PROCEEDINGS BOOK

ICNTAD CONFERENCE
INTERNATIONAL CONFERENCE ON NEW TRENDS IN ARCHITECTURE AND INTERIOR DESIGN

5th International Conference on New Trends in Architecture and Interior Design

ICNTAD CONFERENCE

INTERNATIONAL CONFERENCE ON NEW TRENDS IN ARCHITECTURE AND INTERIOR DESIGN

APRIL 26-28, 2019

Istanbul/Turkey

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ICNTAD'2019

5th International Conference on New Trends in Architecture and Interior Design

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Conference organised in collaboration with Smolny Institute of the
Russian Academy of Education

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Dear Colleagues,

I am honored to invite and send you this call for papers on behalf of Congress Organization Board of "5th International Conference on New Trends in Architecture and Interior Design", to be held in Istanbul, Turkey between April 26-28, 2019 bringing a professional point of view to Academic Conference organizations.

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
- The math of space: spatial analysis and parametric design
- The artistic value of space
- Architecture without architect
- Cultural codes in architecture
- Flexibility in design
- New trends in spatial design education

The most distinctive feature of 5th ICNTAD'19 from other conference organizations is that the academicians working interdisciplinary can also attend to presentations performed in different specialty fields and they will also have the opportunity to meet with other academicians coming from various parts of the world. On the same dates, International Conference upon the discipline of Clean Energy will be also be held in the same venue. While attending 5th ICNTAD'19, participants are most welcome to attend other conferences.

We kindly wait for your attendance to our conference to be held on April 26 – 28, 2019, 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

This Conference is organized in cooperation with **Smolny Institute of the Russian Academy of Education, St. Petersburg**.

26 APRIL 2019 FRIDAY

08:30-17:00   **: REGISTRATION**

MAIN HALL   **: OPENING CEREMONY**

TIME	TITLE	PRESENTER
09:50 – 10:00	WELCOME SPEECH	PROF. DR. BURCIN CEM ARABACIOGLU (TR) CONFERENCE CHAIR
10:00 – 10:40	SHAPING THE FUTURE OF CONSTRUCTIONS: RETHINK PROCESSES_RETHINK THINK MODELS	PROF. DIPL. ING. BETTINA MENZEL (DE)

10:40 – 11:00	**C O F F E E / T E A B R E A K**

HALL 1 / SESSION A

SESSION CHAIR	PROF. DR. SEMA ERGONUL	
TIME	**PAPER TITLE**	**PRESENTER /** CO AUTHOR
11:00 – 11:20	DIGITAL TRANSFORMATION IN CONTEMPORARY ART MUSEUMS WITH THE EXAMPLE OF BARCELONA MUSEUM OF CONTEMPORARY ART	GAMZE KARAYILANOGLU (TR)
11:20 – 11:40	ADAPTIVE REUSE IMPLEMENTATIONS OF ABANDONED INDUSTRIAL AREAS: EXAMPLE OF ZURICH-WEST	CEREN CELIK (TR) - GAMZE KARAYILANOGLU (TR)
11:40 – 12:00	REVIEWING CURRENT PRACTICES AND STUDIES IN MUSEUM AND GALLERY LIGHTING	ASLIHAN CEVIK (TR) - TUGCE KAZANASMAZ (TR)
12:00 – 12:20	A NEW APPROACH TO THE TRANSFORMATION OF MUSEUMS	MERVE KALYONCUOGLU (TR) - ELIF GUNES (TR)

12:20 – 13:20	**LUNCH**

HALL 1 / SESSION B

SESSION CHAIR	PROF. DR. NESLIHAN DOSTOGLU	
TIME	**PAPER TITLE**	**PRESENTER /** CO AUTHOR
13:20 – 13:40	WAY-FINDING AS EXPERIENCED BY THE STUDENTS IN THE CAMPUS OF YARMOUK UNIVARSITY	AHLAM MOHAMMAD JAMAL ESHRUQ LABIN (JO)
13:40 – 14:00	WEARABLE ARCHITECTURE - A DESIGN OF A DEPLOYABLE SPACE	MELTEM BUSRA ONAL (TR) - ERHAN KARAKOC (TR)

TIME	PAPER TITLE	PRESENTER / CO AUTHOR
14:00 – 14:20	PERFORMATIVE ARCHITECTURE: A CASE STUDY ON DESIGNING A SPACE FOR AN ARTISTIC PERFORMANCE	YESIM OKUR (TR) - ERHAN KARAKOC (TR)
14:20 – 14:40	QUESTIONNING THE PHENOMENOLOGICAL UNDERSTANDING THROUGH ARCHITECTURAL SPACES	NESIL AFSIN (TR)
14:40 – 15:00	EXPERINCE OF SPACE, PLACE AND IDENTITY AS CONCENTRIC ORGANIZATION: THE ISLAND CITY FAMAGUSTA	CANSU DENIZHAN (TRNC)

15:00 – 15:20	C O F F E E / T E A B R E A K

HALL 1 / SESSION C

SESSION CHAIR	ASSOC. PROF. DR. OZGE CORDAN	
TIME	PAPER TITLE	PRESENTER / CO AUTHOR
15:20 – 15:40	A CRITICAL REVIEW OF THE IMPACT OF FORM ON INTERIOR SPACE AND FUNCTION IN THE ADAPTIVE REUSE PROCESS	TOCHUKWU VALENTINE NNAJI (NI) - KAGAN GUNCE (TRNC) - HACER BASARIR (TRNC)
15:40 – 16:00	CHANGING ROLE OF INSTRUCTOR IN CONTEMPORARY EDUCATIONAL APPROACH: BLENDED LEARNING EXPERIMENT IN INTERIOR ARCHITECTURE EDUCATION	FATEMEH DOLATYARI AZAR (AZ-IR)- NIL PASAOGLULARI SAHIN (TRNC)
16:00 – 16:20	EXPLORING INTERIOR SPACE ATMOSPHERE: LOFTS THROUGH LENSES OF INTERIOR SENSIBILITY WITHIN ARTISTIC VALUE	ZEHRA BABUTSALI ALPER (TRNC) - NIL PASAOGLULARI SAHIN (TRNC)
16:20 – 16:40	RE-ESTABLISHING THE "HOME": A CASE ON SYRIANS IN TURKEY	TALIA OZCAN AKTAN (TR) - OZGE CORDAN (TR)
16:40 – 17:00	USING THE "CONCEPTUAL DESIGN CODES" IN DESIGN EDUCATION: ARCHITECTURAL DESIGN STUDIO EXAMPLES	AYSUN AYDIN OKSUZ (TR) - BAHAR KUCUK KARAKAS (TR) - GIZEM SEYMEN (TR)

27 APRIL 2019 SATURDAY

08:30-17:00 : REGISTRATION

HALL 1/

TIME	TITLE	PRESENTER
10:00 – 10:40	NEW TRENDS IN ARCHITECTURAL COMPETITIONS	MATEJA KATRASNIK (SI)

10:40 – 11:00	C O F F E E / T E A B R E A K

HALL 1 / SESSION D

SESSION CHAIR	ASSOC. PROF. DR. CIGDEM CANBAY TURKYILMAZ	
TIME	PAPER TITLE	PRESENTER / CO AUTHOR
11:00 – 11:20	EVALUATING THE PHYSICAL ENVIRONMENT OF ECOLOGICAL KINDERGARTEN BASED ON THE REQUIREMENTS OF EARLY ENVIRONMENTAL EDUCATION: A CASE STUDY IN DÖŞEMEALTI, ANTALYA	SHIRIN IZADPANAH (IR) - POUPAK PARVARESH (IR) - YAREN SEKERCI (IR)
11:20 – 11:40	ARCHITECTURAL QUALIFICATIONS OF ICONIC BUILDINGS	BURCU KOSE KHIDIROV (TR) - HATICE ASKIN (TR) - TULAY TUNCAY (TR) - FEYZA NUR DISKAYA (TR)
11:40 – 12:00	EGYPTIAN BAZAAR IN THE CONTEXT OF SPACE AND TASTE RELATIONSHIP	FEYZA NUR DISKAYA (TR) - TULAY TUNCAY (TR) - FIRDEVS KULAK TORUN (TR)
12:00 – 12:20	THE ROLE OF CULTURAL HERITAGE IN SMART CITY CONTEXT	DIALA ATIYAT (EG)

12:20 – 13:20	LUNCH

HALL 1 / SESSION E

SESSION CHAIR	PROF. DR. CIGDEM POLATOGLU	
TIME	PAPER TITLE	PRESENTER / CO AUTHOR
13:20 – 13:40	THE FUTURE OF ECO-CITIES: A COMPARISON OF EPHESUS ANCIENT CITY WITH MASDAR CITY	HASAN KALWRY (IQ) - CEMIL ATAKARA (TRNC)
13:40 – 14:00	SUSTAINABLE URBAN AND CULTURAL PHENOMENON IN VERTICAL GROWTH	CEMIL ATAKARA (TRNC) - CEM DOGU (TRNC)
14:00 – 14:20	ARCHITECTURE WITHOUT ARCHITECTS - SUSTAINABLE DESIGN OF A VERNACULAR BOSNIAN STONE HOUSE	MAIDA HALILOVIC (BIH)
14:20 – 14:40	CRITICISING (UN)SUSTAINABLE SKYSCRAPERS:THE CASE OF FOLKART TOWERS	AYNUR GUNDUZ (TR) - KUTLUG SAVASIR (TR)
14:40 – 15:00	SUSTAINABLE EDUCATIONAL BUILDINGS IN ACADEMIC STUDIES IN TURKEY	GIZEM EROL (TR) - HIKMET GOKMEN (TR)

