resulting definitions, to attain, on an application basis, principles that will provide the most

accurate, the best, and the most convenient volumes as lived spaces equipped with the most proper objects. The methods used for this purpose include....

The concept of space as used in this paper is not one that lost its ties with practice and turned into a symbol of communal living. Nor is it space conceptualized on a geographical, economic, chronic, textual, ideological or political basis. On the contrary, the concept of space in this paper is a simple and plain perception of space. A direct perception of space which can be considered in interior design training certainly needs physical, psychological, sociological and philosophical (ppsp) references. However, ppsp references should be considered as required and should be considered to obtain different viewpoints. User-based functionalities already require using physiological and psychological qualities.

The methods of the paper primarily include a literature review. It is not very possible to say that there is widespread research on equipment of space. This is caused by the variety of spaces and the existence of exceedingly numerous and various objects that find use in spaces either fixed or portably. Therefore, the literature review will consider the conceptual and applied aspects of the issue together. In this respect, to better understand the impact of the knowledge about equipment on the perception of space, it is necessary that space is more comprehensible and the perception of space is better defined. Besides, literature review, the title of the paper will be supported by examples from a small group compiled from student work as practiced in ‘Equipment of Space and Furniture Design’ course.

## **2. Concepts of Space and Equipment**

Space is a concept with an extensive definition. Perhaps the most general definition is that it is a medium of life which people perceive with their senses, interact with when they need, criticize with their remarks in positive and negative situations, and change in line with their means. Thinking in a larger scale, the whole universe and the void is called space. The space in the scope of this paper is considered according to the definitions in the field of interior design.

### **2.1 The Basic definitions of space and equipment**

Space is an individual or social means of settlement As with every structural analysis, spaces should be designed according to their functional qualities. Functionality needs to be considered multi-dimensionally. It is possible to talk about intellectual-emotional, aesthetical, social functionalities.

The concept of space has a unique definition in itself in the context of architecture and interior design. Space is the fundamental condition that generates from itself architectural, interior design, landscape and urban products. In its philosophical dimension, space is not considered as “space in itself”, “things in the space” or “a thing in its own space” but is inspected by putting it into the social context and production processes [1]. As the main researcher in this issue, LeFebvre states three inseparable constituents, namely “lived space”, “conceived space”, and “designed space” for the production of space and time in his “Production of Space” [2].

“Lefebvre sees space as an economic and social output... Lefebvre’s conceptualization of social space could be understood as lived and materialized space” [3], [4].

These concepts of space as determined by LeFebvre should be considered independently of personal thoughts and in terms of their application because it is impossible to design physical spaces to live without taking into consideration users’ perception and needs. Again it

is impossible to design without any reference to social characteristics of design when applications in question are in the context of family, as the smallest social unit, and in urban space design. Therefore philosophical considerations support design during application.

When it comes to the concept of equipment, it is the total definition of objects, fittings, and things in their entirety which enable physical, psychological and even psycho-physical usability of spaces in individual or social settings, whether built-in or mobile.

### **2.1.1 Perception of Space**

Perception is a phenomenon that is the product of a process. In Gestalt Psychology, laws of perception, form-background, proximity, closure, similarity, continuity, simplicity as well as all-encompassing law of Pragnanz (the tendency for salience, conciseness, and orderliness) should be considered with utmost importance in all branches of art, applied arts and design. Diverging perceptions of varying occupational identities such as designers, observers, users, etc. will certainly attach differing experiences on the spaces. With their content and surrounding conditions, spaces could create several different perceptions. The relations of spaces with their users result in interactions, which in turn translates into continued new experiences.

Perception of space may give the impression that it is primarily related to the sense of vision. However, other sensory organs are important in varying degrees. It is among the tasks of the space designer to take measures so that users “gain short or long-term experience in and around the space”, to correctly analyze people’s relationship with space depending on notions of movement and time” and to take measures so that a correct perception is developed against physical and temporal losses caused by “precise or imprecise limits that prevent action”.

Total perception of space, “the total effect of the perception on which memories and anticipations are effective in tactile, kinesthetic, haptic, visual and auditory ways”, is a very important topic of space design [5] .

On the other hand, when types of perception in the space are considered, taking into consideration all sensations, and making use of notions from Aslan 2. Aslan, Atik [6], the following interior design perceptions are obtained:

- “dimensional perception” to be used to correctly determine the shape of the space and ensure a balance obtained by using color perceptions and making use of the visual illusions of the eye, using the excessively tall, disproportionate, trapezoidal characteristics of the space,
- “visual perception” that comes about with the effect left on the eye, of tissues, colors, daylight-darkness phenomena, material, as well as interior design practices including principles of form such as “proximity, continuity, similarity, closeness, and closure”,
- Colorless spaces give dull, inanimate impressions on people just as the effects of very old black and white films. The “temperature perception” is the effect of warmth provided by the spaces according to the color: while red and yellow give warm effect, blue provides coldness, and green gives both cold and warm effects depending on the concentration of blue and yellow in it.
- “auditory perception” is another type of spatial perception created in interior space design making use of sound characteristics of materials, such as sound absorption, reflection prevention, etc.

It is necessary to establish perceptive relationship between the user and the space, determine commonalities. Such common points include the position, viewpoint and movement of the perceiver in the space as well as time, physical attributes of the space and forms of circulation. The “readable” character of these common points by the perceiver is “not limited with the

sense of sight but it also appeals to other senses when they are given sharply and intensely”, which could be called “visibility” [7].

A more comprehensive viewpoint on perception of space is observable in Avar’s [8] study, in the in-depth inspections and interpretations of Lefebvre’s triple perception of space:

“Space is neither an abstraction nor a concrete, physical thing. In all its dimensions and forms it is both a concept and a reality, namely it is social. Therefore it is a compendium of relationships and forms. Again, it is not inanimate and fixed, but alive, variable, and liquid. It continuously flows to other spaces and turns back merging or conflicting with them.” This information quoted from Lefebvre shows that “space” signifies and means something, it even talks.

Lefebvre’s thought the “science of space” is philosophical, practical and political as well as strategic. Here the relationship between space and equipment is defined by Lefebvre himself. It must be said “that any space implies, contains or dissimulates social relationships. Despite the fact that a space is not a thing but rather a set of relations between things (objects and products). Might we say that it is or tends to become the absolute Thing?” Undoubtedly so, “because everything which achieves autonomy through process of exchange (i.e. attains the status of commodity) tends to become absolute” [9].

Again it is not wrong to say here that a perception of space is formed accordingly by the things, objects, and products, namely by equipment, as claimed by Lefebvre, which support social (or individual) relations contained or hidden (or revealed) by the space, independently of its philosophical dimension.

In order for the perception of space to occur, it is essential that the perceiving subject should have a movement effect in the space with their existence, vitality, and actions. The effect of movement could come about solely with the movement of the eyes, viewpoint, and other sensory organs and even with the movement of thought. Accordingly, the notions of subject and object are significant in spatial perception. The subject experiences different perceptions in spaces with which they are familiar and unfamiliar. Therefore, they enter and move into the space accordingly. Different distances, objects, and equipment in the spaces mean different space perceptions. Perception in urban spaces is characterized by constant change.

## **2.2 Spaces and Equipment in Prehistoric Times**

When human needs are considered in a historical process, the subject matter of equipment include spaces and their objects including simple and plain cutlery or pottery, caves as living spaces, houses from sticks and twigs, adobe houses, etc. which arised from the needs of spaces and are various and unlimited in type and number in our day.

Spaces and equipment existed even in the most ancient periods of history. Following are some specimen from the historical process [10]:

Doors open to the courtyard in Sumerian houses. The stairs in the courtyard ascend to the gallery in front of the windows on the first floor. In addition, the circulation area before the room windows on the first floor is equipped with guard rails. The papyrus columns of Egyptian Pyramid of Zoser and lotus decorations on the columns of the Temple of Amun are all equipment. Besides, the first specimens of designed furniture including fantastic and elegant throne, bed and stools, etc. are known to have been unearthed from Tutankhamen’s (1332-1323 BCE) tomb.

Although Çatalhöyük house in Anatolia was a primitive space for life, it had a bed on a corner, a couch, a platform, a straw mat and a kilim in its large room: It was a space with simple, plain equipment. Aegean Knossos palace in Crete was an example of a fully equipped space. The Pensa House in Pompeii was a comfortable space with various functions. These buildings

embody the prehistoric qualities of space and equipment.

### **2.3 Spaces and Equipment in Historical Periods**

Furniture as equipment became apparent and was distinguishable in spaces in the Byzantine period. The highly ornamented walls, ceilings and floorings as well as furniture marked by its portability were all developed by taking into consideration the standard expectations of the user groups in the spaces of Byzantine era dated 476-1352 BCE.

Equipment of space in European Renaissance (1455-1588) was of a more attention-grabbing, exaggerated and richer quality with the deep engravings on wooden relief panels on ceilings and walls, and even on massive frame surfaces of storage furniture. The renowned foldable Renaissance armchair is a design of this period. While the Baroque and Rococo spaces, equipment, and furniture of the 17<sup>th</sup> century shared the same splendor, the Gothic, and New Classical periods of the 18<sup>th</sup> century toned down this exaggerated equipment and the qualities became somewhat plainer.

Following Industrial Revolution, there came periods such as Arts and Crafts (1880-1920), Art Nouveau (1880-1915), Art Deco (1919-1940), Modernism (1925-1945), Mid-Modern Century (1945-1970), Post Modern and Contemporary (1970-today) periods. These periods eradicated heavy ornamentation and were dominated by plainness. People's lives, expectations, wishes and emotions were given due respect during design [11].

### **2.4 Spaces and Equipment in Ottoman Culture**

Spaces and equipment in Ottoman Culture could be mostly exemplified by kiosks, pavilions, waterside residences, and palaces. Safranbolu Houses boast built-in equipment such as couches, closets, stoves, spaces with niches at both sides with engraved or Kundekari (woodworked) or Edirnekari (gilded) or flowery patterns on plaster. The equipment of palaces and kiosks were upgraded with decorations. Typical examples of these include [12]

In the text of the Melling album, D'Ohsson says the following about Bebek Pavilion, which they find pleasant despite its complicated design: "its structural lightness, sizes of its rooms and the halls between them, the ease with which to go through them (here he means the anterooms which connect rooms) add usability to the structure. The conception of a light structure and transitory expression precedes these qualities. This is caused by the haste of the people who dread everything and do not expect much from the future but want to taste the boons of life as soon as possible" [13].

The spatial perception as defined by D'Ohsson for Bebek Pavilion include descriptions of rich and exquisite spaces constructed for the lifestyle of an Ottoman family. The perception of space there reflects the wish by dwelling people who do not expect much from the future but would like to live their daily life hastily and to the full.

### **2.5 The Change and Transformation in Social Structure Following Industrial Revolution**

Industrial Revolution and previous political structures caused a transformation based on production. As it provided power to the manufactures who "transformed materials into goods" the Western culture was faced with a dramatic transformation. The society focused on industrialization, and creative entrepreneurs got rich. The proliferation of household appliances caused middle class workers to seek a better life style for themselves and their families. The newly-emerged middle class consumer mostly obtained imitated handmade goods made in China without compromising quality. These mass-produced goods have lower cost, appealing to blue-collar workers, whose budgets are limited" [14]. Mass-production in Industrial Revolution caused things to become cheaper, which made middle class consumers

fill their living spaces with equipment, resulting in a dramatic change in spatial perception.

## **2.6 Types of Spaces and Equipment**

Spaces, so numerous and various along with their equipment, are defined as open or closed, private, public, semi-public, civil, etc. Many different kinds of spaces accommodate human lives according to conditions in which they are used. These include residences, kindergartens, day care centers, schools, offices, different education, health, sport-entertainment-relaxation-socialization spaces, production sites of goods and services and many more.

In all space types it is essential to define the space to be designed in prior. Ching's [15] studies demonstrate that defining a space is considered on its own and that there exist many factors:

- Floor plane,
- Raised floor plane,
- Pitted floor plane,
- Overhead plane;

While raised and pitted planes form light edges, overhead plane forms a volume. Using floor plane in an interior space is important in marking a functional area and differentiating it from other circulation areas. It is essential to provide visual continuity in raised floor plane, while it is necessary to ensure uninterrupted space in pitted floor plane. The following definitive concepts of space help to explain spatial perception and are useful in accurate designing of space.

Space equipments are numerous and various. Instead of counting all, only those specialized for their functions will be mentioned here:

- Specialized equipment for walls, ceilings, columns, and floors,
- Specialized equipment for openings and recesses such as doors, windows, niches, etc.
- Dividing sections, and intermediate sections according to their function, transforming, making space-in-space, multiple, hybrid etc.
  - All kinds of installations and equipment for air-conditioning, acclimatization, clean and waste water systems, general and special lighting, acoustic considerations etc.;
  - All kinds of things and objects that facilitates and serves for leading a healthy, peaceful, happy and prosperous life comprise the concept of equipment.

When spaces lack equipment they cannot find use, therefore spaces and equipment are an integrated whole.

## **2.7 Different Factors for Areas of Use in Different Spaces and Equipment**

This section will consider the contribution from the following to the principles of equipment: usage relationships of certain space and equipment, qualities related to spatial needs, user satisfaction, unusual spatial qualities, technological hardware, cultural reflections of film and TV series spaces, health spaces, music listening rooms, etc.

- a. Principles that may stem from child and play relationship in children's playgrounds: Firstly, knowledge of edifying types of games is essential, then it is necessary to determine qualities of these games regarding equipment. In symbolic games: it is essential to provide equipment for kids as they imitate people, objects, and animals in their immediate environment. In structural-ruled games: mind-developing objects are important [16].
- b. Virtual Office Environments are essentially an unusual spaces. Nevertheless, these environments are not devoid of space. Yet, houses, libraries and special locations at offices are spaces where co-workers who work at distant areas from each other hold meetings and talk privately. Therefore they mainly use communication technologies and

meetings are held via screens. Seating, and working surfaces etc. are necessary for workers [17]. In addition, using all kinds of apparatuses of communication technologies require more and a variety of equipment.

- c. A study with the physically disabled in the context of accessibility, usability and liveability claimed that spaces had been designed specially for the disabled until the 1990's, following which date accessibility for all was the norm and it became important to design spaces that enabled both able-bodied and disabled people to use the same space. In this respect, "Universal Design" approach supports a living-together of all people, of different ages and from different statuses [18]. All equipment in these spaces should be suitable for this use.
- d. Spaces in films and TV series are considered according to a semiological evaluation. Connection of elements in the space to each other, their perception in a body of signs needs a semiological encoding. Therefore making sense of space will require finding the codes belonging to the space. A correct evaluation of these codes makes it essential to know the social and cultural codes of the society [19].
- e. A study done in a large number of hospitals concludes that detailed information about equipment for spaces of health is obtained by investigating "the sizes of available rooms, lack of auditory privacy areas, inappropriate material use, inability to use shower area easily, inaccessibility for the disabled, window sizes blocking daylight, colors of spaces, whether interior design is relaxing, whether material selection is aesthetical, whether aesthetic and artistic elements are sufficiently used" [20].
- f. Music, and other critical listening rooms have quite different qualities in terms of equipment. These could be very different spaces, including homes. Special acoustic equipment of these spaces require "accurate detection of dominant principle of absorbency, size and rate of the space, improvement of bass frequency response, calculation of ITD (interaural time difference) with an accurate interval, selection of an unproblematic ratio by correct calculation of resonance frequencies, etc." [21].

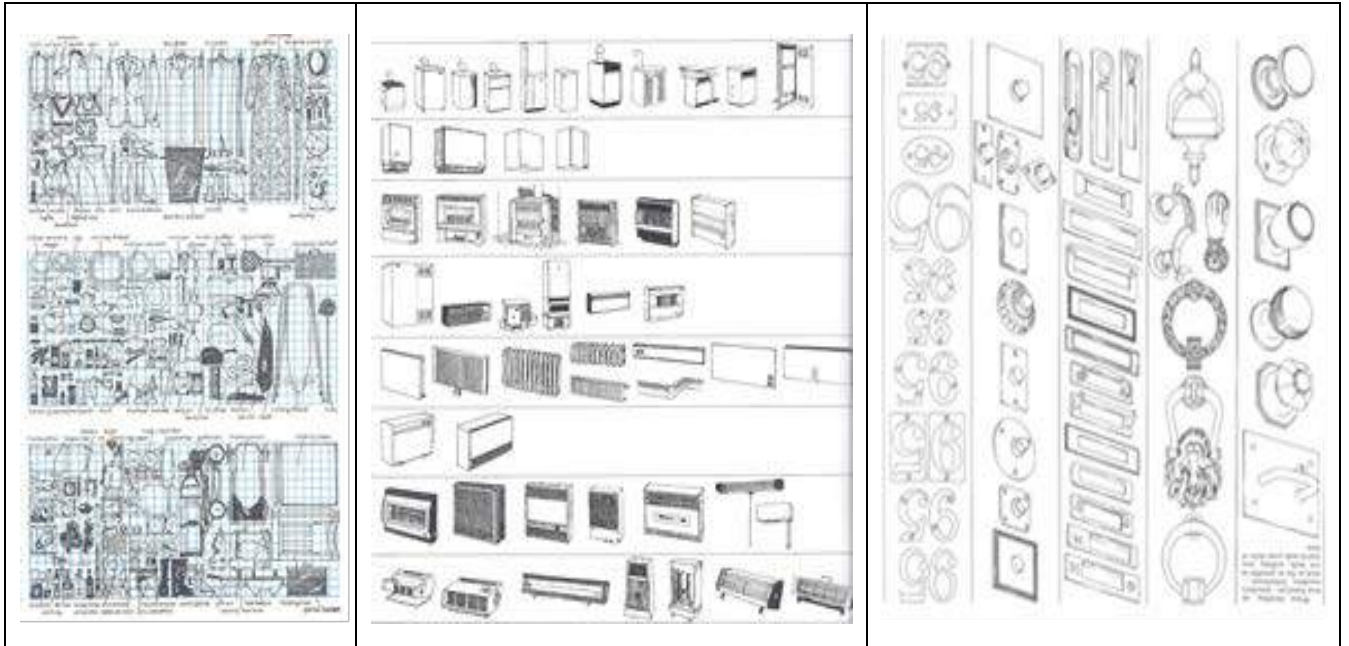
## **2.8 Perception of Space, Space Arrangement and Principles of Equipment**

It is not possible to talk about the arrangements for the design of a space without knowledge of the concepts of lived space and perceived space as well as experience from users.

It is known that when it comes to arranging a space one has to take users and other important factors into consideration, it pays to make use of the general principles of art and applied arts. Dodsworth and Anderson [22] demonstrated these to be 'axis, balance (symmetrical or asymmetrical), datum, harmony, unity/variety, emphasis/dominance, and rhythm/repetition'; the first step should be "zoning" in a space where there is more than one activity. Zoning is not done according to sizes of certain furniture, but carried out in more general terms. Different scenarios should be tried, strengths and weaknesses should be listed." Here the authors underline the necessity to plan furniture and equipment according to design principles and ergonomics and suggest installation according to zoning. The significance of a balanced plan of functional and aesthetic needs is emphasized during the installation of equipment. Equipment could be classified generally according to their use:

- Equipment of mobile units for bodily needs of people,
- Equipment of space for physiologic needs such as seating, sleeping, eating-drinking, etc.
- Equipment of emotional, aesthetic and psychological objects in the space,
- Equipment for socialization needs,
- Equipment of storage objects,
- Equipment of fitness and sport objects,

- Equipment of entertainment and relaxation objects,
- Equipment of complimentary cultural apparatuses for studying, obtaining information, technologic tools-appliances.



Picture 1: General appearance of equipment of space: Clothes, clothing accessories, kitchen utensils, etc.

Picture 2: Storage, ventilation, heating, acclimatization, etc.

Picture 3: Door, main entrance, etc. furniture parts [23].

#### Principles according to perception of space:

- Zoning to facilitate the functions of the space and its equipment and taking safety measures,
- Providing mutual interaction and continuity among functional zones of the space,
- Providing ease of circulation among different zones and with exterior space,
- Attending readability and visibility of clear and fuzzy boundaries of spatial perception,
- Providing dimensional, visual, temperature, auditory perceptions for spatial perception in the context of readability and visibility of spaces.

According to Dommelen (1971), the visual effects of all components that complement the space come about by assigning a meaning to each piece of equipment such as “furniture, accessory, flooring, etc.” with the interaction of stimulating design attributes such as point, line, form, color, and tissue [24].

Human users have the priority while choosing the most suitable equipment for the space; the finishing materials should be well planned. Such a problem and concern was nonexistent in prehistoric and historical periods. Materials found in the immediate environment were the materials used in the space and equipment including stone, marble, and wood. After certain development, these were followed by adobe, brick, glass, metal, and textiles. However, so many developments occurred in materials in the modern life that there emerged many different materials catering for every need. Making a choice from among these requires considerable knowledge.



In equipping the space, besides the material, it is compulsory to apply criteria such as form, color, tissue, size, etc. for a conscious design of all the accessories, their adaptation to the space, ease of use and fitting the decoration agreeably. Interior space designers should request and obtain lots of samples during selection of equipment for their Project. This would facilitate decision-making.

### 3. Works Done in Space Equipment and Furniture Design Course

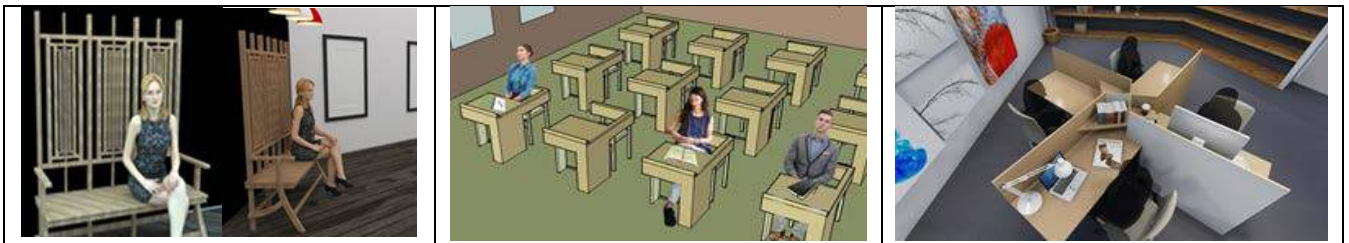
A study on the concept of equipment in terms of furniture has been carried out in the course of Space Equipment and Furniture Design at Fatih Sultan Mehmet Vakıf University- Faculty of Architecture and Design- Department of Interior Architecture- The examples presented below also illustrate the equipment principles:



Picture group 1: Resting armchair in housing space: Furkan Arslan; With structural property, it echoes a resting environment. The principle of easy production at a lower cost is upheld.

Picture group 2: Moving armchair in a special resting space: Dilay Çakır; An armchair that can move without toppling over for lively and active youth. Suitability for moving youth.

Picture 3: Indoor slide for children: Büsra Kadioğlu; Slide is an outdoor game favourite with children. This time slide e-game is taken indoors. User-centered intense request.



Picture group 4: For special sections such as exhibition halls, etc.: Atakan Şengüler; A different perception of electric chair with the intellectual dimension on the foreground: An interpretation of Andy Warhol thought and design. Abstract conceptual, psychological design principles.

Picture 5: Educational space for secondary or higher schooling: Nesibe Yılmaz; A classroom unit taking into consideration individual behaviors of secondary or higher education for youngs. Multiple use priority.

Picture 6: Working surfaces in open space working medium: Merve Yamalı; A modular designed table is mounted at one corner to form four different working areas. Modularity,



Picture group 7: Parks, gardens and outdoor area equipment: Beyza Gökay; A bench which can be with modular parts which can be expanded and shrunk suitable for the environment and climate

Picture group 8: Working table and chair as office equipment: Nurşah Canbazoğlu; Compatibility of hardware units

Applied studies illustrating examples of space equipment concept have been furniture-based and more or less user-centered. They reveal the following points: furniture-based physiological structures of users, individual or multiple behaviours of use and expectations, suitability for use, etc. as well as psychological equipment design principles with abstract concepts and modularity principles also relevant to equipments.

### **Results and Discussion**

The information we gleaned from a little study on human prehistory gave us the spaces and equipment developed by the people depending on their lifestyle, beliefs and the qualities of materials which they found in their immediate environment such as stone and wood, or from materials which they could manufacture such as textiles.

The effect of literature on the perception of space:

- Wherever there is human life and activity, spaces and equipment for accommodation, resting, work, obtaining information, entertainment, staying healthy, etc. is available.
- The plenitude and variety of spaces and equipment, and their history provides information:
  - a. In Sumerian period, the guard rails and staircases in the courtyard equipment,
  - b. In Anatolia, the bed, couch, platform, straw mat, and kilim in the corner of the large room at Çatalhöyük house.
  - c. In Byzantine period, ceiling and wall decorations besides portable furniture,
  - d. In European Renaissance, wooden relief wall panels, cabinets with frames decorated with deep engraving technique, foldable chair with armrest,
  - e. Art movements after Industrial Revolution, the period when heavy ornamentation was abandoned plainness was emphasized, people's lives, expectations, wishes, and emotions gained importance,
  - f. In Ottoman period spaces had decorated wooden material in ceilings and walls, in line with storage furniture and seating units in houses, pavilions and palaces of both the public and people of higher statuses; the belief in the afterlife which led to a hasty wish to taste the boons of daily life is reflected in spaces and equipment.
- The wish to use quality goods by the newly fledged middle class after Industrial Revolution led to a demand for products made in China; the prevalence of mass-produced household appliances is important in planning spaces.
- With the scientific study of the space, spaces and equipment is affected by qualities such as horizontal plane, vertical plane, overhead plane, vertical plane openings, interaction between different planes and the whole structure, geometry of form, etc.
- The space cannot be used without use-specific fixed or portable objects with physiological, psychological, social content, all kinds of hidden or visible acclimatization, ventilation, all kinds of installations of and equipment for clean and waste water, lighting, sound, smell, taste etc.
- It is the indispensable principle of design to select spaces and equipment depending on perception of the space determined by its animate and inanimate, variable, fluid qualities taking into consideration the tactile, kinesthetic, haptic, visual, and auditory memories and expectations. Depending on these, according to a study done in hospitals, it is an accumulation of knowledge and know-how for interior design work to hear about criticisms, expectations, wishes of the patients and their relatives besides the notion of universal design and data from current technologies.
- LeFebvre's triple dialectics of perceivability, conceivability, and liveability of space;

the practical, political, strategical and philosophical dimensions of space science; interferability and absoluteness of space make up the philosophical dimension of space and equipment.

With the inclusion of principles from fine arts and applied arts, notions such as axis, balance, symmetry, asymmetry, datum, harmony, unity/variety, emphasis/dominance, and rhythm/repetition along with zoning principles in spaces where there is more than one activity; in addition other artistic principles such as material, form, color, texture, size, ratio, modularity, etc. are effective in spaces and equipment.

In the light of this information and principles:

- Designs of space and equipment should put multidimensional research, thought, user and environment- oriented design on the foreground.
- It is necessary to provide functional zones in the space with data from perception of space; and interaction, association and continuity among them.
- Again it is a significant principle of space and equipment to provide readability and visibility as an attribute to the perception of space.

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## ENERGY EFFICIENCY OF BUILDING SKIN OF REGIONAL HOUSES IN RIZE

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### Abstract

Energy saving and minimizing energy consumptions are determinant factors about sustainability especially in architecture. Cities are gigantic systems that use energy. Energy demands of developing cities are greater than developed ones due to mass and usually low quality constructed buildings. Despite construction of several urban transformation projects in these kinds of cities, number of existing, regional buildings is usually more and it needs lots of time and effort to change these buildings into quality new ones. Also historic and authentic value of these buildings is another important debate about their renewals. Instead of renewing some of these kinds of buildings retrofitting them, considering their energy performance, is going to be a good alternative for growth of developing cities.

As one of the developing cities of Turkey, Rize is unique with its regional residential buildings. It is located in the northern part of Turkey with humid subtropical climate with no dry season, and it has a constant moist and sloppy topography. These features have shaped forms, materials, orientation of regional houses. The structural system of them is usually masonry at the ground and wood on the upper levels.

Buildings' skins integrate remarkable amount of construction materials and it is a key determinant of the embodied energy and environmental impacts in the buildings [1]. In case of Rize, the basic material of houses is wood and it has specific characteristics affecting energy performances of skins of buildings.

LEED, a specific energy standard, has 8 fundamental criteria. In the headline of indoor environmental quality; daylighting, thermal comfort and acoustic performance are one of the three issues that are placed. It includes standards for visual, thermal and acoustics performances of buildings related with functions. Comfort means being majorly satisfied in a space while consuming minimum energy [2]. One of the main concerns of building envelope is to ensure visual and thermal comforts depending on physical environments.

The study aims to examine the skin of a selected regional residential building of Rize regarding its materials, and its visual and thermal performances according to LEED criteria. Firstly, the characteristics of Rize are signified in terms of architectural representations and regional building features are introduced. Secondly; visual, thermal and acoustic comfort conditions are pointed out regarding LEED criteria. Thirdly, drawings are uploaded to Dialux Evo for calculating daylight performances. Then, U-value of the selected building is calculated by building performance simulation methods. Finally, values are evaluated according to LEED criteria and results are shown in a table. In the end, tentative proposals about the urban transformation of Rize are going to be listed.

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**Key Words:** *Regional houses of Rize; Building skin; Visual performance; Thermal performance; Audial Performance*

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## 1. Introduction

Depending on technological developments and increase in population in all around the world, energy demands and consumptions have been one of the important problems for years. As a result, this transformation is immediately linked with energy obtained from depletable sources and increases the CO<sub>2</sub>e emissions. The increasing demand for energy causes decreasing the amount of depletable energy sources. Since the beginning of 2000's countries have started to concentrate using energy efficiently. For this reason, in 2009 the European Commission has worked on “**roadmap for moving to a low-carbon economy in 2050**” that is planned to reduce 80% of the total CO<sub>2</sub>e emission [3]. Countries are dealing with energy producing with environmental friendly ways economically. In that case, there are numbers of study to generate energy with zero negative effects. Especially, wind and sun have become two main energy sources such as applying for wind turbines, solar farms.

While considering energy generation, energy saving and minimizing energy consumptions are two major issues for many disciplines specifically in architecture. Cities are huge mechanisms using energy very much. Regarding this, energy demands of developing cities are greater than developed ones because of building mass and low quality materials and methods of building constructions. Despite construction of several urban transformation projects in these kinds of cities, number of existing, regional buildings is usually more and it needs lots of time and effort to change these buildings into quality new ones. In that case, historic and authentic values of these buildings are significant discussion topics about their renewals. Here, their energy performances are considered for renewal and/or retrofitting of them to minimizing energy consumption and using energy efficiently for growth of developing cities. Utilizing regional materials and methods of constructions gives advantages in sustainability in economy, materials, energy usage.

In Turkey, energy issues have been more significant at the beginning of 21<sup>st</sup> century. Especially, minimizing CO<sub>2</sub> emission and maximizing renewable energy usage are considered. Renewable energy sources have been used since 10 May, 2005 with the law named “**Yenilenebilir Enerji Kaynaklarının Elektrik Enerjisi Üretimi Amaçlı Kullanımına İlişkin Kanun (The law about Usage of Renewable Energy Sources for Electricity Energy Generation)**”. The purpose of this regulation is to promote renewable energy generations and consumptions and also minimize the negative effects of green gases.

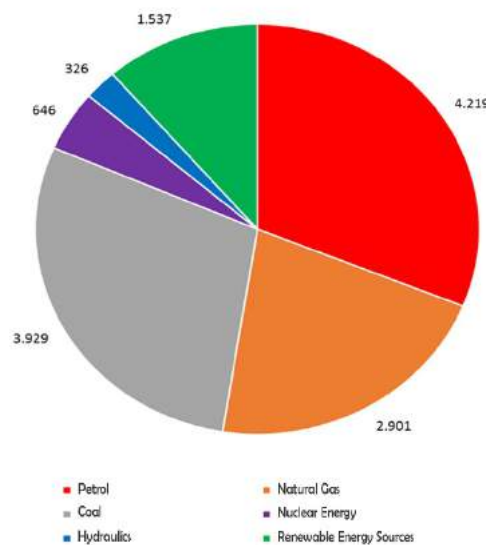


Fig. 1. The distribution of sources primary energy consumption in 2013 (<http://www.enerji.gov.tr>)

The results of several studies points out that buildings has biggest ratio in energy consumption. Regarding the energy consumption in Turkey, 30% of all energy is consumed in the buildings. It is aimed to 50% of energy can be saved, if the energy performance of the existent building are developed [4]. In Turkey, there are numbers of urban transformation projects that have been started at the end of the 1990's in Istanbul. However, urban transformation projects in Rize have been visible for 2010's. Several high-rise buildings have been erected in the coastline of the city without considering regional conditions. On the other hand; even most of the regional residential buildings in the country side are have been started to demolish, there are still expressive instances reflecting regional materials and methods of constructions.

## **2. Method**

The paper is composed by 4 parts. It starts with an extensive literature review and followed by the case study research. Secondly, energy efficiency concept in Turkey is explained and studies about this issue are indicated. In the third part, LEED certificate system is expressed regarding visual and thermal comfort conditions. After that, the selected space of the exemplary building has been evaluated to ascertain the individual performances of the building elements. The consequences of analysis are analysed according to the determined values for visual and thermal comforts. If necessary, approaches for developing the current situation will be presented.

Developing cities such as Rize is one of the specific topics for considering energy efficiency. Because of that reason, a regional building -Hurşit Bey Konağı- that is functioned for dwelling is chosen within the content of this research. The living space of this building, which is used through long time in a day, is analysed for visual and thermal comfort conditions.

Regarding visual and thermal comfort conditions for a living space, the skin of the selected building is investigated. In the scope of this study, software simulation and building performance tests are applied to test the performance of the envelope. In that process, materials and methods of the building skin are listed and its details are drawn. For visual performance analysis, the detail drawings are uploaded to Dialux Evo to examine specific days and time daylighting values. Secondly, U-values of the building envelope are calculated by building performance. Later, the findings are shown in the table and compared with the determined values for visual and thermal comfort conditions. Related with the results, recommendations for energy efficiency are explained.

## **3. LEED criteria for visual, thermal and acoustic comfort conditions**

LEED is one of the major certification programs considering issues of energy efficiency, sustainability, and green buildings. The program includes criteria to calculate rating levels in terms of plan, construction, maintaining and operating. The certification level of a building is determined by fulfilling credits: Certified (40-49 points), Silver (50-59 points), Gold (60-79 points) and Platinum (80+). LEED has 5 different categories to evaluate buildings: Building Design and Construction, Interior Design and Construction, Building Operations and Maintenance, Neighbourhood Development and Homes.

In the content of the case study, Building Operations and Maintenance category, which has subtitle as multifamily, is taken into consideration. This category involves thermal comfort (1 point), daylight and quality views (2-4 points) regarding visual and thermal performances for multifamily.

The goal of thermal comfort part is to provide users' well-being in terms of thermal comfort. According to LEED, thermal comfort must be responded in the following conditions:



- There should be control device(s) for every residential unit that is used by occupants to maintain desirable temperature in bedrooms and living spaces.
- There should be blinds or shading devices in bedrooms and living spaces that allow occupants to control solar radiant of the space.
- There should be having one or more operable window, ceiling fan, or other device that adjust air speed.

To connect building users with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight and views into the space is the intent of daylight and quality views. For calculation of daylighting, there is a table including specified months and it is also indicated that the day sometime between September 1st and October 30th or March 1st and April 30<sup>th</sup> must be chosen. The time must be determined any hour between 9 a.m. and 3 p.m. at appropriate work plane height. To achieve daylight performance illuminance levels between 300 lux and 3,000 lux for at least 50% of the regularly occupied floor area [5].

#### 4. Case study

Rize, which is placed in northern part of Turkey-Blacksea, is one of the specific cities for analysing the skins of regional residential buildings. As one of the developing cities of Turkey, Rize is unique with its regional residential buildings. Because of the characteristics of climate in the city, rainy and humid, it has unique vegetation that covers it city with green pattern. The city is placed very sloppy area that's why buildings are settled far away from each other. Hence, especially the regional residential buildings have constructed considering these features as a design approaches in terms of forms, materials, orientation. As a load bearing elements, the skins of the regional residential buildings are mostly composed by masonry and wood.