15:00 – 15:20	C O F F E E / T E A B R E A K

HALL 1 / SESSION F

SESSION CHAIR	ASSOC. PROF. DR. EBRU OZEKE TOKMECI	
TIME	PAPER TITLE	PRESENTER / CO AUTHOR
15:20 – 15:40	A CRITICAL DESIGN METHOD TO RECONSTRUCT THE HISTORICAL CENTER OF ALEPPO	SELCEN SOZUNERI (TR)

15:40 – 16:00	MEMORY AND ART READING ON 'FINDIKLI PARK'	SAADET KOK (TR) - IPEK AKPINAR AKSUGUR (TR)
16:00 – 16:20	READING CULTURAL CODES IN MULTIPLE LAYERED PLACES: PERGAMON	ELIF CEREN TAY (TR) - CIGDEM CANBAY TURKYILMAZ (TR)
16:20 – 16:40	CONSIDERATIONS ON THE UNFINISHED AS THE OUTCOME OF ARCHITECTURAL RESTORATION PROJECTS	ENRICO PIETROGRANDE (IT) - ANDERINA MILAN (IT)

28 APRIL 2019 SUNDAY

HALL 1

TIME	TITLE	PRESENTER
10:00 – 10:40	MASS CUSTOMIZATION IN INTERIOR DESIGN VIA INTERACTIVE DIGITAL INTERFACES	PROF. DR. BURCIN CEM ARABACIOGLU (TR)

10:40 – 11:00	C O F F E E / T E A B R E A K

HALL 1 / SESSION G

SESSION CHAIR	ASSOC. PROF. CEM DOGAN	
TIME	PAPER TITLE	PRESENTER / CO AUTHOR
11:00 – 11:20	MESSAGES OF VENUE HEIGHTS AND NATURAL LIGHT USE TO THE USER - A REVIEW OF ANCIENT EGYPTIAN TEMPLES	DIDEM ERTEN BILGIC (TR) - ESRA ABDELHAMID HOSNY (EG)
11:20 – 11:40	A NEW TOOL FOR INTERIOR ARCHITECTURE STUDENTS FOR SENSING THE SPACE AND VISUAL THINKING	GENCO BERKIN (TR)
11:40 – 12:00	THE USE OF AUGMENTED REALITY (AR) IN SPATIAL DESIGN EDUCATION	ZEYNEP GULEL (TR) - BURCIN CEM ARABACIOGLU (TR)
12:00 – 12:20	TRANSITION OF CONTEMPORARY CAFES TO SOCIAL VENUES: "HUQQABAZ CAFE"	MERIH KASAP (TR) - SEBNEM ERTAS (TR)

12:40 – 13:40	LUNCH

13

DIGITAL TRANSFORMATION IN CONTEMPORARY ART MUSEUMS WITH THE EXAMPLE OF BARCELONA MUSEUM OF CONTEMPORARY ART

Gamze KARAYILANOĞLU

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Abstract

With the use of digital technologies in contemporary art museums, characteristics of artworks, the design of exhibition halls, museum-user relations and the museum experience have changed. It is important to examine the effects of this transformation in contemporary art museums on museum experience to question the place of digital technologies in museum design in order to be inclusive. Digital technologies can be used to increase inclusiveness in contemporary art museums. The use of digital technologies in museums is directly proportional to the scale of the museum, the audience it addresses and the financial support it receives. Therefore, observing a wide variety of digital experiences in contemporary art museums is possible by examining large-scale museums or museums which branched-out in digital art.

In this context; Barcelona Museum of Contemporary Art (MACBA), which has become an urban focus and adapted various digital experiences into the museum space, was chosen as a suitable example to examine role of the digital technologies in contemporary art museums as in inclusiveness. A field study was conducted in Barcelona Museum of Contemporary Art and the affiliation with digital technologies and space, their effects on the museum experience and the factors affecting the perception of space were examined.

Keywords: Museums, contemporary art museums, digital technologies, large-scale museums, contemporary art

1. Introduction

In the light of increasing technological developments in the 21st century, cultural production and consumption patterns have been diversified and cultural spaces have transformed. The museums, which are the main places for the presentation of social memory and cultural production to the society, are adapting to the digital age. The use of digital technologies has led to spatial changes as well as the methods used by museums in their events and news announcements. In this study; The Barcelona Museum of Contemporary Art (MACBA), which has become an urban focus in the region where it was built and adapted various digital experiences to the museum space, was chosen as a suitable example to examine the inclusive role of digital technologies.

In the digital age; which can also be described as the period of transparency, freedom of access and experience, museum structures have transform into experience spaces from ritual spaces [Url-1]. This process of transformation is experienced both in the architectural and social manifestations of museums. Contemporary art museums aim to increase their spatial inclusiveness with the use of digital communication technologies and with the support of interactive digital technologies in interior spaces. Social media accounts, smartphone applications, changes and transformations in the new media artworks, new technological display methods and the introduction of digital experiences into museum spaces have made these structures a place of experience. In this context, contemporary art museums have started to use social media actively. They perform many activities such as announcements of current events in the museum, organizing virtual exhibition tours on live broadcasts and conducting surveys through social media etc. Today, many contemporary art museums have smartphone applications that users can access for free. In addition to the social media-oriented inclusive methods, museum experience is changed and transformed by the adaptation of numerous digital technological systems to the interior of the museums. In this context, the main questions to be asked in the research should be: "Which digital technologies should be used to increase the inclusiveness of contemporary art museums?" and "What is the effect of digital technologies on the perception of space?" For this purpose, the effects of digital technologies in museums

were examined through Barcelona Museum of Contemporary Art. During the study, field research was conducted and data were collected on both spatial solutions and digital technologies used in the museum space.

Until the 21st century, art museums which had their main objective as preservation and exhibition of the works those are worth exhibiting, [1], have changed according to technological developments, socio-cultural changes and expanded in line with contemporary social needs which led them to gain new scopes and objectives. The main goal is to be inclusive of all segments of society. In the declaration of the International Council of Museums ICOM published in 2017 the museum is defined as; "a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment." [Url-2] ICOM's "education, work and entertainment" goals and "public interest and publicity" emphasis in the museum's definition result in transparent, inviting and strong communication in the museum space and that it should be inclusive in every segment of society. In addition to being the places where the art works are preserved / exhibited, the museum spaces should act as a cultural center that contains educational and instructive activities that appeal to individuals of all ages.

In the 21st century, the developments in digitalization and technology, the development on virtual and augmented reality are reflected in cultural spaces. The subjects of perception and experience in the field of cultural consumption have been studied by museum researchers such as Falk, J., Dierking, D., Hooper-Greenhill, E. and Black, G. Contemporary museums offer experiences that appeal to users of all ages in order to increase their inclusiveness. These may be educational programs for large audiences, as well as workshops, exhibitions and activities for children. In her book "Museums and Education" Hooper-Greenhill (2007) examined the educational role of museums with his surveys conducted on groups of students and teachers.[2] Hooper-Greenhill (2000) argues that museums have an active role in communication and information transmission because they provide practical access to educational materials and real objects.[3] Falk, J., H., Dierking, D (2013) focused on the concept of experience by taking the museum experience in three sections as "before, during and after the visit". As a result of the study, he pointed out the increasing technology-focused experiences in museums in the 21st century and emphasized that the relations between the museums and the city dwellers became more and more transparent.[4] Black, G., (2012) says that museums must meet the needs of the entertainment-oriented visitor groups of the digital age as well as the collections in the museum. In his study, 21st century museums have been examined in the cases of visitor experience, collections, documentation, museum space and expertise as well as tangible elements (display forms, digital technologies, etc.), intangible elements (inclusion, responding to user needs, etc.) and supporting cultural elements under a holistic approach.[5]

In this study, the use of digital technologies in contemporary museums is examined through Barcelona Museum of Contemporary Art, and it is aimed to question the effects of digital technologies on museum experience.

2. Barcelona Museum of Contemporary Art

Barcelona Museum of Contemporary Art was designed by Richard Meier in Barcelona, Spain, in 1995 [Url-3]. The museum is located in the Gothic district of Barcelona. The museum has a large gathering area in Plaça dels Angels where people gather, enjoy the public square, skate or drive bicycles etc. Therefore, it has an impact as an urban meeting point. It's surrounded by universities and cultural centers and makes a significant contribution to the identity of the region.

Fig. 1: Barcelona Museum of Contemporary Art and and Plaça dels Angels, April 2018.

Barcelona Museum of Contemporary Art is designed in a structure that is suitable for art works and activities in many different scales with its open-plan and diverse sized galleries. The connection between the interior spaces and the city has been provided by the glass facade and the ramp that allows circulation between the floors of the building. The entrance / reception desk and the museum shop welcome the visitors at the entrance of the museum. The area where the reception desk is located is a 3-storey gallery and a foyer. This hall then reaches the ramp where the visitors are able to see the square through the glass façade and connect with the city.
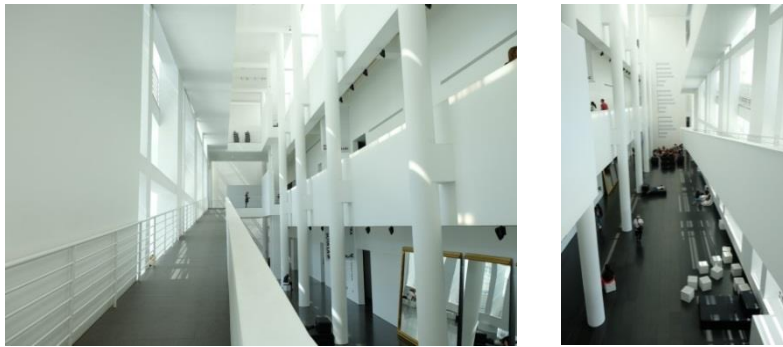
Fig. 2: Circulation (left) and the foyer (right), April 2018.