Hurşit Bey Konağı, which was constructed in 1849, is selected for case study. The building is located in Çağlayan Köyü-Fındıklı-Rize. The living room of this building is considered for calculations of visual and thermal conditions. The wall system of this building, "göz dolma", is one of the characteristics of regional residential buildings in Rize. In this system, masonry, which are gathered from creek, are filled in to a wooden frame. The frame are constructed from 3/10 or 5/10 cm vertical and 15-25 cm horizontal woods. Consequently, there are 17/22 or 20/25 cm boxes for loading with stones and fixed by cement plaster. Inside of the wall, there is a grid system that wainscot is applied on [6].



Fig. 2. Hurşit Bey Konağı (Afife Batur)

The daylight performance of the selected space is simulated by Dialux Evo. The space naming Big room is 27,5 m<sup>2</sup> and it is located in south-east. There are 5 windows; 4 of them are placed in east and their width: 70 cm, height: 150 cm. and one of them is at the south part and its width: 50 cm, height: 150 cm. For the single glazing glass of the windows reflection value is 10%, transmission value is 90%.

In the second part, U-values are calculated. In TS 825, Turkey is divided into 5 different climatic zones. Istanbul is in the 2nd climatic zone [7]. The minimum U-value for external wall of the buildings in this zone is determined as 0,60 W/m<sup>2</sup>K, for window 2,4 W/m<sup>2</sup>K [8].

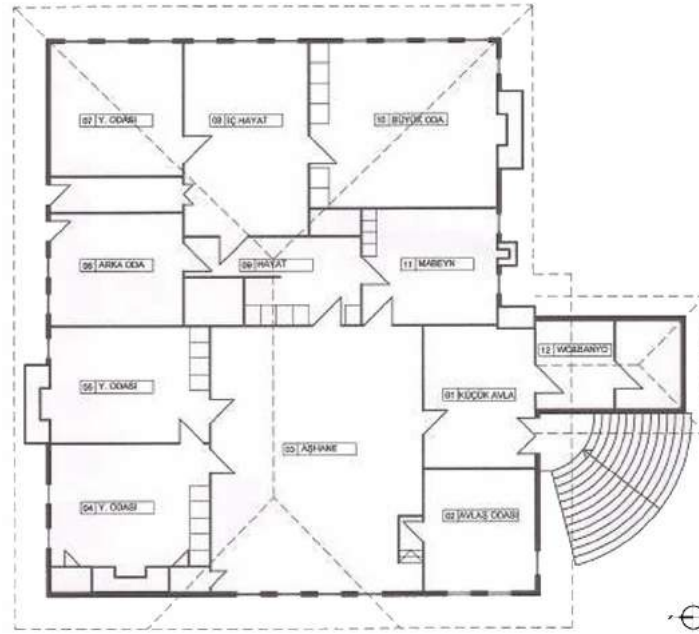


Fig. 3. The ground floor plan of Hurşit Bey Konağı (Afife Batur)

## 5. Results

As it is mentioned, daylight level must be between 300-3000 lux in a living room. Table 1 demonstrates Dialux Evo daylight simulation results for living room of Hurşit Bey Konağı according to the given information. In the room daylight levels are efficient for users for 4 specific dates and times (21 September, 9 am, 21 September, 3 pm, 21 March, 9 pm and 21 March, 3 pm). So that, the chosen glass type for windows is applicable for energy efficiency and the project gains 2-4 points according to LEED for daylight and quality views.

Table 1. Dialux Evo daylight simulation results for living room of Hurşit Bey Konağı

The living room of Hurşit Bey Konağı	Daylight level (lux)
21.03.2010 / 9 am	621
21.03.2010 / 3 pm	395
21.09.2010 / 9 am	677
21.09.2010 / 3 pm	396

The detailed structure and U-values of the original envelopes from outside to inside is demonstrated in Table 2. The U value for external wall in Hurşit Bey Konağı; 2,2474 is higher than the determined value, 0,60 W/m<sup>2</sup>K. The masonry wall with wood frame system is not

applicable for thermal comfort conditions. The U value for window, 5,1 is also higher than the desirable value for window 2,4 W/m<sup>2</sup>K. In addition, there are blind that are monitored by occupants to control solar radiations, operable windows more than one. However, there is not any control device(s) for this residential unit that is used by occupants to maintain desirable temperature in bedrooms and living spaces. In that case, the project may not gain 1 point for thermal comfort.

Table 2. U values of the case study

Original envelope of Hurşit Bey Konağı	Thickness D (m)	Thermal Conductivity (W/Mk)	Ah	U Value (W/M <sup>2</sup> K)
Load bearing wall (wood frame+stone)	0,1	1,74		
Cement plaster	0,001	0,35		
Wainscot	0,05	0,13		
Sum				2,2474
Window				5,1

## 6. Discussion

The skins of buildings are one of the specific issues for visual and thermal performances in terms of energy efficiency. Considering living room, visual and thermal conditions are two important points for analysing a building envelope especially for a regional residential building. Within the context of this study, Hurşit Bey Konağı is selected to examine visual and thermal performances of a regional residential buildings' skin regarding energy efficiency.

To analyse the simulation results for daylight performance, the selected space of Hurşit Bey Konağı fulfils the daylight levels that are determined by LEED. In that case, 2-4 points are gained for this part of the building according to LEED criteria. Secondly, the calculated U value for the envelope; 2,2474 is higher than the determined value, 0,60 W/m<sup>2</sup>K. Also, the U value of window, 5,1 is higher than the desirable value for window 2,4 W/m<sup>2</sup>K. That means the skin may not achieve the thermal performance conditions and may not gain 1 point from LEED.

The selected buildings' skin does not achieve the thermal comfort condition. Because of this reason, there should be implementations on the envelope thermally. The significant point is to fulfil the thermal comfort values while dealing with historical and cultural importance of the building. In that case, cellulose based thermal insulation materials may be more environmental friendly approach regarding both energy efficiency and the characteristics of the building [9]. The proposal has 3 steps; firstly, a substructure is screwed in the current horizontal woods and thermal insulation is applied on. Then, wood based panel is covered. With cellulose based thermal insulation material, the thermal comfort condition is provided as it is shown in the table.

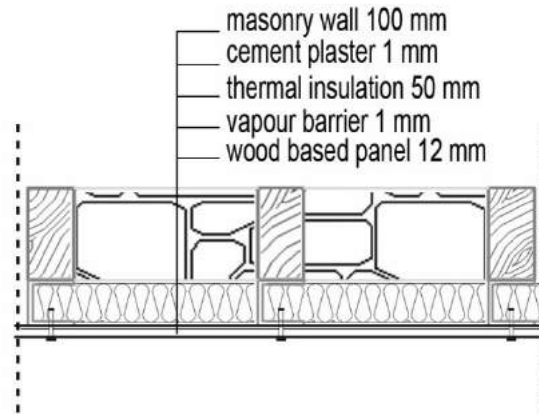


Fig. 4. The layers of proposed envelope

Table 3. U values of the proposal for the skin

Original envelope of Hurşit Bey Konağı	Thickness D (m)	Thermal Conductivity (W/Mk)	Δh	U Value (W/M <sup>2</sup> K)
Load bearing wall (wood frame+stone)	0,1	1,74		
Cement plaster	0,001	0,35		
Thermal insulation	0,05	0,036		
Vapour barrier	0,001	0,19		
Wood based panel	0,012	0,13		
Sum				0,6465
Window				5,1

Furthermore, for windows, it is applicable to use Low-e glass, 0,012m air gap (the U value: 2,2 W/m<sup>2</sup>K) to obtain the determined value. Even if the determined value is succeeding, the sizes of the original joinery are not appropriate for these materials. Moreover, using double glass increases the width of layers 4-5 times more than the current one. That situation has negative effects on functionality and comfort conditions for users. Here, a counterweight system with spring or helical may be integrated for solving load problems.

## 7. Concluding recommendations

Considering the impacts of buildings on the environment, energy efficiency of regional houses is major issue for sustainability. First of all, due to the historical and cultural values of regional residential buildings, it is significant to conserve them as the part of cultural heritage. According to Venice Charter, the most efficient way for maintenance of a building is to use it whether in same function or a social function [10]. Herewith, providing comfort conditions for users is one of the best solutions for buildings sustainability. Secondly, demolishing old buildings and erecting new ones require much more energy than renovation of the existing building. Analysing the problems and finding the environmental friendly architectural solutions may be better method for energy conservation and also sustainability in materials and time. Thirdly, Rize is one of the specific cities in Turkey regarding its natural and cultural features. Within this context, it is the prior concern to take consideration of unique characteristics of the regional houses while offering an architectural proposal for providing the users comfort conditions thermally and visually.

This study is examined visual and thermal performances of the selected building in Rize in the scope of LEED criteria. The findings of the analysis show that the existing conditions for visual comfort response the requirements. However, the findings for thermal comfort conditions are not desirable for users. Therefore, improving the user comfort conditions is one of the main concerns for both sustainability in lifecycle of building and energy efficiency. For Hurşit Bey Konağı, application of cellulose based thermal insulation material is proposed for

the building's skin. As it is expressed above, this proposal may supply the thermal comfort condition requirements.

As a result, visual and thermal comforts are the crucial issues for building skins performances regarding energy efficiency of a regional residential building in a developing city. Here, the important point is to be aware of the regional potential for energy efficiency in a developing city and take this potential consideration to design urban transformation projects instead of using new materials and construction methods.

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## A MODEL PROPOSAL FOR PARAMETRIC TRAWLER YACHT EXTERIOR STYLING AND INTERIOR DESIGN

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### Abstract

Nautical vehicles are a combination of exterior styling and interior design. Exterior design formation creates space by means of external form and it also affects external form by partitioning and incoming interior spaces. Working should be done from inside to outside as well as from outside to inside. Interior design layouts should be made depending on the external filling and space positioning. Exterior design styling should be made depending on which typology wanted and also interior design layouts. The scope of the article is making a model proposal for trawler yachts including exterior styling and interior design layouts with parameters. "The process of shaping the yachts leads to the standardization. All the spaces that make up the nautical vehicles; gangway, windlass, starboard side, flybridge, porthole, sidewalk, swimming platform, etc are beginning to be known by its own unique name. When a nautical vehicle separates according to the spatial characteristics of these names, there is almost nothing left" [1]. By defining these spatial elements and their relation to each other and numerically determining the requirements of typology, a correct model will be introduced. And so, a guiding model for designers will be obtained and the first phase of the design will be completed by the addition of aesthetic value. Manifestation of the work, a database was built and exterior and interior analyzes of 12-22 meter yachts with trawler typology were done. The analysis of the international maritime standards SOLAS (Safety of Life At Sea) and Turkish Lloyd's regulation rules are added to the work. With the parametric formulas obtained from the sample yachts in the database and by applying the standards, exterior and interior partitioning could be done. As a result of the paper, a sample model is presented a new software extension. Discussion of the paper is this preliminary work will be carried out to add other yacht typologies to the software extension and to convert them into a package software. © 2017 Selection and/or peer-review under responsibility of the organization committee

**Key Words:** *Parametric Yacht Design, Trawler Typology, Computer Aided Design*

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## 1. Introduction

The most important module of the CAD (Computer Aided Design) system, which is used for nautical vehicle design, is software that can create the hull form. These software are hydrostatic and stability software. Exterior and interior designs are based on three-dimensional modeling by transferring views and sections to modeling software. The scope of this research takes advantage of software add-ons that modeling the hull form and it is necessary to define the parameters required to model the yacht structures and interiors according to yacht

typologies. Trawler typology was taken as an example. When the trawler yacht typology is examined, it can be seen that the most accurate examples of this typology are found between 12-22 meters in length. In order to obtain the correct typology from the correct data, the research will be limited to a model where the analysis of the 12-22-meter trawler yacht typologies will be done and the analysis with tables will be done.

Trawler yachts, which are actually a fishing boat type, are being modernized and used for pleasure and entertainment today. The most powerful aspect of this typology has 'staggered deck'. Many examples of alleged trawler, especially going beyond the typology of these vessels above 20 meters, it is seen that no use staggered deck. For this reason, the work is limited to 12 to 22 meters.

## 2. Trawler Yachts

The main elements of the weight of the yacht; hull, frames, walls, machines and superstructure. The healthiest method for determining the weight of a yacht is to measure the weights of all the materials used in production and to find their total weight; but this method can give results only after production ends. In more traditional methods, a sample yacht found as similar with a known weight characteristic and used its weight. However, this leads to misleading results. For this reason, computer aided software is used to predict the weight of a yacht that has not yet begun to produce. However, when looking at current computer software, all the necessary data is still not available in these software. The superstructure which is the main constituent of the weight, can't be automatically modeled in this software. There is necessary that will model both the interior and the superstructure. It will also be a guide and facilitator for designers.

### 2.1 Trawler Yacht Main Dimensions

The most important trawler yacht manufacturers in the sector are Selene, Grand Banks, Nordhavn, Kadey-Krogen. In order to resolve the yacht typology and settlements, these producers and modern trawler yacht brands will be investigated and try to a common deduction made.

The yacht's body is a three-dimensional shape that is difficult to define simple mathematical expressions. The characteristics of a vessel; Dimension, such as height, width, and draft, or slenderness ratio (height / displacement). When trawler yachts are examined, a large majority is designed as single hull. Models of the brands which are located between 12 and 22 meters from the samples designed only as catamarans have been examined. However, in these three examples only the Endeavorcats brand used a stunning deck reflecting the trawler typology (Fig. 1). Looking at the Selene Journey 47 model and the Jaguar Catamarans JC47T model, it appears that the typology is incorrectly defined. As there is only one correct example, trawler yachts with single-body caravans will be examined in the scope of study.



Fig. 1. Endeavorcats catamaran trawler [1]

## 2.2 Trawler Yacht Superstructure and Lower Deck Dimensions

Motoryacht interior layouts are made by distance between the walls to the engine room layout and location, number of cabins, the placement of wet areas and human ergonomics. The number of engines and the placement of the engine room have been investigated primarily on the boats of 12-22 meter selected brands produced in accordance with the trawler typology. The engine room layout and size information in the preliminary design phase is started to be taken from residential shipbuilding engineers. After the analysis of the lower deck layout, making the superstructure analysis, it revealed the results of studies in the concept design. As a result of this analysis, the average values will be tried to be reached and these values shown on figure 2 will be used as the model data.

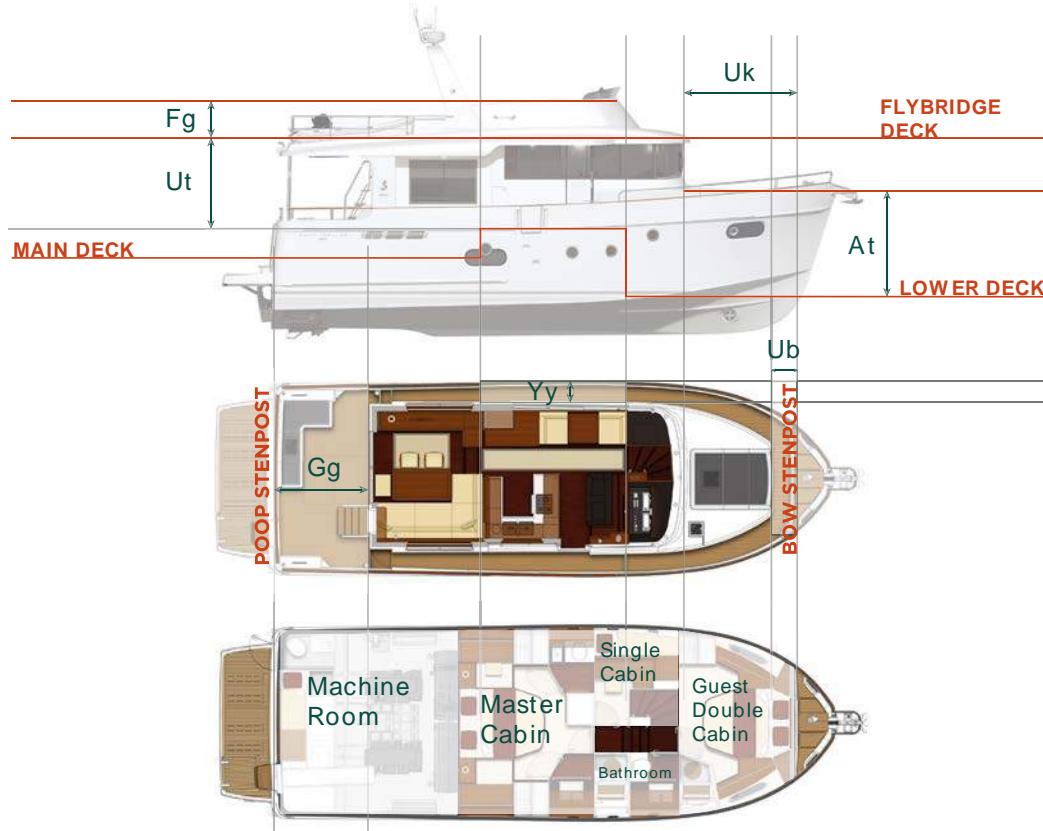


Fig. 2. Trawler Yacht Parameters use of Benetau Swift 50 yacht [2]

## 3. Trawler Yacht Interior Analysis

The design of the lower deck depends both on the design of the upper deck/superstructure and on the location of the machine room. The choice of machine, the location of the machine room and the distance from the stern are investigated. And the distances of the heads of the headscarf from the headboard were tabulated according to the sample planes and lengths. The space between the head wall and the machine zone wall will be used for lower deck space deployment. On the other hand, since the boundaries are also determined by the design of the upper structure, superstructure constraints are introduced. Without trying to distinguish between interior space and exterior space, the connection between these two structures has been tried to be resolved. The number of rooms, the number of wet areas, the deck on which the kitchen was located, and whether flybridge was found were investigated.

Values vary according to the design of each 12-22-meter trawler yacht exterior. It is very difficult to determine an average value. However, when looking at the interior space layout,



some common values can be mentioned. The data obtained in table 1 will be used in the lower and upper value limitations of the data entry for the three-dimensional software extension model made in the scope of the study.

Parameters used for expressions of values in the table:

- Mm: Distance of machine room wall from bottom sternpost
- Bb: Distance of bow load wall from bow stern
- Yy: Walkway width
- Ub: Superstructure start from bow stern
- Uk: Superstructure cockpit glass from bow stern
- Ut: Superstructure ceiling height
- Gg: Open deck width
- Fg: Flybridge deck height
- At: Lower deck ceiling height

Table 1. Exterior Design Analysis [2,3,4,5,6,7]

Model	Mm	Bb	Yy	Ub	Uk	Ut	Gg	Fg	At
Minimum value	370 cm	90 cm	30 cm	40 cm	245cm	190 cm	130 cm	55 cm	185 cm
Maximum value	1065 cm	322 cm	84 cm	511 cm	654cm	250 cm	420 cm	244 cm	230 cm

Each meter of 12-22-meter length trawler yacht interior has been analyzed one by one and tried to find the link between them. The solutions that have been made are transformed into common tables according to the length.

### 3.1. 12-13-meter yacht interior design

The value ranges of the 12 to 13-meter trawler yachts are given in table 2. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 12-13 meters in 1 master cabin interiors in general, consists of 1 double cabin and a shared bathroom. According to the design, kitchen or storage area can also be created. There is one example has kitchen in the lower deck.

Table 2. 12-13-meter trawler yacht interior analysis [2,3,4]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Nordhavn 40	195 cm	+	1	-	-	1	-
Benetau Swift 44	190 cm	+	1	-	-	1	-
43 Heritage EU	175 cm	+	1	-	-	1	+
41 Heritage EU	175 cm	+	1	-	-	1	-
Selene 38	189 cm	+	1	-	+	1	+
Value range	189-195 cm	+	1	-	+/-	1	+/-

### 3.2. 13-14-meter yacht interior design

The value ranges of the 13 to 14-meter trawler yachts are given in table 3. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 13-14 meters in 1 master cabin interiors in general, consists of 1 double cabin and a shared bathroom. According to the design, single cabin or storage area can also be created. There is one example has kitchen in the lower deck.

Table 3. 13-14-meter trawler yacht interior analysis [2,3,4,5]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Nordhavn 43	195 cm	+	1	-	-	1	-
Benetau Swift 50	190 cm	+	1	1	-	1	-
Selene 42	192 cm	+	1	-	+	1	+
Euro Trawler 450ce	190 cm	+	1	-	-	1	-
Value range	190-195 cm	+	1	1/-	+/-	1	+/-

### 3.3 14-15-meter yacht interior design

The value ranges of the 14 to 15-meter trawler yachts are given in table 4. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 13-14 meters in 1 master cabin interiors in general, consists of 1 double cabin and a shared bathroom. According to the design, one other double cabin can also be created. There is no example has single cabin, kitchen and storage area in the lower deck.

Table 4. 13-14-meter trawler yacht interior analysis [4,6]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Selene 45	180 cm	+	1	-	-	1	-
Bering B50	220 cm	+	2	-	-	1	-
Value range	180-220 cm	+	1/2	-	-	1	-

### 3.4 16-17-meter yacht interior design

The value ranges of 15-16-meter trawler yachts have not been studied. Selected brands do not have boat production at this size.

The value ranges of the 16 to 17-meter trawler yachts are given in table 5. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 16-17 meters in 1 master cabin and 1 double cabin. According to the design, one other double cabin, one single cabin or shared bathroom can also be created. There is no example has kitchen in the lower deck.

Table 5. 16-17-meter trawler yacht interior analysis[3,4,5]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Euro Trawler 550ce	220 cm	+	2	-	-	1	-
52 Heritage EU	185 cm	+	1	1	-	1	+
Selene 49	180 cm	+	1	-	-	1	-
54 Heritage EU	190 cm	+	1	1	-	1	+
Nordhavn 52	200 cm	+	1	-	-	-	-
Value range	185-220 cm	+	1/2	-/1	-	-/1	-/+

### 3.5 17-18-meter-meter yacht interior design

The value ranges of the 17 to 18-meter trawler yachts are given in table 6. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 17-18 meters in 1 master cabin, 2 double cabin and shared bathroom. There is no example has kitchen and single cabin in the lower deck.

Table 6. 17-18-meter trawler yacht interior analysis [6,7]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
580	195 cm	+	2	-	-	+	-
Bering B55	230 cm	+	2	-	-	+	-
Value range	195-230 cm	+	2	-	-	+	-

### 3.6 18-19-meter-meter yacht interior design

The value ranges of the 18 to 19-meter trawler yachts are given in table 7. Some common values can be mentioned when looking at interior space layout. Trawler yachts between 18-19 meters in 1 master cabin, 2 double cabin and shared bathroom. There is no example has kitchen and single cabin in the lower deck.

Table 7. 18-19-meter trawler yacht interior analysis [4,5,7]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Euro Trawler 650ce	220 cm	+	2	-	-	+	-
610	200 cm	+	2	-	-	+	-
Selene 54	195 cm	+	2	-	-	+	-
Value range	195-220 cm	+	2	-	-	+	-

### 3.7 19-20-meter-meter yacht interior design

The value ranges of the 19 to 20-meter trawler yachts are given in table 8. When looking at the interior layout, only the presence of a master cabin can be commonly mentioned. Apart from this, one or two double cabins can also be mentioned as an example of a single cabin. The shared bathroom is available on all premises except for one sample. There is no kitchen or storage area on the lower deck in any of the examples.

### 3.8 20-22-meter-meter yacht interior design

The value ranges of the 20 to 22-meter trawler yachts are given in table 9. Interior design includes 1 master cabin, 2 double cameras and each cabin has its own bathroom. No storage space is available.

Table 8. 19-20-meter trawler yacht interior analysis [3,4,5,7]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
Nordhavn 60	210 cm	+	1	-	-	-	-
630	200 cm	+	2	-	-	+	-
Selene 58	195 cm	+	2	-	-	+	-
Nordhavn 64	210 cm	+	2	-	-	+	-
B65	220 cm	+	1	1	-	+	-
Selene 60	200 cm	+	2	-	-	+	-
650	200 cm	+	2	-	-	+	-
Value range	195-220 cm	+	1/2	-/1	-	-/+	-

Table 9. 20-22-meter trawler yacht interior analysis [7]

Model	Ceiling height	Master room	Double cabin	Single cabin	Kitchen	Shared Bathroom	Storage
700	200 cm	+	2	-	-	-	-
Value range	200 cm	+	2	-	-	-	-

#### 4. Trawler Yacht Design Algorithm

The parameters that will be needed in model building have been investigated. The algorithm of the model to be made by using these parameters must also consist of various steps. The first step is to obtain the three-dimensional model. The hull should be brought from the outside because it is the job of the shipbuilding engineers. The study focuses only on superstructure and interior design. Second step is about head & machine wall placement. Required values are shown in figure 3.

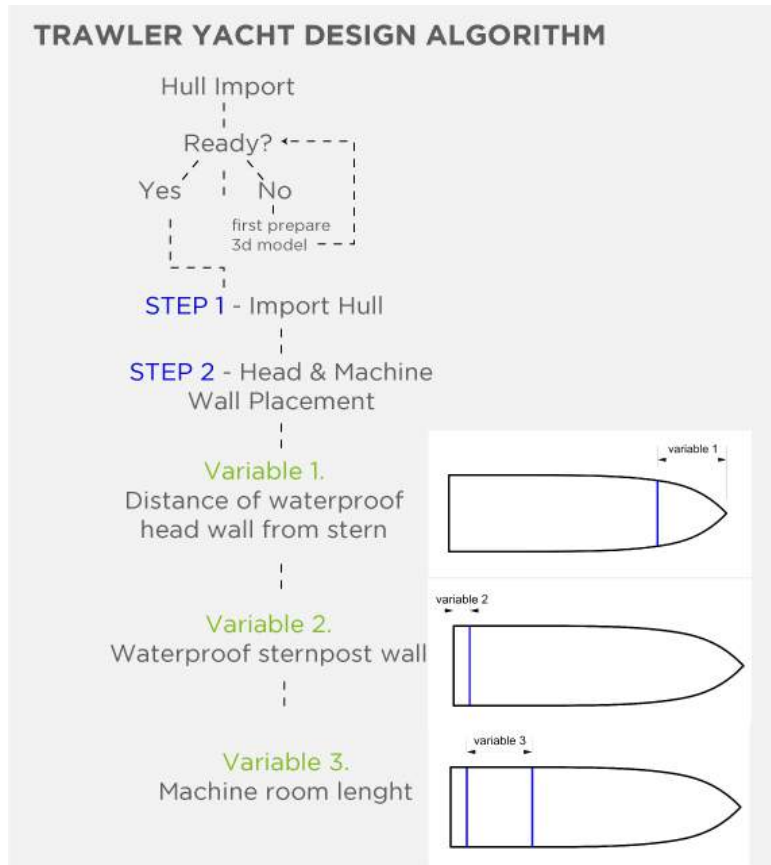


Fig. 3 Trawler Yacht Design Algorithm-1

Step 3 is about staggered deck placement. Trawler yacht has one or two interior deck option. Step 4 is about superstructure of the yacht. Required values are shown in figure 4. All the variables in step 4 have already been shown on the example in figure 2.

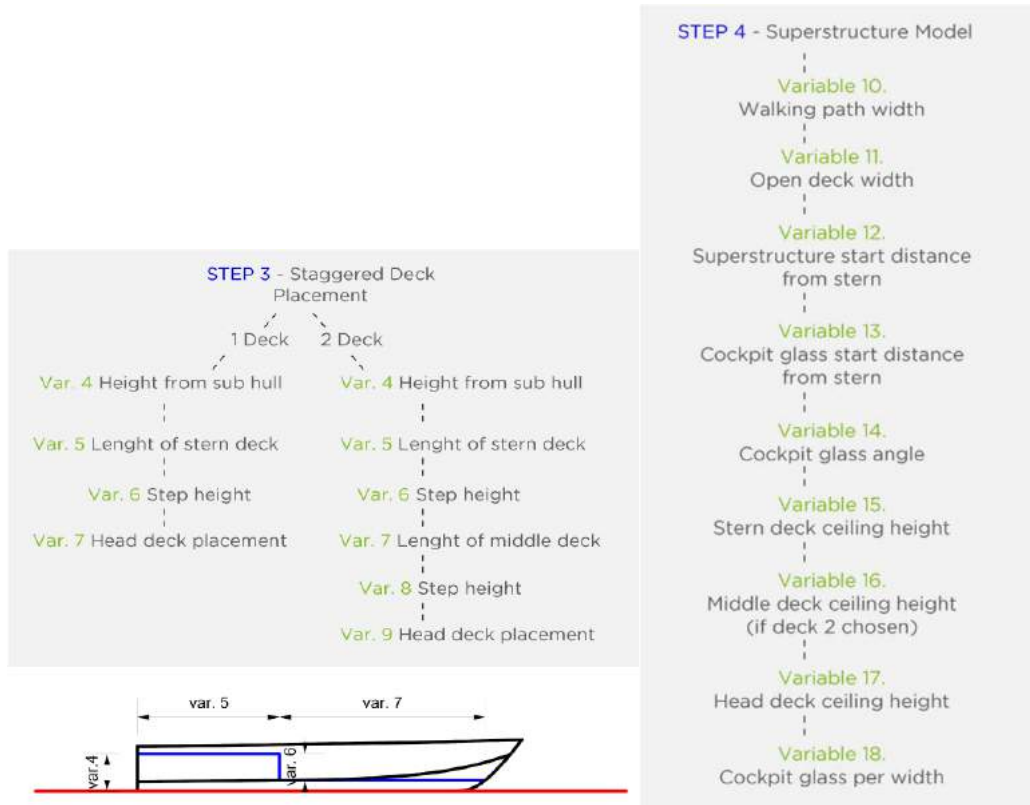


Fig. 4 Trawler Yacht Design Algorithm-2

Step 5 is about interior design of the trawler yacht. The first stage is how the structure of the staircase is (spiral, flat, etc.), the location of the stairs, the width and height of the steps. Second stage is choosing the layout form. Deciding how many guesthouses are available, whether there is shared bathrooms or kitchen facilities are available. Master cabin is also one and has every yacht. So, the variables about master cabin’s wall, bed and bathroom decisions are made in this step. Guest cabin is similar with master cabin. If guest cabin has its own bathroom, these variables must also be entered the system. If there is shared bathroom or kitchen, these variables also be entered the system.

The last step is about flybridge deck. If flybridge wants, step 6 is chosen and variables also be entered the system as shown figure 6.

## 5. Conclusion

Most of the yacht geometry software has a three-dimensional view of the boat and showing it in different perspectives on the screen. This software allows the form to be perceived much better than the hand drawn plane. Computer aided software used in yacht design is especially useful for realizing engineering calculations. There are no software that digitally automates deck and superstructure modeling. At this stage designer it is to perform using different add-on hull form design. There is a need to easily make changes to a rough model that will provide flexibility to the designer. While this model is being created, it also has to accommodate the items of the yacht typology which is also designed.

Parameters to be used when designing parametric trawler yachts have been determined. A model can be developed by setting the relation between these parameters. The work can be started by calling the yacht’s hull into the program to be used and changing the design variables, it would be visualized.



Fig. 5 Trawler Yacht Design Algorithm-3



Fig. 6 Trawler Yacht Design Algorithm-4

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## THE LIFE CENTER UNIT DESIGN FOR INCLUSIVE SCHOOLS: CASE OF GÖKKUŞAĞI PRIMARY SCHOOL IN TURKEY

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### **Abstract**

Educational environments as a public space should accept everybody to join without discriminating and stigmatizing to provide social justice by responding their needs equally. Getting educational rights, one of the fundamental human rights, without any discrimination between people is possible, only if equal opportunities are provided to all individuals in the society. Inclusive education offering as one of the special education method aims increasing social participation of disabled students into society by letting them to access in same educational environment with their non-disabled peers freely. Spatial challenges in inclusive education environments must be solved by discussing design requirements in terms of equal accessibility and usability both among all participants because of diversity of user needs. Although the arrangements using in the inclusive schools are specified by laws and regulations in Turkey, new requirements, which are coming out in time, show that initiations for spatial design have to be supported in these schools because of inadequacy and inefficiency of existing situation. Difficulties emerged by physical capabilities of students in school environments inclines professionals to find design solution accordingly disabled students' demands both social and individual. When supportive characteristic of inclusive education is evaluated in terms of social integration, 'life center unit' has been established to improve communication skills among students, in inclusive schools as a result of inefficient spatial facilities. Life center is established at Gökkuşağı Primary School in Ankara as a first initiation in Turkey, and it is a reference point for further implementation. According to observations, field notes and interviews that are made, it shows that this implementation emerged as an initiation supported by local communities, students' parents and teachers as a necessity of cultural aspects in Turkey rather than a legal legislation. In this study, Gökkuşağı Primary School will be taken as an example to find out problematic dynamics for defining a basis on design principles of the life center. Users of the life center have a wide spectrum in terms of age, impairments, gender and occupation. Considering this diversity on user, design principles should be developed to preclude difficulties which came across in previous design decisions on life center with the help of the surveys answered by previous and current users. It is important to find better design solutions for promoting social integration role of the life center with a respect on privacy needs of disabled students. Regarding this purpose, this paper comprises of issues that are need for rehabilitation of the life center design which must respond users' needs properly. In addition, existing problems of the life center in Gökkuşağı Primary School will be criticized according to the idea of accessibility and usability to compensate them in order to define design principles for life center designs in future.

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**Key Words:** *disability, accessibility, usability, inclusive schools, life center*

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## 1. Introduction

Universal Declaration of Human Rights (1948) approved educational rights, and it is stating in article 26 “*Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.*” This manner provokes equal accessibility for all education facilities to whole population in the society. Different approaches in education are produced for diverse learning ability. These special education approaches mostly choose the way of separating students to different classrooms or schools. In this case, the environmental conditions have tendency to discriminate and stigmatize students who need special educational needs. So that, diversity in students makes compulsory to criticize educational environments in terms of inefficiencies despite equal opportunities about accessing educational facilities.

Educational environments as a public space incline students getting interact with each other socially. Supporting disabled students’ communication and interaction with their non-disabled peers creates an empathetic environment that helps disabled students feeling themselves self-confident and also realizing their potential. User participation is expected at maximum level to provide an effective usage in the environment. Inclusive education eliminates social problems in education, whereas it brings out spatial problems, which reduce social interaction between disabled students and non-disabled students. SERÇEV (Children with Cerebral Palsy Association) initiated “life center unit” in inclusive educational primary school, —Gökkuşuğu Primary School, in Ankara in Turkey. It fosters a sociable space where all occupants in the school can improve relationships with each other.

Accessibility and usability concepts are simply summarized throughout the general framework of the literature. Expectations, both physical and social, about life center unit in inclusive education schools are discussed considering diverse disability problems through accessibility and usability in use. Space necessities for increasing social integration in inclusive schools is defined in order to specify design principles for further implementation of life center unit in general.

## 2. Idea Of Accessibility And Usability In Design

### 2.1. Conceptual framework

Fulfilling user participation effectively is depend on the environmental conditions, which should be adapted according to people’s needs. Utilizing freely from their environment is a constituent of societal development. So that, design problems caused by diversity in society need to be solve with sustainable solutions. Societal responsibility for sustaining rights make providing equal opportunities compulsory in built environment. In that case, accessibility and usability should criticize in terms of intersection and dissociated points of their definitions. Accessibility and usability are comparable concepts that are based on the person-environment relation. Participation restriction in the physical environment underlies the issue of accessibility and usability.

Accessibility to environmental opportunities is about equality issue that is constructed under the societal and political structure. Accessibility mainly concerns users’ apprehension about reaching the activities that they need independently. There is not explicit definition for accessibility; however, approaches can differ in context. In objective perspective, accessibility collect information from the technical requirements, standards to fulfil the efficiencies. Consideration of user demands is subjective view of accessibility concept [4]. Accessible problems can individualize according to the users’ demands that it presents an instable situation from users’ perspective in design.

Both of the terms define in standards to clarify their boundaries of responsibility. When ISO (International Organization for Standardization) is criticized from the user perspective; accessibility concerns participation rate that product is allowed in terms of users’ characteristics and capabilities, whereas usability concerns the relation between product quality and users [7]. Usability can be explained as a relation between product and user when user get into the boundaries of product (Fig.1). Efficiency of functionality is interpreted how it responds to personal activities.

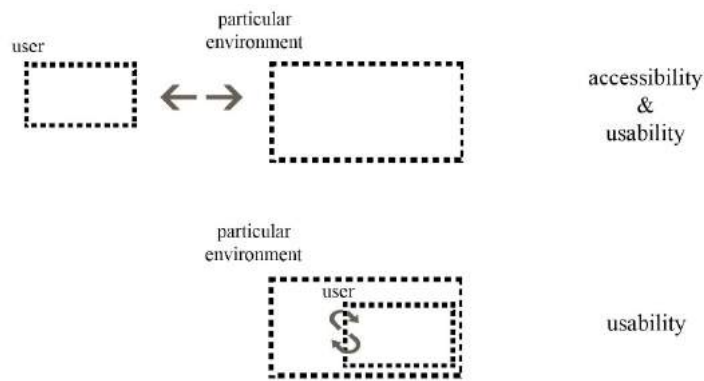


Fig. 1. Accessibility and usability for discussing person-environment relations.

Usability and accessibility analyze human functioning and environmental obstacles separately to gather information about potential activity failure. According to Iwarsson and Stahl (2003), accessibility is also based on analyses of personal and environmental components together to define accessibility problems; usability includes activity components, also analyses of personal, environmental, and activity components together to define usability problems [4]. These approaches show that usability is based on the satisfaction of functional requirements, efficiency of user performance in particular environment. Accessibility measures the compliance of legislations and standards protecting its objective position.

Accessibility and usability overlaps in some points, even though they are concerned in different content of design problem. In conclusion, Hacıhasanoğlu (2003) simply regards that “*accessibility is a term that all individuals may reach and access everywhere, usability is a term that all users may use a product or equipment; so that, designers must consider accessibility and usability together.*”[3]

## 2.2. A part of the disability problem

Physical environment has started to consider since failure of it obstructs people’s daily life after World War II. Equality is promised for whole population in the world from that time, so that utilizing from all environmental facilities without any discrimination must be obtained by minimizing the failures in built environment.

Diversity of physical capabilities that users’ have constrains the usage of environment effectively. People challenge with the disability, which does not allow providing their daily need accurately. This situation cause the threat constructing a discriminated environment for people having inefficient physical abilities. Disability is a problem related with person-environment relationship. Physical competence of people should negotiate with the functional requirements of environment. Accessibility and usability concepts intervene within points of personal component to solve the problems occurred by disability issue. Therefore, accessibility and usability concept stress the problems human functioning in case target user group includes disabled people.

Persson et al. (2015) interprets disability definition in WHO classification as an umbrella term deriving from functional reductions, structural discrepancies, activity restrictions or limitations to participate in a certain context [7]. Fig.2 shows that components of disability have dual interaction with each other discussing the activity component as a core. In the context of multidimensional relationship, activity in the center of discussion constitutes a critic of disability which accessibility and usability analyse functional requirements within environmental problems.

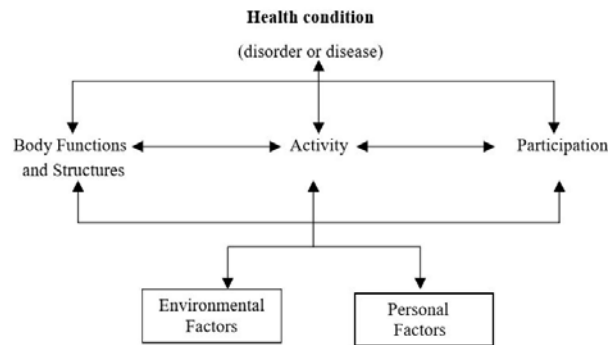


Fig. 2. Interactions between the components of disability [11]

Disability has a comprehensive definition, which considers bodily functioning in environmental and societal context. In order to tolerate accessibility and usability problems, two different concept put forward about disability. World Health Organization (WHO) (2001; p18) is stated disability models in ICIDH-2 (the International Classification of Impairments, Disabilities, and Handicaps);

*“The medical model views disability as a problem of the person, directly caused by disease, trauma or other health condition, which requires medical care provided in the form of individual treatment by professionals.... The social model of disability, on the other hand, sees the issue mainly as a socially created problem, and principally as a matter of the full integration of individuals into society.”*[11]

In usability concept, information of human functioning that is provided by disability understanding respond medical model of disability in order to ensure independent usage of particular environment. Health problems restrain activities that people are able to. Discrimination among users starts if target user group does not analyze considering functional requirement properly, but this is rejected by social model of disability. Furthermore, accessibility must be discussed continually in order to find solutions compensating users’ bodily inadequacy about usage until users participate to the environment. Solutions for eliminating medical problems of disability also help meeting social model’s requirements while design product or environment is discussed in terms of accessibility and usability.

### 3. Inclusive Education As An Inquiry Of Special Educational Needs

Equality in education is possible if all people living in society can join the educational environments. Because of diversity on people’s physical and learning ability in the society, educational practices in different content and context bring out the inclusion problems among people in education. Countries assess their condition to develop suitable educational models for their citizens according to their cultural, social, political and economic diversity. Nevertheless, these diversities cause discrimination among individuals with the effect of environmental conditions. Educational rights is globally concerned with different consideration.

Educational methods are the tools putting into use to create an awareness on people to gain their belonging to the society. Special education welcomes students with special educational needs (SEN) to include in societal production as a first step for future. On the other hand, besides these points, students with special education needs have problems integrate to social environment in mainstream schools environments.

UNESCO gives a start ‘Education for All’ movement for encouragement innovative approaches in education. This movement embraces to spread the opportunities with a marginalized perspective in order to make initiations to increase quality of education.

Students with special educational needs in Turkey are mentioned in legislations for their special educational needs in 1980’s to maintain educational rights [8]. Purposes and implementations on special education are tried to support with legislations, regulations and decrees in order to present special education facilities to disabled students properly. "The

Ministry of National Education - Regulation on Special Education Institutions" published in 2012, Article 4 states the aims of special education, that are providing disabled people education rights according to their abilities and interests, making disabled people more compatible and productive, using a student-centered approach to teach fundamental life skills [6]. In addition, utilizing by rehabilitation and supportive services must be accessible by with special educational needs.

Studies on inclusive education put forward in 1983 at first in order to become prevalent that students with special educational needs can study in mainstream schools [8]. Kargin (2004) defines inclusive education that student with special needs continue their education with a special education support [5]. General opinions of teachers in Turkish schools are introduced for providing inclusive education (Table 1).

Table 1. Criteria for meeting standards of inclusive education in Turkish schools [2]

1	Individualized education program for students with SEN (special educational needs)
2	Cooperative teaching methods
3	Participation of families
4	Educational adaptations
5	Additional supportive services
6	Provision of multiple means for achieving knowledge in an effective education environment
7	School facilities, learning resources, curriculum and professionals centred around students' capabilities and needs
8	School-centered supportive services and facilities
9	Additional community facilities and community involvement

#### 4. 'Life Center Unit' As A Need For Inclusive Education Environment

Inclusive education constructs an approach to meet individual differences in the same public space. Social integration among students is a necessity to be provided in inclusive schools. Therefore, life center become an option, which refers some meeting standards of inclusive education in Turkish schools. Additional supportive services for social integration with additional community facilities and community involvement is included in responsibility of life center, thereby participation of families.

##### 4.1. Analysing Gökkuşığı Primary School

Gökkuşığı Primary School (Fig.3.) is established in Ankara, Turkey, with contribution of SERÇEV (Children with Cerebral Palsy Association), in order to support education of students with Cerebral Palsy. In this school, disabled students and non-disabled students have education in same classrooms and same curriculum to provide full integration among students. School also have special education classrooms for children having mental retardations that cause learning difficulties.



Fig. 3. Gökkuşığı Primary School in Ankara, Turkey

User type of the school consist of students with diverse abilities/learning styles and with/without special educational needs, general education teachers, special education teachers, advisors, and other professionals, parents/caretakers, other family members and local community members. The school has comprehensive user type that verify in terms of age, physical condition, education, cultural code, economic welfare. Common spaces in school building must accept these diversities by providing accessible and usable opportunities.

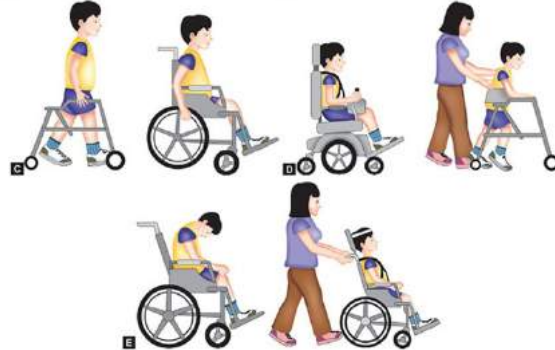


Fig. 4. Some possibilities on usage of assistive equipment in cerebral palsy [10]

Disabled student group include children with Cerebral Palsy. Cerebral Palsy is an umbrella term that brain damages in birth or early development of human being cause motor impairments. Most of students with Cerebral Palsy have restricted physical disability, and have to use assistive equipment for mobility (Fig. 4.). UNESCO (2015) defines difficulties of children with Cerebral Palsy as,

- Movement of body parts or the whole body
- Talking as well as non-verbal communication (facial expressions may not always reveal true emotions – i.e. the child might appear to be smiling but is actually very angry or sad)
- Involuntary muscle movements (spasms)
- Eating and drinking
- Muscle weakness or tightness
- Balance and coordination
- Posture (the ability to put the body in a chosen position and keep it there)
- Attention and concentration.[9]

The first functional organization of the Gökkuşağı Primary School (Fig. 5) is shown in the school’s plan. The plan has “U” form, general education classrooms are placed in one wing, and special educational classrooms are in another.

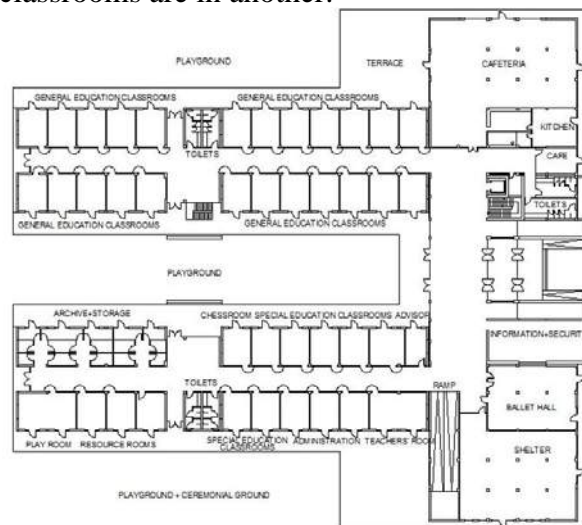


Fig. 5. The Ground floor plan of Gökkuşağı Primary School [1-2]

During the usage of school building, there are some adaptations, which bring out weakness points between functional relations and necessities. According to investigations in school building, some spaces got different function than previous plan (Fig. 6). Needs that became a necessity in time must be improved by some adaptations in the building, which is a contentious subject about its spatial quality. One of the adaptation on the wing of the special education classrooms is adding of ‘life center unit’, which is open for students of special education with their teachers.

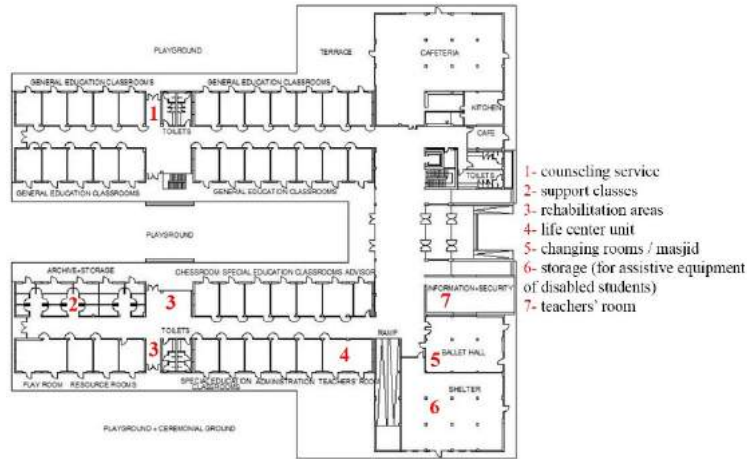


Fig. 6. The ground floor plan of Gökkuşuğu Primary School with new functional additions.

Common spaces in a school are expected a social space, Durak (2010) also states usage of common spaces maximize the usability of primary education environments [1]. Although ‘life center unit’ is not mentioned in any regulation or legislation, this adaptation shows that there is a spatial necessity in inclusive school building due to educational and social needs of students. In this unit, there are inefficient arrangements in terms of behavioral and ergonomic requirements to respond for disabled student (Fig. 7.). Spatial performance that depends on behavioral and physiological performance must rehabilitate for increasing the social integration of life center unit for its users.



Fig. 7. Life center unit of Gökkuşuğu Primary School in 2015

Later on, a renovation has happened in the life center unit. There is an ordinary small house appearance; however, it does not respond the needs of target user profile (Fig. 8.). Usability and accessibility of space is still weak with regard to disabled students need. There are many barriers in terms of accessibility and usability of fittings as well. Neglecting of ergonomic requirements keeps the barriers in the life center unit. Besides life center’s educational and social purposes, the spatial facilities are not suitable for any disabled people.



Fig. 8. Renovated life center unit of Gökkuşuğu Primary School in 2017

UNESCO (2015) states “Some children with cerebral palsy will tire easily. We should therefore allow them time to rest during the school day. A place to rest should ideally be provided by the school.” [9]. So that, life center unit is mentioned as a need that presents about its functional purpose.

#### 4.2. Results

Interviews and previous researches show that there are positive feedbacks about life center usage in terms of eliminating social integration problems and compensating disability condition of students. However, usage of life center has impeded due to occurred spatial inefficiencies in time. These impediments were tried to cover with a renovation, but they were not effective to solve accessibility and usability problems.

Accessibility to life center unit is provided in terms of distance that students get, its location in the school, relation of inside-outside. On the other hand, accessibility in life center unit has failure about human-functioning requirements. In addition, effects of spatial problems on usability and non-motivated spatial organizations do not foster using life center. There is also participation restriction generated by accessibility and usability problems. Defining user profile ignores students’ parents who have responsibility on students’ development in inclusive education. Spatial problems, firstly in sight, consider its priorities in terms of accessibility and usability concept. Shortly, the problems that are defined in the life center unit of the Gökkuşuğu Primary School is shown in Table 2.

Table 2. Problems that are defined in existing life center unit

1	Weakness connection between inside-outside
2	Undefinable privacy limits
3	Undefinable functions
4	Inadequate circulation for mobility
5	Failures about organization of fittings
6	Failures about usage of fittings
7	Territorial uncertainty of spaces about function
8	Non-ergonomic furniture
9	Non-qualified implication of building components
10	Lack of spatial identity

## 5. Conclusion

Although departments in inclusive education schools are defined by legislations and regulations properly, spatial impairments continue that effects students' social integration in further levels. Inadequate and inefficient educational spaces for disabled students poorly develop students' social skills. Educational environment does not just transmit intellectual information; it must include spaces that strengthen social relation among their users. Disability subject resulting discrimination in educational environment can tolerate with this approach.

Supported disabled student's communication and interaction with others, and creating an empathetic environment help feeling themselves self-confident and also realizing their potential. In this context, it is highly important existence of accessible environments in terms of enlightening themselves. According to personal interview notes with the volunteers of SERÇEV is pointed that disabled students start becoming an entrepreneur for their demands on they own due to inclusive education. Moreover, non-disabled students remove their misconceptions to their disabled peers. Life center unit also creates an environment encouraging personal improvement and social independence. There is not a clear decision in terms of functional territories; it should be defined for better spatial organization. Shortly, possible actions and spatial arrangements must be clarified in life center in order to put in practice by specific standards and requirements.



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## READING CULTURAL CODES: A COMPARISON OF TRADITIONAL TURKISH HOUSES-TRADITIONAL JAPANESE HOUSES

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### **Abstract**

The physical space is the reflection of culture with the phenomenon of housing. The codes that people learn from cultural content and social life and develop over time, concrete reflections of preferences and habits can be seen in the shape of the dwelling and its components. While most of the individual's life is shaped by culture, this situation is reflected in housing. Therefore, the separation between culture and housing is a difficult relationship.

When examining the relationship between housing and culture, not be examined just individual's personal characteristics. It is necessary to examine within the group and at the social level. People should be considered within the social and cultural group in which they live.

The influence of culture in housing formation is also explained by the concept of "lifestyle". In this context, lifestyle is a set of mechanisms that all social and cultural phenomena create in interaction. Family structure, size, type of marriage, socio-economic status of family, relations within family and kinship norms; Traditions, customs and customs, religious beliefs, attitudes and symbols; Ethnicity, cooking and eating habits, art-crafts and material usage; Status and social identity, concepts such as privacy, sovereignty and personal space, can be examined in this whole as social components of the culture. While examining these examples from different cultures, the reflections of human actions on the subject have been handled with this holistic view. [1]

People reflect their culture and social characteristics in their house and the use of housing. Here comes, house is the prominence of being perceived as an element of culture.

In the study, the Japanese house and the Turkish house will be compared. Traditional Japanese house was chosen because of strong tradition housing, a striking example of far eastern cultures and the roots of which date back to the depths of history. The most distinctive feature of Japanese culture is the importance given to nature.[2] Japanese gardens, flower arrangement art, and nature-integrated structures are characteristics that everyone knows. The Japanese nation, living in a land of many islands surrounded by rich vegetation, has developed a unique culture of space in history.[3] Within the scope of this study, the basic frameworks of working through these sources have been established by reaching the basic sources of Traditional Turkish House and Traditional Japanese House. The two cultures were compared separately. The concept of traditional house has experienced many stages during the time and differentiated also as a result of cultural interactions. Therefore, researching the traditional Japanese House and the Turkish House having historical trails, traditions and a rooted past is important.

Both of the house types were taken into consideration in terms of physical, social and cultural factors, and their characteristics were severally examined considering their plan typologies and space designs.

The purpose of this work is not to make a competition between different cultures and not to prove one culture's superiority on the other and to study how the aforementioned nations of two different cultures have reflected their cultural characteristics to their traditional houses and try to create a new discussion.

**Key Words:** *Culture; Traditional Houses; Turkish House; Japanese House; Dwelling-Culture Relation*

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## **1. Introduction**

Culture is an abstract term and it has many meanings. As an abstract term, culture is embodied in architecture. If culture is everything related to people and everything that person revealed architecture is entirely a cultural product. Especially as being production and consumption relations, culture is the sum of the accumulation of belief, value, norm, perception, customs and traditions and it is the infrastructure that manages all social and individual behaviors.

Culture shapes architecture as much as architecture shapes culture. Cross-cultural comparative studies can start from living space, which is the narrowest area of architectural design to housing which is the smallest building type, dwellings and urban studies. Housing is the most basic, most special type of building where the changing values are directly influenced and the intercultural examination can be done. The primary factor in the formation of the traditional home form is culture.

### *1.1. The Reflection of Culture to Architecture*

The contemporary Austrian architect, K.Schwanzer, defines architecture as "more thing than four walls and one housetop on our heads". This "more thing" refers to artistic, sociological, anthropological, aesthetic, historical and cultural structure. [6] For this reason, it is necessary that the relation of a person and architectural structure should be examined within the cultural structure and in the context of the cultural components of the cultures. Architectural products, especially housing is the result of culture, psychological processes, space, time, etc. which are integrative factors of each other. Architecture is an integrative scheme, creating a bond between the person and the place, and establishes an interaction between experiences and physical, socio-cultural, time-related contexts in the space where the person exist. So the meaning of an architectural structure reflects to use of the place which shows physical, sociocultural and time-related characteristics. Meaning of architectural space is provided with the establishment of the interactions like conformity, loyalty, identity, and so on. Through these concepts, architectural structures combine and direct people with past and future, physical and social environment.

The places people live in are the projection of the identities of people, societies, and civilizations. People shape their living space and the environment with their own social and cultural backgrounds.

The effects of cultural values on the space can be observed as concrete data when the structured environments of traditional societies are examined. The relationship between culture and the built environment is closely related to the change and transformation in the socio-cultural structure. Sociocultural factors have an important influence on the formation of the built environment and the local environment. The result of sociocultural characteristics is housing style, climate, materials, and construction methods. Culture and the built environment reproduce themselves with their own internal dynamics and provide their continuity.

### *1.2. Relationship of Housing and Culture*

The relationship between housing and built environment can be better understood by linking the culture with family and kinship structures, class structures, religion, sex, roles in society, social networks, hierarchy and status. Each settlement has different traditions, behaviors, and male-female relationships. These various relationships reflect in the houses, in the forms and in the settlements of the houses.

In relation of housing and culture, people reflect the features they have to their homes. The individual who learns the culture in which he was born in cannot be considered different from culture. People reflect the culture they acquired into housing and the way they use it through their personality.

Concepts such as education, family structure and its size, type of marriage, socio-economic status of family, family relations and kinship norms; customs and traditions, religious beliefs, attitudes and symbols; ethnicity, cooking and eating habits, arts and crafts understanding and use of materials, status and social identities, privacy, sovereignty and personal space cause change and transformation in the interior spaces of the house.

## **2. Traditional Turkish Houses**

It is possible to define the types of houses in which Turkish people live throughout history as Turkish houses. Turkish house has not got ethnic meaning. It has got a cultural meaning.

### *2.1. Factors Affecting The Formation of Traditional Turkish House*

The factors that make up the Turkish house are geographical, historical and cultural, social, technology and economic structure.

#### *2.1.1 Natural Physical Factors*

The natural data of Anatolia directly affected the form and application of the structure. Turkey is under the influence of various climates. There can be many different natural changes in a single season. In the Turkish house, spaces suitable for summer and winter life were created. All these climatic changes have resulted in a large number of different outcomes in Anatolia, both in the choice of materials and in the gathering of Turkish houses. Data of North Anatolia revealed wood structure, data of Central Anatolia revealed adobe and stone structure, data of Western Anatolia stone structure, data of South Anatolia wood and stone structure. Even if these structures were built under different conditions, the similarities in the outlines of the plans of the buildings are striking.

Changes in Turkey's topography have influenced the shaping of houses. The houses are shaped according to the slope of the terrain. One of the main principles in the formation of Turkish House is the tendency to separate the structure from nature.

#### *2.1.2 Socio-Cultural Factors*

The structure of society, religion, traditions and customs, life style, family structure are sociocultural factors affecting the formation of the Turkish house.

Most Turkish urban neighbourhoods are devoid of the trees apart from the fountain square or the vicinity of the mosque. On the other hand, individual gardens are full of plants, flowers and trees. One of the reasons of this is the housewife spends whole of her day at home . The Turkish house has been designed for the woman, providing her with separate areas for her work, leisure and social relations. Thus ground floor walls form a distinct barrier between interior and exterior. Social conventions are such that life is confined within a closed environment and nature has to be recreated inside the building.

The integration with the nature phenomenon is reflected with outward anteroom, garden and garden pavilions.

## *2.2. Characteristic Features of Turkish House*

The Turkish house has original room layout, specific plan schemes, multi-storey structure, original construction system, wide fringed and four-inclined roof layout. The Turkish house is often a few storey's. The stereo bate and the ground floor walls have complex structure which are made of stone, the sun dried mud brick stuffed machete. For centuries; stone, mud brick and wood were used jointly. There are limited solutions for introverted life and external relations. The size of the Turkish house is determined by the number of rooms rather than the size of the rooms. Another characteristic of Traditional Turkish Houses is that the socioeconomic difference between houses does not affect the main principles in terms of house plan and space structure.

## *2.3. Turkish House Plan Typology*

Socio-cultural values constitute the basis of the spatial structure of the traditional Turkish house. The plan in the Turkish house is formed by arranging the rooms around a sofa. Room's form, size and qualities are a little changeable living unit. The sofa, which we call the space between the rooms, is changeable by every property. That's why the sofa determines the type of house plan. Plan charts are classified as non-sofa, outdoor/open sofa, interior sofa, medium/central sofa according to stages of development. Houses with interior and medium sofas emerged in the later periods. The non-sofa type of plan is the most primitive plan chart.

## *2.4. Turkish House Space Structure*

If The Turkish house is examined from present day and the organization of the spatial elements we see that there are two fundamental elements forming the structure. These are Room and the Sofa, the common area between the rooms.

Privacy is very important while creating a space construct in a Turkish house. The introverted plan schemes that are necessary for the social life connected with Islamic religion are aimed at securing the important concept of Islam which is privacy. Depending on the principle of privacy, the plan chart of the building in terms of the organization of the space is in the form of street-yard-life-room layout. Thus, the courtyard has become a semiprivate transition between life and rooms, which are the main units of the street and the house. The fronts of the houses aren't oriented for the street, but for the garden. The ground floors of the houses are self-enclosed because of privacy. We can also mention privacy in the rooms of the Turkish house. It is not entered directly into the room so that the person looking from the door cannot see inside completely. The privacy approach is also reflected in the plans of the big houses; It has caused that the houses to be divided into two as harem and selamlıque.

The anteroom also provides sometimes a semi-open, sometimes closed passing between the outdoors and the interiors.

## *2.5. Architectural Elements of Turkish House*

The basic plan of Turkish House consist of the room, iwan and sofa.

### *2.5.1 The Room*

The room is the unit element of traditional Turkish house. The room is always the most isolated unit from the outside. It has a distinct shape and elements. The entrance berm, and usually the continuation of it which is closet wall, burner wall, the window wall which can be one or two in some cases are the determinants of the room. The form of the rooms is mostly rectangular. The reason for preferability of this form, the constant elements used in the furnishing of the room and their adjoint to walls of these elements. Every room in the Turkish house is a small family house. Therefore, each room was resolved as an independent unit and indoor fittings are designed and fitted in accordance with this understanding. All rooms are

equipped with a variety of functions such as lying, sitting, eating and even bathing. Respond of the room to different functions; is provided with portable, removable items during the action. Every room consists of two functional section. First one is entrance and service section. Second is sitting section. The middle area of the room is left empty so that it can respond to different actions. This spatial distinction in the rooms usually occurs with holding the sitting area a step of higher than under the berm.

In the design of the internal order of the room, internal-external relations were minimized. Protected by small windows and outer covers.

### *2.5.2 The Sofa/ Life Space*

The sofa is a very important element in the arrangement of the Turkish House. The sofa is an area providing access between the various rooms.

This space, which has been left open against external factors for a long period, is called life, sofa, *segah*, *arbor*. Sofa is a circulation space that connects the rooms, and it provides the transition between rooms, and also at the same time the whole household spend the daily life there, by gathering the weddings and the funs are organized. This area, provides circulation within the house, and it is a gathering area. The remaining part out of circulation is reserved for sitting. All room doors are opened to the sofa. Sofa is an intensive living and production area in good weather, especially in summer. Sofa is symbolizes nature. Sometimes it becomes a more sheltered place by creating an *iwan* between two rooms. The staircase which provides the vertical relation between the floors is also on the anteroom.

The numbers and forms of the sofa create the various types in the plan schemes. According to the form of the rooms are arranged around the sofa, it is separated into three parts as outer, central, inner sofa. The outer sofa are located on one side or on the corner of the house, the rooms are arranged on one side of the sofa. The inner sofa is located between two mutually-aligned rooms. The central sofa is located in the middle of the rooms and the house as the self-enclosed. Four rooms are placed on four corners of the sofa. The *iwan* enters between the rooms.

Life space is a place that is among the rooms and defines the rooms. This is a place which is between the street or the garden and the room where a great part of life has passed. This place is an inter-place, specifically it is neither inside nor outside. The distinctive feature that distinguishes it from other places is that it is preconceived, not incidental.

### *2.5.3 Iwan*

It is a non-functional element and in return, an element that clarifies the scheme of the house plan. In Turkish houses, the space which is located between the two rooms and is opened to life space or to the sofa and its surrounding is generally surrounded by cedar on three sides is called *iwan*. The most important duty of *iwan* is to strengthen life as an inter-place. The fact that the Turkish House has a clear plan scheme indicates the existence of a rational structure.

### *2.5.4 Garden*

In the Turkish house, the garden is usually made of stone, separated from the street by a wall that is compatible with the natural line of the street. The garden wall is made higher than human height so that it does not appear from the street. The characteristic feature of Turkish house gardens is that the gardens are always designed on human scale.

Houses are usually located on the road side of the land. There is a direct relationship visually with the Turkish house street. The houses meet with the garden or the courtyard through life space. The closer ground floor to the street is, the more open to the garden.

### 3. Traditional Japanese House

Managed by a constitutional monarchy located in East Asia, Japan has many characteristic features of Eastern culture. The Japanese say "culture bunka" to all languages, science, arts and crafts and their every application in life. For the Japanese, everything which man-made and a person can learn mean culture. Today, Japanese culture is an important representative of Eastern cultures with its specific characteristics.

#### 3.1. Factors Affecting The Formation of Traditional Japanese House

It is important to mention the traditions of Japanese society, the value judgments, the points of view, the geographical characteristics in terms of understanding the spatial structure of the traditional Japanese house, and setting up the relationship between culture and architecture.

##### 3.1.1 Natural Physical Factors

The land to settle down is quite limited. While the area of the islands is about half of Turkey, the population density is more than Turkey. The total population lives at 1/25 of the country due to extreme mountainous geographical structure. Because of the narrowness of the settlement area, they have developed their own spatial analysis.

According to Bozkurt Güvenç culture; There is an indirect effect of the natural environment on human and social behavior. Japan's traditional place culture can be given as an example of this influence. The spatial arrangements integrated with nature of the traditional Japanese house are a result of nature-related value judgments. [7]

##### 3.1.2 Socio-Cultural Factors

Tea and tea ceremonies, which are traditional beverages of Japanese society, are one of the important features of their culture. The tea ceremonies, called *Çanoyu*, are one of the features that constitute the cultural structure which affects many areas from architecture to landscape arrangement and to ceramics.

##### 3.1.3 Beliefs

In the eastern civilizations the human-universe relation is based on the Farewells grounding mutual interaction. Japanese society has been influenced by Farewell in education system, family relations, customs and traditions, beliefs. According to the Japanese tradition, the preservation of nature and harmony with nature is the result of *Shinto* belief. Some practices in the traditional place are based on this holiness. Attention is paid to the harmonize of the building with the nature and the environment, and the integration with the landscape.

#### 3.2. Characteristic Features of Japanese House

The core of Japanese tradition is; to transfer Human-nature relation to the structures. If the design features of the Japanese house are to be examined: The building is in harmony with the environment and the garden. At the front of the building there is a porch closed with roof eaves, open-sided which is called *engawa*. There is an entree called the *genkan* at the entrance gate. The internal compartments are separated by light wooden divisions and doors known as *fusuma-shoji*, which can be inserted and removed when desired. In the rooms, the roof space is separated by a wooden ceiling divider. Between the rooms, there are built-in cupboard and local closets. In the living room, there is a seat of honor and art called *tokonoma*, and a family table is put in front of it which takes natural light. Use of natural materials in structure elements. Being direct

and not open, being not symmetrical and being not definite separation inside and outside are the characteristic feature of the traditional Japanese house.

### *3.3. Japanese House Space Structure*

The Japanese nation, who live in a land of many islands surrounded by rich vegetation, has developed a unique culture of space throughout history. The Japanese house carries an open-plan feature that harmonizes with nature. In the Japanese house, the boundary between indoor and outdoor space has not been precisely defined. Instead of being apart from the nature; there was shoji which was covered with a special paper, allows easy opening to carefully designed inner garden.[8]

Inner garden is provided to be integrated to house with light separator called fusuma which enables flexible arrangement in interior spaces and allows spatial continuity by sliding on each other, bamboo, anteroom and patio elements. This continuity is based on full coexistence with nature, beyond providing only visual connectivity through a transparent glass. Japanese houses are not properly shaped. The Japanese used asymmetry from the architect to the art of flower arrangement. The main reason for using asymmetry is; to create moving beauty which is done by the balance change between right and left. The spatial order is composed of by repetitions of 5-6 cm thick, approximately 90x180 cm in dimensions, upper surface covered with woven natural materials such as fibers and stalks called tatami and elements of wooden carcass structure systems. Tatami rush mat is the basic unit for the regulations in the house and it is based on human dimensions. The upper floors of Japanese rooms and residences are measured by tatami upper times or tsubo (two tatamis). It is formed according to needs without being shaped according to a uniform geometric shape, with the plan formed by adding the units side by side. For this reason, with the indented protruding structure, outer boundaries are formed in which the nature is inside. It is strengthened with semi-open spaces called engawa, which looks like open indoor or outdoor anterooms in Turkish house.

One of the most important factors determining traditional space structure is geographical conditions. In Japan, 80% of the islands are mountainous and 88% of the mountains are covered with forests, so settlement is very limited. Constructions in this limited settlement; is located in the mountainous regions conforming to the hills and valleys, while the plains are placed according to the geometrical form of the rice fields.

Due to the shortage of space in Japan, a special solution has been developed for space design. In order to show small areas bigger, the whole area is usually designed not to be perceived as a whole by the users. The impression of hanging in a larger place is created in users' minds. Hence, reaching the entrance of a structure is indirect, as if it were a long distance.

Different places have been created in terms of privacy in traditional Japanese houses. In the entrance area called Genkan, the service entrance called Katteguchi is separated from the housing section as separate sections. These separate sections are also used for the reception of guests.

According to Yagi, transitional spaces; Entree, patio and curtain elements. The entree from which the shoes are removed, that is the genre, represents the transition from the outside to the inside. Engawa is a multipurpose space where people can relax or have fun with the guests. The curtain factor allows humans to integrate nature by seeing and hearing.[9]

There is no Western-style room in the traditional Japanese house. In Japanese architecture, there are a wooden structural frame and folding screens. When the folding screens are closed during the rails, the rooms in the Japanese house were described; when opened they forms the Japanese house opening and creates a single space. The rooms do not only respond to a single process, but are designed to fit any kind of use when necessary. Moving compartments and



furnitures allow the room to change. Spatial change allows the rooms to be expanded and ventilated in summer; allow energy save while heating in winter [9]

The material used in the construction system in Japan the weather conditions and earthquake factors has been considered. Considering hot and humid climatic conditions, materials with low heat capacity such as wood are used. Due to the frequent earthquakes in the region, the use of heavy materials such as bricks and stones has been avoided. The unprocessed materials used in the indoors to ensure that the room has a peaceful and soft tones. The colors used in the spaces are white or light brown, and the surfaces are matt. Organic materials were mostly selected

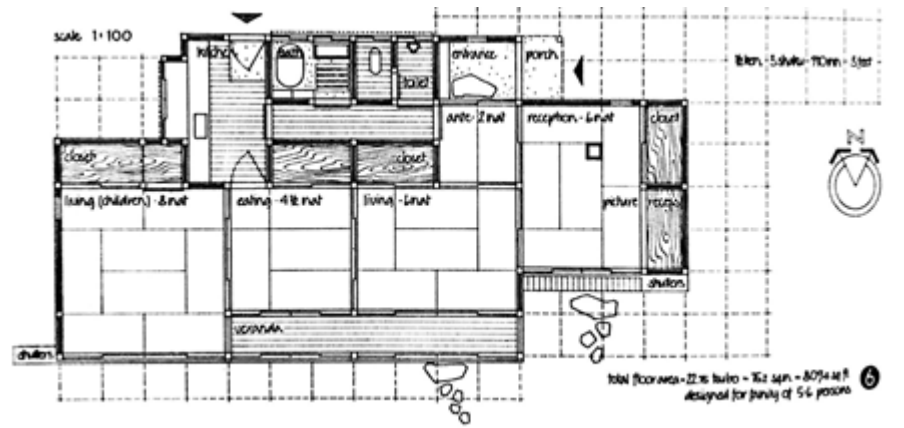


Fig. 1. Examples of typical residence: designed for family of 5-6 person [9]





The same space can be used for eating



Entertaining visitors



And sleeping

Fig. 3. Tatami patterns and ways to use tatami [9]

### 3.4 Japanese House Architectural Structure

Traditional Japanese House has a special architectural structure. Teahouse, shoji, tokonoma, fusuma, tatami, garden are some of them.