The open-planned space allows the natural light to spread through wide openings. The natural light spreading from the glass front to the interior space creates a unique experience in the plainly designed space by creating various light and shadow effects vertically and horizontally. Starting from the ground floor, the gallery spaces of various height and width are accessed through a ramp. Natural light is taken into the gallery spaces and the circulation areas with unexpected openings on the facades and the ceiling of the building. Although the space is designed with total space concept, it is seen that different exhibition forms are allowed in smaller galleries with artificial lighting systems.

Fig. 3: Exhibition halls, April 2018.

3. Digital Technologies in Barcelona Museum of Contemporary Art

Barcelona Museum of Contemporary Art is an example of how digital technologies are used to enhance the museum experience. It incorporates most of the digital technologies seen in large-scale contemporary art museums. Although they may change temporarily depending on the type and content of the works exhibited, they can also be permanently placed in the museum spaces. There are several digital technologies used in Barcelona Museum of Contemporary Art. These are:

- Digital display systems,
- Sound systems,
- Projection devices,
- A digital application which also interacts with QR codes,
- Digital tablets which provide information about events and exhibitions in the museum.
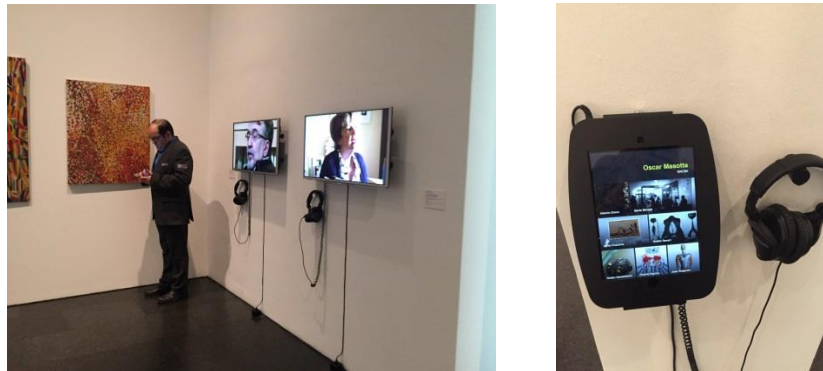
Fig. 4: Digital screens in an exhibition hall (left) and informative touchscreens in circulation areas (right), April 2018.

In addition to the digital elements in the interior space, the museum also has a smartphone application which responds to QR codes, which alters the exhibition experience completely. By using the digital application named MACBA App on their mobile phone or tablet, visitors are expected to search for the QR codes placed on various surfaces of the museum interior. [Url-4] While simultaneously visiting the exhibition and museum space, visitors are taken into a game of exploration and watching short videos about the curation process of the exhibition. Thus, the exhibition experience changes, and the museum visitor can be involved in an interactive game in the museum structure with the search of the QR codes. This game with the QR codes was designed as a temporary attraction in 2014 and ended at the end of 2018. The museum has a digital media department that creates upcoming digital projects to differentiate the museum experience.
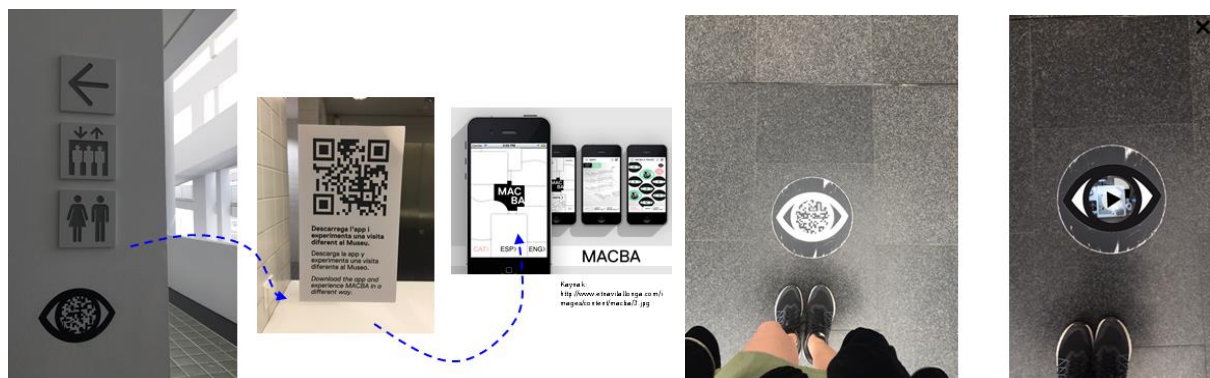
Fig. 5: MACBA App, April 2018.

Contemporary museums aim to be inclusive and educational. [6] With this application, which can be considered as an example of the educational, instructive role of the museum, it is possible to provide information about the curation process of the art works. In this way, visitors can be informed about the works of art that are detached

from their contexts with the entrance to the museum, illuminating the unknown parts of the idea-production-display stages. This information process is not compulsory, but it is inclusive and elective in which the visitor is involved with his / her own preference.

4. Conclusions

Barcelona Museum of Contemporary Art, located in the Gothic district of Barcelona, creates an urban focus by transforming the area in a cultural and social way. The relationship of the museum structure with the city and the urbanites, which embraces the region in a cultural transformation, is also reflected in the interior space. In addition to the architectural elements, it is seen that the museum is designed to be inclusive for the museum visitors with the use of digital technologies. It is seen that the museum visits has been made more inclusive with various applications. By using the MACBA App, museum experience in Barcelona Museum of Contemporary Art has changed the museum experience in a positive way and integrated the visitors into a game. This game also provides a fun learning process. As a result, Barcelona Museum of Contemporary Art provides technological support to the practices of education, work and entertainment, which are the main objectives of contemporary museology.

With this example, it is possible to say that;

- In the 21st century, not only certain artworks that are exhibited in the contemporary art museums are digitalized, but also museum spaces can be experienced with digital technological support.
- Contemporary museums can use digital technologies both to promote the exhibitions and to alter the real time museum experience.
- Museum experience can be improved by using digital technologies such as AR systems and digital museum applications.
- By using interactive digital technologies, museum visits become more inclusive for children and disabled.
- With the potentially open structure of digital technologies it is possible to create alternative spatial experiences.

References

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[Url-1] http://www.e-skop.com/skopbulten/rituel-olarak-sanat-muzesi/3950, Date of access: 06.12.2018.

[Url-2] https://icom.museum/wp-content/uploads/2018/07/2017_ICOM_Statutes_EN.pdf , Date of access: 06.12.2018.

[Url-3] http://www.richardmeier.com/?projects=barcelona-museum-of-contemporary-art-2, Date of access: 06.12.2018.

[Url-4] https://www.macba.cat/en/app2. Date of access: 06.12.2018.

ADAPTIVE REUSE IMPLEMENTATIONS OF ABANDONED INDUSTRIAL AREAS: EXAMPLE OF ZURICH-WEST

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Abstract

In some scenarios, with the changing needs of the city, industrial areas can remain idle. These industrial areas can be intertwined with the urban areas, which are actively used by the citizens as a result of the expansion of the city. Therefore, the industrial zones in the idle state are re-functionalized and become a new urban focus for the citizens.

In this study; Zurich-West in the Industrial Quarter of Zurich, Switzerland, has been reviewed. IM Viadukt, Freitag Tower and Frau Gerolds Garden venues, which have major impacts on the transformation of the region, have been examined in detail in terms of their relations with the city, the design approach, space organization, and the use of materials. A field study was conducted in the Zurich-West area. As a result of the study, data on design and the designer's intervention limit and holistic design approach have been obtained in order to maintain regional identity and to ensure sustainability.

Keywords: Adaptive reuse, Industrial areas, Zurich West, Frau Gerolds, Im Viadukt, Freitag Tower.

1. Introduction

Within the urban life, the industrial activities that have continued for a certain period of time may cease due to several reasons and the industrial areas may remain idle. These areas can be naturally integrated into the living texture of the city with the expansion of the urban organism over time and can be transformed into new focal points by revitalizing with planned interventions. These planned interventions often turn into a gentrification project. This, in turn, changes the identity of the region and causes unwanted consequences for the inhabitants of the region. While transforming the industrial zones, the region's identity and the expectations and desires of the citizens should be taken into account. In this context, Zurich-West, located in the industrial quarter of Zurich in Switzerland, sets a good example that should be examined since it is not gentrified and re-functionalized by the decisions of the citizens.

The identity of spaces is defined by aspects such as meaning, function and historical process in the context of social relations [1]. The places which lose their first function continue to carry the contexts in the historical process when they undergo a change of function, or they break away from these contexts. With interventions, the abandoned industrial areas can change drastically in the context of function, demographic structure, and identity of the region. As a result of this change, it is important not to break with the historical context of the region. To transform the industrial areas without gentrification, industrial structures should be reused for the needs of the citizens without losing their existing identity with the least amount of intervention. This transformation process can be carried out spontaneously by the citizens and as well as by the state. At this point, it's important to have an inclusive approach that involves the citizens in the process. This approach makes this transformation process permanent. The example of Zurich West, which provides all the needs listed above, has been examined in terms of the relationship with the region and the design identity. The method of the study was followed by literature review and analysis of data after the field research. In the literature review, it has been observed that the former studies were focused on the sociological characteristics of the region and the process of urban transformation. In

this study the main discussion points are the urban space, interrelations between the industrial areas and the city and the atmosphere of the space.

2. Zurich-West

Zurich West is a former industrial zone located in Switzerland's German-speaking part. Since the 1980s, after the de-industrialization process the region was discharged gradually. [2]. Zurich-West is isolated from Zurich's old city located in an area between the Limmat River and the Swiss Federal Railway. It is bounded by railways and highways [3]. The area was put into a planned transformation process by the local government and blended into the urban fabric as a new urban focus. The Zurich-West project was taken to the agenda of the government in 1996 and started in 2001 with some debates [2]. The area has undergone both an organic and an inorganic transformation processes. There are several different projects which keep the area alive and turn it into an urban focus. One of these projects is IM Viadukt. An important project that has shaped the area, IM Viadukt was designed as a competition project. Additionally, the decisions process of the region's transformation was completely transparent to local governments and citizens [3].

Fig. 1: Zurich-West

The area is clearly defined by the roads that confine the project in an organic way. This allows the area to emerge as a defined part of the city. With the the interaction between the area and the trains and highways it is easily accessible from the city center. There is another critical factor that helps the area change. The transportation of ZHdk, an art school with exceeding student capacity, enhances the value of the identity of the region. The idea of creating a 'design isle' can be clearly seen in the art and design-oriented transformation process. Moreover, this large-scale transformation project of the region not only changed the area but also provided new jobs for urban residents. According to the report of the Zurich Institute, this project has provided hundreds of new jobs in the region [4].

IM Viadukt is an award-winning project which contains several shops under a viaduct. It is also designed within the changing needs of the area and the citizens. In Zurich-West, there are also shops, bars, cafes, art galleries, venues for sports activities, open spaces in addition to IM Viadukt. There are other attraction points such as "Freitag Tower" and "Frau Gerolds Gardens". These two projects work in harmony with the regional identity. These projects will be examined in detail in the next chapter.

3. Examples of the Planned Transformation of Zurich-West without Gentrification

In some scenarios where industrial structures are re-functionalized and become available to the public use, gentrification is often a problem. As a result of the transformation; the nature and usage of the area are changing with the new function. However, when this situation is transformed into sterilization by damaging the existing identity of the area, the areas and structures remain closed in these transformation processes and lose their function as soon as this temporary interest of the citizens passes. If the new project respects the identity of the area and embraces it as a concept, the identity can remain. At this point, the processes itself can have different types. It can be an organic process or planned. In this case, Zurich West is a planned project yet it fits the area without gentrification, and also it started as a planned project but has continued to spread in an organic way. In addition to the new identity of the area, old shops such as repair shops etc. continue to exist. There are several new projects

has been built. In the scope of this; 3 main projects will be examined. These are; IM Viadukt, Freitag Tower and Frau Gerolds Garden.

3.1. IM Viadukt

IM Viadukt is located in a node point that is bordered by railways. Lynch says; these nodes constitute the core and activity center of the region and its effects as a symbol are spread to the city [1]. The project is the reuse of the areas under an old viaduct. There are various functions of these newly designed areas. The shops are designed to be adaptable to the changing and transforming urban scenarios. The viaduct, which was the main structure of the IM Viadukt project, was built in 1894 and since it has been home to various shops. The shops located under the viaduct since the 1990s, did not have the spatial arrangement that could serve as many different scenarios as they do after the project [Url-1]. The viaduct was redesigned by EM2N architects and Zulauf Seippel Schweingruber Landscape Architects [Url-2]. IM Viadukt, which is the key contribution to the area, has become the main attraction for the city-dwellers. However, because of the transparent decision and making process of the project, this result was not a coincidence. During the construction process, urban residents were able to observe all the processes of the project in a transparent manner and have a say in every level of the project. In this sense IM Viadukt has a significant impact. With this effect spread across the region, the project became the character of the region. It has led to controversy with the concern that the project can conduct gentrification at certain stages [3]. Nevertheless, at the end of the competition the project was realized by the public and it was concluded that the winning project did not carry these concerns.

Fig. 2: Im Viadukt with its former and the new state. [Url-2]

Within the scope of IM Viadukt, there are shops that host a wide variety of functions such as supermarkets, design shops, social and cultural venues, fashion and design shops, gyms, kindergarten and open public spaces. This diversity enables the project to appeal to all segments of the public and creates a focus that serves almost all the needs of the region. The project was constructed as steel constructions with articulated joints between the arches of two different viaducts at different elevations. The whole project has a holistic design approach and graphical integrity. The identity of the shops was designed with a holistic approach under Im Viadukt identity. The graphic design of the signs and fonts in the project are quite simple and designed according to the industrial identity of the region. It's designed with roof windows to receive natural light to the interior spaces. This supports the sustainable and energy-efficient attitude adopted in the region. Although they are perceived as a whole from the exterior, the shops have different interior layouts depending on their functions. Equipment's for each function and indoor organization varies. This shows that despite the total design approach, there is no standardization.

Fig. 3: Im Viadukt

3.2. Frau Gerolds Gardens and Freitag Tower

In 2012, as a temporary project, Frau Gerolds started as a beer garden near the Freitag tower. Now it contains many institutes, shops, art venues, bars, restaurants etc. in itself [Url-3]. Frau Gerolds has a large garden area, which is open to the public usage. Boundaries of the area are defined by container stores. It also has a large terrace area, which let the citizens see all industrial area. In this point, it is important that, the area let citizens use the area without any pressure to them to consume. Different parts of the area are open for public.

Frau Gerolds is an attraction point and it has an atmosphere, which is more casual, and it used extensively during the summer months. The materials used in Frau Gerolds support the space atmosphere. The enclosed spaces are completely composed of containers. The usage of containers is integrated with the industrial identity of the region. Moreover, in the garden area, the materials that used; are in a harmony with this identity. It can be observed that the industrial objects were re-functionalized throughout the garden. For example, industrial rollers in garden used as a furniture, pallets as tables and seating elements, wooden crates, and drums for pots were used for plants. Yet the area is new, there is no 'sterile new' design principle. Effective use of the existing materials is the key point in design principle that used in Frau Gerolds design process. Re-functioning can only be successful and work as a whole; only possible if the material and function are designed in harmony with each other [5]. This harmony can be clearly seen in Frau Gerolds. Materials of different functions were re-functionalized and continued to be used in the field. In the garden area, materials are mostly used in their raw form.

The interiors are designed according to the current function. A sustainable design approach is prominent throughout the space. This means that sustainability should also be evaluated within the framework of the re-functioning of the material from the idle state. At this point; The Freitag Tower is another example. The tower is a great example where a sustainable understanding can be seen in both product content and corporate identity level.

Fig. 4: Frau Gerolds Gardens

In 2006, Freitag was designed by Spillmann Echsle Architekten in the form of a 26-meter tower in which 19 containers arranged together [url-4]. The 'Freitag Tower Zurich' inscription on the façade makes the structure

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an urban symbol and it can be seen from the whole region. The symbolic status of the tower is important in terms of its regional identity. The building, which attracts tourists and locals, offers a staircase leading to the bird's eye view of the entire region. The open access of the tower shows that it is not an enclosed design. It is open to public usage. Freitag brand was founded by 2 graphic designers. In the shops reuse bags, wallets etc. are sold as in a harmony with the brand identity. Products manufactured under the brand name Freitag are formed by the use of recycled materials such as bicycle parts, car seat belts. One of the first messenger bags produced by the brand is still on display at MoMa. This sustainable approach is not only seen in products but also in interior design principles. Equipment's that forms the interior; (furniture, display elements, etc.) are produced from sustainable materials. The furniture's in which the products are exhibited and stored are designed from recyclable corrugated cardboard. Other equipment is also exposed. This corresponds to the industrial zone identity. Concrete is used throughout the space. In addition, other reinforcement elements (such as ladders, lighting elements, moldings, movable reinforcements, railings) are constructed using metal materials. In addition, the gallery spaces created in the interior space allows the space to be perceived as a whole.

Image 5: Freitag Store

4. Conclusions

The Zurich West project, which has a planning process where the public has a voice at all levels, is an important example of a functioning among the projects of the adaptive reuse of idle industrial zones. In reuse projects that are processed organically, mostly result in the inclusion of the region without causing gentrification. Zurich-West is a unique case with its organic and inorganic decision-making and design process, which results not causing any gentrification. The project is designed with a holistic approach; the designs' itself and the integration with the region. It is a sustainable design example with the materials that were used and the flexible design approach for future predictions for the area.

In this study IM Viadukt, Freitag Tower and Frau Gerolds Gardens in the Zurich West project were examined in detail. IM Viadukt , which is designed with a competition project, is a good example of efficient use of space and great integration with the region. It creates a new urban focus for the urbanites. The projects existing borders are used effectively. This is the one of the main factors that makes the industrial area an "arts and culture island" without harming the industrial identity. This effect, which is also emphasized by the art school carried to the region, is in harmony with the stratified identity of the region. Freitag Tower and Frau Gerolds Gardens, which are organically integrated into this transformation process, have been designed with sustainable materials and reinforcements that are compatible with these characteristics and become the main actors of the region's identity. The reinforcements used in the Frau Gerolds Gardens example shows the importance of the designer's intervention limit for the preservation of industrial identity. The re-use of containers and industrial wastes is not a 'sterile new' approach, but a successful example of preserving the identity of the region and creating a new stratification. This approach is also observed in the design of Freitag Tower. These spaces, which are attached to Zurich West, enable

possible future scenarios with varying capacities due to the fact that they are lightweight structures with containers and steel structures. The structure of the project is flexible and stands in between the temporary and permanent, supports the intervention of urban inhabitants.