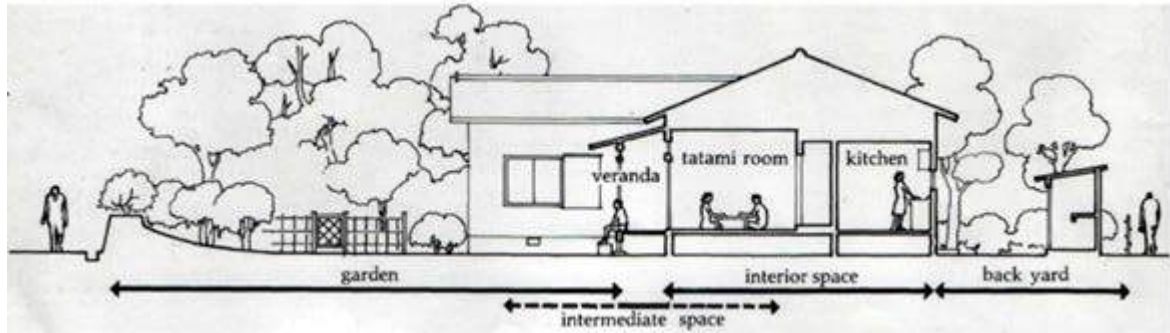


Fig 4. Traditional Japanese House architectural structure

#### 3.4.1 Teahouse

The tea cult was introduced to Japan along with Buddhism. It is based on the studying of one's own life during the preparation and drinking of tea. During this ceremony a silent communication between the host and the guest is indisputable. Such an important aspect of culture requires a special space around the house. In Japanese architecture, their unique architectural style which is used in tea houses, is called *sukiya*. Simple forms, small sizes, natural materials and asymmetrical plan schemes are used in the style of *sukiya*. *Sukiya* architecture is the essence of traditional Japanese architecture. The teahouses are simple structures that unadorned, built with untreated materials, sunlit, asymmetric.[10]

#### 3.4.2 Shoji-Fusuma

*Fusuma* and *shoji* are the main mobile and wood items of the Japanese traditional place. Semi-transparent sliding doors are one of the unique elements of *Shoji* Japan space. While the *Tatami* floorings provides a revitalizing and sensory covering, *shoji* doors differentiate the soul of the space. While *shoji*'s carrier system is being made of wood, paper, fiber or glass materials are used between the carrier systems. *Shoji* is not only used in interior divisions but also borders of inside and outside of the space. The paper, which is the covering material of *shoji* used in the indoor, is a structure that transit light but not the air current. The general purpose of *Fusuma*, which is light-proof, portable, divisive, opaque sliding doors, is to distinguish traditional rooms created with *tatami*s and to create larger spaces when necessary. *Fusuma* is also made up of a wooden carrier system like the *shoji*. In *Shoji*; while the light-transmitting papers are attached to one side, in *fusuma*; the opaque paper or cloth wood carrier are used on both sides of system.[11]

#### 3.4.3 Tokonoma

In Japan, the hanging of various works of art on the wall has become traditional in time and the place called *tokonoma* has formed. *Tokonoma* is a place where the wall hanged becomes distinct by difference of levels, furnished with decorative elements (vases, candlesticks, flowers) for appreciation of artwork. [11]

#### 3.4.4 Garden

Japanese gardens are symbols of nature. Japanese gardens are one of the typical characteristic features of society. Japanese gardens are worldwide known art works. The landscape that is common in Japan is mountain and water (*sansui* = mountain, water). The purpose in garden arts is the creation of human beauty by taking its natural beauty. The garden which is an artificial element, should be compatible with nature. In Western culture, the garden is visible from the

outside, while the building is located on the back, which is has more privacy. Japanese gardens can be easily seen from indoor the house. In the design of Japanese gardens, are used that flower, rock, water, vegetation natural elements. Stay away from designs that will give people an artificial impression. Attention is paid to the integration of artificial elements such as road, bridge and building with nature. Artificial lakes, small pools which are added later to the gardens, do not have a definite geometric shape, they have natural appearance. The aim here is to gradually experience the garden by traveling around, rather than perceiving it as a whole. [12]

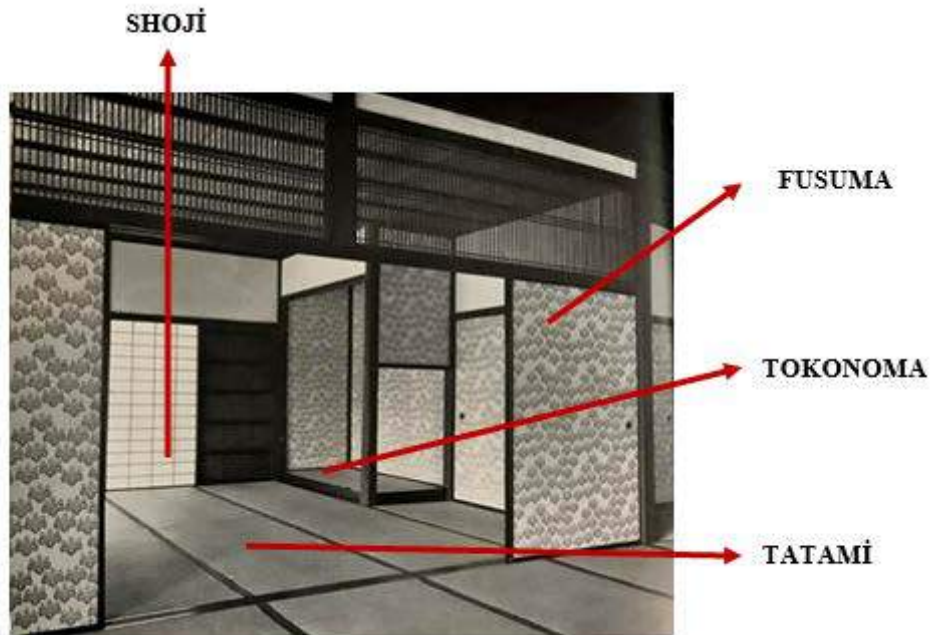


Fig 5. Traditional Japanese House structural elements

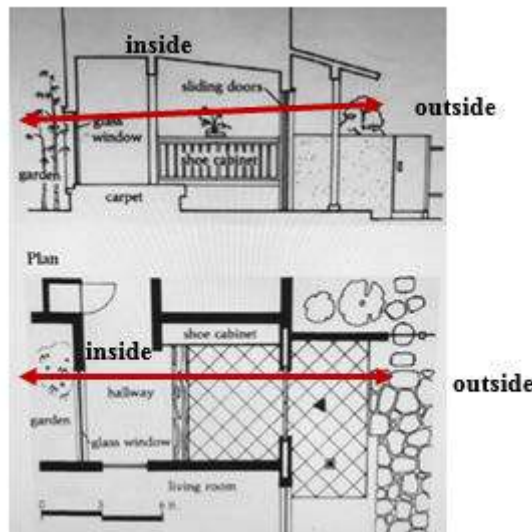


Fig 6. Visual continuity from the garden outside to the courtyard garden inside is achieved in this plan



Fig. 7. Interior and exterior space combination

#### **4. Conclusion**

Both types of traditional houses have been examined in terms of physical and social and cultural factors and the characteristics as plan typologies and space constructions have been examined separately. The main purpose of the study is; to examine how the two societies with different cultures reflect the cultural characteristics to traditional houses and thus create a new base for discussion.

Both types of vernacular homes also take into account natural factors such as climate and topography. Depending on the local characteristics, houses are different from each other in form, with material and construction techniques, but the plan schemes remain the same conceptually in terms of their continuity.

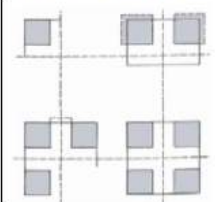
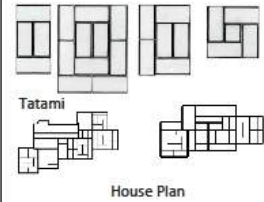
Although in both traditional house types construction systems are different, wood is used as the dominant material. This is due to the fact that the wood is the oldest traditional material used since the early ages. With the use of wooden materials, houses are of a natural simplicity. Besides, both traditional house types have been standardized by modulation. In the basic floor plan of the Turkish house, a very clear modulation in terms of the room was made. In the traditional Japanese house, the tatami rush-mat was the basic unit in spatial regulation. Houses consist of rooms with 4-6-8-10 tatami sizes.

In both traditional houses, the rooms are designed to respond to many functions. Contrary to the fact that there is no fixed element in the traditional Japanese house, the cupboards like the closets are fixed in the wall in Turkish houses.

In the traditional Turkish house, indoor and outdoor are separated by a definite limit. In the traditional Japanese house, there is no definite boundary or distinction between indoor and outdoor.

The garden and courtyard are indispensable elements for both communities. The garden is carefully designed, at least as in-house. There is a fountain or pool of the garden or courtyard. The pools in the garden of the Turkish house have a clear geometric shape. There is no clear geometric shape in the artificial lakes or pools of the traditional Japanese house, giving the impression of natural water element.

In the study, it is seen that the cultural phenomenon reflects on the architectural spaces and the places that are experienced do not appear without reason. In this causality, the dimension of the cultural effect is felt in relation to man-space. As the culture of individual who uses, perceives, interprets the space differentiates, the relationship between man and environment is also differentiates. As the concept of culture changes from society to society, the living-spaces also changes.

	CULTURAL INDICATORS	
	TRADITIONAL TURKISH HOUSE	TRADITIONAL JAPANESE HOUSE
<b>FACTORS AFFECTING THE FORMATION OF THE PLAN</b>	Climate, local material, lifestyle topography, worldview, religious belief	Climate, local material, lifestyle, topography, worldview, religious belief, Zen
<b>MAIN UNIT AFFECTING THE FORMATION OF THE PLAN</b>	Sofa	Tatami
<b>CONCEPTUAL FEATURE</b>	Usually asymmetric, sometimes symmetric, Hierarchical editing, Privacy	Asymmetric, Permeability, Flexibility, Modularity, Adaption to nature
<b>STRUCTURE FORM</b>	Privacy Absolute distinction between interior and exterior	Sukiya style Lack of clarity of interior and exterior space
<b>PLACE FORM</b>	Asymmetry, Sofa, Life Space, Iwan, Courtyard, Garden	Nature- Human Relation Traditional Japanese Garden, Asymmetry, Engawa, Genkan, Tokonoma, Alcove
<b>MATERIAL USE</b>	Natural material	Natural material Human- nature relation
<b>LIGHT USE</b>	Daylight use, top window (privacy and daylight use)	Emphasis on nature human relationship
<b>COLOR USE</b>	Sometimes ornament, sometimes natural texture, special texture	Natural texture, natural color
<b>TYPOLOGY PLAN</b>		
<b>BASIC PLAN CHARACTER</b>	Inward, can produce,	Extrovert, can produce
<b>INTERNAL - EXTERNAL UNITY</b>	Vertical	Horizontal

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## NEW OFFICES OF GENERATION Y: COWORKING SPACES IN ISTANBUL

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### **Abstract**

The increasing digitalization of society has introduced new ways of working, new generations of employees and new lifestyles. According to Brooks [1], the information age has produced entirely new job categories, some of which seem like practical jokes, though you would not know it from their salaries: creativity officer, chief knowledge officer, team spirit

coordinator, web page designer. Work, which once was simply a means to earn money, now is much more since young professionals tend to regard work as a form of self expression [2], According to a survey by the consulting firm Deloitte, among young people who are looking for urban jobs, 71% put in the first place the design, comfort and the offers in the working environment rather than the salary, company size, etc [3].

This paper explores the emerging trend of coworking spaces in Istanbul. Settling around central financial and business districts, these companies supply entire office infrastructure and services for mobile and flexible working. To their members, they offer tailor serviced desks, private offices, team meeting rooms and conference rooms according to required size and needs, the option to scale up and down and office management for increasing efficiency and productivity. Through chance meetings and cultural events, they offer new social and business networks for unsocial freelancers and young professionals. Besides all, these on-demand office companies are claiming to offer work environments with soul, which makes it even more critical for design research. Some transform old buildings, which already have their stories: such like an old embroidery factory in financial district of Levent. Others are fitted in several floors of glass-steel plaza towers and shopping malls in the centre of big cities.

The main purpose of this paper is to analyze the increasing number of coworking spaces in Istanbul basing on the ideal of "electronic cottage" [4], which combines living, working and recreation in a single space. The characteristics of "Third Places" [5] are traced from the coworking interiors by investigating their spatial amenities and design concepts. All data is supplied from sharedesk.net, an online platform for finding, booking and sharing spaces to meet and work. The spatial amenities of available coworking spaces in Istanbul's European CBD Levent, are then discussed within economic, socio-professional, cultural, territorial and spatial dimensions of "Third Places".

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**Key Words:** *Coworking space, on-demand office, digital and communication technologies, gig economy, third place*

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## 1. Introduction

Coworking spaces have lately become a global phenomenon, spreading over all cities, continents and all kinds of economies. Advancing digital and communication technologies together with severe economic conditions have changed the ways and places people work. When new possibilities and terminologies of work such as "freelance", "part time", "flexible hours", "work at home" and finally "home at work" became possible, original trends in office design emerged. This paper investigates the emergence of coworking spaces as "third spaces", places between home and work, by addressing to the changing workforce and future scenarios of office space in the third wave. A case study is done in Istanbul's European CBD Levent, to display the characteristics of coworking spaces, which may then be guidelines for future workspace design.

### 1.1. Generation Y Workforce in Gig Economy

In today's modern digital world, it's becoming increasingly common for people to work remotely or from home. Together with the obligations of current financial crisis worldwide, the general trend is toward gig workforce economy where temporary, flexible jobs are commonplace and companies tend to hire independent contractors and freelancers instead of full-time employees. This fact suits well to the characteristics of generation Y or Millennials, people born between the years 1980-1999. They have just entered business life or begun taking important roles. These people love to be independent therefore they make others free. They are self-confident individuals inclined to criticism. They have grown up with computer and internet. Hence they are smart and used to do more than one job at the same time. On the other hand, they are social and place a high priority on family and friends. The Families and Work Institute describes Generation Y as more "family-centric" or "dual-centric" (with equal priorities on both career and family) and less "work-centric" than other generations[6]. However, they work just as many hours, and in some cases even more, than Baby Boomers did when they were a similar age. Generation Y members select "hardworking" as their number one quality, which demonstrates that the group understands the direct connection between hard work and success. Indeed Generation Y, is the type where the distinction between generations is felt the most. Their different characteristics, behaviors and desires are also reflected in the ways and places of doing business.

In a speech laying out her economic plan, Hillary Clinton said: "This on-demand, or so-called gig, economy is creating exciting economies and unleashing innovation. But it is also raising hard questions about workplace protections and what a good job will look like in the future" [7]. Field Nation, the leading online work platform for connecting businesses and workers, and Future Workplace, an executive development firm dedicated to rethinking and re-imagining the workplace, announced the results of a study entitled "The Gig Economy". Following a national survey of 600 human resource decision makers and 959 freelancers in America (Fig. 1), it was found out that 60 percent of companies planned to hire more freelancers than full-time employees. 45 percent expected to increase their hiring of freelancers by 30% or more and nearly a third expect to continue to hire relatively more freelance workers by 2020[8]. .

Companies view the top benefits that freelancers have over full-time employees as having a more flexible team (46%), that they can often start working immediately (46%) and the ability to access specific niche skills (45%). Aside from benefits, the top concerns with managing freelancers include their availability (41%), their technical capabilities (35%) and managing a consistent brand experience (34%)[8]. .

Among freelancers 45% said that their typical freelance contract is for between 1 and 5 months in length and nearly 80% work less than 40 hours per week on 5 clients or fewer (53%). More than half of stated that their typical freelance relationship lasts greater than 10 months and may span multiple projects. When asked what their primary satisfaction is as a freelancer, 40% said better control over their time, followed by 24% who said their ability to use their skills to do things on their own terms. A staggering 74% indicated their ideal

employment situation is freelancing or small business ownership as opposed to having a traditional full time job[8].

Beginning from the early 2000s, due to the Global Financial Crisis, advancing digital and communication technologies, and an increasing sense of urgency around global population growth and resource depletion, consumers have become increasingly interested in leasing and sharing products, instead of buying and owning them. The emerging market for short-term rentals has been named as "sharing economy", collaborative consumption," "peer to peer economy" or "uberization". Required by technology enabled gig work and sharing economy coworking spaces, as a new office typology, have become popular in big cities. Using online platforms, such as sharedesk.net, mobile workers may find several venues to work from a shared desk to a dedicated office space and book them instantly by the hour, day, or month. In addition, these on-demand office spaces invite their customers to join an “ecosystem” and to “connect” with other “creators in the network”.



Fig. 1. The Rise of the Blended Workforce in the New Gig Economy

### 1.2. Future scenarios of office space in the third wave

The rise of the information revolution together with internet based products and services have had a great impact in the society and its institutions, which was termed as a digital dawn or the third wave. However, people are still struck by the possibilities it may offer for their lives.

*"We are, I believe, at the beginning of a Third Industrial Revolution that will reshape not only our industrial processes, but also bring with it great changes that will affect us all. The First Industrial Revolution of the eighteenth century brought fundamental but primitive changes in the allocation of people, resources, and energy. In the Second Industrial Revolution, the revolutionary impact of automobiles, photography, electric power, and industrial chemicals made the United States a foremost industrial power. ... The history of the Third Revolution begins with the information revolution brought about by the computer and made effective as a revolutionary device in the microprocessor which continues to drive the expansion and diffusion of the new knowledge-based processes. But the Third Industrial Revolution goes far beyond the computer and the microprocessor. Each decade since the Second World War has brought crucial developments in related areas of CAD/CAM, fiber optics, lasers, holography, biogenetics, bioagriculture, and telecommunications. The synergy of these new scientific/industrial areas will change the way of life for the next half-century and beyond [9]"*.

In several writings on the future of office space, the emergence of telecommunication and its transformational power on the way we live and work were foreseen. Some futurists even claimed that people wouldn't need offices anymore. According to Mitchell [10] *"Gobs of back office work can, be excised from downtown towers and shifted to less expensive suburban or exurban locations, from which locally housed workers remain in close electronic contact with the now smaller but still central and visible head offices. These satellite offices may even be transferred to other towns or to off shore locations where labor is cheaper. The bedroom communities that have grown up around major urban centers also provide opportunities for establishing telecommunicating centers-small, Main Street office complexes with*

*telecommunication links to central offices of large corporations or government departments. (...) Another strategy is to create resort offices, where groups can retreat for a time to work on special projects requiring sustained concentration or higher intellectual productivity. (...) In insurance companies, and other organizations that sell disembodied products or take orders to be filled later, travelling sales people can readily be transformed into high-technology nomads who remain continually online and almost never visit the home office. More radically, much information work that was traditionally done at city-center locations can potentially be shifted back to network-connected, computer-equipped, suburban or even rural homes". Mitchell also refers to previous work, who could see this coming way back in 1960's, well before the birth of the personal computer. "We may see a return to cottage industry, with the spinning wheel replaced by computer terminal and that in the future some companies may have almost no offices [11]".*

According to futurists like Toffler [12], the wired home would be an "electronic cottage" that strengthened family and community bonds. *"The popular fear- that computers and telecommunications will deprive us of face-to-face contact and make human relations more vicarious- is naive and simplistic. In fact, the reverse might very well be the case. While some office or factory relationships might be attenuated, bonds in the home and the community could well be strengthened by these new technologies. Computers and communications can help us create community."*

A paradox pointed out by Howells [13] is that ubiquitous digital connectivity often leads knowledge workers to become increasingly isolated. Such as Apple's or IBM's employees submitted to desk-sharing and nomadic work, they may lack of social and professional interaction, and meeting opportunities. Coworking spaces promising alternative work environments and networks for gig workers are therefore considered as 'third spaces'.

*"The existence of the Techno-Cloud means that the office is both ubiquitous and dematerialized. The workplace has infiltrated even the most intimate of domestic spaces. Differentiation between home and office, no longer accomplished by material or spatial separation, has become the responsibility of the worker. This renders the traditional social and architectural boundaries of the office obsolete. [14]"*.

### *1.3. Coworking spaces as "third places"*

Third Place is a concept or philosophy founded and explored by sociologist Oldenburg in his influential book *The Great Good Place* (1989). He considered the first place for an individual was his home and the people with whom he lived. The second place was where he worked and the place he spent the majority of his waking hours. The Third Place was the public setting that hosts regular, voluntary, and informal gatherings of people. It was a place to relax and have the opportunity to know and be known by others. Therefore third places, such as cafes, coffee shops, bookstores, bars, hair salons and other hangouts at the heart of a community, were important for civil society, democracy and establishing a sense of place. Coworking places, reinforcing home at work experience, can be considered as "third places" due to social interaction and community life. However, they own several distinct spatial values shaped by environmental, functional and economic factors (Table 1).

Table 1. Comparison of eight characteristics that "Third Place"s share with spatial values of coworking spaces

Eight characteristics that Third Places share (Oldenburg, 1989, 1991)	Spatial values of coworking spaces
<ul style="list-style-type: none"> <li>• <i>Neutral Ground.</i> People are free to come and go as they please. There are no time requirements or invitations needed. Much of our lives in first places and second places are structured, but not so in Third Places.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>“On demand” spaces</i> Time and service limitations change according to types of membership.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Act as a leveler.</i> People from all walks of life gather in Third Places. There are no social or economic status barriers.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Community of well educated high income earners</i> Freelancers, remote workers, and other independent professionals</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Conversation is the main activity.</i> The talk is lively, stimulating, colorful, and engaging.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Work is the main motivation.</i> Flexible solutions such as hot desks, dedicated desks, private offices, meeting spaces and conference rooms according to user needs.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Assessable and accommodating.</i> They tend to be conveniently located, often within walking distance of one’s home.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Around CBD’s in big cities</i> “Just in time” use depends on the locationing and availability of chain offices in the city</li> </ul>
<ul style="list-style-type: none"> <li>• <i>There are regulars.</i> It is easy to recognize that many patrons are regulars at the establishment. But unlike other places, newcomers are welcomed into the group.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Networks develop and grow.</i> Each comember is extremely talented and therefore appreciated in the network. Interaction and connections are enabled in business, soci,al and global networks.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Low profile.</i> As a physical structure, they are typically plain and unimpressive in appearance.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Inspirational creative interiors</i> Brand new furnitures, materials and technology to increase productivity.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Mood is playful.</i> With food, drink, games, and conversation present, the mood is light and playful. The mood encourages people to stay longer and to come back repeatedly.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Friendly but professional environments</i> Enriched networking events, training programs and social events.</li> </ul>
<ul style="list-style-type: none"> <li>• <i>A home away from home</i> At their core they are places where people feel at home. They feel like they belong there, and typically have a sense of ownership.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Home at work</i> Relaxed, informal mood with comfortable seating and good coffee</li> </ul>

"In 1983, Howard Schultz (Starbucks president and CEO)... had a vision to bring the Italian coffeehouse tradition back to the United States. A place for conversation and a sense of community- a third place between work and home [15]"

The workspace philosophy changed with coffee shops like Starbucks offering Wi-Fi, power outlets, large tables and proper seating for working people. Similarly, restaurants and bookstores have been hangout places for students, white collars, entrepreneurs and venture capitalists with laptops. Several annoying facts such as places that limit Wi-Fi use to a half-hour, own only have a few outlets in the back or ask customers to buy multiple drinks and dishes over the course of a few hours together with problems of privacy, over crowedness and noise, have doubled the need for coworking spaces. The information about the very first coworking office is varying in different sources. According coworkingmap.com, it was a 35-seat start-up in a typical glass facade Regus office building in Anvers, Belgium. On desk map.com, the pre-stage for coworking spaces was C-base, founded in 1995 in Berlin, as one the first hacker spaces worldwide. According to the Digital Society Forum, the first official "coworking space" was Spiral Muse, opening its door in San Francisco in 2005 by the programmer Brad Neuberg, as reaction to "unsocial" business centers and the unproductive work life at a home office (Fig.2 and Fig. 3).



Fig. 1. Initial Coworking Offices

Fig. 2.(a) Regus office building in Anvers, Belgium; (b) C-base in Berlin; (c) Spiral Muse in San Francisco

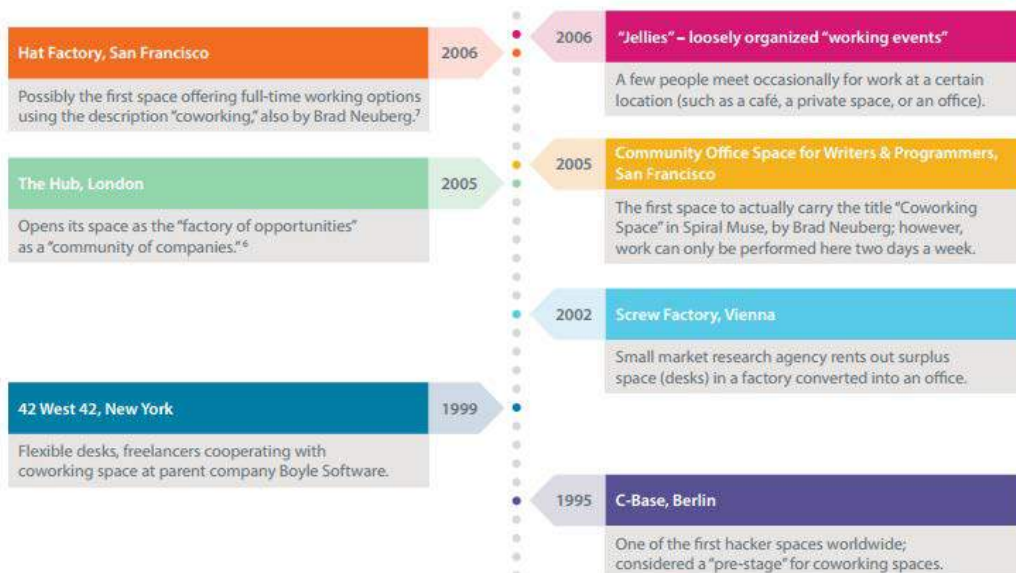


Fig. 3. Coworking Timeline[16]

Coworking spaces have lately become a global phenomenon, spreading over all cities, continents and all kinds of economies. Online there exists several maps such as CoWorking Spaces Map on Google, coworkingmap(Fig. 4)., Jelly, Telework, Likemind and other types of "hoteling" sites for business people and entrepreneurs alike. They each provide data, directly

from the coworking companies, around the world. However their data bases do not reach all the cities and companies yet. Though the statistics are differing, they all point out the aggressive increase and general trends in coworking office use.

According to The Global Coworking [17] survey by the online magazine Deskmag, coworking spaces are growing significantly from 8,700 to 13,800 between 2015 and 2017, with the number of members increasing from half a million to 1.2 million in 2017. This enormous increase highlights both the rise of the ‘Gig Economy’ and how large corporates and enterprise businesses are now using coworking space to capitalize on access to talent and the increasing demand for flexible working initiatives.

The 2017 Coworking Forecast [18] occupancy rates in coworking spaces is just about 60%. Around 40% use a coworking space at least every work day, and 30% show up three to four times a week. In 2017, two out of three coworking spaces intend to expand their floor space. Coworking spaces anticipate more members (86%), higher income (81%), more events (71%), and a greater sense of community (84%) in 2017.

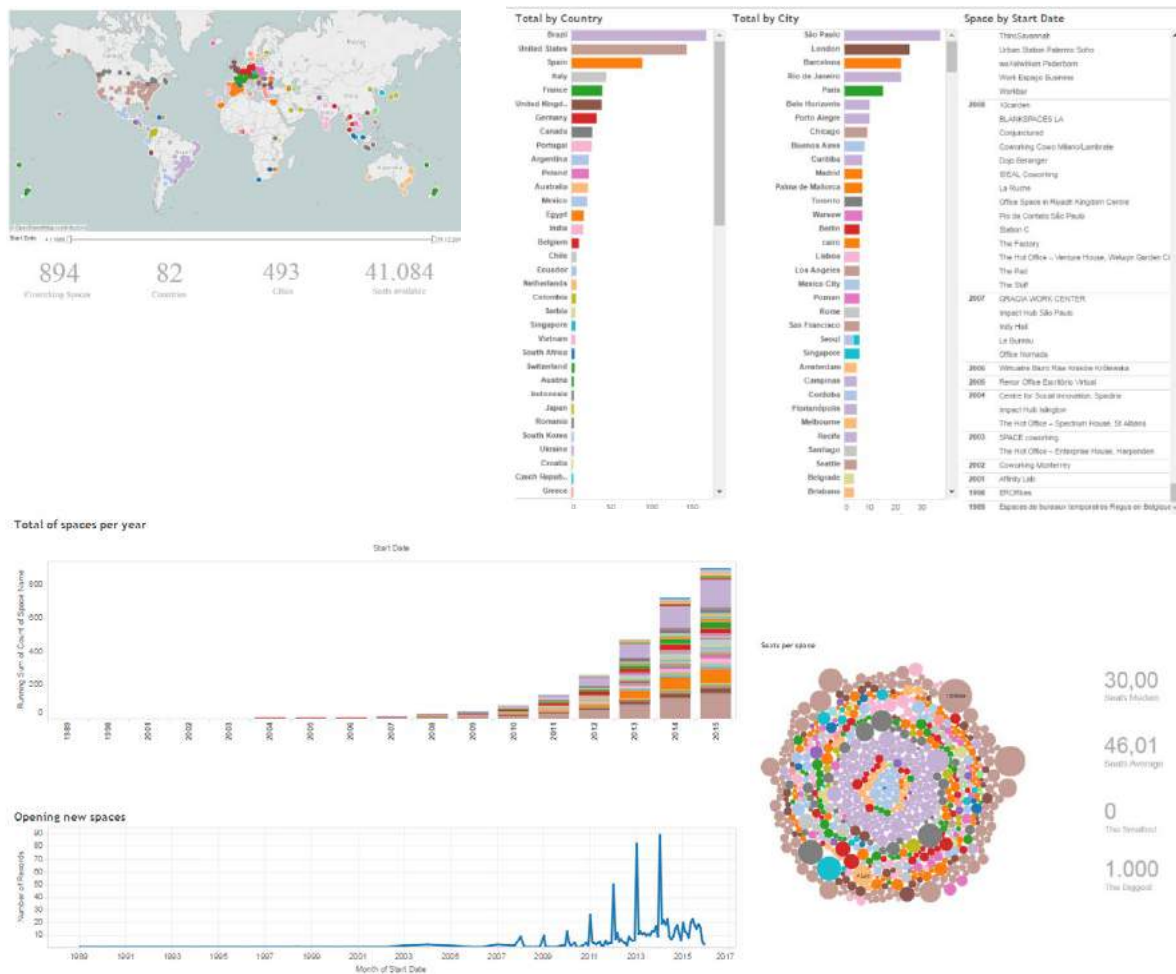


Fig. 4. CoWorking Stats from coworkingmap.org

## 2. Coworking in Istanbul’s CBD in Europe: Levent

3. In Istanbul, coworking spaces have been popping up intensively in the city especially around CBD’s. Due to geographic location, CDB districts are divided in two areas as Asia and Europe. Istanbul’s CBD in Europe, which is the area of research in this paper, starts at the Barbaros Boulevard and then continues through the Buyukdere Avenue and finishes at the Maslak district. This axis includes Levent, Etiler, Maslak, Zincirlikuyu-Esentepe-Gayrettepe and Besiktas,-Balmumcu districts. Levent is easily accessible through the Bosphorus Bridge (renamed as 15th July Martyrs’ Bridge) and Fatih Sultan Mehmet Bridge from the Anatolian Side. The availability of public transportation like the metro and metrobus line together with

the easy reach of ferry and boat terminals in Beşiktaş makes Levent, a popular district for corporate headquarters and branch offices of international and local companies.

Starting from the late 1980s, Levent has become a little Manhattan with the increasing number of skyscrapers. Mostly owned by Turkish banks and conglomerates, projects such as Sabanci Center, Yapi Kredi Towers and Metrocity Towers etc. transformed Levent to a central business district. At present, Levent hosts the tallest skyscraper of Istanbul and Turkey, the 54-floor Istanbul Sapphire while the construction of numerous new mixed use skyscraper projects and shopping malls are ongoing in the neighbourhood. It is prestigious for companies to take part in Levent-Maslak line, Istanbul's most expensive office district.

The main purpose of this paper is to analyze the increasing number of coworking spaces in Istanbul basing on the ideal of "electronic cottage" [4], which combines living, working and recreation in a single space. The characteristics of "Third Places" [5] are traced from the coworking interiors by investigating their spatial amenities and design concepts. All data is supplied from sharedesk.net, an online platform for finding, booking and sharing spaces to meet and work (Fig. 5). The spatial amenities of available coworking spaces in Levent (Table 2), are then discussed within economic, socio-professional, cultural, territorial and spatial dimensions of "Third Places".

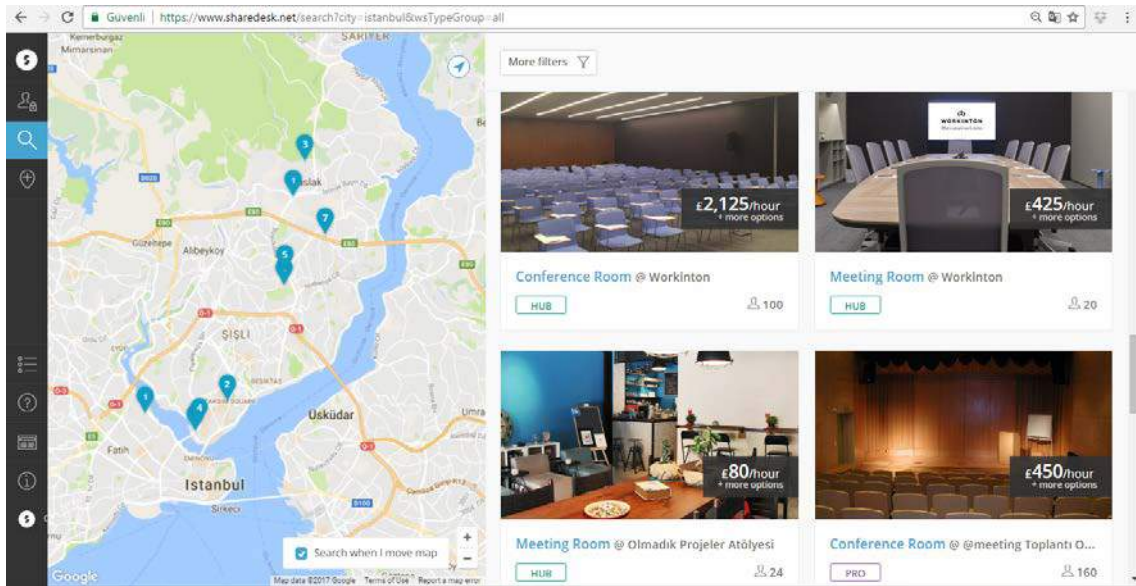


Fig. 5. Coworking office search in Levent on ShareDesk



Table 2. Spatial amenities of coworking spaces in Levent

	Area	Chain	Hot desk	Dedicated Desk	Private Office	Meeting Room	Conference Room	Virtual Office	Open Hours
CoWork1		Istanbul(17) Worldwide (3000)			100\$/day (for2)	X		X	
CoWork2	135m2 5rooms 3desks		34TL/day		90TL/day (for2)				9 am-6 pm Sat-Sun closed
CoWork3	520 m2 11rooms 40desks				950\$/month (for5)	25\$/hour (for6)	100\$/hour (for40)		8 am-8 pm Sat 9 am-4 pm
CoWork4		İstanbul(3)	580TL/month	1200 TL/month	3300TL/month (for2)	X	X	X	7/24
CoWork5	2600m2 25rooms 85desks	İstanbul(9) İzmir(1) Ankara(2)	34TL/day	34TL/month	4000TL/month (for2)	425TL/hour (for20)	2125TL/hour (for100)	X	8am-8pm Sat-Sun closed
CoWork6	50 rooms 127desks	Levent(1) Maslak(2) Umranıye(1) Ataşehir(1) Şişhane(1) Kağıthane(1) Ankara(2)				60\$/hour (for10)		X	9am-6 pm Sat-Sun closed
CoWork7	1330m2 6 room 6 desks		60TL/day			120TL/hour (for12) 150TL/hour (for40) 180TL/hour (for60) 240TL/hour (for85)	450TL/hour (for160)	X	9am-6 pm Sat-Sun closed

#### 4. Findings

Co-working spaces can be defined as third places with four main dimensions: economic, socio-professional cultural, territorial and spatial (Digital Society Forum).