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Url-1 https://www.im-viadukt.ch/en/information/history/

Url-2 http://www.em2n.ch/projects/viaductarches

Url-3 (https://www.zuerich.com/en/

Url-4 http://www.spillmannechsle.ch/wp/?p=140

REVIEWING CURRENT PRACTICES AND STUDIES
IN MUSEUM AND GALLERY LIGHTING

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Abstract

The act of exhibiting starts with light. In this critical position, demand for understanding and optimizing lighting performance in museums and galleries have increased in recent years. However, the relation between physiological and physical parameters must be investigated carefully along with balancing parameters which in conflict. This paper reviews the recent practices and studies in exhibition lighting. Firstly, current knowledge and standards are summarized. In the second step, notable case studies and researches are investigated. The purpose of this review is to identify the level and issues in exhibition lighting. Similar outcomes or methods from various researches are traced. Additionally, the relation between practice and theory is investigated. Missing points in these findings are discussed as possible further studies.

1. Introduction

A complex combination of various quantitative and qualitative aspects should be regarded in lighting design for museums and galleries. Light itself plays an active role in exhibiting process, foremost, it makes objects visible [1]. Lighting choices influences the whole exhibition experience by altering display quality, atmosphere and perception of displayed objects. While co-creating the experience, lighting designers must also acknowledge sustainability parameters such as cost, energy efficiency and durability [2]. Contrary to the role of displaying and exhibiting, existence of light is already a problem in preservation which is a critical task in lighting to be fulfilled. Low illuminance levels are expected to minimize the amount of damage to the displayed object which compromises visual quality and lighting variability [3].

To clear the path, there are some guides and standards that can be referenced. However, every lightning design eventually develops into a unique work with set of choices made specifically for the exhibition and its area along with priority order of aspects mentioned above. The inevitability of case-by case approach obliges each designer to set their own rules by developing design approaches like using trial and error method or passing undocumented knowledge disorderly among their network. Additionally, a group of advisors are most likely needed in large museums to manage multi-disciplinary aspects [2-4].

New technologies don't always help lighting designers either, they create another obstacle with a wide range of options. For example, LED lighting is getting popular in many building types including museums and galleries with a variety of application techniques. Many researches and governmental programs claim that LED is far better when compared to other lighting options with notable improvements in multiple aspects such as visual quality, preservation and energy efficiency. Still, museums aren't quite eager to use LED since the effects of it especially on materials aren't fully understood and experienced [5].

Daylight is a more controversial topic in museum lighting. Almost no daylight is wanted among lighting designers due to preservation concerns. Direct daylight and glare are not approved in any condition while controlling its dynamic behavior is considered as too much risk. Therefore, beneficial elements like visual quality and energy efficiency are often disregarded. On the other hand, daylight is one of the components that shaped the museum concept. Over time, it became a crucial element for architects. Sometimes the reasons of daylighting can be more meaningful in museums than other building types, like recalling the atmosphere of the time when the object was created [6-7].

Despite this chaotic status in exhibition lighting, there is a demand also an impulse to investigate and enhance the "formula" behind it. Studies have increased recently with a growing trend on improving interior quality of all building types including museum and gallery lighting [8]. The aim of the research is to offer insight into current knowledge and recommendations of museum lighting. In conclusion, patterns and problems of methodologies and findings of various studies are evaluated to propose better understanding of the topic.

Nomenclature			
CCT	Correlated Color Temperature	IES	Illuminating Engineering Society
CRI	Color Rendering Index	SSL	Solid State Lighting
LED	Light Emitting Diode	UV	Ultraviolet
CIE	International Commission on Illumination		

2. Lighting Functions

2.1. Standards and Guides

The degrading effects of light on paintings or other display objects has been acknowledged since 17th century. Before 20th century, some minor retrofitting like glass filters were applied to prevent damage [4]. In terms of conservation, there were attempts of establishing standards in exhibition lighting in 1950s [1]. Although, the first extensive reference books were published in 1980s, like the most popular, Thomson's comprehensive guide, "The Museum Environment". A recent survey shows that "Guidelines for Selecting SSL for Museums" by Druzik & Michalski; IES and CIE's museum guides are also the most followed. However, lighting designers and museum staff point that pace of guides doesn't catch up with developments [2-9].

Table 1. Summary of Exhibition Lighting Issues and Relevant Literature [10]

Exhibition Lighting Issue	Relevant Literature Title, Year
Occupant Comfort	1) deBoer & Fischer, 1981 2) Egan, 1983 3) Moreno, 1989 **4) Thomson, 1986**
Artifact Appearance and Detail Visibility	1) Berns & Grum, 1987 2) Feller, 1964 3) Judd, 1967 4) Kaufman & Christensen, 1989 5) Loe, Rowlands, & Watson,1982 6) Thomson & Staniforth, 1985 7) Thornton, 1972, 1974
Visual Quality	1) deBoer & Fischer, 1981 2) Egan, 1983 3) Flynn, Segil, & Steffy, 1988 **4) Thomson, 1986**
Artifact Preservation	1) Kaufman, 1987 **2) Thomson, 1986** 3) Weintraub & Anson, 1990
Electrical lighting System	1) Chartered Institution of Building Services, 1980 2) Kaufman, 1987 **3) Thomson, 1986** 4) Thornton, Chen, Morton, & Rachko, 1980
Daylighting System Quality	1) Egan, 1983 2) Lam, 1986 3) Robbins, 1986 **4) Thomson, 1986**

2.2. Light Parameters: Preservation and Visual Quality

Light energy chemically changes material, causes fading in pigmentation, drying and cracking in materials [4] Multiple parameters contribute the damage effect directly: used materials, illuminance, light type and exposure duration. Light is also examined in three ranges of the spectrum: UV, visible light and infrared. Contrary to common misunderstanding, damaging effects of light are not concentrated in UV range. Filtering UV light energy is an easy choice since the invisible energy is not needed. In infrared range, heat damage becomes a problem. Though infrared isn't that common in the used light sources and filtering is still an option. Still, UV factors overshadows the damage effect of infrared and visible light in many cases [1-11].

Illuminance is also seen as a critical component in preservation. Fundamentally, illuminance values are set between 50 and 200 lux for sensitive materials focusing visual quality [6-8]. Although, illuminance values may extend due to many factors regarding displayed object and the visitor perception. For example, higher illuminance values are demanded for older visitors [12]. Therefore, it is unhealthy to downgrade light exposure to lux [4], so it's is recommended to use annual exhibition time of exposure values when considering light damage [11]. Recommended annual exposure values varies between 15,000 and 600,000 lux hours regarding object's sensitivity. Therefore, moderately sensitive object can be lit with 200 lux up 8 hours [12]. This method also helps in the optimization of preservation and visual quality.

Color rendering is an important factor in visual quality. CIE set an index by comparing rendering quality of the light source to ideal daylight. Although this index is highly criticized due to its complex calculation method and adaptive factor of the human eye [1]. Regardless, light sources which have 80 or higher CRI values are considered suitable in exhibition lighting. Many researches highlighted the effect of illuminance and color temperature in color rendering quality. In field, CCT is only used to set the limit of UV radiation since cold temperatures, high CCTs, have higher UV values. Lower CCTs are preferred to minimize the

damage. The visual effect of color temperature is mostly ignored [2].

In terms of preservation, it is important to not rely on simple correlations between just two parameters. Many recent studies highlight that each material and color pigmentation behave differently to light components [5]. Even case-by case approach might be needed to configure lighting since environmental history of the material can alter the behavior too.

2.3. Perception of Lighting

Every lighting design creates a different experience therefore all can be considered as light effects Although, little attention has been given to understand the pattern, reasons and the techniques behind it. Foremost, they can be used to set exhibition purpose and the atmosphere that should inspire the viewers [13]. Some cases light manipulation might be needed to settle a similar theme between objects while compromising the visibility [12]. Color rendering can be discussed to understand the impact of light effects. The first option is honest and unbiased displaying by preferring neutral CCTs and high color renderings. Overall, this is preferred among many museums. Another intent is to capture similar conditions where object was created. The other option is manipulating CCT and CRI to create interesting atmosphere in which color fidelity is distorted. Light effects are mostly seen as creativity issue thus handled by exterior lighting designer or architects [2-16].

Another psychological effect of light can be investigated in museum navigation. Although there is no comprehensive research about it, studies about retail lighting can be referenced. Similar to retail lighting, museums have focus and relief points in order to not exhaust visitors with constant attention. Therefore, lighting shouldn't be monotonous and constantly dense. Dividing exhibition into parts with transition areas like foyers, corridors and circulation areas which lit differently is a common way to achieve it [14-15]. Daylight can be useful to break the maze effect and to guide the visitor. Characteristics of daylight, visual connection to surroundings and revelation of form can create the in-and-out dynamism [16]. Relation between different light zones should be planned carefully. Cuttle proposed a scheme to plan the sequence of this zones regarding parameters like material responsivity and light type [12].

3. The Architectural Usage of Daylight and Artificial Light

The advantages of daylight can be listed as: energy efficiency, better visual quality, improved human health and visual connection to exterior. On the contrary, unsteady and unbalanced amount of light causes both visual and preservation problems like glare or light damage. Additionally, dynamism of daylight is a debatable topic. Usually fixed light levels are desired among museum staff [16-17]. Although, changing atmospheres and involvement of circadian rhythm are considered experimental and valuable [18].

Over the years, typologies and techniques are developed to overcome obstacles in daylighting museums. Cuttle reviewed the daylight performance of various opening types. For example, tilted placing of paintings is recommended in side lit spaces to avoid reflection. Despite the unbalanced daylighting, side lit windows are recommended for sculpture exhibiting to add a shading layer (see Figure 1.a.). Top light types and effects are deeply explained along with their control systems. To eliminate direct light, polar-oriented openings like saw-tooth skylights are suggested (see Figure 1.b.). Another method is to add layers (filters and frosted glass) to diffuse and control the amount daylight (see Figure 1.c.), though creating restricted areas is noted as to key point [12].

Fig. 1. (a) The Kiss, Rodin Museum; (b) Saw-tooth Skylight at Kroller-Muller Museum; (c) Lentos Museum [12]

The strengths of artificial light can be summarized as precision and constancy. Lighting designer is in full control of the lighting environment. Preservations risks are easily estimated. The biggest arguments against artificial light is energy consumption and cost. Different from other building types, lighting of interior space is not focus but objects. Although, space should also be illuminated to provide a safe circulation [2]. Room surface lighting is also used to involve the space in the exhibition. Therefore, spotlight, wall wash and ambient light should be combined. Additionally, the whole strategy changes when illumination 3D and 2D objects, different components are involved like shadow or background etc. [12]

4. Recent Researches on Museum Lighting

Simulation is an effective way to understand the behavior of light, especially daylight. It enables to test numerous scenarios virtually. Nowadays, either it's a new design or a retrofitting project, simulation data is expected during the design process. Enhancing simulation tools is a popular research topic in environmental control. In a research, daylight performances of various skylight types are evaluated via daylight simulation software Radiance. Beyond optimizing and detecting effective parameters in daylight, research investigates the effectiveness of software along with the process of daylighting simulation integrated architecture. Measurements of scale model and simulation model are used calculate a "correction factor" to calibrate the simulation when testing skylight scenarios. It is found out that monitor-shaped and sawtooth-shaped skylights have a better daylight performance compared to existing pyramid-shaped skylight. Strengths and optimum dimensions of these skylight types are also mentioned [16]

Color fidelity of light is a popular research topic. Relation between light damage and CCT is explored in a study. It is suggested that amount of UV may change with in different light sources even CCT is higher. CCT and light damage is not consistent. The study explicitly focused on the effect of material and light behavior on damage factor. Two types of material with various colors are tested under various CCTs. Materials are exposed to excessive amount of light (to have a better curve) for long and short terms. It is found out that cumulative light exposure give different outputs so accelerated aging method must be investigated. Also, it is found out that wool fades faster in lower CCTs while silk fades faster in high CCTs. The key factor in the results is the difference between LED and traditional lamps. The results show that impulse to avoid high CCTs is not always right while using LED. Study also showed the strength LED in balancing visual quality and preservation. Also, LED showed a lower risk damage compared to other light sources. [5]. Another study also reached to the same outcome [11].

Multiple configurations of LED spotlights on two historical paintings in National Museum of San Matteo are evaluated in a study. The relation between human perception and physical measurements such as color temperature of lamps, their illuminance and luminance values are analyzed. For each configuration, various types of spotlights are combined while one configuration contained two color temperatures (3000 and 4000 K). The significance of this evaluation is that physical measurements are taken from multiple points on paintings to detect focal points where observers can perceive the "enhancement" and better visual quality. Some of these points are located outside of the painting to understand relation between painting and its background. Results show that higher illuminance values and uniformity enhances the quality along with warmer color temperature. [13].

A recent study investigated qualitative reasons behind the decisions in lighting design. Twelve museum representatives are interviewed with semi structured questions to understand the field of museum lighting: how guidebooks, recent research and developments affect the practice. Answers showed that, there are multiple steps museum staff usually go through when finding appropriate lighting. The first step is to meet several objective parameters such as setting lux exposure and UV values to recommended since controlling the damage potential of lighting on objects is a priority. Still, some of the parameters such as CCT or CRI, their recommended values and arguable damage impact are overlooked. The problem museum staff faces mostly with recommendations and studies is to catch up with improvements, they find existing solutions such as conferences and workshops useful. Same problem appears with the usage of LED lamps. Since it's a new technology, interviewees are not sure about the long-term effects on materials. A broad survey also showed similar results [9]. Despite this uncertainty, they are encouraged to use LEDs for energy efficiency. In the second step, where aesthetic quality of lighting is determined, almost all interviewees claimed to be using large number of their colleagues' opinions by trying lighting settings which passed the first step. Many of them support the idea of unbiased view of exhibition which CCT and CRI alterations are not used to have a more appealing effect. Some of them acknowledged the impact of lighting effects on overall exhibition experience, though they consider this as another field that needs a meticulous approach with high level of expertise. The study concluded with listings of common acknowledgements in museum lighting while highlighting the fact that multi-disciplinary mastery is needed to truly improve museum lighting. Every exhibition space and object are unique but field work is the best way to understand it [2].

A different study commented on the future of the museum lighting by analyzing its development over the years along with reviewing the problems which are highlighted in recent studies. It questions standard parameters and their inconsistent outcomes. Limitations in parameters like illuminance must be corrected including advanced parameters like surface reflectance, exposure time, amount of object detail, material and observer age. Study points that construction of a communal approach is increasingly needed in current status. It addresses a study which calls for a heuristic model in museum lighting. Four major problems of by evaluating different studies are also summarized:

- CRI factor by CIE does not include the reflective properties of the lit surface.
- Conservational data so its parameters is insufficient in guides.
- New references are need to be set involving energy efficiency.
- Fundamental rules are needed to conduct a healthy experiment while assessing physiological data [4].

5.Findings and Conclusion

Since it's hard to control and investigate all parameters of museum lighting, most studies focused on specific topics. The comprehensive studies highlight the challenge and necessity of applying a clear approach. Even case-by-case method is considered as beneficial and effective. Interestingly, the possibility of creating complex heuristic models by using case-by-case data is suggested. It is found out that main concerns in museum lighting are conservation, visual quality and their conflict. Subjective assessment and surveys are used to understand the patterns between aesthetic preferences. Additionally, data from experiments and simulations are compared to correlate and set the limits with the qualitative data.

One of the main problems with current researches is that many aspects and parameters ignored while correlating few factors. This complicates the integration between researches and field. Museum staff or lighting designers mostly cannot comprehend and apply the findings, along with not catching up with the pace of the publications. Another problem is that only surface is starched with museum lighting. Visitor tendencies, exhibition sequence organization must be investigated in further studies.

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A NEW APPROACH TO THE TRANSFORMATION OF MUSEUMS

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Abstract

Museums exist in every developed country and are becoming increasingly common in less-developed countries as well. Worldwide every year thousands of new museums are created and tens of thousands more are being expanded or enhanced [1]. It is estimated that more than a billion people, young and old, alone or in groups, visit a museum of some kind every year. This is because museums are no longer places where the objects are only displayed. There has been a tendency towards an understanding in which the focalize is on the endeavors to establish communication between the living museum and its visitors [2]. However, the communication has been change with the transformation of museum by the effect of the improving cutting-edge technology in recent years. The understanding of museums around the world and in Turkey has changed in parallel to this improvement. The introduction of digital technology has changes the structure of museum collections and also the experience of museum. By the use of the Internet at museums 'virtual museum or E-museum' has emerged and the definition museum and its experience has started to be transform. The current study is questioning the new communication model between the museums and visitors in view with the use of the privileges offered by the internet and digital world.

Key Words: Museum; Museum Types; Virtual Museums; Digital Technology; Museum Transformation

> *The museum visitor is not an empty vessel, waiting to be filled with wisdom...*
> *Falk & Dierking [1]*

1. Introduction

"Places where works of art is exhibited, where cultural heritage is protected" is a plain and simple definition of a museum. However, nowadays, the definitions and functions put on museums can vary. Besides these definitions and functions, the importance of museums in terms of culture tourism has increased, thus becoming a significant indicator of modernization and socialization [3]. With the changing and improving modern museum model, there has been a shift from object oriented approach to visitor oriented approach. This approach has made museums places of dynamics where there is movement and experience is gained rather than being places where historic and ethnographic pieces are kept.

With the effect of the improving cutting-edge technology in recent years, the understanding of museums around the world and in Turkey has changed in parallel to this improvement. The introduction of digital technology has changes the structure of museum collections. In contradistinction to the traditional understanding of collections, easy access interactive virtual museums based on information/images have been established. Exhibitions which have met their audience through multimedia devices have opened up a new path for virtual museums. With the use of new techniques, cultural heritage and art exhibits are presented in different formats [4].

This study is questioning the new communication model between the museums and visitors in view with the use of the privileges offered by the digital world. In this frame, it starts by defining the museum as a concept, the historic development, functions and museum types which have been shaped by these, virtual museums which have transformed museums and aims to draw attention to the new approach to museums through the transformation of museums.

2. Museum as a Concept

"Museum" comes from the Greek word *mouseion,* which is the temple of muses. The equivalent definitions are, musee in French; museo in Spanish; museum in German; museo in Italian and museu in Portuegese [5]. Today, the definition of museum is*;* a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment (article 3.1) [5].