Economic dimensions of coworking spaces are the ways of generating revenues. In Levent, those are:

- Free amenities on venue such as; Parking Space, Wi-Fi/Internet, Catering, Kitchen, Bar/Restaurant, Scanner/Printer, Projector(s), Phone (booth/lines), Fax, Air Conditioner, Mail service, Lockers, Daily cleaning and/or
- Amenities on fee such as; Print voucher, Virtual Office, Communication Package, Coffee and Roastar.

Socio-professional dimensions transform coworking spaces to places of reference where professionals in the same field can meet, discuss and work. In Levent, they are either,

- Neighboring big companies and sharing the same office towers (CoWork1-3-7),
- Rented workplaces in professional firms which are already experienced (CoWork2)
- Fitting in transformed buildings: such as from an old brothel factory into a working and living space (CoWork4) or
- Locating in shopping-office-housing complexes (CoWork5-6).

Cultural dimensions are creating places where certain principles and values of openness and sharing are promoted. In Levent, they are

- Events like brunch, jammin ', explore, diaries, concerts and talks etc.,
- Wheelchair accessibility
- Pets being allowed.

Territorial and spatial dimensions encourage chance and non-linear meetings. Coworking spaces in Levent

- Mostly locate in high rise business centers, open hours are limited with regular work days and hours, generally between 8:00 am- 6:00 pm and closed at weekends. However four of them (CoWork1,4,5,and 6) offer 7/24 option by directing their users to other stations of the company in different parts of the city. Owned by a multinational corporation CoWork1is even offering Coworking Visa, that allows to work from other spaces in the world for three days.
- The availability and capacity of services; such as larger team rooms, virtual offices, large conference centers and meeting rooms etc. increase the interaction and collaboration (Fig. 6).

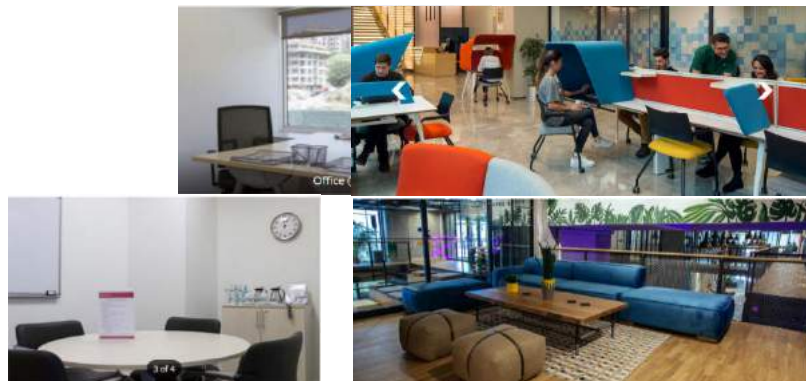


Fig. 6. Territorial and spatial dimensions of coworking spaces in Levent

## **5. Discussion**

New lifestyles, modes of communication and economies demand new ideas, inspiring concepts and alternative spaces from designers. Hence, the coworking spaces will transform along with the new generation Millennials, their capital-driven economy and 4G Internet. The way people will work and communicate in upcoming years might be still blurred. However, when new coworking spaces and online coworking platforms being built and the increase in number of people who discover coworking are considered, the future coworking space sounds quite promising and challenging as a new "third place".

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## ORDINARY IS THE NEW WEIRD, OLD IS THE NEW AVANT GARDE: AD-HOC STRATEGIES AND EXPERIENCES IN DESIGN STUDIO

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### Abstract

Nowadays, since the will for consumption had already begun to increase rather than production, actors in design world seems to be competing each other in order to present the newest and surprising design methods. This search of textuality and will to surprise in design performance, caused by the story-teller side of Postmodernism, shows itself in various design strategies. Within this innovational race, primary concentration of designers tends to magnetize masses with yet-untold-stories and attract a sudden attention with the charm of the unexpected.

On the other hand, when discussions of ecological apprehensions shows up, sustainable solutions joins up to the game and brings new options for designing tools with a diversity beyond imagination. Besides, changes of informational revolution brings major transformations to the big picture. Ever since the information of “*producing things*” travels intercontinentally by light velocity, the world of people who produce things is in upheaval. So if Modernism was about producing the same perfect objects in great numbers for masses, today it’s about making just one or a few customised options.

Thus, a turnabout in design strategies is at stake from fabrics to atelier, and from mass-production to hand-made. This new tendency includes redefinition of identities via individualities and differences, such as customised design or a sense of originality and imperfection.

Within this concept mentioned above, Ad-hoc approaches shows up as another option for tomorrow’s design world. As Grima mentions, design is on the move today and “*it’s migrating from the rigid domain of bureaucracy towards the rhizomatic realm of adhocacy*” [1]. Although not being a brand new term, Adhocism can be considered as a timeless avant-garde inspired of the hippie soul of 1960’s, in which striking space organisations can be examined through experimental premises such as Drop City [2]. As Jencks and Silver explains the term as an approach towards industrial and architectural design in their book, they manifest the outline of Ad-hoc design principles for the first time [3]. Temptation of meaning in Ad-hoc design roots on postmodern rhetoric which most generally takes its seeds from weirdness, reuse of industrial materials and sometimes from unexpected nostalgic codes of the past. Never the less, apart from the Venturian way [4], Ad-hoc approach refuses to produce imitations of the past. Rather than this, it suggests using “*the old*” in its raw nature which is “*the only thing that carries an ordinary can into an art gallery*” [5].

Today, as we encounter with Ad-hoc design as a timeless avant-garde once again, our chance on meeting with academic studies in domestic literature is dramatically poor. As a result of this study, questionnaire survey studies made in design studios shows students’ lack of theory and experimental knowledge for Adhocism, as well as they encounter with avant garde works

on professional society. Purpose of this paper is to share results of questionnaire surveys and Ad-hoc experiences in various design studios through a vertical studio process, as well as trying to define Ad-hoc design principles by both indoor and outdoor examples.

**Key Words:** Modernism, Postmodernism, Adhocism, Design, Strategy

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## 1. Introduction

Nowadays, away from being trapped by the kitsch tendencies of historical codes of the past, a new design approach can be examined through contemporary approaches [6] and some works of avant-garde designers and design ateliers. These new approach shows itself by using the raw nature of post-industrial materials and manages to catch up with an extreme aesthetics by controlling the tension of oldness and brutalism. Adhocist strategies through production, somehow predicts the re-usage post-industrial materials and tells much about today's recycling strategies which begins to take place in design world. At the same time; when Ad-hoc design process focuses user participatory-design approach; it manifests a brand new face of postmodern attitude through aesthetics. What in the fluid ground of postmodern production strategies; saying that consumption rates had already been over producing things would give the art-work to come up with a "story" to be striking, affective and surprising. Most of all; this powerful message comes with a strong theoretic background behind; which can be built through a rhetoric discourse. Thus; generating creative ideas and high-plastic value of the art-work depends on its story, for the story teller rules of postmodern society.

### 1.1. Purpose, Objectives and Scope

Bringing the avant-garde into [applied sciences](#)' artistic ground can only be possible by the operability of converting what is rhetorical into something practical. Accordingly; some of the contemporary researches on applied science and art's education reveals the importance of being in tune with field observations. These studies emphasises the difficulties of non-realistic or non-current ways of design education, while underlining the importance of variations in optional courses on contemporary approaches [7].

Herein; avant-garde design affinities constitutes a solid ground for observing socio-cultural and socio-political dynamics of today's art world; on which many discussions from ecological consciousness to postmodern culture studies are at stake for now. Within the integration of theoretic (knowledge) and practice (design) process; the ability of multi-disciplinary design can be gained by the participants of design studio. Thus; while still observing the avant-garde and taking its messages as a *prima facia*; creating design begins to make a reading on avant-garde manifestations, and brings the messages into academic ground. This sort of approach in design studio makes it possible to bend different disciplines such as art theory and atelier work together and turns the design studio into a laboratory field. The rhetoric background of design is made from the socio-cultural, socio-economical and even cultural readings of the avant-garde; so that final work can create its own story to "tell".

For this course; first of all ad-hoc design studio chooses to answer the key question as "What is Ad-hoc?". Answers of this question would make design principles clear for the process; which will be discussed largely later on. Within the picture Ad-hoc rules draw; design occurs as a natural consequence of the integration between theories and practices. A non-bureaucratic, improvisational and consumer-focused strategy built the stratum for the vertical studio work. Adoption of vertical studio process includes bringing different student groups from different study fields together and giving the same mission of design on a certain level of Ad-hoc approach at the same time. For this study, Students number reaches to 105 including students from Architecture and Interior Design classes of the faculty, through three main courses as Architectural Project, Postmodern Object Design and Space Organisation.

Table 1. Main Study Fields of The Students Participated in Vertical Ad-hoc Design Studio

Study Field	Course Name	Participation
Architecture	Space	80 Students
Interior Design	Organization	20 Students
	Postmodern	
Architecture	Object Design	5 Students
	Architectural Project	

Such a studio experience calls for the working principles of a workshop atmosphere in design studio which the avant-garde was being discussed, read and created. In this study; local and foreign projects groups from Architecture and Interior Design studied together on several courses and created their own observation out of it; which gave us the chance to examine the results of Ad-hoc design.

## 2. Discussion: Crossing Over the Borders of Bureaucracy and Ad-hoc Design Process From Modernism to Postmodernism

During the history of art; design strategies has always been into strong bends with socio-cultural, socio-economic and cultural dynamics of certain centuries' specific conditions. Thus, design product and social *de facto* has always carried forward their fluidness through each other. What in this fluidness; from time to time, designers found themselves in a role that satisfy the expectations of the society from art; and sometimes made conscious or non-conscious contributions to cultural and social manifestations in order to shape or manipulate accustomed praxis's. For instance, modernist strategies can be considered as being built one of the most doctrinal discourses in order to reach perfect aesthetical values and idealisations in design. As a result of these idealisation trends, a special mission for transforming society through standardised aesthetic values is what matters for modern design process. It can simply be determined that; main concentration area for modern design strategy was to work in standards, to drawing the outlines of the standards and reach perfect products as a result of a perfectly built outline. The perfection of the outline for modern design mostly depends on a certain [hierarchy](#), which prefers relying on the descriptions made by professionals and respecting the borders again described by hierarchic authorities. Long before consumption dynamics haven't ever came over production mechanisms, researches were made on certain topics such as the most ideal ways of reaching perfection on pure design, the benefits of standardization and importance of bureaucratic processes seems to be the main concentration area of designers.<sup>3</sup>

Designing things as perfect tools of a perfectly working machine worked well until post-industrial discussions take the stage with postmodern cultural adjustments. When we take a look at aesthetic strategies which smash every solidness into pieces, we can see that those modern reveries had already been disappeared with all the other common beliefs of modern myths. By the loss of the motivation for modern strategies and meaning behind; a brand new statement comes forward which gives role for individualities, multi-layerness and differences as a matter of choice. As Jean François Lyotard defines it as a structural catastrophe waiting

<sup>3</sup> The book "Vers Un Architettura" written by [7] is one of the landmarks in architectural history that shows the determinative language of modernism in design strategies. The same book also provides large information for the benefits of bureaucratic processes in order to achieve the ideal aesthetics of modern outline.

to happen in Postmodern Condition and names it as “*the catastrophe of the metanarratives*”<sup>4</sup>, grand narrative discourse leaves its place to biographies and individual stories. While this structural catastrophe awaits the meaning of “*things*”, the knowledge of producing things spreads in light velocity from country to country and turns our everyday life as a common village of knowledge pieces and images. After each and every rule in consumption was rebuilt, said and done; there was only one step left leaving modern rules behind and that was crossing-over the borderlines. Once crossed, borders and doctrines of bureaucracy had nothing to do with authority figures to follow up to.

While new rules were based on differences and dissimilarity of individual subsistence, borders were redefined by the various outlines of individual choices. So when postmodernism manipulated the meanings of “*me*” and “*us*”, the “*imperfect*” finds itself a representation area and joins up the game by all its imperfect uniqueness, which feeds the individual image strongly on bold freedom of choice. Here is the point we begun to encounter with terms like “*customisation*” in design processes and “*consumer based design strategies*”. This kind of a statement doesn’t only challenge accustomed product procedures depends on the bureaucratic hierarchy of modernism, but also carries the consumer in the middle of the design issues as the decision-maker and the new authority. Just like it’s not complicated enough, ecological approaches has much more to add to this mixture of design diversity in the name of researches for sustainable design solution [10]. While many terms come together in postmodernism, it is possible to encounter with another face of postmodern avant-garde on each level of design.

### 2.1. *Adhocism As A Tool For Surprise*

All those factors affect contemporary design strategies differently and they are all the components of Ad-hoc strategies which examine artistic values of design product as a manifestation of contemporary tendencies towards design. The term of “Adhocracy”, as we newly begun to hear amongst design world nowadays, had been used as a notion for social sciences and liberal arts in order to define approaches after modern rhetoric<sup>5</sup>.

It’s possible to define Adhocism simply as a strategy towards finding specific solutions for certain problems in the most simple, affective, creative and economical ways. The art of solving the problems in Ad-hoc way offers temporary solutions generally and linked to a group of strategies which depends mostly on improvisation and answers the questions in the as quick and practical as possible. Etymology of the term “*Ad-hoc*” origins from the saying “*for-this*” in Latin languages and references a specific level of problem solving strategy which cannot be generalised or standardised [13]. Thus; the field of Ad-hocism becomes the freedom occasion of improvisation by the advantage of leaving behind bureaucratic procedures once and for all. As a result of its nihilist nature; Jencks defines the fact that Ad-hoc strategies became the inspiration source for many different cultures, in many different societies at several periods of art history [3].

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<sup>4</sup> Lyotard’s discourse in “*Postmodern Condition*” [9] speculative attitude of postmodernism towards scientific information can be examined through the text. Opposing to modernism, postmodern culture tends to demolish the common determinations and provides inclusive openness for imperfections, individuality and cultural diversity.

<sup>5</sup> As a term of social sciences, Adhocism determines non-centralist organisations that shows weak streams of bureaucratic hierarchies according to Bennis and Slater [11] Later on, the term begun to be used for determination of the opposite meaning of bureaucratic progresses in general [12].



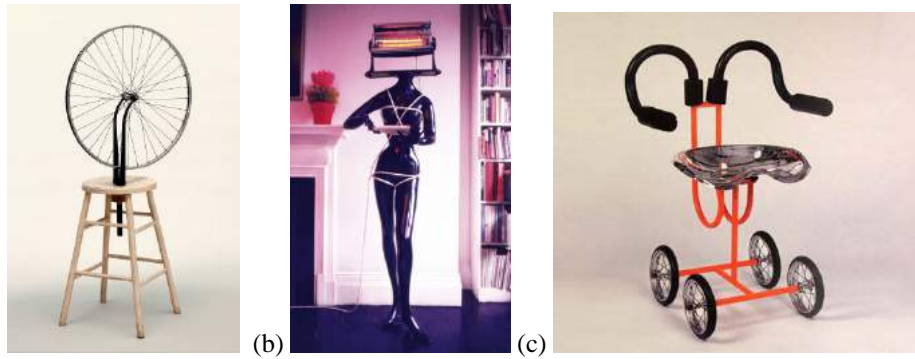


Fig. 1. (a) On the left; Marcel Duchamp, “Bicycle Wheel”, 1913, Museum of Modern Art, Sydney&Harriot Janis Collection, New York [19]. (b) On the right; Madonna of The Future, Charles Jencks, London, 1968 [3; 49].(c) Dining Chair, Nathan Silver, 1968, London [21]. The chair consists of a tractor seat and orthopedic furniture parts. Silver mentions that the wheels are chosen specifically for their manoeuvrability on floor, and defines the pull-arms that reminds ram head as a “surprising conscience of Ad-hoc design” [3;. 49].

Talking about spatial experiences, some important examples of Ad-hoc design strategies towards space organisation can be seen on early-hippie settlements of 1960’s such as Drop-City in North Colorado<sup>6</sup>. Such experimental settlements show us the rich spatial aesthetics and usage of post-industrial materials that had gone out of order and have been given new usage values later on. (Fig. 2).



Fig. 2. (a) On the Left; A view from Drop-City, the settlement built in North Colorado between 1965-1973, Clark Richert, 1967 [20]. (b) On the right; Dome structure from Drop City built i and passif solar pannels designed by Steve, Clark Richert, 1967 [21].

Nonetheless, as a sort of timeless avant-garde, notions of Ad-hoc design strategies were mentioned on academic platforms firstly by Charles Jencks and Nathan Silver in their book “*Adhocism: The Case for Improvisation*” [3]. As time goes by, their book showed up as a manifestation of a timeless avant-garde; and has been popular again by the search of ecological approaches and sustainability discussions once again. According to their inspiring text; Ad-hoc design strategy is defined as a work both origins from functionalism and innovatism based on improvisation and surprising. Design strategy defined in their saying is taking a post-industrial material ran out of order, combining it with new materials and giving it a brand new mission surprisingly inappropriate for its creation. The tension between old and new and electricity to the exciting feeling of the surprising function of the material; is the key for creating a language based on surprise. Surely, this new language is the main concentration area of the story teller side of postmodernism by mentioning “*Normal is boring*”. While Ad-hoc design offers a surprisingly striking solution by its odd language of aesthetics by using an

<sup>6</sup> Drop City, is an experimental settlement built in 1965 at North Colorado and abandoned in 1978. It takes its name from re-evaluation of non-functional post-industrial materials and shows experimental approaches towards the early consciousness for sustainable solutions as a hippie settlement [14]. While experiencing hand-made solar panels and workshops on dome-cook, the settlement won Fuller's Dymaxion prize in 1967 [2] .

ordinary material in an extraordinary style, it has created its own *motto* as “*Normal is the new weird*” and uses the norms as the elements for achieving weirdness (Fig. 1-b).

However not being a brand new invention, combining the old and the new all together is one of the common tendencies that postmodern approaches had shown before. Differently, this time, Ad-hoc approaches stay away from being trapped by kitsch while searching the codes for nostalgic past<sup>7</sup>. By using the old material in its own nature, Ad-hoc strategy manages to reach the richness of meaning in a more brutal way than copying the past or imitating the old<sup>8</sup>. According to Jencks; this characteristic of Ad-hocism is the one and only thing that carries an ordinary can into an art gallery (Fig. 1-c).

Eventually, even today, when re-usage of post-industrial materials became one of the topics of recycling culture, many institutes who are the main stream representors of avant-garde tendencies, give striking examples of Ad-hoc design in a various diversity (Fig. 3).

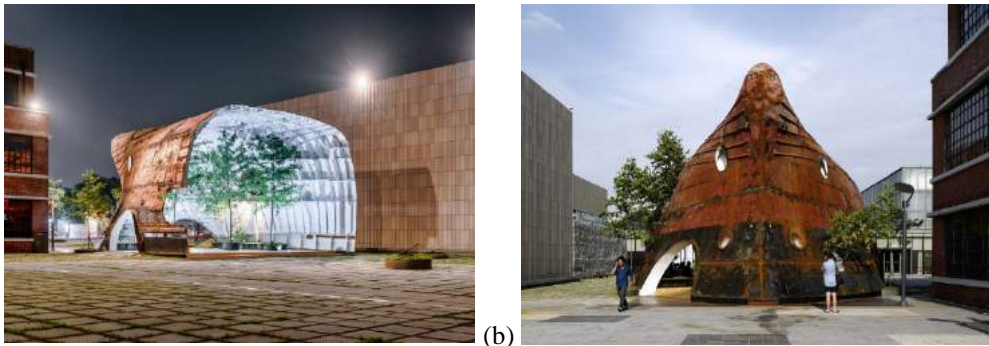


Fig.3. (a) On the left; Temp'L, MoMA Pavillion, Shinslab Architecture, Seoul, 2016 [23]. The Pavilion project consists of a non-functional vessel as an outdoor space design. (b) On the right; Temp'L, MoMA Pavilion, Shinslab Architecture, Seoul, 2016 [23]. Raw nature of the vessel's surface contrasts with the clean indoor design with pure whiteness of steel structure inside.

After all, since we call Ad-hoc approaches as the “*timeless avant-garde*”, it won't be a big surprise to encounter with Ad-hoc works via contemporary works of architecture after many years from Jencks' and Silver's [3] study (Fig.4). Talking about popularity of the trend, Frank Gehry's facade aesthetics for his own house project is one of the *must-be-given* examples of the Ad-hoc approaches in charge (Fig.5). As one of the doyen architects of deconstructivism; facade of the project shows Gehry's vision to the raw nature of motion in architecture through an obvious Ad-hoc process. Aesthetic codes of the facade show marginal brutalism towards the usage of quite ordinary materials such as latten and smooth plywood. Gehry explains his inspiration of this attitude as a reflection of the cozy feeling comes from his childhood memories of daily materials. According to this nostalgic feeling, he mentions that “*meaning comes from this coyness of familiar objects*” and ordinary stuff of every-day life can give birth to the odd surprises [15].

<sup>7</sup> The notion for combining the old and the new, shows itself as a reflection of eclectic-populist postmodernism as historical reference attitude of Venturian vision [4]. As Jencks would determine this attitude as “radical eclecticism” later on [5], this sort of a reference suggests recreation of the nostalgic codes of past through a process of imitation.

<sup>8</sup> When Jencks and Silvers's book on Adhocism [3] published after Venturi's “Complexity and Contradiction in Architecture” ouvre [4], they carries the discussion on historical reference on a more elitist level by focusing the raw nature of material.



Fig. 4. (a) On the left; Tin Shed, Raffaello Rosselli, Sydney, 2011, Facade photo by Mark Syke [24]. (b) On the right; Tin Shed, Raffaello Rosselli, Sydney, 2011, Yan Cephe Fotoğrafi: Richard Carr [24].



Fig. 5. Gehry House, Frank Gehry, Californiya, 1978 [25].

While giving ultimate chance of achieving the richness of meaning by various combinations of materials, Adhocism also carries the user to a major role during and after the planning process. Thus; user finds himself as the decision maker in each and every step of design. One of the striking examples of this radical condition can be examined through the student house project of Lucian Kroll in Louvian University Campus (Fig. 8-b ). At this unique project; Kroll asked each student to create their own design for their living areas and facades, so that the design becomes an open access door through individual decisions [16].

When building such a cooperative ground with the user reaches at its heights, some examples are beyond the others in giving valuable settlements for homeless people and re-using the material out of function. An experimental study named “*Trucks, Containers and Collectives*” in Saragossa [18], can be counted as a successful Adhocratic process versus the heavy steps of bureaucratic approaches<sup>9</sup>, and gives homeless people houses out of the re-usage of trucks and containers in a realistic attitude (Fig. 6).

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<sup>9</sup> Experimental project was built by the collaboration with local collectives and the local government authorities that provides cheap housing for homeless people. By the leadership of architect, Santiago Cirugeda, 30 collectives worked together in the garden of Santa Lucia Church and used containers of 42m<sup>2</sup> provided from Association of Urban Rehabilitation besides many other components including vehicle parts and other post-industrial materials [18; 120-125].



Fig. 6. “Trucks, Containers, Collectives”, Santiago Cirugeda, Saragossa, 2007-2010 [18;120-125].

In case of fantasy; solutions get much various. Vehicle projects of Aristide Antonas, which also took part in 1st Design Biennial in İstanbul in 2012 [6], gives the examples of Ad-hoc fantasy in distopic future cities; as the re-evaluation of vehicle parts and containers as homes in eternal fields of nature. (Fig. 7).

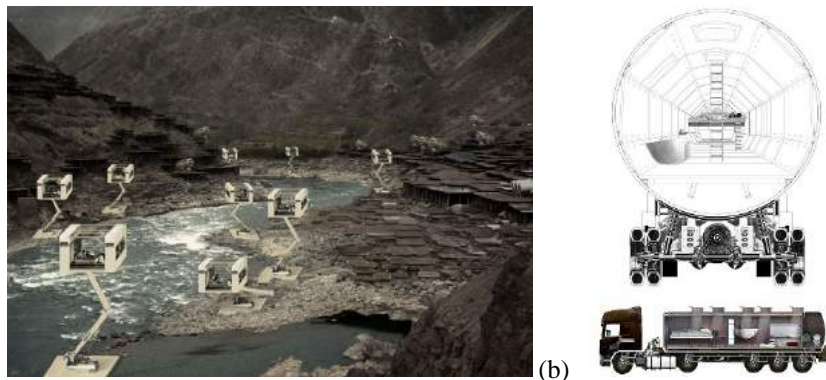


Fig. 7. (a) On the left; Paper Architecture, Aristide Antonas, 2011 [6; 43]. (b) On the right; vehicle projects Aristide Antonas, 2011 [27].

Fantastic or realistic, variations of materials never ends thanks to the huge consumption culture of post-industrial world. For instance, a Micro-Library project in Indonesia shows in its facade of ice cream cups that, even the simplest material can turn into the most fascinating element of the facade esthetics (Fig. 8). Besides all the other materials, containers are the ones which gave various examples of organising spatial functions in affective ways. Thus; today from expo-pavillions to housing projects, they seem to increase attention for Ad-hoc solutions (Fig. 9-10)



Fig. 8. (a) On the left; Micro Library, Architectural Office: Shau, Kampung-Indonesia, 2012. The facade gives most economical solution to the narrow budgeted project group by consisting 2.000 of ice-cream cups [28]. On the right; Louvain Student Housing facade, Lucian Kroll, Louvain, 1976 [26].



Fig. 9. Quick House, Architect: Adam Kalkin, Tewsbury, New Jersey, 2008 [18; 227-228]



Fig. 10. Pumacity, Architects: Keisuke Nibe, Koki Hashimoto, Alicante-Spain and Massachusetts-USA, 2008 [18; 252-255]

### 3. Ad-hoc Experiences in Design Studio: A Case For Planned Improvisation Process

Despite the big numbers of examples for current trends leaning on Ad-hoc solutions in different observations of sustainable, ecologic or postmodernist manners, academic studies are rather less in domestic research fields. One of the most important effects of this lack of knowledge, shows itself on the questionnaire survey study made in vertical Ad-hoc design studio lately (Table 2). According to the results of survey, big percentages of students finds it hard to name and read the avant-garde and only a few of them are aware from a term like “Adhocism” or “Ad-hoc” design. This picture of consciousness, surely, linked to ecological, cultural and aesthetic consciousness of the society in domestic field; this can be seen in the percentage of the consciousness levels of architecture students on attending ecological and cultural workshops or meetings in general.

Table 2. Results of Questionary Survey Study in Ad-hoc Design Studio

Question	A	B	C
1- What is your main field of design?	Architecture, %70	Int. Design, %26	Both %4
2-How do you evaluate the importance of sustainable approaches of design in general?	Very Important %80	Not so important, 16	No idea, %4
3- How do you evaluate the consciousness level on sustainable design of the society you live by?	Not Conscious, %88	Conscious, %8	No idea, %4
4- How often do you encounter with sustainable solutions in domestic design?	Often %92	Rarely, %4	Never, %4
5- How often do you encounter with sustainable solutions in international design?	Often, %60	Rarely, %40	Never, %0
6- How do you evaluate the frequency of domestic meetings/conferences on sustainability or sustainable design?	Frequent, %12	Seldom, %62	Never, %20
7- How do you evaluate the frequency of international meetings/conferences on sustainability or sustainable design?	Frequent, %32	Seldom, %52	Never, %16
8- How often do you reference sustainable\recycling solutions in your own design projects?	Often, %21	Rarely, %71	Never, %8
9- If you reference sustainability in your own design, which topic is the one you mostly choose?	Sustainable-energy, %40	Recycled-materials, %16	Both, %44
10- How do you evaluate your own level of knowledge and consciousness on “Ad-hocism” before the lecture?	Component, %0	Intermediate, %21	Inefficient, %79

At the beginning of the study process in vertical design studio classes, primary goal was to increase the sensitivity on ecological and recycling policies in architectural approaches. Later on, it became a grand field of creativity for students to play with materials and make ultimate combinations out of post-industrial stuff.

In such a big field of freedom of choice; it was necessary to set up the outline of design strategy, even though the rule-breaker nature of Ad-hoc process. Despite this nature, Ad-hoc shows the responsibility of making decisions and made students face with the difficulties of “*freedom of choice*”. In fact, this determination process also became a reading of Ad-hoc manifestation of Charles Jencks and Nathan Silvers’s Ad-hoc design notions as they have already set up the rules of Ad-hoc approach [3]. According to this reading; first of all it was important to make it clear that the goal in Ad-hoc design is not producing decorative objects; thus a certain question towards function should be asked in order to expect functional and practical ways for Ad-hoc design which matches the outline. Once again, Ad-hoc reading thought literature, provides the outline for Ad-hoc strategy as listed below [5] ;

- The excitement of encountering with the unexpected,
- Richness of meaning,
- Planned spontaneity,
- Balancing combination of the old and the new,

- Dominant role of the user in design process; openness for customization and rejection of standardization,
- Surprising usage of ordinary/every-day or functionless materials,
- Economic and innovative solutions,
- Raw nature of the old or the “vintage”,
- Brutal access for improvisation.

Designing objects was rather quicker in the design studio. While benefiting the “*user democracy*” as Jencks call it, students managed to create their designs in an open vision for customisation options [3] (Fig. 11). Selecting the main material, the principle of being ordinary was the key for finding solutions. (Fig. 12-a)

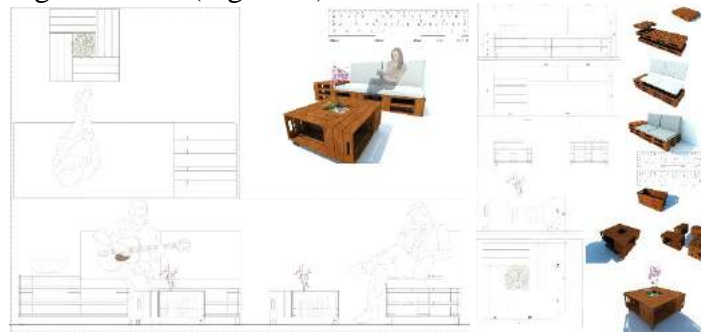


Fig. 11. Wooden Unit, Work by Brais Verias Dubra, Halic University, Faculty of Architecture, Department of Architecture, Erasmus Student Exchange programme, Postmodern Object Design Studio, 2015-16 Spring.

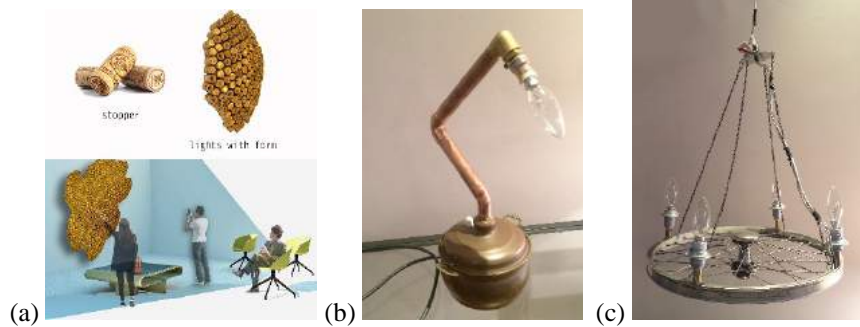


Fig. 12. (a) On the left; Cork-Lighting, work by; Laura Gomez, Halic University, Faculty of Architecture, Department of Architecture, Erasmus Student Exchange programme, Postmodern Object Design Studio, 2015-16 Spring. (b) In the middle; Pipe Fitting, work by; Ozan Muslu, Halic University, Faculty of Architecture, Department of Interior Design, Postmodern Object Design Studio, 2015-16 Spring. (c) On the right; Wheel Fitting, work by Hakan Arikaya, Halic University, Faculty of Architecture, Department of Interior Design, Postmodern Object Design Studio, 2015-16 Spring.

In a realist level, the solutions were offering the most economical solutions for certain functions. On the other hand, in an elitist level, Ad-hoc seemed the best way for combining the old and the new while avoiding to be trapped by kitsch manners. The easthetical joy of a well designed Ad-hoc objects, can quickly turn into a disaster via an inappropriate material or function (Fig. 12-b). But still, using the nonfunctional post-industrial old materials, allowed experimental solutions (Fig.12-c) which turned bycle wheel into an armature. Experiencing Ad-hoc process in larger scale of design, gave innavative ideas on expo-pavillion suggestions for an pavillion brainstorm in the outdoor space of İstanbul Modern Museum (Fig. 13 a-b-c). Within this concept, containers, vehicle parts and wooden pallets became the sources of inspiratoin for outdoor spaces of the fictional expo place.



Fig. 13. (a)On the left; The Pipe Pavillion Project, work by, Nizameddin Duran. Halic University, Faculty of Architecture, Department of Architecture, Space Organisation Course, 2016-2017 Fall. (b) Tin Shed Pavillion Project; work by, Tuncer Altınok, Betül Tiken, M.Alper Ergen. Halic University, Faculty of Architecture, Department of Architecture, Space Organisation Course, 2016-2017 Fall. (c) Tub Pavillion Project; work by; Mustafa Yurdaer, S.Safe Çekmez, Murat Temel. Halic University, Faculty of Architecture, Department of Architecture, Space Organisation Course, 2016-2017 Fall.

Amongst all of the aterials, containers, seems to emrace larger fonctions and gives various examples for space organisation. Besides a student house project (Fig. 14), using containers as hostel modules, created dynamical sculptive easthetics both indoor and outdoor spaces (Fig. 25).



Fig. 14. Student Housing Project, work by, Süleyman Akdeniz, S.Safa Yılmaz, M. Sadık Bilgi. Halic University, Faculty of Architecture, Department of Architecture, Space Organisation Course, 2016-2017 Fall.



Fig. 15. Container Hostel Project, work by Joana Rodriguez, Erasmus Student Exchange Programme. Halic University, Faculty of Architecture, Department of Architecture, Architectural Project II, 2015-16 Fall.



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## EXAMPLES OF ARCHITECTURE WITHOUT AN ARCHITECT IN APARTMENT BUILDINGS TRANSFORMED TO CAFES

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### Abstract

In time, due to city centres of social, cultural, economic changes, apartment buildings in city centres come unusable their original functions. These structures are re-used considering environmental factors and user profiles. In some cases, planning alterations in reuse process of buildings take place without architect, interior design or designer who design and implement them. The owners of buildings or residences, users and craftsmen come into play at these occurring of transformations. For this reason, reused building that takes place with “architecture without architect” has been chosen as an important topic in this study. The main problem of the work is how a person who is not an architect or designer turns house into a cafe and by which criteria’s he/she changes the scale and also how the users re-act to these changes. In this study, houses reused as cafe houses without architect, were examined frame of Zafer and Alaaddin which are Konya's centre regions. Firstly, apartment buildings reused as café houses' plans fictions, were examined, which were identified through a field survey. These transformations account for the spaces which the owners have changed for especially commercial use without exports' opinion. Accordingly every implementation for conversion of spaces has also included about criticism to architecture, users and supplying to requirement of users. In this study, users' opinions were taken and were analysed about criteria's of this type of conversion that is made without an architect. Which properties of space operations which designed “without architect” are satisfactory by users, was determined by this analyse. On the other hand, by this study it was intended to lead the way to other apartment buildings which need to be re- used, are in building stock.

**Key Words:** *Reused architecture, architecture without architect, café houses.*

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### 1. Introduction

Existing building stocks of cities, which constitute their cultural heritage, go through inevitable changes and functional transformations due to ever changing cultural, social and physical conditions. If these changes in building functions are harmonious with their surroundings and they meet the needs of the society, they contribute to the long term sustainability of the relationship between the society and the environment, and protect the cultural connections with the past. These changes happen sometimes through user interventions, sometimes with professional consultancy and sometimes they are conducted by non-architect, non-expert actors with social, economic and cultural objectives. This study aims to discuss reuse in the context of building transformations without any involvement of architects, outside the framework of the strict norms of architecture. The discussion will elaborate on apartment buildings in Konya's historic city center that have been transformed in this manner.

The central districts of Zafer and Alâeddin in Konya are inside the historic conservation area designated by the Conservation Council. Apartment building development in these districts started in 1937, after the proclamation of the Republic [1]. The high density of apartment buildings built in this period left their mark on Konya's urban identity. An analysis of the changes in the development plans of the city reveals that this period of development did not

involve demolishing the old building stock and redevelopment, but creation of new districts in addition to the existing ones due to transformational, cultural and sociological factors. Yet this expansion caused changes in the city center as well. The development of the transportation network began from the Alâeddin Hill area due to its population and cultural features. Architectural transformations in this central area started as a result of the cultural interactions created by the rising population. The social and economic changes lead to spatial adjustments in residential structures, as new development areas that spread towards the periphery caused residential building around Alâeddin Hill to be abandoned and transformed into recreation and entertainment spaces, mainly cafés.

A visual analysis of the apartment buildings that were transformed from residences to cafés in the highly accessible and central Zafer and Alâeddin districts was conducted, considering their transformation processes, user potentials and the intensity of interventions in the conceptual and theoretical framework. Secondly, the spatial organizations of these buildings were examined and their states before and after reuse were compared, in order to understand the process of transformation. Finally, user opinions were collected to identify the effects of the current state of the buildings on them. As the study examines spaces that are transformed by owners, especially for commercial use and without expert involvement, it also includes positive/negative criticism on architecture, the users and the satisfaction of users' needs in all transformation efforts.

### *1.1. Conceptual framework*

Reuse is the transformation and repurposing of existing buildings that have lost their original functions due to environmental, social, cultural, economic, technological and other factors. When a building loses its function, it may not be always possible to design and construct a new building in its place. In that case, a functional transformation and addition of different spatial values is needed for the building to continue its life [2]. Uğursal (2011) states that careful examination is necessary to find the right function, and that interventions should be designed so that they do not change the architectural characteristics of the building irreversibly [3].

Buildings that have reuse potential, that witnessed a period of history and that carry elements of the period that they were built in to the present are important parts of the existing building stock of a city since they reflect the changing history, culture and life styles of the society in the most concrete form. These buildings also show the changing face of architecture to the society at the urban scale. These changes seem to be the best indicator of the vitality of the urban environment [4], to be more scientific and systematic at the current user awareness level compared to the previous century and to contribute to the development of their surroundings.

Reuse can be forced by environmental, social, cultural, economic, technological or other factors as well as being intentionally chosen for a specific purpose. The apartment buildings examined in this study were abandoned and were forced to transform due to social and cultural factors. However, "reuse" was adopted as a method in transforming these apartments into cafés especially for economic purposes.

The residential buildings in question have been transformed into cafés -commercial facilities- by their owners or tenants without any involvement of design professionals. Therefore these interventions can be considered as a transitory stage before architectural approaches. However, in architecture education and practice, the only way to sustain the original value of a building has been applying architectural principles and interventions [5]. It is in this framework that designs that are implemented without architects are converging with the concept of "reuse". The need for architectural discipline to preserve a building, make it work in different ways and to renovate it so that it stays in use is an important strategy towards conservation of cultural heritage [6]. Yet, Uğursal (2011) states that the need for reuse arises as a result of "internal" and "external" interventions and internal interventions are more dependent on the users, shaped

by their expectations and changing needs [3]. In this context, it is inferred that in processes of reusing existing housing stock, people that are not design professionals make functional changes in accordance with the demands of the users. Therefore, no matter who is intervening in the reuse process, the main and most important actor appears to be the user. The new functions of the transformed residences, the interior spatial organization of which will be examined in following sections, seem to be determined not by an architect but its users.

Transformed buildings that provide a diversity of activities to the users are found to have significant impact on social and cultural continuity [7]. The fact that this continuity is created without consulting and architect or another expert is defined as life style loss rather than cultural loss or change [8]. Thus, creation of reuse potentials via architecture without architects, such as in the residential buildings that are examined here, is due to the abandonment of the residences by the users, for reasons such as changes in the socio-economic status or daily life habits of the users. Especially residences located in city centers and their close vicinity, the users and functions of which change frequently, require interior and exterior design criteria to be adapted to changing conditions. At this point the appropriateness of these interventions can actually be related with user satisfaction.

Based on this review of the meeting points of “architecture without architects” and “reuse” in literature, the study aims to acquire data from reuse interventions that were conducted without architects, as well as expectations and evaluations of the current users of the area, in the hope of providing input for future interventions.

## 2. Apartment Buildings Transformed from Residences to Cafés in Konya

Konya’s city center is a historic human settlement. Zafer and Alâeddin districts, where reuse examples that are examined in this study are located, are within this historic area. Since its foundation, the city of Konya has been developing on radial axes that meet at Alâeddin Hill, which is an ancient tumulus and is still under excavation.

Alâeddin Hill is the centre of Konya’s transportation network and one of the centers that determine the direction of urban development. Due to its location and characteristics, the district and its close vicinity has been influenced by many factors including migration movements, population increases, cultural and social shifts after the proclamation of the Republic. The built environment in close proximity to the city center has been transformed by both internal and external factors. These transformations can be observed in the physical form, function, social structure or location of housing areas. These in turn affect the future cultural structure of the city as well as hint at the future direction of urban development.

The social and economic development of the city, the increase in the diversity of users and the changes in user profile resulted in many buildings in the city center, especially residences, to be abandoned, sold or repurposed. Alâeddin and Zafer districts are chosen as case studies because these are places where change and transformation has been most intensive, the transformations of the floor plans of these residences provide significant data to analyze and also, cafe users all over the city can easily access and frequently use these districts, see Fig 1.

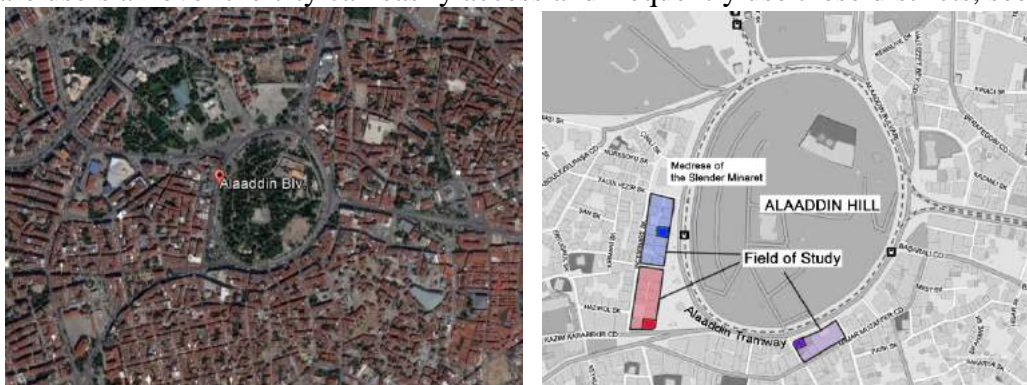



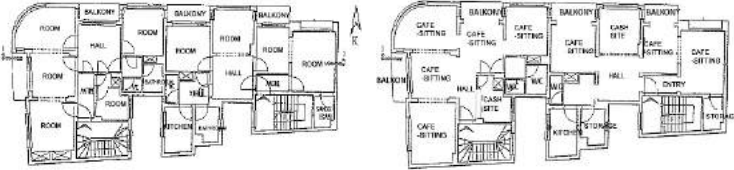




Fig. 1. (a) Alaeddin Hill ; (b) Field of Study around Alaeddin Hill

As a result of in situ observations, the study was focused on three plots around Alâeddin Hill that contain commercially purposed apartment buildings. These buildings were transformed from residences to cafés by their owners without any professional consultation and they had distinctive interior design characteristics. (Table 1)

The selected examples of transformed apartment buildings were Kibrit Apartment, Yaşam Apartment and Terzioğlu Apartment, which are all located in the urban and archeological conservation site and are listed by the Konya Council for the Conservation of Cultural and Natural Property [9]. Certain spatial changes that occurred during their transformation were observed. At this stage, an important question to ask was at what level these transformations were related to architectural design principles, since these interventions were not designed by an architect or another design professional. In terms of floor plans, removing dividing walls to create larger spaces can be used as a transformation method in accordance with spatial needs. In these buildings design criteria such as size, functional continuity, natural and artificial lighting, harmony between open and semi-open spaces, comfort levels of the equipment and the relationship between the main space with other spaces that are required for a café caused certain changes in the floor plans.

Table 1. The Apartment buildings where the study is done are normal floor plans before and after transformation [9]

Name of Apartment Building	Type floor plan with date of construction	After conversion
Kibrit Apartment (1951)		
Terzioğlu Apartment (1955)		
Yaşam Apartment (1969)		

The purpose of transformation in these buildings was to create spaces where a lot of users can find various options of entertainment. Therefore, a wide range of design criteria, from the number of service spaces to the flooring materials of the most frequently used surfaces was reconsidered [10]. Additionally, it is easily observed that these transformations were conducted by owners especially with commercial concerns. This is exactly the reason that café owners had to determine new design criteria for their interventions. These new criteria included number of users/customers, comfort level, duration of stay, which can be categorized as “commercial criteria”, and these replaced or were added to Vitruvius’ three basic principles (utility, durability, beauty) which have been universally accepted in architectural design for centuries.

Meanwhile, the most influential criterion that the owner had to fulfill in this process was the user. The fact that users embrace these cafes actually implies that designs without architects can be accepted and this raises the question of whether users have awareness or not. The next section of the paper will evaluate the spatial organization and user relations of these buildings.

### 3. Findings and Assessment

The examples of transformed apartment buildings were chosen for reflecting features of transformation and reuse well, both with their designs and their user densities. Examining the spatial organizations of these buildings in transformation revealed that individual units were transformed sometimes by preserving and sometimes by completely removing their boundaries. The boundaries here refer to the dividing walls that separate rooms of a house and hallways and foyers that constitute entrances to these units. (Table 2)

Table 2. Interior views of apartment buildings [11]



The transformed apartment cafés that are examined can be categorized in terms of their floor plans as private room concept and open concept layouts. The buildings that have private room concept layouts (Terzioğlu Apartment) went through merely functional transformation, without any changes in floor plans in the reuse process. The basic units of the house plan -the rooms-

were preserved but changed into sitting rooms by adding seating units and other interior design elements. The cafes with the open concept layouts on the other hand (Kibrit Apartment and Yaşam Apartment) were transformed by removing dividing walls or by opening windows on these walls. The spatial organizations of these apartments were changed and larger spaces that users can perceive as a whole were created. Nevertheless, the changes made on floor plans were similar in all three apartment buildings and they are summarized in Table 3.

In this context, evaluation the changes on floor plans show that property owners created two distinct types of spatial layout. The private room concept offers semi-private sitting areas to a user or a group of users, the user feels the comfort of a home due to the size and form of the space and this increases duration of stay at the café. The open concept on the other hand, due to the spatial organization, allows the user to witness the customer traffic in the main sitting area without being subject to spatial variations. This traffic and shorter durations of stay that the open concept promotes with removed dividing walls can be advantageous for café owners. Owners might want to constraint the comfort level in order to increase customer potential and commercial gain. Therefore “duration of stay at the café” is a criterion that directly affects the design process for a non-designer.

Table 3. Conversion table of residential spaces

Function in residential use	New function after transformation	Conversion process
Entrance	Cash desk for cafe	To make more perceived by putting counter and bar equipment at the entrance
Hall	Circulation Area Area included in seating units	The use of the space as a circulation area with preservation or incorporating the rooms into the living area by removing dividing walls
Living room	Defined area with 2 and more Living units	To remove the dividing walls of the rooms or to open window bay on dividing walls
Rooms	Defined area with 2 and more Living units	Some sections may be added to the hall volume by removing divider walls or Private use of each room with fixed walls
Kitchen	Service Unit / preparation and service	Arrangement of equipment to provide services such as cooking, preparation and service
Bathroom	Spaces included in toilet unit or service unit	To incorporate to service and toilet by removing dividing walls
Balcony	Semi-open area included in living room units	Expansion of the space by removing the exterior wall of the living room / living room by creating a balcony opening / closing mechanism on the balcony parapets

These “without architect” interventions do seem to take actual needs of the user into consideration. For instance, private room concept cafés allow users to organize various activities (especially private celebrations such as birthday parties) in a social environment as if they are organizing them in the comfort of their own home, thanks to the layout that offers privacy and safety. Young people seem to have different expectations from spaces and they prefer private room concept cafés that make a wider variety of activities possible. The statements obtained from users show that their preferences are influenced by low noise level, homey feeling and privacy of entertainment without seeing strangers come and go to the café. This shows that this intervention is positive in terms of user satisfaction, even though it is not conducted or guided by a design professional. However, it also has a negative impact on the commercial gain of the business owner. This is why, as a contradictory approach, open concept designs emerged. The fact that a café owner might prefer reaching high customer numbers rather than high customer satisfaction levels affected the design process and expectably led to open concept cafés.



The study involved collecting users' opinions of spaces that are designed without any involvement of architects. A survey was conducted for collecting these opinions, which had 40 participants from Terzioğlu Apartment and had 20 participants from other each apartment buildings (Kibrit and Yaşam Apartment), reaching 80 participants in total.

The users were asked to rate the applicability of 8 adjectives for the café they were using: *neat, cozy, modern, spacious, authentic, quiet, comfortable and safe*. In the open concept cafes (in the Kibrit Apartment and Yaşam Apartment) the highest rating were given to “neat” (4,50). In the transformation process the main sitting area of this café was created by removing the dividing walls. This allowed a more orderly arrangement for the seating units and created a tidier layout. The café owners chose this intervention to allow more users/customers to use the space, which makes the capacity of space a design criterion.

The adjective that received the highest rating from the users of the other apartment buildings, which contain private room concept cafés, was “cozy” (4.17-4.26) This implies that the less modification made to the space the cozier and friendlier it seemed to users. This is thought to be resulting from the homey feeling created by the preserved divided floor plans. (Fig.2.)

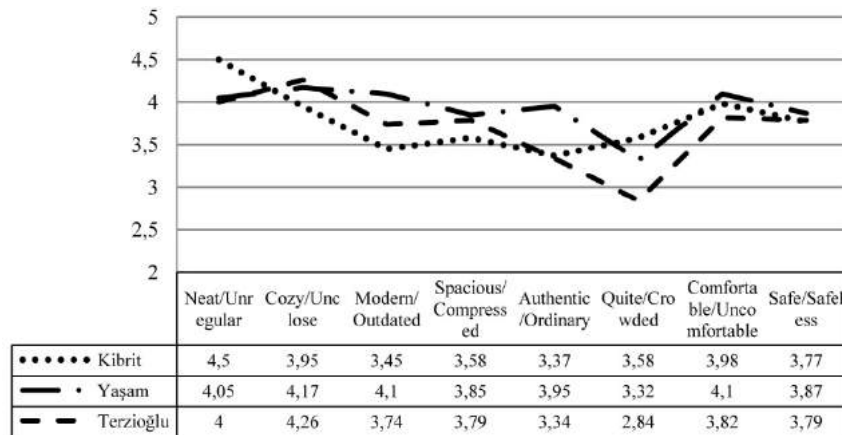


Fig.2. According to plan constructions, distribution of adjectives forming spatial perception

The participants were given a five point likert scale and asked to “Mark the level of your overall satisfaction level from this café’s architectural/spatial expression.” The answers showed that the users were 39,9% satisfied with the spaces that were transformed from residences to cafés. However, this outcome might actually be due to the fact that these users were able to meet their social needs at such an accessible location. Districts that can be accessed easily from every neighborhood and are saturated with shopping, eating and drinking facilities are bound to have spaces for entertainment and leisure activities as well. This increases the vibrancy of the city center and satisfies user needs. (Table 4)

Table 4. Satisfaction of Users for Reused Apartments in City Center

	“Mark the level of your overall satisfaction level from this café’s architectural/spatial expression.”	
	Frequency	Percent
-2 (Not satisfy at all)	4	4,9
-1 (Not Satisfy)	4	4,9
0 (Unstable)	8	9,9
+1 (Satisfy)	32	39,5
+2 (Very satisfy)	32	39,5
Total	80	100

#### **4. Conclusion**

The study examines apartment buildings in Konya that were transformed from residences to cafés, in terms of the “architecture without architects” concept and the relationship of new functions with the users. The data for the study was acquired from three apartment buildings that were adapted to public space design as they were transformed from houses to cafés. While larger spaces were created by removing dividing walls when the existing spatial and commercial potential of the building was not sufficient, floor plans were preserved to create private and semi-private spaces for user in some of the examples. The fact that all these interventions were conducted without any involvement of an architect or another design professional is the focus of the study. It is concluded that, it is impossible for people that make the decisions on the transformation process to ignore their own commercial interests in deciding floor plan changes for the transformation of a residence into a commercial facility. The owners will tend to make changes that increase the number of users/customers, the satisfaction level or frequency of visits. Therefore, these interventions without any involvement of architects are based on design criteria that increase the economic return for the owner and extend duration of stay in the café for the users, in addition to basic design criteria that architects use. Creation of private and controlled spaces by leaving dividing walls as they are and limiting the interventions to decorative changes, as in private room concept cafés, is a good example of this approach. This approach exceeds users’ expectations from a cafe” and makes them feel at home. Another example is the creation of main sitting areas by removing all the dividing walls in the house except for service units. Both of these floor plan types (private room and open) that emerged independently during the transformation process are important findings for the study.

Similarly, the analyses show that these cafés that are transformed from residences without any involvement of architects or other design professionals are perceived positively by users. It is concluded that, the creation of spaces that can meet the activity diversity expectations of the targeted age or cultural group in private room concept cafés will increase demand for these types of public spaces. Consequently, the importance of the user factor that determines function becomes the focus. The user-oriented design approach identified in transformation interventions without architects is consistent with the architectural design approach that prioritizes users’ needs. In other words, no matter who makes the decisions in the design process, the user has always been an important design criterion in the change, transformation or functional continuity of a space.

Café owners or other non-professionals that conduct transformation do not seem to be concerned with resolving architectural problems of these spaces, and only aiming to properly create conditions that define and locate future users. At this stage decision makers intend to find the appropriate function for the space, rather than complying with architectural norms [11]. These examples of reuse were found to be guiding daily life habits of the users via the decision makers that are involved in the transformation, as well as preserving the existing building stock. In addition to basic design criteria, new and effective design criteria are expected to diversify as society changes along with the transformation of space. It is hoped that new proposals/approaches are developed by more carefully examining the preliminary findings obtained from this study, when decisions are made about cafés that are created by transforming residences, which are likely to multiply in Konya in the near future.

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## FROM SLOW FOOD TO CITTA SLOW: THE SEARCH FOR A SLOW ARCHITECTURE

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### **Abstract**

At the end of 1980's, a series of "slow movements" emerged as a reaction towards the standardization and the faster life brought by globalization, defending a cultural change through slowing down life's pace. The global social movements started with "Slow Food" in 1986 and followed by "Citta Slow," the slow city movement in 1999. After these initial actions, the trend continued and many efforts, which seek to spread the "slow" philosophy to various areas of life such as, fashion, media, traveling, parenting, have been made. The common aim of these movements was improving the quality of life while taking care of the environment and providing social justice. Regarding this alternative way of lifestyles proposed by the slow movements, the built environment we live in, and architecture seems to have a high potential to contribute. Taking cues from the similar approaches and criteria of slow movements it may be possible to develop architectural solutions, which may enhance the philosophy and policies of these actions. A further perspective may be presented to the current concerns of the sustainable design approach through "slow architecture" to create more qualified, sustainable, and affordable living environments. Besides, the slow approach may give different directions to the design of urban environments, which supports communities to preserve their identities and culture as well as strengthening the sense of community. The movements' emphasis on providing a qualified and sustainable life accessible for everyone may also be a critical insight to improve the well-being of disadvantaged groups through architecture.

This paper aims to analyze and understand the links of slow movements to architecture through the three core features of Slow Food defined as Good, Clean, and Fair in the movement's charter. According to this categorization "good" represents the quality, sensuality and good taste of the food, "clean" stands for the components related to ecological sustainability and "fair" stands for the ethical sustainability. The enthusiasts of the movement claim that slow food should be produced and consumed, experienced in line with these features. The reflections of the idea of "slowness" to architecture and proposals for how these attributes may be interpreted to architectural design are examined through examples in this study. The emergence or genealogy of slow architecture is studied based on the writings in architectural theory by Christopher Alexander, Juhani Pallasmaa, Peter Zumthor.

Today, fastness may seem to be irresistible for architectural design process due to the push of economic considerations and attractiveness of technological opportunities. It may be possible to expand the links between the slow movements and architecture to discuss how the concerns, methods, and goals of architecture may be characterized under the framework of the slow approach as an alternative way of design that is experience-based, sensory and sustainable.

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***Key Words: Slow Architecture, Slow Food, Social Movements, Atmosphere, Sustainable Architecture, Participatory Design***

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### ***1. The Emergence and Growth of Slow Movements***

Developing technology presents opportunities and capabilities which would only be seen in science fiction movies a quarter of a decade ago. The improvements in communication and transportation made every part of the world become much more accessible today and we are surrounded by facilities of digital technology and it is much easier to reach information. On the other hand, the progress is so rapid that it sometimes becomes challenging to keep up with it. The rate of these changes also increases and we are now doing everything fast, moving fast, eating fast, building fast. These developments appeared under the influence of globalization brought the beneficial and negative sides of the current situation into question. Are we ready for the future that these rapid technological and economical changes are bringing and are we capable of living as a part of it? While we are busy with adapting ourselves to these condition of living fast, maybe, we become caught up in a world which allows no time to stop, think, experience and appreciate any parts of our lives. How much are we aware of each others similarities and differences? Are we designing our lives or just trying to adapt ourselves to the circumstances?

These questions triggered the proposals for new kind of lifestyles which suggest that one should be able to live in a modest way. The standardization, homogenization and global economy's leveling out cultural differences also started to be criticized. The "Slow Movements" came up as a response to defend the rights to live in a more qualified, sustainable and ethical way for people on contrary to the demands and pressures of the fast life. It is important to note that these movements are not about doing everything at a snail's pace and it is not an attempt "to drag the whole planet back to some preindustrial utopia" [1]. Slow approach is not a return to the good old days of the past and nor it is a form of laziness or a slow-motion version of life in the most romantic locations of the world [2]. Instead, the common attitude of the movements is to support all the innovative techniques, technological developments as long as they go along with the interests of the slow approaches.

The initiation of the movements started with "Slow Food" in 1986 and followed by "CittaSlow", the slow city movement in 1999. After these primary actions, the trend continued and many efforts, which seek to expand the "slow" philosophy to various areas of life such as, fashion, media, traveling etc. have been made. The movements are not organized and controlled by a single institution but they share some similar principles, which were originally introduced by the Slow Food movement.

### *1.1 Slow Food: “Good, Clean, Fair”*

Slow Food is a global social movement, which was officially founded in 1989 as a reaction to “the speed of the soulless world of machines and heavy industry” as described by its founder Carlo Petrini [3]. The idea was created in 1986, in Italy, after a demonstration on the intended site of a McDonald’s fast-food chain at Piazza di Spagna in Rome, one of the city’s most significant historic squares where Spanish Steps are located. Some activists protested the violation of the square with the logo and shop windows of a restaurant which they think is a symbol of “invasion by an alien culture” and heartless, mass-produced food [3].

In fact, the name “slow food” was chosen to represent the qualities that are opposite to “fast” food [4]. Yet, slow food should not be thought as merely the opposite of fast food where it underlines and reminds the importance of food as a living cultural product linked to issues of quality, care for the environment and social justice. Petrini explains that food culture should be determined by the rules of taste, in accordance with the seasons, time and harmonizes with the variety of the territories and changes with historical events. So basically, Slow Food advocates that food is not just a necessary element of survival but it should be qualified and enjoyable [3]. Additionally, the movement also aims the promotion of food that is regionally, ethically, and sustainably produced, and convivially consumed. The action is not about being a total enemy of globalization but it tries to be a part of a “virtuous globalization” as referred by Petrini [5]. For instance, the enthusiasts of the movement look for trade agreements, which allow European chefs to reach kinoa from a family farm from Chile or the information technology to permit a smoked salmon specialist in Europe to find clients in Japan [1]. This means globalization, in Slow Food's view, has the power to support the local artisans and producers instead of giving harm to them. On the other hand, considerations brought by the Slow Food movement in a way direct people to think about how consumption choices they make constitute a part of an interdependent network within a social economy.

According to the manifesto published by the organization, three interconnected principles for food and food production are articulated where they should be good, clean and fair [6]. Good stands for quality, flavorsome and healthy food. It is mostly concerned about the experience where the flavor is expected to be “recognizable to well-trained senses”. Besides, naturalness should be given importance and the choice of raw materials and production methods should be “the fruit of the competence of its producer”. This principle is mostly about the experience with the food. The second principle Clean is about showing respect to the environment and concerns about sustainability in each stage of production, marketing and consumption of food. The final principle, Fair emphasizes ethical aspect of the food and production stages including the accessible prices for consumers and producers, social justice as well as showing respect for cultural diversities and traditions.

### *1.2 “Cittaslow”, Slow Cities Movement*

The principles of Slow Food in relation to the social, economical and environmental concerns constitute the backbone of the philosophy of latter slow movements in various areas. The first and the major one was CittaSlow (slow city) movement, founded in 1999 by the mayor of Chianti, Paulo Saturnini. Afterwards, some other Italian towns including Bra, Orveto and Positano were included. Today, the organization consists of member municipalities of 228 towns from different continents of the world, which achieved the status of “slow city” through fulfilling some requirements defined in the movement’s manifesto [7]. Different from the other slow actions, Cittaslow is a more clearly defined organization where it has a different institutional structure conducted from a municipal basis. Explaining their principles, the

organization charter emphasizes its connection with Slow Food and explains how Slow Food's basic principles may be applied to urban environments. The main theme of the movement is defined as "the identity and the soul of the local communities engaging with modernity without being unduly influenced by globalization." on the organization's web site [8]. The goals are concentrated on preserving the quality of life as an element of each city's sense of place, sustaining the cities' own unique characteristics, working towards sustainability, defending the environment, rediscovering traditional know-how, providing peace between people. The social considerations such as community association, multicultural integration, and improvement of the conditions of disadvantaged groups are also asserted by the organization. In other words, being good, clean and fair principles are used in a similar sense with Slow Food.

Regarding its relation with identity, the slow city may also be the opposite of what Rem Koolhaas has discussed in his article "The Generic City" [9]. Increasing globalization and changes in technology had a role in the transformation of the urban environment in many ways. Especially metropolitan cities started to resemble each other as if they are standardized, in a way that Koolhaas talks about in his article. He asks "What if this seemingly accidental-usually regretted-homogenization were an intentional process, a conscious movement away from difference toward similarity?" and describes the Generic City as "the city liberated from the captivity of center, from the straitjacket of identity". In addition to the concerns about preserving identity, improving the quality of life and seeking for sustainable approaches are also important issues, which have long been discussed for the urban environment. Slow cities aim to preserve the traditional architecture, crafts and cuisine but "being slow does not mean being torpid, backward or technophobic" says Honoré [1]. The slow cities also celebrate the best of the modern world and embrace innovative techniques, technology which improves the quality of life. Nowadays, a new theme "Cittaslow Metropole" is being discussed to generate urban design solutions for the problems of large cities of the world through the regulations and projects of slow cities as stated by the organization.

## **2. Good: Contribution to the Quality of Urban Life**

Although the "slow" approach had been discussed in connection to a wide range of issues, the proposals about how architecture would respond to these movements are still limited. Indeed, the built environment may have a high potential to contribute to the improvement of the quality of life taking inspiration from the slow principles. To understand how the ideas suggested by Slow Food may be located in an architectural framework to improve the quality of life, it may be helpful to think about an analogy between architecture and the art of cooking. They are both essential needs of life; they both aim to combine practical needs with taste and seek to build a meaningful structure from raw materials. In fact, for the products of architecture and cooking, at the end, the inhabitant or taster is at the center of the living or eating experience.

One of the main values pointed out by Slow Food is that food should be "good". This principle mainly prioritizes the quality in terms of taste, production in such a way to improve the flavor and the connection of food to a cultural, geographical region. This attitude could possibly give a new direction to architectural design for the improvement of the spatial quality.

### *2.1. Design for the Five Senses: Creation of the Atmosphere and Place Experience*

In the field of architecture, it is still not common to see direct references to slow movements; however, some parallel aspects discussed in terms of experiential dimension of the slow approach and how people interact with spaces. Peter Zumthor is one of the architects associated with slow architecture. His approach identifies "atmosphere" as a core theme of architecture

[10]. Zumthor refers to the term “slow architecture” in his book “Atmospheres” where he explains his phenomenological approach towards architecture and his concerns for creating atmospheres that are related to sensory experiences [11]. He argues “quality architecture to me is when a building manages to move me” and suggests atmosphere as one of the key elements of this feeling. He claims that “we perceive atmosphere through our emotional sensibility” and the air, the temperature, noises, sounds, colors, material presences, textures, forms in a space, the relation of the space with its surrounding all contribute to our feelings and appreciation of that space.

While Zumthor considers atmosphere as a guiding principle in his architectural practice, Juhani Pallasmaa underlines the relation between atmosphere and other aspects of architectural experience in a more theoretical sense. He criticizes the dominance of vision and suppression of other human senses in the way architecture was taught, understood and critiqued [12]. Relating the experiences of alienation, detachment and solitude in today’s technological world with certain pathology of senses, he argues that “the inhumanity of contemporary architecture and cities can be understood as the consequence of the neglect of the body and senses, and an imbalance in our sensory system.”

Christopher Alexander also deals with spatial experience, in a different way in his book “A Pattern Language” in which he tries to redefine architectural design to go along with natural processes integrated with human settlements and ways of life [13]. He proposes archetypal designs, which he names as “patterns” to solve recurrent problems of architecture and urban planning. The initiating idea for these organically developed patterns is based on people’s feelings about the kind of spaces making them feel alive, which in a way resemble to the origin of concerns for the creation of atmosphere. Alexander refers to the quality of space as “a true relationship, free from inner contradictions between ourselves and our surroundings.” [14] Here, there is a similar structure between the author’s focus on users’ spatial experiences and Slow Food’s emphasis on the experience of taste and production.

The priority given to the interaction and experience to achieve spatial quality may be thought as parallel to the attitude of Slow Food, which situates the experience of flavors and taste in the center to maintain quality. Therefore, the creation of atmosphere becomes a crucial component of “slow architecture”.

## *2.2.Slow Approach for Architectural Design Processes*

Architectural design process includes various phases and components such as the definition of requirements, development of drawings, searching for the right materials and production techniques and construction. In terms of making a contribution to spatial quality, some inspiration may be taken from the “slow” approach.

Since putting the senses and the experience within the space are determined as major issues for the spatial quality, setting a dialogue with users would be important for designers. For instance, Pallasmaa claims that, since architecture is subject to use, atmosphere is by no means a merely individual task therefore “it is crucial for architects to empathize with users, clients and other perceivers of architecture, no matter how distant they may seem” [15]. For defining the connected patterns that he proposed, Alexander also puts the needs of human beings at the center of architectural design [13]. Zumthor approaches the issue from another perspective and talks about how he integrates, listens to the clients’ and non-architects’ propositions during the design process. The architect says, “As we know, in the end architecture is for normal people,



not for specialists.” and he states “For me architecture is an authorial work. It’s not just rendering a service, it’s developing an idea with the client and becoming more intelligent together as the design process goes on.”[16] With this regard, participatory design methods would be a crucial issue for slow architecture.

Another criticism about the design process concerns initial decisions taken through digital images and renderings. Frascari for instance, makes associations between the slow food ideas and architectural drawing methods. He criticizes how photographic images dominate contemporary architecture today and suggests that they weaken architectural imagination [17]. The author points out that fast drawing is similar to the fast food, which is “generated by the present graphic obesity and indigestive architecture” [17]. The technology of today allows designers to visualize the proposed final product; they are even able to make calculations about daylight, temperature, and energy savings by the help of building information modeling software. These opportunities would be also critical for the environmental concerns of a slow architecture. However, remembering other possible techniques such as producing models, sketching, working with exact samples of materials would be a part of the slow architectural design process. Zumthor is known for his preference for working with samples on a 1:1 scale to check details, space, and proportions as well as models. This approach is based on “a kind of curiosity and passion for things to be just right in scale, material and proportions to the touch” [16]. Probably, the architect’s method for working with models becomes helpful also for the people involved in the design process and triggers deeper understanding of his proposals as well as further discussions with him. In their review, Berteloot and Patteeuw suggest that in examining Zumthor’s models made of different materials “one enters their interior spaces and senses the spatiality, the play of masses and voids, light and views” [18].

The common point of view that is revealed in the designers’ and theoreticians’ approaches to atmosphere is the central role given to the user with a stronger focus on other senses rather than the visual one. Böhme underlines these similarities and points out how the designers dealing with the quality of atmosphere value local craftsmanship and use its potentials [19]. He emphasizes the critical role of the users for the creation of an atmosphere and implies that it would only be possible to talk about an experience and atmosphere if an interaction happens between the person and a place. The author states that “atmosphere is something between the subject and the object; therefore, aesthetics of atmosphere must also mediate between the aesthetics of reception and the aesthetics of the product and production” [20]. Accordingly, the intended atmosphere would be resulted not only from the interaction of the objects, architectural components such as light or sound, but the user becomes the essential non-material factor. Since the slow approach prioritizes quality, when we talk about the quality of a place or experience within a space, a more user-centered attitude becomes unavoidably an essential component of the slow architecture.

### ***3. Clean: Sustainable Approach “Preserving the Local, Competing with the Global”***

The second main principle of Slow Food is producing and consuming “clean” food without giving any harm to the environment. The movement started as a gastronomic action but today it is highlighting the concerns for the environmental sustainability is highly obvious. Likewise, this tendency is also quite significant in CittaSlow regulations concerning policies of the environment, infrastructure and energy saving and the support for sustainable architecture is strongly asserted [21]. In comparison to the concerns of sustainable design, it may be thought that the focus of the slow approach is mainly on the needs and the perception of the user (see

Table.1). In addition to showing respect to the nature, the slow approach may deal with improving life quality through designing buildings which connect with the inhabitants as well as encouraging their participation in the design stages. However, despite low environmental impacts, each building equipped with energy efficient technologies may not necessarily provide wellbeing for all the occupants. Slow movements are characterized by rethinking traditional ways and their value in building practices in opposition of standardization. Therefore, regarding slow architecture, the main challenge would be to find innovative, unique, affordable and environmental friendly solutions for buildings in consideration of local sources and cultural references.

As an example of this approach, Hasan Fathy is one of the most recognizable architects who utilized a wide knowledge of ancient Egyptian architectural and urban design techniques to propose accessible energy efficient solutions. During the building of a new town in Gournah, he suggested the use of affordable, accessible materials such as mud bricks and experimented with the native building techniques in collaboration with local craftsmen [22]. Some of his innovative techniques of providing natural ventilation in buildings, such as wind catching towers called “badgir” inspire some architects even today. An Italian group of architects TamAssociati also works on the reinterpretation of traditional, low-cost methods for eco-design. Their hospital project in Nyala located in a hot African climate includes badgirs for ventilation. The project consists of a system of courtyards around a big Boabab tree and likewise the Arabian courtyards. So, it helps to minimize the exposure to sun. The architect Raul Pantaleo describes their project as “a combination of modernity and tradition, adopted concretely, not ideologically” [23].

Indian architect, Anupama Kundoo, for instance, reinterprets local crafts and materials for her design practice. She defends the accessibility and affordability of green building technologies especially for rapidly urbanizing societies [24]. In her Full Fill Homes project (Fig. 1a), the architect focuses on the design of affordable housing units with low environmental impact while developing a new combination of sophisticated and low-tech materials and techniques [25].