There are different definitions for museums, which introduce the past to the future, have an important role in carrying the past to the future, where cultural heritage is gathered, kept and protected, where scientific

research is carried out and exhibited. In article 4 of the regulations of the Turkish National Committee of International Council of Museums (ICOM) a museum is stated as, "an institution which protects cultural artifacts and publicly displays these artifacts for the purpose of research, education and enhancement of the aesthetic pleasure, which works for the public welfare, which has collections of art, science, health and technology." In article 5 of the regulation, the definition of the museum has been expanded by stating 'Libraries and archives with permanent display sections, historic monuments which are formally open to public visitation, parts and premises of buildings which are a part of historic monuments, locations and parks with natural archaeological and historic importance, botanicals and zoos, aquariums and such formations fall under this definition.' As can be understood from the definition, museums are not just places with historic and cultural objects. They are preservation and research centers which are the subject of social and cultural life and enhance the aesthetic pleasures of the public. Erbay stated that museums are "educational institutions which, today, reflect the scientific and cultural past of society and combines elements of the future with art and culture."[6]. Modern museums are places which preserve by valuing society, carry out researches with curiosity, ask for the better by thinking and give hope for the future.

3. The Development of Museum History

When looking at the historic development of museums in Turkey, it is seen that it has started with storing ancient artifact in specific places 150 years after Europe [7,8]. In the first period, Sultan Abdülmecid has asked for scriptures with Emperor Constantia's name, which he had seen during his visit to Yalova in 1845, to be taken to Istanbul [8]. Marshal Ahmet Fethi Pasha put the stones under protection at Hagia Irene Church, which was being used as a military warehouse [9,10]. Afterwards the rearrangement of the place to become a museum happened during the period when Ali Pasha was the grand vizier [8,11]. The second era in Turkish museum studies known as "Osman Hamdi Bey Period" began with the death of Dethier in 1881.

Osman Hamdi Bey studied painting in Paris for 12 years, worked at different branches of the Ottoman bureaucracy, and by becoming the head master of Istanbul Academy of Fine Arts started to work on his big museum. In order to preserve, protect and store ancient artifacts which were increasing in number, Osman Hamdi Bey had architect Valaury design the building, thus establishing the Istanbul Archaeological Museum as it is known today [8] (Fig.1 and Fig.2).

Fig. 1. İstanbul Archeology Museum
http://www.eskiistanbul.net

Fig. 2. İstanbul Archeology Museum (from 1889)
https://tr.pinterest.com/

During the first years of the Republic, it has been decided to bring Topkapı Palace with all its belongings into service as a museum on April 1, 1924 and Hagia Sophia Mosque has been converted into a museum (Fig.3 and Fig.4). With the order of Atatürk, Ankara Ethnography Museum, the first museum building of the Republic, was opened to public, and in 1950, Turkish National Committee of "ICOM" was established, with its priorities being to strengthen the cooperation between museums and museologists, to establish the standards of museology, and to ensure information exchange through cooperation with international institutions [8,12] (Fig.5 and Fig.6).

Fig. 3. Hagia Sophia Mosque Museum
https://ayasofyamuzesi.gov.tr

Fig. 4. Hagia Sophia Mosque Museum
https://ayasofyamuzesi.gov.tr

Fig. 5. Ankara Ethnography Museum
http://www.eskiturkiye.net
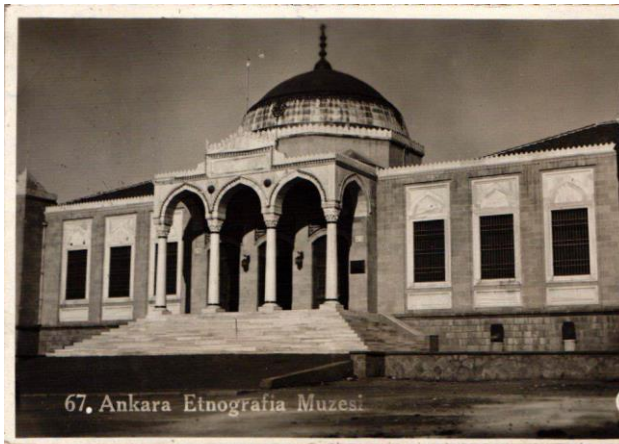
Fig. 6. Ankara Ethnography Museum
http://www.zohreanaforum.com/

From the 1960s onwards, the construction of museum buildings gained speed. Since the 20th century, museums have hosted contemporary art collections. In museums, visitor oriented approach has transformed the inclination, and the architectural designs have transformed into object oriented understanding. When looking at the arrangements of the places within these transformations, the responsibilities in preserving, storing and displaying created the requirement of both engaging the visitors in educational activities and to pursue an understanding of design in accordance with their needs [13]. The main aim of museum architecture is to provide a suitable area for the collection and visitors. With the increase and improvement of museums, innovations for the preservation of the collections, the endurance against fires and natural disasters, security measures and the display techniques have deemed necessary, and certain approaches and design decisions have been created for specific areas such as the preservation, lighting and storage.

There are many components and design factors that make up the areas at the display sections of the museum. Because the whole design of the display space is arranged in order to make the objects visible, the exhibition area design: "on one hand must enhance the legibility and effect of the object, and on the other hand must emphasize its attractiveness by abstracting it from the area." [14]. The display types at the exhibition areas are decided by paying attention to the effective factors of the message the artifacts will deliver to the visitor and the design elements and harmony of the display patterns in the area.

4. Types of Museums

Based on ICOM's definition of the museum, the function of the museum is to form collections, preserve, study, evaluate, display, enhance public admiration thus educate them, and to ensure its continuity. In addition to other definitions and museums in recent years, the element of leisure time and entertainment

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center has also been included [15].

When we look at the definitions for museum centers, it is seen that museums have three important functions. Kervankiran (2014) states these functions as: *preservation* which includes storage, collection, repair, use and architectural design; *research* which includes scientific studies, articles, conferences and presentations; and *communication* which includes display, publications, and education [3]. While the tasks and functions of museums in the previous years were more limited, they have now been expanded and thus transformed museums into more appealing places. In his/her study, Şahan (2005) emphasizes the importance of museums on effective learning and states that museums have become a branch of science at universities known as "museology" [16]. In his/her study, Şahan emphasizes museums, which are being reconstructed with contemporary understanding, have become non-formal education institutions.

Types of museums vary according to the difference in definition and function of the museum. According to the detailed classification based on the resolutions of the 18th General Assembly of ICOM which took place on July 7. 1995 in Sweden, museums have been listed according to the following headings [3]:

- *Museums According to Collection*
  General Museums, Archaeology Museums, Art Museums, History Museums, Ethnographic Museums, Natural History Museums, Geology Museums, Science Museums, Military Museums, Industry Museums.
- *Museums According to their Administrative Units*
  State Museums, Municipality Museums, University Museums, Military Museums, Independent or Private Museums, Private Enterprise Museums.
- *Museums According to Their Regions*
  National Museums, Regional Museums, Local Museums.
- *Museums According to Their Audience*
  Educational Museums, Specialized Museums, General Public Museums.
- *Museums According to Their Exhibition Techniques*
  Traditional Museums, Open-Air Museums, Private Museums-Museum Homes.

In addition to the above-mentioned museums, Öztekin (2014), has created the heading other museums and included *expertise museums, virtual museums* and *children museums* under this heading [15].

5. Virtual Museums

With the rapid developments in technology at the beginning of the 1990s, and the use of the Internet at museums for communication purposes, 'virtual museum or E-museum' has emerged [17]. The number of virtual museums on science, history, art, computers, publicity, etc. which had been limited in number until the 2000s, have increased with the widespread use of the Internet around the world [18]. Virtual museum has been defined as museums "which hold digital objects prepared with the use of various media means and their information, where communication with visitors is never-ending, which are beyond common communication methods in order to meet the requirements of different access methods, which do not require a physical space in order to provide access throughout the world." [17]. Öztekin (2014) defines virtual museums as a museum which has been transferred to the Internet and computer with the help of image transfer techniques and communication technology [15]. In other words, it is digital access to the museum's digital upload of images, audio files, and texts, historic, scientific or cultural fields of interest. Therefore, a Virtual Museum is a logical and related collection of digital objects which have been created in various platforms.

As a result of their research, Karataş et.al. (2016) have stated that educators define virtual museums as "museums independent of space and time, museums where audio and visual components are displayed on a computer, the visual display of museums on the Internet, the display of museums on a digital platform (p.122) [18].

The first example of a virtual museum is seen in a project called "virtiula museum" carried out by Jeffry Shaw in 1990 (Fig.7). In Turkey, Eczacıbaşı Virtual Museum is the first virtual museum which was established in art and culture (Fig.8). Main ones are Virtual Architecture Museum, Rahmi M. Koç Industrial Virtual Museum, Sakıp Sabancı Virtual Museum, and Virtual Museum of Underwater Cultural Heritage. In these virtual museums a visitor visit the collections and museums by the orientetion of web pages.

Fig. 7. Jeffrey Shaw, The Virtual Museum, Installation
http://www.medienkunstnetz.de/works/the-virtuel-museum/

Fig. 8. Eczacıbaşı Virtual Museum, Orientation Web Page
http://sanalmuze.org/

6. A New Approach to the Transformation of the Museum

The use of digital technology at museums is revolutionary. The adaptation and transformation process, which started at the beginning of the 1980s in accordance with museums in the U.S.A. and West Europe, has radically changed the museum narrative. Museum collections based on objective information and virtual memory has artificially been redesigned with the help of virtual reality technology. Digital technology used for educational purposes at museums enables a constant communication between institutions [4]. In addition to the digital collections, the multimedia systems which can be used at museums have pioneered the way to leaving the classic representation and creating a new reality.