Fig. 6(a) Kundoo's Modular Full-Fill House Interior/ Image:www.curbed.com (b) Made in India Project /Image: www.dezeen.com

The housing units consist of modules made of prefabricated Ferro cement hollow blocks that can be assembled on the site in six days including the construction of foundation. The design of units is suitable for various uses such as disaster relief homes, youth hostels or student housing. Kundoo not only deals with affordable housing projects for the poor but also applies a similar approach to design for other type of projects. For an exhibition of Indian products entitled Made in India, for instance, the architect chose white granite slabs finished with traditional Indian hand leveling techniques to reveal a more interesting type of texture (Fig. 1b). According to Kundoo, luxury is “having time and being able to spend time” and she suggests, “luxury is in mind and the taste – not in the materials.” [26]. Starting with this idea, the architect

achieves the international luxury store look that is originated from a reference to Indian culture but grown into a contemporary global concept. Kundoo’s search for the ways of regenerating craftsmanship in an increasingly technological world and using traditional crafts as a tool to develop new perspectives on the future is quite similar to the concerns of slow movements.

Table 1 The similarities and differences between major considerations of sustainable design and concerns of slow approach.

	SUSTAINABLE DESIGN	SLOW ARCHITECTURE
Site and Land use	Harmony with nature, Compact cities/ reducing transport impact, Preservation of open public spaces, Supporting local food production	Regarding the slow approach, the surrounding area would become the key element which can produce the local references and differentiate the design from other examples located on other regions. Designing walkable cities, preserving open spaces would be appreciated in terms of both environment protection and improvement of community relations concerns. “It (quality) is never twice the same, because it always takes its shape from the particular place in which it occurs.” (Alexander, 1979, p.26)
Materials and Tectonics	Design for longevity/ durability ,Waste as a resource/ recycling, Avoiding resources depletion, Minimizing manufacturing impacts, Selection of materials in accordance with Energy Efficiency Considerations, Preference for local materials, Non-toxic materials	In addition to sustainability criteria;  Slow Architecture experiments with materials and textures in terms of emphasizing the sensory aspects of the environment. Local/ regional specificity in building materials, techniques, preservation of crafts and as well as sharing knowledge are given high importance.
Community Participation	Community participation, Housing for all, Providing training and employment , Enhancing the quality of life, Promoting sustainability	In addition to sustainability criteria;  Community participation would be critical for the architectural design process. Participatory design methods may be developed and encouraged. For the creation of the intended atmosphere, understanding the users’ needs would be important.  Providing facilities for community association and political participation, finding solutions for multicultural integration are also critical issues for the slow approach  Understanding the network between the architect, the builders (which may also be the architects or the users) and the users and improvement of knowledge sharing would be important.
Health& Well Being	Physical comfort level and performance ability, and physical factors such as indoor temperature and humidity, Visual comfort, Acoustics , Air quality , Electro-magnetic Compatibility, insensible agents of disease.	Besides the scientifically explained physical comfort levels in relation to acoustics, illumination, temperature slow approach would focus on the initial and immediate experience of the space. Therefore, all these criteria would be evaluated in terms of the context, the kind of the atmosphere which the designer wants to create. (In his text Atmospheres (1996) Zumthor identifies a series of themes which contribute to his work in achieving architectonic atmosphere, including the material compatibility, the sound of space, the temperature of a space, levels of intimacy, the light on things).
Energy Water /Air /Waste Management	Minimizing energy needs, Using energy efficient sources and developing passive/ active energy efficient techniques, Alternative water sources such as rain water, Reducing the use of mains drains, Waste water management and reuse of waste water	All the criteria mentioned regarding the sustainable approach to architecture would be true for the slow approach. For instance, there are some clearly defined regulations related to energy efficiency, water, air and waste management in the Citta Slow Charter. For the slow approach, searching for effective, innovative solutions by using low-tech, affordable methods which contributes would be preferred.

#### 4. Fair: Affordable, Quality Architecture for Everyone

The third and last prerequisite of slow approach is being fair. Concerning slow food, the word “fair” connotes social justice, respect for workers and their know-how, local culture as well as producing qualified food accessible for everyone [5]. Regarding the slow approach to design, the relationship between the designer, the builder and the user may be discussed within this framework. The value given to local crafts, techniques, craftsmen and their knowledge would

enable the preservation of local identity and culture for communities. Moreover, participatory design methods and interaction would stimulate the sense of community and shared ownership. Therefore, the establishment of an effective network of designers, users and builders is important. Affordability and accessibility of good design are also essential considerations of the slow approach. Thus, slow architecture may cause the improvement of the living conditions of disadvantaged groups through innovative design solutions.

#### 4.1. *Establishment of Designer - Builder - User Relationship*

The adoption of local crafts and the usage of local materials with innovative techniques are fundamental considerations of slow movements. From this perspective, a need for establishing an interactive network between the designer and the local builders and craftsmen gains importance. Although the craftsmanship and architectural design were closely related up to the mid-19th century, the handcrafts started to disappear under the forces of mass-production, rationality and rapid industrialization, A slow approach to design may indeed support the revival and development of local building techniques by creating spaces of knowledge sharing and working together.

Regarding this idea, some contemporary designers and researchers integrate craftsmanship into the design process. In Turkey, Made in Şişhane project in Istanbul founded by the architect Aslı Kıyak İnçin, for instance, aims to make Sishane workshops visible through collaboration of designers and craftsmen. Especially known for its lighting ateliers, Şişhane is a very old craft neighborhood currently threatened by gentrification and the disappearance of small-scale production. Therefore, Made in Şişhane project proposed that the tradition of lighting production and trade specific to the area could be sustained in Şişhane [27]. Within the project, an international group of designers were invited to the neighborhood, several workshops were conducted for university students and designers [28]. Using the potentials of the area, these attempts, in a way, converted the neighborhood into a creative place for new collaborations and experiences that is open to public.

Examples of collaboration between designers and craftsmen can be also found in architectural projects. For Gando School and Library project located in Burkina Faso, the architect Diébédo Francis Kéré benefited from earthenware pot traditionally hand-built by the women and compressed earth blocks produced by the inhabitants with local clay where the building itself became a community effort [29]. The architect gave significant attention to learn from the vernacular craftsmen in order to develop innovative techniques. Kéré thinks that, “oral transmission of knowledge is a fact. The elder help because they are the keepers of the collective memory of how to build.” [26]. Most of his buildings are located in African region and he also underlines the importance of the architect-local workmen interaction as in the following statement: “Many Africans emigrate in search of work; we must try to keep them at home, teach them to work, teach them to use local materials - traditional systems but also new techniques.”



Fig. 7 (a) Local people together working on Gando School (b) Gando School Library interior with openings on the ceiling.

Images: Kere Architecture

In another project, by TYIN Tegnestue Architects, Cassia Coop Training Centre in Sumatra, the architects collaborated with local craftsmen and used locally crafted brick and the cinnamon tree trunks, which are by-products from the cinnamon production and have a low status among the locals (Fig. 3 a-b). Sumatra is the supplier of 85 % of the cinnamon consumed worldwide and the center was built as a training facility for production. According to the designers, the light wooden construction on a base of heavy brick and concrete gives a feeling of being within a cinnamon forest [30].



Fig. 8 (a-b) Cassia Coop Training Centre / Image: [www.tyinarchitects.com](http://www.tyinarchitects.com)

Describing their experiences about Slow Food, Petrini states: “We were not mere consumers—we had taken responsibility for part of the production system, looking from the cultural point of view we had become co-producers.” [5]. This means that the consumers or the users somehow become integrated into the production phase. The same situation sometimes occurs in architectural design process in various ways. The user and the designer, for instance, may actually contribute to the building phase, which also constitutes another kind of relationship. Some examples of this situation may be seen in the projects developed by independent organizations and non-profit participatory urban design collectives. For example, Istanbul based TAK (Design, Research and Participation Initiative in Kadıköy) brings together designers, entrepreneurs, students and neighborhood residents to discuss local concerns, develops design and implement strategies to improve Kadıköy’s neighborhoods and then generates new community-driven urban design projects [31]. Besides, the organization motivates citizens and designers to collaborate in building phases as well as design processes. There are other examples of these attempts in Istanbul. Herkes İçin Mimarlık” (Architecture For All) is another non-profit, independent organization based in the city. The organization aims to offer architectural solutions to the social problems currently faced in Turkey and promotes participatory design process in architecture education by conducting workshops with university students [32]. The emergence of these organizations is important because of their contribution to the making of participatory design policies developed together with local governing organizations. Hence, the locals are given a chance to take part in the design and implementation phases of urban projects especially in large cities like Istanbul.

#### *4.2. Creating Places of Community and Integration of Different Cultures Through Architecture*

According to the philosophy of Slow Food movement, local products and regional cuisines are important features of cultural distinctiveness. Therefore, they need to be cultivated and protected neither for nostalgic reasons nor for the business-making choices of luxurious restaurants, but because they represent a rich cultural ‘heritage’ [33]. The Citta Slow Charter

also puts multicultural integration and elaborating influence of diverse cultures in the city as one of the main requirements in terms of social cohesion [21]. Architecture and design may contribute to the creation of places of social interaction and enrichment of the cultures and subcultures in the towns and cities.

Regarding the subject, Christopher Alexander explains that the significant influence of planning urban areas as an accessible mosaic of subcultures allows variety and gives an opportunity to people to find out about themselves by supporting them to develop strong characters [13]. In relation to this idea, creating places for the community would be one of the critical factors regarding various aspects such as sharing knowledge, creating a common sense of a slow living approach and enabling minorities to participate more in the making of slow architecture. There are some successful and intelligent examples of places of social interaction such as community kitchen projects. In several sources, both cooking and communal eating are highlighted as strong encouraging activities to provide space for interaction between communities. In his book, Alexander for instance, suggests:

“Give every institution and social group a place where people can eat together. Make the common meal a regular event. In particular, start a common lunch in every work place, so that a genuine meal around a common table (not out of boxes, machines, or bags) becomes an important, comfortable, and daily event with room for invited guests. In our own work group at the Center, we found this worked most beautifully when we took it in turns to cook the lunch. The lunch became an event: a gathering: something that each of us put our love and energy into, on our day to cook.” [13].

Neumeyer also underlines the architecture’s ability to make certain forms of community where eating culture claims and demands community, and he notes that “preparing and consuming food communally is one of the most appropriate ways of promoting a sense of community” [34]. As an outcome of this idea, some community kitchen projects were constituted as mediating tools to support the roles of refugees as active urban actors in Berlin and Istanbul. In Berlin, students from TU Berlin Habitat Unit designed a place named Kitchen-Hub and it was built by CoCoon Group to be used by a non-profit refugee organization, Über den Tellerrand e.V. [35]. The place includes modular furniture and toolkits, which can flexibly address a range of functions including cooking classes run by/for refugees and locals, workshops, discussions and community meetings (Fig.4 a-b). Besides, both people with or without refugee backgrounds can cook, eat, work, think and produce together. Therefore, the project works as a place of coexistence and mutual exchange, where refugees become active in shaping urban space. A similar approach is followed in Gocmen Dayanisma Mutfagi (Solidarity Kitchen for Refugees) in Istanbul, Tarlabasi, although the interior space has not been created by professional designers. The organization welcomes all the people with a motto “All the stomachs of the world unite!” as stated on its website [36].



Fig. 9 (a-b) Kitchen-Hub Project Plan in Berlin /Image: CoCoon Contextual Studio <http://cocoon-studio.de/portfolio/kitchen-hub/>

In addition to cooking and eating, many social activities such as language courses also take place in the kitchen. These examples demonstrate that the community kitchens have a potential to be developed regarding design and serve as a new type of buildings to create awareness for the diversity and cultural richness in urban communities.

## 5. Conclusion

Borrowing cues from slow movements, the slow approach for architecture would benefit from the advantages of technology but take off the consequences occurred by the pressure of fast life ignoring people's senses and capabilities. If we start with acknowledging the fact that the creation of atmosphere, which interacts with people and enhances the feelings of users, is the initial consideration of a slow architecture, then the concerns about quality or good design should be discussed in relation to atmosphere. The experiential dimension, therefore, gains significance where atmospheres can stimulate the five senses and make people feel alive. In fact, this process includes the designer, the builder and most importantly, the user in various stages.

Rapidity seems to be irresistible for architectural design process due to the pressure of global economic conditions and the attractiveness of technological innovation. However, slowness can be attained in architecture and urbanism through a new slow approach. The design process in slow architecture should be about patiently investigating and understanding the problem as well as getting involved in the project. It needs the enhancement of form born out of a process where the project site has been explored thoroughly. As the user is the central element for the production of good design, ensuring an intense dialogue with the users would also be crucial for the slow architecture. Therefore, designers may search for innovative, powerful techniques and tools for expressing themselves while making the participatory design methods a substantial part of the process. Additionally, sharing human skills and know-how are highly valuable for the development and implementation of alternative building techniques. At this point, the establishment of the designer-builder-user relationship becomes a critical component of the planning, design and construction.

As slow architecture cannot be thought of without its local characteristics, a natural overlap occurs between slow architecture and sustainable design. Indeed, many aspects of sustainability have evolved from place-specific concerns through time with the use of local, natural materials as well as intelligent crafts techniques.

One of the most important aspects of slow movements is that they prioritize the accessibility and affordability of quality. This means everyone should reach good design. Slow architecture may also have the ability to improve the quality of urban life with design solutions. The member cities of Citta Slow Organization are doing this to some point with their regulations. However, architecture can only contribute design solutions in building-scale, introduce new building typologies and realize minor, low-cost touches to the cities. Designing shared spaces of social interaction and knowledge should be also on the agenda of slow approach. Slow architecture can be generated through being sensitive to spatial experience as well as to nature, preserving local skills and crafts, and sharing knowledge in appreciation of cultural diversities. As a result, the positive contribution of our built environment to our lives can be enhanced. Through the

interpretation of slow principles to architecture, our participation in the building processes and our satisfaction with the buildings can be enriched enormously.

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## BEHIND THE SPIRITUAL CITY WALLS OF THE MEDINA OF TUNIS; BETWEEN MODERNITY AND AUTHENTIC TRADITIONALISM

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### Abstract

The traditional Medina of Tunis, being a historical world heritage, dating from the beginning of the 7<sup>th</sup> century, is a witness of coexistence between traditionalism and modernity. It continues to be one of the biggest historical sites of the country. Over the centuries, it has gone under transformation in response to a westernized city life which had started from the French protectorate in the area, dating back to the end of the 19<sup>th</sup> century. A lot of research works had been conducted about the Medina, including discussion on its political traits and urban development.

This research aims to describe the relation modern art/ community's culture expression in a traditional physical atmosphere. The attractiveness of the coexistence between traditionalism and modernity inside the peripheries of the central Medina, giving a presence of a spiritual city walls' impression is also evoked. Despite the urbanization induced physical changes that were supervised by different state organizations, the centuries old infrastructure still possesses an outlook of an authentic historical space. The Medina, with its covered bazaars, streets, several mosques, cafes, *foundouks* and *hamams*, is still giving to its visitors a charming emotion of sense of place. In its different parts, a perception with the five senses can be lived, different typical smells, authentic sounds, Moorish colours and original visual experiences different from what can be seen outside of the Medina's peripheries. A qualitative research method has been chosen to achieve the goal. In the first part of this study, a brief history of the Medina of Tunis has been presented. Several facts that had influenced the Medina's urban development are discussed and life around the Medina's center, 'Al-Zaytouna' Mosque is reflected upon. The atmosphere in the bazaars is described as well. During the course of this study, two examples of event, which had ravished the original mixture between modernity and traditionalism, are given i.e. 'Dream City' and 'Interference' events. It is concluded that the Medina of Tunis is nurturing identity mixture, where modern day artistic events are shaping new experiences inside the spiritual city walls; modern arts are becoming a tool to express the community's 'psyche' of culture.

**Key Words:** *traditionalism, modernity, sense of place, collective memory, identity*

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### 1.Introduction

A little less than five years after the Jasmine Revolution, Tunisia is still a society undergoing reconstruction of which, the World Heritage Site 'La Médina' of Tunis is a corner stone. In fact, based on the notion that art can be a tool for facilitating social cohesion and inter-cultural dialogue, the traditional Medina of Tunis saw its core housing several modern artistic events. It can be said that the Medina of Tunis adopted the use of modern art as a tool to express the community's culture.

5. Thereby, culture was defined by the anthropologist John Hawkes as a way to describe the community's creation of values: "*the meaning of culture puts forward a comprehensive definition of culture that focuses on its use as a concept to describe the community creation of values, meaning and purpose in life* [1]". However, this point of view is as distinct as possible from the alternate view of culture as simply arts and heritage, which, hence, can create some confusion. And according to John Hendrix, architecture is a way to represent the Human psyche and the human condition; "*it is the most complete expression of the collective psyche of a culture.* [1]" In fact, he postulates that architecture is the expression and communication of ideas, values and beliefs of a culture. Nicholas Temple as well evokes the architecture's contribution trait on the development and redefinition of culture, and with a specific way the values, beliefs, traditions and aspirations that culture brings to an age. What question here is, is architecture "*a "cultural act" that can shape\_ or even challenge\_ emerging practices* [1]" like he had explained? Nicholas Temple expressed an interest on "*architecture as "agent" of cultural renewal* [1]"; in other words the capacity of architecture to revivify or restore earlier cultural traditions. This implies that culture is considered as a tool to express a community's creation of values and what fuels this aforementioned fact is architecture. What question here is how can a coexistence modern/traditional enhance the cultural expression inside a historical city center like the Tunisian Medina?

## **2. Brief history of the Medina of Tunis: from the Arabic city structure to the hybrid one**

The Medina of Tunis appeared around the 7th century and it is still existing until nowadays. It had lived different transformations in its center, where most of the bazaars are concentrated.

From the 7th till the 16th century, the Medina of Tunis owed a structure of an Arabic city. In fact, its history dates from the establishment of 'Al-Zaytouna' Mosque in 695 by the first coming Arabs who could force out the last Byzantines. However, it had been reclaimed that the Medina existed even before those dates but had been destroyed [2].

From 711 and until 909 with the Aghlabids, the Medina of Tunis lived several noticeable evolutions like the reconstruction of the city walls and the redefinition of the center and principle Souks around 'Zeitouna' mosque [3]. Around 945, Tunis lived the sever interlude of Kharidjitts with Abu Yazid, "The man with donkey", who destroyed all the mosque's surrounding bazaars. However, after 949 a Saint man named Sidi Mehrez, built again the Medina's walls and 'Souks' joining to them the Jewish district, 'El Hara'. Around 1147 under Almohads regency, the Medina's structure again lived changes. Thereby, there were attempts to reflect their own identity in architecture. One of the remaining buildings is 'Al-Kasbah' which was defined as the center of military and political power. After 1228 the Hafsids regency started and lasted three and a half century. Their regency can be seen as a corner stone in the development of the urban fabric, the economic and social sectors [4]. By September 1574, Ottomans took control of one costal part of the capital Tunis. First Beylerbeys of the regency had not left any important architectural realization. In fact, from 1587 until the end of the century, the Medina suffered from conflicts between Spanish and Turks over the annexation of the region. Slowly it had been totally taken over by Sinan Pasha. After that they started by repairing the city walls, renovated 'Al Kasbah' which was transformed to 'Diwan', the Pasha and Dey's residence [5].

The last important happening in the Medina which had influenced its urban development as well is the French guardianship of Tunisia which started by 1881. In fact, at that time a new westernized city, occupied by Europeans started to evolve next to the Medina. This new city

named “La ville nouvelle” or “Ville européenne” had a different function and morphology from the old Medina [6]. In fact, they subjected the new city to a French way of life. This fact enhanced the Tunisians’ attachment to the central Medina which became the symbol of the resistance against colonial attempts.

It can’t be denied that the Medina’s history prepared a platform for an interaction between traditionalism and modernity. In contraction with other facts like the social development and political influences, the Medina of Tunis saw its core embedded in an interaction between modernity premise and traditionalism resistance.

### **3. Factors which influenced the urban development of the old medina**

#### **3.1. The medina’s social development:**

Many facts had affected the Medina’s urban development and evolution like the production forms and the social development. As it is the case in all precolonial Maghreb countries, Tunisia was following a feudal conceptions of the cities. As mentioned by Pierre George, “*the fortune’s corner stone in Asia or Africa under-developed countries is the earth’s owning* [7].” This means that the power is depending on some central facilities in an area where all is arranged around palaces, prisons, military barracks and mosques. The city centre remains always related to the rural surrounding areas from a commercial point of view. However, it mainly reflects the political and religious concentration.

As it was described by Jalell Abdelkafi, in precolonial Maghreb countries, the main production and social developments are based on urban patriarchal and religious aristocracy [8]. He had also talked about unalienable properties of religious foundations ‘Habous’. *Habous* is synonymous with entrepreneurial systems where such bodies employ some families in farming, in lands supervised by one family having sacred ancestry. According to him it “*had made farming a real social power* [8]”. Originating from Turkish ‘Beylik’, ‘Habous’ were maintained by a tribal power. However, head of tribes were not living in rural areas, they had contributed in the reinforcement of a new public function’s aristocracy formed from some dignitary of the regency [8]. As mentioned by Abdelkefi, those government officers “*used to live in the cities, in administrative centres, big army bases and palaces* [8].” This means that city centres used to be the centre of rural areas control. This archaic production system has a specific ranking of power activities. In fact, ‘Makhzen’<sup>10</sup> tribes used to be the stronger since they had military support, properties and exemption from taxes. It can be said that tribes’ role in the political power is prominent. In fact, in the precolonial period, a minority of elites showed an interest to the urban life. Thus, urban development was affected and it lived a stagnation.

#### **3.2. The medina’s political status and its evolution: premise of modernity’s beginning**

Another important fact that had affected the Medina’s urban evolution is the political regime which was applied in the precolonial period. In fact, the Medina reflected “*a preindustrial pre-capitalist urban economy* [8]” which was reflecting specific traits: stagnating production techniques, a hierarchic work’s sub-division (sana’, qalfa, ma’allem)<sup>11</sup>, the products are distributed directly by craftsmen, and finally the fact of choosing a man responsible of the Medina’s treasury, ‘amin’. All of this system explains how a pre-eminence of tradition had stopped the possibility of an industrial revolution and capitalism starting.

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<sup>10</sup> Makhzen is an establishment responsible about protecting the main ‘Habous’ (Vakifler) resources.

<sup>11</sup> Sana: apprenti, qalfa: partner, ma’allem: master.

As by Jalell Abdelkafi, by the middle of the 19<sup>th</sup> century, between 1840 and 1850 under Ahmed Bey crafts saw an important crisis. Thus, ‘Sheshia<sup>12</sup>’ commerce which is considered as a corner stone in the Tunisian economy at that time saw a big decline. But what made things worse is that Ahmed Bey did some modernization operations in army and industry which exceeded the regency’s budgets. “*Under this economic status, the Medina of Tunis looked like a pre-industrial urban fact, pre-capitalist and ready for colonial oppression [8]*”.

But, reasons that made this political reforming attract our attention are basically related to the roles of ‘Ulema’<sup>13</sup> in maintaining the power. One example from their effect is the fact of forbidding courts since they are against ‘Al Shariaa’ rules. What had made end to this fact are the attempts of Turkish first ministers Mostapha Khaznadar and Kheyreddin. From the attempts that marked the Medina’s history, the sanitation program of 1875 can be mentioned [8]. That period was marked by a neglect of the ‘Ulema’ role in the Medina’s administration. This made the Medina of Tunis a city which could not be classified among cities: there was an absence of an organized urban community. The absence of a municipality due to tribal traditions had enhanced the Medina’s urban stagnation at that time.

What characterized Tunis in the pre-colonial period is the trilogy ‘Umara-Ulama-Ummah’ (those who are taking the military power, religious men and the Medina’s habitants). It is true that there was an absence of direct institution responsible of urban development but, the Medinas’ citizens had clear rules given by the ‘Ulema’. This system known as ‘Hisba’[8] and submitted to the ‘Kadi’ (the judge) saw its apogee with the Ottoman Empire. And as mentioned by Jalell Abdelkefi, it is the responsibility of the ‘Cheik El Medina’ (the head of the city) during the night, and the ‘Daoulati’ (the man working for the country) during the day [8].

Under Ahmed Bey regency, the ‘Ulema’s’ role started to change. In fact, he made them further submitted to the political force when he changed their status to religious officers taking monthly regular salaries. Although their dependence, they were refusing to interfere in the political issues. They were more interested in the state’s matters. However, as announced by Jalell Abdelkefi, those religious intellectuals had participated unintentionally in the political life and with a so effective way since they were concentrated in the ‘Zaytouna’ mosque which was the studying, praying and political mobilization area. “*People were considering the big Mosque like their Hotel de Ville, they used to meet there protected from the power’s supervision. They deliberate and take decisions. The mosque is the city dwellers’ forum in the Maghreb cities. [8, p28]*”

**4. Life around The Zaytouna Mosque; one of the symbolical structures of Medina of Tunis**  
*Life around Al-Zaytouna Mosque is one of the most significant structures of Medina of Tunis. Religious functions are an integral part from the city life in the Medina. In fact, subsidiary or vital functions were all arranged around the great Al-Zaytouna mosque.*

**4.1. Perceptual lived experiences in the Medina’s core: souks reconceived with the modern life**

The term ‘souk’ owes its origin to an Arabic term meaning ‘drive’ or ‘go ahead’ [9]. Professions’ names had an important influence on the urban nomenclature which proves the

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<sup>12</sup> Sheshia is a traditional red wool cap which used to be worn by almost all Tunisian men. This cap had been taken from Andalusian influences in the Medina of Tunis.

<sup>13</sup> Ulema: scholars and experts in religious sciences.

importance of craftsmen and tradesmen in the Tunisian social life. According to Arthur Pellegrin, 37 different souk were existing in the 7<sup>th</sup> century. Their names were referring to the different existing commercial activities. The whole had a long and narrow artery form defined with many shops in its borders. Those shops are at the same time workshops and selling points. Almost all of them have the same aspect, covered with a planked roof made from palms or from vaulted masonry which has small voids for natural lightening. [9]

Most of those «souks» were established in the 13<sup>th</sup> century however as announced by Arthur Pellegrin, some craftsmen existed from the Hafside empire [9]. After that *souks* became further developed first with the Ottoman Empire's coming then with the Husseinites.

The spatial configuration of the Medina's bazaars hasn't changed but the functional organization has undergone some changes. In fact, the noblest products are plied in the immediate vicinity of the great mosque while less noble souks were located farther from it. As reported by Serge Santelli two types of souks exist in the central Medina:

*I have already distinguished between two types of souks: those which result from a spontaneous, progressive accumulation of shops along the principal thoroughfares of the Medina, and those designed and built as identical units. In the first type, shops of widely built dimensions are built along the main thoroughfares, occupying the urban fabric irregularity. [...] In the second type, all the shops are of the same breadth and depth, and are built in regular fashion along the street. [3] (Santelli 1992, p96)*

From progressively accumulated spontaneous shops the example of Al-Kotbia souk (Librarians bazaar, figure 1) can be given. As designed and built units from the souks the examples of 'Al-Chachia' souk (figure 2) can be given. And as it is presented in the figures, the souks state remained almost identical; no changes had been found in their spatial configuration.



Figure 1: (a) Librarians bazaar (Al-Kotbia Souk) in 1903, (b) Librarians bazaar (Al-Kotbia Souk) presently (a), (b) by author on 15<sup>th</sup> of August 2016



Figure 2: (a) Al-Chachia bazaar in 1906, (b) Al-Chachia bazaar presently (a), (b) by author on 20th of July 2016

Several habits existed in the Medina in old times but disappeared presently. What remained is only perceptual memories recorded through oral testimonies. One from the most detailed descriptions of traditional disappeared habits and small trading activities is the Tunisian poet's, Chadly Ben Abdallah, notes. According to his descriptions several authentic habits existed in old times like 'Al-Guerbeji' (figure 3) who is a water seller who used to hang around the Medina's streets calling habitants. His name is taken from 'Guerba' which is the jug of water that used to be transported from one home to another. Beside this function that totally disappeared in the presently modern world, Chadly Ben Abdallah talked about the 'black gold' seller; the petrol seller who was distinguished by his typical outfit 'Al-Kadroum' (figure 3).



Figure 3: (a) Al-Guerbeji, water seller [10, p.17], (b) Petroleum seller and his 'Kadroum' [10, p.20]

It is true that such traditional functions and such traditional rituals disappeared from the Medina's physical scene, however, they stayed engraved in Tunisians' memories. Thus, the Medina's authentic traditionalism is still resisting; it is still reflected upon through recalls actions which is according to Astrid Erll, an identity formation process [11]. It is this collective remembering which is still enforcing the sense of place in the Tunisian Medina. As said by Ibrahim Mostafa Eldemery "*place exists not only physically but also in peoples' minds as memories. The identity becomes interesting when it brings about a certain experience, evoking associations or memories* [12]" (Eldemery 2009, p, 5). This undying identity of the traditional Medina appealed several modern artists who saw on it the ideal physical platform for modern artistic events. Thus, it became coming to live international artistic events inside the spiritual city walls of the Medina.

#### 4.2. Modern Art in a traditional city centre: 'Dream city' and 'Interference'

'*Dream city*' and '*Interference*' are two modern artistic events which takes place in the traditional Medina's core. They witness about an attractive coexistence traditional/modern within the World Heritage Site of the Medina of Tunis. *Dream city* is a Multidisciplinary biennial of Contemporary Art in Public Space; a key event of the Tunisian art scene. It started

in the Medina of Tunis from 2006 aiming to enhance an experience of ‘dreaming about the city’. The task was to present art that reflects the city’s situation to a younger generation. [13] Initiated in Tunisia by Selma and Sofiane Ouissi, artists and choreographers, the festival involved in the creation of artistic and socio-cultural practices which question new Art territories in Tunisia.

As a multidisciplinary group work, L'Art Rue collective explores public and social space as well as participative processes of creation. Thereby, the Belgian festival organizer Frie Leysen commissioned the choreographer duo Selma and Sofiane Ouissi to create this festival of contemporary art Dream City with the intention of providing people the dream of living a coexistence traditional/modern in the same space: *"We always dreamt of a city in which the old and the modern world could exist side by side in harmony. [...] We dreamt that art would happen on every street corner and that the time and place of artistic happening could find their way into daily life [13]."* The first and second editions of the festival, 2007 and 2010 showed a concern about wandering urban artistic shows in Medina of Tunis. Several performances had been presented:



Figure 3: *Zedz* Installation in the public space by the Dutch artist and graphic designer (<http://u-in-u.com>), 14<sup>th</sup> of February 2017



Figure 4: The Bride's show taken by Mai Elwekil taken on 4<sup>th</sup> of October 2012





Figure 5: Doha Elboukri, (2013). “L’art Rue Foundation, Rehabilitating the Margin”, (<http://mawred.org>), visited on 15<sup>th</sup> of January 2017.



Figure 6: Digitally manipulated graphics displayed in public space of Tunis by Patricia Triki, taken by Christine Bruckbauer, October 2010

It can be said that this described biennial is a beneficial alternative in the Medina’s resistance. In fact, under ‘L’art Rue’ association, the Medina has succeeded in forging a new type of relationship between artistic work and the general public which, in turn, contributed to the realisation of a reconciliation between the people and contemporary art. This modern event housed in the traditional Medina had also supported the economy by stimulating commerce in Tunisian cities and towns whether through increased patronage of restaurants and coffeehouses or the sales of traditional handicrafts. [14]. The second event recently organized and which had marked the Medina’s traditional aspect is *Interference*. In fact, it is an international light art festival based on a series of improvisations combining video footage, sound and recited texts and it is considered as the first and biggest light festival held in north Africa. The audience as well as light designers, urban planners were invited to join. In the daylight, the traces of artistic dialogue presented an ephemeral mural, and the night-time presented the stage for the continuation of the artistic processing. [15] *Interference* is a community-rooted and resource-based project that links a multitude of different partners. The framework of *Interference* is built on engagement, participation and donations of the accomplices.



Figure 7: Zero, Interference Light Art Festival, Tunis, Medina, September 2016 URL: (<http://www.hartung-trenz.de/>) 15<sup>th</sup> of January 2017



Figure 8: Zero, Interference Light Art Festival, Tunis, Medina, 1. – 4. September 2016 URL: (<http://intunis.net>), 15<sup>th</sup> of January 2017



Figure 9: *Tisser la Médina*, Interference Light Art Festival, Tunis, Medina, 1. – 4. September 2016 URL: <<http://intunis.net/portfolio/kurt-laurenz-theinert/>>, seen on 15<sup>th</sup> of January 2017

*Tisser la Medina* is a digital animation of silk weaving enlarged so that it overwrites the appearance of an architecture ensemble. As it can be noticed in the last examples, this light art festival was based on using the Medina's streets and blind ways as well as its traditional architectural monuments to compose artistic pieces. As described by Sabina Von Kessel, *Interference* artist, culture can be transmitted from one generation to the next through the city as a social organism; “*in a city population is concentrated and unavoidably gives rise to, and depends on, certain features of social organization that are described as “urban”*” [16]. Sabina Von Kessel saw in the Medina's traditional allure a stimulus to combine visual and acoustic monuments to compose a multimedia piece. In fact the main purpose from choosing the Medina as platform for such event was to transmit a message; “*lights will illuminate the Medina's walls and will give a shining image of Tunisia, the country where people will cannot be stopped because of need and where none is ready to leave. A city where a whole will be build the Tunisia of dreams* [17].”

## 5. Concluding Comments

6. The Medina of Tunis saw its core changing with art interventions; artwork offered a basis for new experiences and sparked discussions and creativity. Public traditional space became a space of encounter between modern and traditional, a place of exchange between cultures. Especially with Interference event, the Tunisian Medina owed a kind of spiritual borders; as if its city walls which had been destroyed from old times are still existing. Getting in the Medina's core paved the way for modern day artistic events and reflected Tunisian's way to express their attachment to their identity.

It can be said that the Medina of Tunis is nurturing an identity mixture, where modern day artistic events are shaping new experiences inside the spiritual city walls; modern arts are expressing the community's 'psyche' of culture. In this work presents a trial to bring forward different lived experience vacillating between modernity and attachment to traditionalism inside the Medina's peripheries. In fact, besides aiming to avoid insalubrity and slow down

degradation, the Medina’s safeguarding attempts are turned to a considerable interest on cultural revalorization; “*All the Medina with its monuments must radiate like a cultural pole of great value* [18].”

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## Sustainable Traditional Architecture in Desert Cities of Iran

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### Abstract

The history of civilization is linked with the development of human's science and technology and the skill of architecture has developed in response to these developments. In recent years there has been increased attention around the world to the technology and its application in different segment of architecture and building construction. In this connection sustainability factors are important aspects of design which should not be neglected by designers.

The experiences at the 20th century revealed that the successful architecture requires consideration of the factors which formed their past buildings. Lack of attention to sustainable foundations of Iranian traditional architecture and the various factors affecting it, lead to unsustainable and undesirable architectural context.

Iranian traditional architecture has a strong background associated with their cultural concepts, religious instructions and environmental conditions. Furthermore their buildings were built according to climatic conditions such as wind direction, sunlight latitude, water availability and vegetation variety which set up the principles of sustainable architecture in Iranian cities.

The present study attempt to identify the parameters of sustainable architecture in desert cities of Iran as a guideline for the future architects of Iran and in all over the world. While the design of buildings based on the climatic factors is a contemporary topic, but Iranian buildings is full of innovations and adjustment with the natural and presented a series of rational and scientific methods for human comfort in interior spaces. In this study the technique of documentary study for collecting data and descriptive-analytical method for analysis of data were used.

**Key Words:** Sustainability, Traditional, Architecture, Environment, Interior spaces.

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### 1. Introduction

Climatic conditions and climates have direct impact on creating a sense of comfort in any architectural space. Control entry and exit of cold and heat air from the interior of the buildings in different seasons and in different climatic zones is the art of a master architect. In this world, architects also parallel with other scientists seeking new ways to provide decent life for human beings. The application of sustainability concepts in architecture have opened new debate with

the name of sustainable architecture, ecological architecture, green architecture and environmental architecture which all have the same concepts and refer to eco-friendly architecture. Sustainable architecture which is actually a subset of sustainable design is one of the most important contemporary trends that considered a logical reaction against problems of industry age. Sustainable architecture like other categories of architecture has its own rules and principles and generally encompasses these three steps:

1. Resources saving 2 - Design to return the life cycle 3 - Design for human, which each of them have their own specific strategies (Manouchehri, 2011).

The problem of modern housing which is affected by west thinking about so-called residential buildings, caused living in small and limited apartments and units. Applying these policies usually is justified with issues related to the shortage of housing and household economic problems. Not knowing that result of these conflicts in long-term lead to serious social problems. Surprisingly, today our country under the pretext of providing shelter goes to the way that the West has passed several decades ago, have seen its damaging consequences and for compensation it has paid a heavy damage (Rukn al-Din, 1391, 65). A great danger that threatens us is that we get used to these problems and lose their sensitivity towards them. It is not easy to handle the problem, but finding the solutions to deal with it is harder; because we cannot find the reasons of mental turbulences as well as restlessness and rootlessness emotion. The beginning of this story was along with penetrating and spreading the idea of industrial production in the building construction which is the product of Second World War and industrialization of European cities. This problem extended to our country and led housing become shelter; while the housing is something more than mere physical shelter. To deal with this problem, the past architecture should be understood and became modern (Khademi, 2010, 32).

The Iranian architectural history reveals that the presence of sustainability elements and follow the traditional patterns in the formation of different spaces, especially residential areas have been a critical issue and is including influential factors. With the development of technology and scientific advances in the world which created significant changes in all aspects of life, especially residence style, a large gap have been created in attention of architects to the Islamic Iranian architecture patterns with modernization in the country which had not any results except little attention to the Iranian culture values in the urban constructions (Akrami, 2000).

One of the key principles of Iranian architecture which led to old buildings sustainability was that; Iranian architects had always tried to understand consciously and have rational responses to climate issues in their works.

Design building based on architectural principles consistent with each region, in addition to indoor thermal comfort, reduce fuel consumption and create a healthy environment. This is of much higher importance in hot and dry climate country with harsh climatic conditions (Afshar & Taghvayi, 2014, 71).

The aim of this study is to investigate the sustainability of Iran desert homes in order to derive positive solutions for creating optimal comfort and reduce energy consumption from our traditional architecture. In this regard, questions should be raised about the issue to achieve convenient and practical results with directing the subject; first, how were functional methods of having sustainable home in the hot and dry climates in traditional houses? Do patterns used in designing traditional houses can be used in architecture today, especially with this quality? What ways can we announce to adopt the present patterns in traditional houses especially hot and dry climate with new today architecture condition.

## **2. Method**

Obviously, any scientific study requires a methodology that fits your subject. Choose a proper research method and continue it in all the processes and research trends is the strategic principles of scientific research. Therefore, this article intends to analyze proper solutions while

confronting unfavorable climatic conditions such as hot climate. Study solutions to hot climate where fossil fuels are not used showing consistent between buildings and surroundings and pay attention to some issues such as urban context, residential environment design, materials selection, etc based on different climate conditions. In the following, a brief description of some of these techniques compatible with the environment are given to achieve energy saving in heating and cooling as well as human comfort conditions. Recognizing this techniques and architecture innovative design to achieve efficiency of existing energy productivity would be a solution to many problems.

### **3. Problem statement**

#### *3-1 Sustainable Architecture*

First, sustainability as a concept emerged in mind. The rapid growth of urbanization and the expansion of industrial activities reduced urban infrastructure capacity and increased environmental wastes. With intensifying pollutants activities in the 1950s and 1960s, the United Nations General Assembly decided to hold an environment international conference. In the following, the first World Conference held in June 1972, where human dependence on the environment and reduce pollution as the process to meet current needs without destroying the ability of future generations to meet their needs is defined (Tousan, 2006, 290).

Buildings that are designed according to sustainable architecture, unlike fixed and old buildings were flexible and somewhat fluid. So, according to Richard Rogers; "buildings like birds that puff their feathers in the winter adopt themselves with new environment conditions and set their fuel consumption (Golkar, 2000, 45).

The principles that should be met that a building classified as a sustainable building are as the following:

- First principle: energy conservation: Every building should be designed and constructed in such a way as to minimize the need for fossil fuels.
- Second principle: Work with the climate: Other principles of green architecture (sustainable) are working with the climate. Buildings should be designed in such a way that they are able to take advantage of the climate and local energy sources. The shape, building location and its interior spaces can be such that promote comfort level inside the building and yet through proper insulation of buildings, reducing fossil fuel consumption.
- Third principle: reduce use of new resources: Every building should be designed in such a way that the use of new resources reaches to the minimum and at the end of their working life create a resource for other structures.
- Fourth principle: respect for users: Green architecture respects all people who use the building.
- Fifth principle: respect for the site: Each building should touch the ground calmly and slowly.
- Sixth principle: holism: All green principles need to participate in the holism process to create an artificial environment (Gorji, 2010, 92).

#### *3-2 Sustainable Architecture in Iranian desert Cities*

Iranian traditional architecture is the symbolic manifestation of the eternal world that knows this world a transient location and intermediary to achieve a higher degree in order to achieve inner peace; in the Iranian traditional architecture, special attention is given to the beliefs and customs, geographic and climatic conditions and is the wage of artists who for promoting this art relying on their faith threw themselves In the danger and in this way does not hesitate on any attempt (Falamaki, 2004).

Iran central desert is composed of central desert and Lut desert area. Iran's central desert is surrounded by Alborz Mountains from the north and Zagros Mountains from the East. These mountains prevent the rainy winds into the drainage area. Central Basin has an average height of about one thousand meters above sea level and in total has remarkable diversity in terms of altitude, geographic directions and prevailing winds. Rainfall in Iran's central desert is

estimated very low (approximately seventy millimeters a year). Poor vegetation cover, salty land and very low population density are the characteristic of central desert regions.

Table 1. The characteristics of desert houses

Color	Light
Texture	Compact
Air conditioning rate	Low
The number and level of windows	Low
The way of placement building	Over the ground
Orientation	South to southeast
Type of roof	Dome arch
Type of Plan	Compressed
Type of material	With high thermal capacity

Low humidity and no clouds in the sky cause range of temperature changes in these areas will be very large. High temperatures during the warm seasons and difference between night and day are the other features of these areas. Temperature of various areas depends on the geographical location, altitude, direction and wind characteristics. Evaluation the physical characteristics of desert textures can generally be considered on two levels: in large-scale includes location, way of placement, networking, the type of pathways and the overall context of the city; in the north micro-scale, architecture elements and construction techniques and design.

Table 2 .Sustainability indicators in the traditional climate

Indicator	solution
Texture compactness	Create compact texture to reduce direct solar radiation.
Use green spaces	Use of vegetation cover to the south and southwest to deal with the wind
Roads network	In accordance with the slope of the ground and the use of Sabat and etc. in its design.
Sabat	Create climate comfort (shade) using the Sabat cover
Taking advantage of resources and natural energy	Taking advantage of building materials consistent with the climate- using materials that are insulator of heat and cold and have not high temperature fluctuation
Badgir	Create a windbreak in a southwesterly direction
Wall and ceiling	Wall and ceiling Construction of the dome-shaped ceiling and walls with high altitude.

### 3-2-1 Configuration

In the desert cities, networking roads, land division and organization of fill and blank spaces follow two completely different methods. Road networks with organic and hierarchical order based on the slope and direction of subterranean waters have been created, while irregular land and buildings have been divided with geometric order (due to climate issues). These indirect pathways and covered streets (Sabat) protect people from annoying winds; while on the one hand due to great depth, provide the most shade. The way of Sabat deployment which is including distinctive characteristics of desert urbanism puts man walking on path in a proper sequence in the shade. In many Sabats, input of few homes integrated that in the sense of neighborhood and local solidarity is important. Closeness, hierarchy, privacy and Social arena are achieved through this urbanism which has a significant contribution in social sustainability of desert city (Qobadian, 2008).

Taking advantage of aqueduct as the techniques of extracting underground waters and method of guiding them to the residential and agricultural textures in the form of hierarchy from the subterranean canals to agricultural land, the main rivers to the minor streams is the base of road network formation in the traditional textures. Due to the ground characteristics such as material,



fertility, slope and topography that are important factors in the orientation of aqueduct for extracting and move water to the arable lands, an evolved design and ecological planning in the traditional system can be observed (Qobadian, 2008).



Fig. 1. Underground water network beneath the Kerman city

### 3-2-2 Density

Traditional cities in the Iran desert regions are mainly made from a dense, compact and contiguous texture. New researches have shown that there is a significant relationship between the concept (sustainable city) and concepts (density and compression), because providing climatic comfort and energy savings by reducing the levels of exposure to solar radiation and urban texture through creation compaction is provided. This principle in the organization of Iran desert cities through compacting residential units observed, so that some residential units even from the four sides to be connected to the others units (Mansour, 2012).



Fig. 2. Compact texture of Kashan

### 3-2-3 Vegetation

Compact texture of the city, often with a green belt of orchards and agricultural fields surrounded; so that, the reflection of the sun's heat from burning and thirsty desert soil causing a sharp rise in temperature is minimized. Green spaces around the city have a significant role in protecting central texture against desert winds, dust and dry desert climate and is an important factor in city ventilation (natural and artificial ecosystems in macro scale) (Qobadian, 1381).

Gardens with splinters, low water consumption trees, while providing shade and play a role in the production and beauty compensate for the humidity. These green surfaces absorbing solar radiation prevents reflections and increases the unwanted heat; in other words, all the house elements together attempts to provide a small and habitable climate (in comparison with the great ecosystem) for humans (Tavassoly, 2003, 7).

### 3-2-4 Orientation

In the traditional collections, application, and use of resources and natural energy is one of the principle of construction and spatial organization. Old houses in the desert contexts in terms of



settlement are in the direction of Mecca. This orientation in terms of climatic has created conditions, for summer spaces and winter rooms to logically find their place in the design of living spaces. Proper orientation in addition to protecting residents against direct heat from the sun also prevents from entering inappropriate winds.

Fig. 3. Orientation and placement of buildings to each other in Kerman

### 3-2-5 Introspection

Central courtyard is the main spaces of desert house. Supply cool and optimal airs for each residential unit with reserving deep courtyards and breathing of compact houses have been possible through these courtyards. Courtyards that have been enclosed on all sides with covered spaces settled cool air such as a hole and use it in the hot day.



Fig. 4. central courtyard of Yazd Attari houses

### 3-2-6 Badgir

Badgirs or wind catcher are considered as the city breathing system. The construction of Badgirs are depends on the direction of airflow and they are typically connected to the salon, spring hall and basement. They provide natural ventilation for interior spaces and take advantages of moisture-producing elements, such as pool, garden and trees and provide a pleasant environment for residents to live in the hot days of summer. In the conditions when Badgir hasn't the ability to deal with tough moments of summer afternoon in the desert, cool and damp rooms under the ground protect people from the daily heat and annual fluctuations and moderates temperature substantially, which is the last solution used by people in the desert (Qobadian, 1381).



Fig. 5. Badgirs of Boroujerdi house in Kashan

### 3-2-7 Materials

In addition to the design and construction of buildings according to ecological issues, producing building materials is done with minimal destruction and damage to the environment with minimal consumption of fossil fuels, lack of hard and insoluble waste production in the nature. The type of construction materials used in buildings is mostly adobe and brick generally obtained from soil of excavation and foundation and in combination with other materials have

been used in the building construction, which sometimes such as (straw) have also been byproduct of farming activities and used in the construction. In other words, all of materials are supplied from local resources and are considered local Building Materials. In the production of building materials, not only the natural environment will be damaged, but also its nature be upgraded. Thirsty and non-arable soil becomes the basis for creation of human spaces.

#### 4. Discussion

Modern cities around the world with risks such as warming the whole world, ozone depletion and acid rain caused by excessive consumption of energy and other natural resources are facing. These problems can be partly compensated using less energy through use of innovative ways. Hence designers are searching for various ways of sustainable development in designing cities and biological collections; one of these methods inspired by the experiences and special techniques of local and traditional architecture from historic towns to benefit more from the elements and energies in the nature.

Table 5. Check traditional architecture compliance with sustainable architecture principle

The principle of resources savings	Design principle to return the life cycle	Principle for humans
Proper fit of full and empty spaces Minimize transportation costs Proper height of spaces East-West shadow walls Use of Sunken courtyard Use pool in the yard Considering internal height of the building to reduce energy consumption	Use of local materials such as adobe and brick	Central courtyard pattern Introspection to maintain peace Arrangement pattern of spaces around the yard Combination closed and open spaces to create public relation

The first principle of sustainable architecture is saving resources. As noted in the traditional Iranian architecture, design is done in such a way that in addition to providing climatic comfort along with minimum energy consumption. The form and method of deployment building cause take benefit from maximum renewable energy like wind and sun and choice materials appropriate to climatic conditions leads to least amount of energy waste and thus using heating and cooling equipment reduced to a minimum. Sunken courtyard, Badgir and central yard are including factors which in the arid climate this principle of sustainable architecture can be seen. The second principle is design to return the life cycle. Recycling and benefit from buildings again can be considered as the traditions of Iranian architecture and urbanism which is evident in Iranian traditional architecture. The third design is for human. One of the design factors for human is providing climate comfort in different spaces. Iranian traditional architecture is architecture for human and for human comfort and is fully consistent with the principles of sustainable architecture. Since, today the use of renewable energy and use of inappropriate materials increased, recognition traditional architecture and predecessors solutions and apply their experience by taking advantage of new technologies and getting help from architects and energy experts to achieve a modern architecture consistent with climate conditions of each region is very important.

Table 6. Common features and concepts of sustainable development, city and sustainable urban landscape and the perspective of traditional Iranian cities (hot and dry areas)

	Sustainable development, city and sustainable urban landscape	perspective of traditional Iranian cities (hot and dry areas)
Concepts	Improve life quality, provide security, physical and mental comfort of citizens in the city and sustainable urban landscape	Urban space and homogenous urban landscape, balanced and in harmony with the physical and psychological needs of citizens
	Meet human needs without taking resources and future needs with Use of urban development and sustainable urban landscape	Use of local materials (ecological) in the face of the city and reliance on renewable energy and non-aggression to the resources and future needs (self-sufficiency)
	City and urban landscape harmony with the environment in order to maintain it and prevent pollution and destroy it	City and urban landscape harmony with the environment and climate based on natural and clean energies free of environment pollution
Characteristic	Use of native elements and signs in the urban landscape to emphasize the collective identity of citizens	Repeat elements such as Badgirs, domes, arches and Sabat in the urban landscape to emphasize the citizens collective identity and identification
	The same urban landscape to emphasize social justice	Homogeneity in the face of all parts of the city and the lack of emphasis on class differences
	Using natural elements in the urban landscape spaces for ecological balance and visual quality	The presence of nature (pond, tree, plant, aqueduct, etc.) in urban areas to climate balance and creating variety and quality of the urban landscape

For this purpose, we consider three cities on the principles of sustainable architecture in desert regions:

Table 7. Evaluation of desert cities on the principles of sustainable architecture

	Skeleton	Orientation	Organic order	Ceiling form	Material	Green surfaces	Equipment and inactive systems
Kerman	Has underground water network	Dense	Narrow and in some places covered	Domical	Local Building Materials with high thermal capacity	Has central courtyard and pond among its	simple and medium Badgir
Kashan		Dense	Narrow and in some places covered	Domical	Local Building Materials with high thermal capacity	Has central courtyard and pond among its	Has for direction Badgir
Yazd	Has underground water network	Dense	Narrow and in some places covered	Domical	Local Building Materials with high thermal capacity	Has central courtyard and pond among its	High four and eight direction Badgir

In conclusion, it is important to emphasize that sustainable development, sustainable architecture, sustainable city, sustainable urban landscape and generally sustainability concept are not a common and universal definition to all societies, cultures and peoples of the world; but every society, in addition to relying on science and new world experiments should define the concept of sustainability with examining its historical, cultural, social, economic and environmental backgrounds. Therefore, it deserves a deeper look at the issue of sustainable development, sustainable city and urban landscape, in the historical, cultural, social, economic and environmental context of Iran and city and Iranian sustainable urban landscape with a nativity approach have been defined inspired by valuable teachings which exist in architecture ancient history and urbanism of Iran.

## **5. Conclusion**

Architecture sustainability is associated with interaction with nature as well as taking advantage from it. Any construction in the natural environment must respect to it and also the beliefs emerged from the ancient culture and eventful history of the land. Examples of traditional architecture used in the nature, four nature elements in architecture climatic design, local building materials and aqueduct can be noted which in Iranian traditional architecture provide appropriate solution for attitude and relationship between buildings and the environment.

Unfortunately, sustainability criteria in a quantity of the desert cities of Iran in the past three decades have been neglected. This ignorance is rooted on the insufficient attention to the traditional instructions and extra attention to the methods of modern architecture. Modern interventions, such as urban complex projects, projects for street widening and etc. had favorable consequences both in the buildings architecture and spatial skeleton scale as well as physical organization of desert cities. Some of these adverse consequences, practices and prevalence buildings inconsistent with hot and dry climate of these cities and damage to environmental resources such as fertile land degradation are due to uncontrolled expansion of cities which took place in the form of low-density developm nts. However, today many theorists have recognized negative points of entries regardless architecture substrate and thus using these forgotten strategies explained in this paper could save many of these textures from destruction further. The application of these strategies in architecture of desert cities not only is a major step toward sustainable development, but largely returns lost identity of these cities to them.

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## The Concept of Harim in Kashan Traditional Architecture, Kashan, Iran.

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### Abstract

The principles of the spatial arrangement of the interior spaces in Iranian traditional architecture is full of concepts which are linked to the Islamic beliefs. In residential sectors the concept of Harim plays a major role in the positioning of the rooms in the plans.

Harim and privacy are two close subjects in design of spaces, but they have basic differences in their definitions. Privacy in architecture refers to the psychological needs of users to the security and privacy in a physical space, but Harim is about a series of instructions that applies to the placement of the home spaces from the entrance to the other parts of Iranian's homes. It is derived from the Islamic teachings and has been repeatedly emphasized in holly Qur'an.

The present study attempts to answer the following questions: what is the definitions of Harim in Iranian traditional architecture? And how the concept of Harim has been applied to Kashan traditional residential buildings? To answer this questions the technique of documentary study were used for collecting data about the principles of traditional architecture in Iranians' cities particularly in Kashan and descriptive method were applied for analysis of data.

The findings reveals that Harim leads to a sequence of spatial hierarchies in Iranian traditional homes. Furthermore this concept is affected by the type of space and culture and has influences on social interactions of family members particularly women.

**Key Words:** *Traditional, Architecture, Harim, Interior spaces, Kashan.*

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### 1. Introduction

The primary formation of spaces in Iranian traditional architecture was based upon the cultural needs and religious beliefs. This architecture is rooted on the human-oriented concepts and approaches which would gear towards ameliorating the security, welfare and well-being of the residents. When Islam entering Iran, the emphasis in architecture was put on the recommendations and orders as well as verses of the holy Quran with regard to the notion of "Harim" (Persian equivalent of privacy with the additional Islamic connotation) in the family. These features culminated in the Iranian homes, apart from maintaining contact with the outside world, being a place for serenity and comfort. The religious principles of "Harim" are among the influential factors in the process of forming and locating traditional architectural spaces in the residential houses in Iran. In the expression of the importance of the religion and its nexus to house, numerous examples can be proffered. The sanctity of the house is being observed in various cultures. Entering the house is usually associated or accompanied with some sort of special ritual rigmaroles galore. Permission to enter into the house for "others" or strangers (non-family members) calls for some specific steps. The house structure or formation and its position is determined with regard to the religious beliefs. Determining "Mahramiat" (confidentiality or being a family member in Islamic tradition) in architecture is defined through separating the inner space from outside events; this distinctness and ownership of the space or in other words the resulted serenity, stems from this very notion of "Mahramiat". Passing through different spaces or chambers and getting the permission for so doing take place through a particular set of steps in a hierarchical fashion which provide comfort for the residents of the house. Two terms of "Harim" and "privacy" in the concept of design have overlapping connotation. Apart from these overlapping similarities, however, there are some differences; therefore, in order to identify and distinguish these two terms, an etymological account will not go amiss.

## 2. Research methodology

The purpose of this study is to investigate the concept of “Harim” in Iranian traditional architecture. To this end, two cases of traditional buildings of the city of Kashan will be studied. The adopted method in the present study is the rational arguments of the library studies with a focus on the descriptive techniques. The main questions in this study are:

1 – What is the definition of the principles of “Mahramiat” and privacy in the Iranian traditional architecture?

2 – How these principles have been manifested in the architecture of the traditional houses in Kashan city?

## 3. Problem statement

### 3.1 Literally meaning of privacy and Harim

According to the Longman dictionary, privacy is defined as the possibility and ability of the individual to be alone and not being seen and heard by other people; in fact, it means the possibility of staying away from public attention (Richards & Schmidt, 2013). In a similar definition provided by the dictionary of Oxford, privacy is defined as the state that others do not see the individual and do not disturb him/her either (Oxford, 1933). In the environmental psychology, there are some instructions to define the boundaries between the individuals which is affected by the interactions among them (Altman, 1975). Given the fact that the notion of privacy is a communication-control mechanism derived from the human behavior, it is one of the characteristics of a physical environment, too (Sundstrom, Burt, & Kamp, 1980); Robert Ellis Smith has defined it as the tendency of every individual to own or have a physical space for being immune to the intervention, bullying or bothering, anxiety or being entitled to free response and also trying to control the time and manner of disclosing personal information about oneself (Smith, 2000). Hence, the ability to maintain the privacy and security of a space is one of the quintessential priorities of human societies (Riley, 1999) which is influenced by the internal factors such as the privacy of personal space and internal behaviors about the perception of comfort and the quality of the environment (Lang, 1987). Personal space is a distance and dynamic orientation of the interpersonal relations (Gifford, 2007) and this aspect of the environmental psychology has been researched more than other (Sommer, 1959).

In Islamic countries, the term *harīm* is used as a part of the house which is specified for the female members of the family and is equivalent to the term “*andarūn*” (in Persian, the inside part of a house) in Iran (. Britannica, 1973). Of course, this is not a comprehensive definition because “Harim”, especially in Islamic Iranian architecture, includes many concepts; in the realm of semantic connotation, it is a characteristic which brings about dignity and value to the architectural space in a way in which a person reaches comfort or serenity (Seifian & Mahmoudi, 2007).

### 3.2 Harim in Islam

In Islam, the term *Harim* is of paramount importance and the right to it is considered among the most inviolable, invaluable and comprehensive freedoms (Between, 2002). In the holy Quran it is clearly stated that “Harim” is an individual’s undeniable right and no body shall interfere with it. In this regard, setting a particular section of the house as a place for comfort is an emphasis on the formation of spaces and “mahrams” (close family members; those who sexual relationship with them is considered incest and therefore a deadly sin) territories in the frameworks of the residential houses (Naml Sura, verse 80). Furthermore, the need to respect the sanctity of the house has been given prominence and other people have been forbidden from entering the house without the permission of the owner of the house (Noor Sura, verses 27 and 28). From a physical perspective, in Islam “Harim” refers to the personal outfit and appearance and private sphere of the house (Hakim, 1986).

Housing, due to its direct connection to the entirely private family lives, is of the essence in the Islamic architecture. A Muslim’s residence ought to be protected in accordance with the Islamic customs. Within this framework, providing visual and family privacy is the ultimate



end. The traditional Islamic houses which have been constructed with respect to the customs and beliefs of the Muslims are usually impossible to be seen from the outside. In these houses, spaces are designed in a way that even with the presence of a strangers in the house, the private life of the residences will not be disturbed. In other words, “Harim” means hiding the inward life of the families from the strangers, the separation of the men and women for sleeping and even parents and children and the places for sitting – except for those who are members of the family – in the midst of social interactions and their daily normal activities (Abu - Gazzeh , 1996) . “Harim” creates borderline, but the objective is not purely and simply separation. In addition, it preserves the wholeness or unity of the individuals. Harim makes individual closer without mixing them together: one knows others without interfering with their privacy. " Mortada" believes that “Mahramiat” in Islam is meant only the separation of the private life from the external interactions and the segregation of those men and women who according to Islam are non-family members (namahram) with the aim of providing security and protection for family. This means that Islam gives the permission only for the relationships or interactions between family member men and women (Mortada, 2003). In Iranian traditional architecture, these principles, in order to observe the God's laws, were carried out in a way that ensure security for women and keep the women away from the sight of the non-family members; they were implemented in a way that no stranger could see the core or heart of the house, Women in the inner sections of the house were in the state of comfort, security and ease.

### 3.3 Harim in Iranian traditional architecture

The most significant impact of Islam on the formation of a traditional house has been the inner-oriented nature which would bring about two main external and internal sections in the structural space of the architecture. The outer space was specified for holding festivals or other venues and also coming and going of the hosts and other nonmembers’; it included, inter alia, the alcove, hall and five-door. The inner section was particularly specified for the immediate family members— especially women— and comprised the back-door chambers and two or three-door rooms. In a more accurate categorization, these two main branches were classified into four public, semi-public, semi-private and private sections (Fig 1). The main purpose of this space division was observing the principles of “Mahramiat” in the building; the public area was accessible for friends, acquaintances, relatives and neighbors, in other words, non-family members; the private sector was exclusive for women and immediate family members. These two parts are completely separate from each other from the perspective of plan orientation.

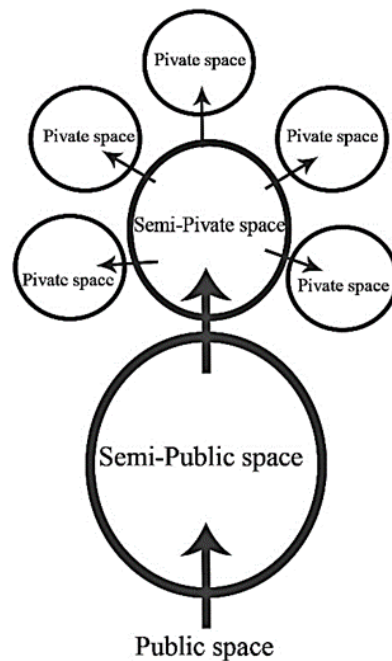


Fig. 1. Classification of interior spaces in Iranian traditional houses

The semi-public and semi-private have transitory roles; in addition to making the link between the private and public sections and helping to maintain the privacy of the inhabitants of the house, they also make possible the requisite social interactions for the residents

(especially women) as well (Fig 2). The hierarchy principle, as one of the basic principles in the universe, is among the factors that has significant impact on the formation of the traditional architecture (Ardalan & Bakhtiar, 1973).

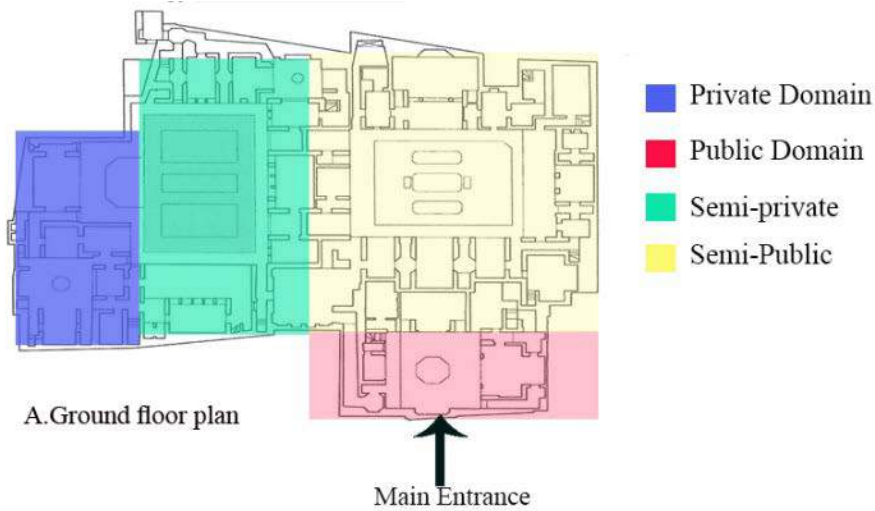


Fig. 2. Hierarchies of interior spaces in Iranian traditional houses

In the space structure of the buildings, the special hierarchy can be observed on a smaller scale. The existence of a seven-stage hierarchy for entrance to the building which includes forecourt, entrance, hashti, corridor, courtyard and then the other functional spaces in conjunction with the yard (Fig 3). This pattern is more or less identical in all Iranian traditional houses. This hierarchy indicates the embodiment and integration of the notion of Mahramiat as a symbolic concept in the anatomy of the buildings. The internal spaces are a consecutive part of the continuous and linked spaces of the whole building which include some designing principles in which the privacy of the house members shall be maintained. It means in effect that the entering process should signify demureness or modesty, controlling or screening the indirect entrance and the façade of the building be distinct from other adjacent buildings (Kateb, 2005).

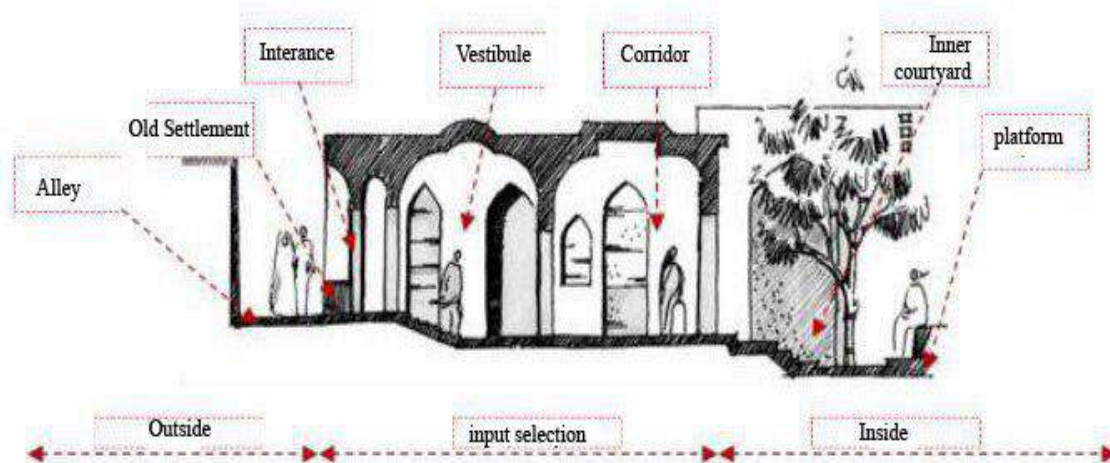


Fig. 3. Spatial arrangement of spaces of Iranian traditional houses

Furthermore, one hammer and one big ring were installed on the entering gates; hammer would be used by men and ring would be used by women (Fig 4). They were used in order to inform the residents of the house about the gender of the entering body. They could, therefore, be well prepared for hosting based about maleness or femaleness of the guests. This, therefore, is a testimony to the importance of the privacy maintenance in the Iranian traditional abodes.



Fig. 4. Different knocker on entrance for men and women

Regarding to the fact that they did not want to be seen by the non-family member hosts and to secure maximum privacy, they would try to make the entering special pathways as long as possible. For this reason, after the entrance gate an 8- branch division was set that in addition to dividing the entering pathway into two or more, it would also have the possibility of visual screening as well (Bemanian et al., 2010)

Moreover, the simplest element of the entering space was the corridor which not only provided the communication means (e.g. eye contact) in an indirect line—which anatomically speaking, was narrow—but also met or led to the yard which was a semi-public domain. The scaffolding or the design of the courtyard was basically harmonious with the variety of physical and spiritual needs. These necessities would explain the relationships between the public and private sections and also meet the social and religious needs of the Muslims. Other factors that pertain to preserving the visual privacy include the grid sash windows which in addition to be the proving source of the interior space, they would also provide a secure place against an external intruder or stranger. In this regard, the windows in the first story should be designed higher than other stories’.

#### 4. Research findings:

The findings indicate that the separation of men and women in relation to the visual privacy and Mahramiat are important principles of Iranian traditional houses. On the other hand, the important elements of security, welfare and social interactions of the family, especially for children and women have to be considered in the Iranian traditional houses. According to Fig 5, it can be stated that the social and religious principles of “Harim” play a key role in the placement of the architectural spaces and defines the limitation of circulations in interior spaces. This is not only harmonious with the Islamic Iranian customs and beliefs, but also ensures the security of the users and paves the way for the growth and development of the social lives of the individuals, especially women.

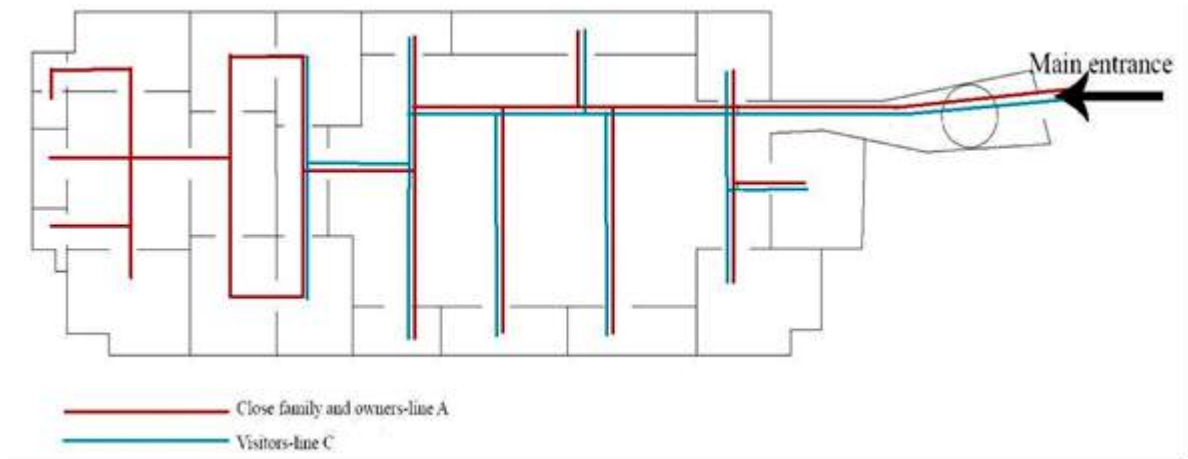


Fig. 5. Difference between circulations of owners and visitors in Iranian traditional houses

Therefore, a novel and particular pattern has emerged in the Iranian traditional architecture which has been the prototype of the traditional residential abodes. Having said that, the strangers or non-members of the family were allowed to enter the house to a degree that does not disturb the harmony or the balance of the house milieu. As it was mentioned above, “Harim” has created a kind of hierarchy which its starting point is the entering space. The entering space

has an important function in the external spaces and making connections between the internal and external spaces. All activities such as direction change, stopping, waiting, distribution and determination of the path, moving towards and entering the internal spaces are the components which are deemed to hierarchically maximize the security level of “Mahramiat”, thereby leading to the components of the space being based upon the principles to guarantee, as much as possible, the implementation of the functions of the internal spaces.

## 5. Conclusion

Architecture is an international powerful tool to represent thoughts, beliefs for different nations and ethnicities. Iranian architecture is associated with their identity with Islam and is affected by religious preferences. All the facets of the Iranian lives have been morphed based upon the two important characteristics of being Iranian and Islamic.

Architecture and ideology are always connected in Iranian architecture. The concepts of Harim arising out of ideological concepts of the Islamic architecture and is rooted in precious teachings of the holly Quran. Respect for the women and also the culture issues and religious beliefs leads to the formation of a special kind of architecture, especially in residential areas in Iran. The Islamic beliefs, life style and the Iranian social interaction patterns and norms have been among the most important principles in shaping the privacy or “Harim” in the Iranian traditional houses. “Mahramiat” is one of the traditional principles which is manifested in an artistic and overt fashion in Irannian society after Islam. This means that the religious principles, by emphasizing the concept of “Mahramiat” and private “Harim”, have been able to augment families’ quality of lives and building formations and structures.

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