It should not be forgotten that in addition to the positive contributions of virtual museums to art and culture, they have strengthened the images of the virtual world for the public thus creating a world where all areas interact with each other. In virtual museums, mixing the virtual with reality and manipulating is an important point. On the other hand, it is preferred that people of different geographies with internet connection have access to virtual museums.

Within the study, it is seen from the figures which started at Istanbul Archaeology Museum and continued with Hagia Sophia Mosque Museum and Ankara Ethnography Museum that actual space and experience, concrete and lack of the display of a screen have given way to the experience of virtually being at a museum in another geography with the use of a screen. The quality and personal satisfaction of this experience can, of course, be questioned. However, experiencing a work of art in a different dimension rather than looking at its photograph, feeling its story, establishing a special bond between the audience and the work is one of the most indisputable qualities of a museum. In short, museums, which serve as bridges between the work and the audience are, in a sense, eliminated, and the effect of the ambiance reduced which makes the purpose just to "look" at the work. In addition to establishing a bond with the work of art, experiencing the actual museum starts, in fact, long before going to the museum; contacting the staff for information, sharing preliminary information, the social interaction with other visitors, various activities are important share points of this process. Turning museums into virtual spaces eliminates these experiences. However, the artifact contacted in a virtual museum is a real artifact found in an actual museum. If preferred, the same artifact and space can physically be visited. At this point, it is worth searching how the figures used to explain virtual museums will change in the future. With the further development of technology after some time, the features of museums in the future are an object of interest. Perhaps, actual museums will transform into virtual museums and the main purpose will be the display of work of art regardless of a physical space. At this point, it can be thought that the disappearance of physical museums will be inevitable. When the privileges of digital technology and the close relationship between the new generation and technology are considered, the expected result is that the creation of new work of art will be through technology. At this point, the question to be asked is:

How will the transformation of museum structures and artifact be shaped with digital technology?...

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WEARABLE ARCHITECTURE
A DESIGN OF A DEPLOYABLE SPACE

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Abstract

The two disciplines of design, which are constantly intertwined with each other, have always been in relation to fashion and architecture. When the relationships and interactions between these disciplines are examined, the effect of fashion on architecture is examined with the effect of architecture on fashion. Looking at the background, philosophy, and technologies of fashion architecture, the works of fashion designers and architects who refer to architecture are examined, textile installations, dice structures, mobile structures, general readings are made for materials. The intersection points of the disciplines of architecture and fashion, the basic concepts that affect the two disciplines and the results of a combination of these concepts were taken and decisions were made. The design of both disciplines is changing and transforming in order to meet the functions that differentiate with external dynamics in time while putting the human body and shelter/protection needs at the starting point of production practices. These two interdisciplinary disciplines were discussed in this article under the headings of this article. Both fashion and architecture provide shelter for a human. In both of the disciplines, aesthetics is the main attraction which began with the need to protect the human body from environmental conditions, followed each other in the historical process from past to present. Separating and protecting the body of the human and then its environment from the unlimited space, dressing in the acts of limitation, and the architecture are simultaneously developing and influencing each other. These two disciplines have influenced fashion and architecture in social, technological and economic developments. The common points and differentiated topics of fashion and architecture are explored and the proportion of the human body and how it affects them.

In this article, the main purpose is not to measure compared to the production of two disciplines, but to understand what changes in the area where the boundaries of the two disciplines are blurred (ambiguity for space) and to offer a design proposal through the productions that are prominent in this region. The aim of this paper is to turn the place of an object used in everyday life into space and protect the users from the determined natural effects. In doing so, it was aimed to protect a person that is in motion from the daily natural events of that position by taking a position. Examining previously implemented projects, it was determined that a study and thought was not developed for the people in motion. The aim is to make a design that will protect a person in the movement of the environmental parameters such as; sun, wind, and rain. The material of the space, its place in daily life, its use, practicality, and the results were obtained. The effects of architectural and fashion titles on the scale, material, and climate were investigated. The reason why this report was intended to be made is to create a multifunctional design work by giving practicality to everyday life and aiming to make life easier for the users. It is foreseen that the developing technology and this technology will affect and develop these two disciplines and not only the weather conditions of a particular region but also the designs that can adapt to each climate conditions.

Keywords: Wearable Architecture, Deployable Architecture, Fashion, Body- Space.

1. Introduction

The conceptual relationship with body movement and space, abstract linear expressions can be handled in such a way. This linear expressions, are fundamental parts of the body and constitutes the base axes from differences in body position. the movement of the head represents the movement of the body axis, axle body, represents the movement of arms and legs is showing the movement of the arm axle leg axes. Your body will perform in the transaction process, depending on the action the head, trunk, arms, and legs, forming the horizontal and vertical surfaces defined in place angular and spatial relationships. In this context, the body, movement, and space concepts are expected to occur in the space to be designed and created by the transaction but to analyze the process of movement.

In this way, space design is realized with the combination of the movement-movement process and the body-movement relationship underlying this fiction. Interpretations derived from the body-motion relationship must be reflected in a certain level of diversity and spatial experiences.

The two disciplines of design architecture and fashion have always been intertwined. Sometimes, very clearly, on the basis of these two disciplines are a human scale that is warming, and both aiming to appeal to the aesthetic values and to nourish two parallel each other. Initially, then, built shelters, primitive ages to the present, to the human body, in order to provide shelter to protect her. Primitive man as both aesthetic and functional 'home' when creating a concept inspired by the textile material is the fact that they took from the laundry. In addition, both disciplines are also basically two-dimensional materials, manufactures three-dimensional design products. Shares that can be accessed between interdisciplinary fashion and architecture, similarities, common designs appear two discipline interaction. These two design discipline, despite the scale and different material used between them, is fed from common design elements, using common concepts and design. Fashion and architecture of common concepts and methods of discipline; heuristic attitudes, scientific, social, economic, cultural, technological, artistic and aesthetic approaches to share with each other, this provides new areas of collaboration with the transfer. Concepts, design methods, terminology, forms, structures, surfaces both fields as architecture and contemporary reflections manifested in the textile sector. This partnership and sharing, and both discipline and another one turned into a development source for.

Adolph Loos (1898), 'article' how "Human Right Principles" of building the learning process, learning how to dress he'd started with. The dressing is the oldest architectural details and to protect the human body to the cold weather, animal skins and taking advantage of textile products, the same way when I was sleeping in leather, and plants protect themselves from places they concealed and They thereby refer to the shelters. Other families in the same area have been added in order to separate and protect walls and in this way will form the first architecture has started. Fashion and architecture; material, details, color, texture, the proportion in both the art form are the common design elements. Common to both disciplines is the concept of creativity. Fashion is like a kind of language and art such as architecture.' According to the famous architect Charles Gwathmey exploring and expectations by being in both the work to be done. ' Fashion, architecture is inspired by each other, help each other in taking versatile. Both rates, material, texture, color, detail, with elements of language comes to the fore in the expression. Being different, both to draw attention to the art form, say they were designed for a period when designing and creating signature whilst the, of those items. The architect himself to stone, concrete, steel, while in structural form; fashion designer, too, fabrics, yarns, accessories, attempts to express. Neither one of them is a design element that is used.

The concepts of architecture, fashion and creativity are actively used is two separate disciplines. At first glance, these two areas differ from each other, because fashion is a transient and superficial phenomenon in architecture while detecting more monumental and permanent if the chosen path. This situation is reflected in the materials used. We use materials in fashion when more soft and delicate, the materials used in the construction of structures in architecture is hard and durable. Of course, this process is observed large differences between our production scale. Fashion designer during the design phase based on a human body when the architect is that many people collectively create areas large enough to shelter. Despite all these differences, the two areas are the common starting point of the human body.

Clothing is actually a material culture. But at the same time also has a social content. People wear depends on several factors. Their social aesthetic values; religious beliefs and practices, gender and age, and professions, moods and current status (marriage, burial, mourning). These factors where, how are items that affect the is get dressed issues. The simplest primitive times passed between the legs and clothing, sexual organs consist of a cover that hides. This covers weed, meadow, saz, leather, processed tree bark, post, fabric. Over time, various techniques in primitive cultures there is a fabric made and painted (Tezcan, 1983). Fashion and architecture field social, cultural, economic, political, historical, and influenced by technological factors affect the process of creativity. In particular, shapes, patterns, forms, and embellishments throughout history, architecture, and fashion, it is possible to see this in terms of effects. Both disciplines also human and human dimensions, based on three dimensions and material body to construct structural structures.

The design is the result of inspiration, idea, and concept in designer thinking. A design object is not mass production; they are limited in design, such as a work of art, and only meet the special and complex needs of private users. The basic components of design objects, are the same and represent the same function, but what makes them so unique and personal is the aesthetic, functional and communicative criteria; and finally, the

quality of the design can be measured by these criteria. The body can be seen as a machine, a vehicle and a building and can be considered. Therefore, it can be said that the dressing of the individual provides personal space definitions such as architectural structures, although they are larger. Specific objectives for both fashion and architecture; Although housing and cover the body instinct, developing technology and methods of scientific, artistic and aesthetic alliances emerged. Both disciplines by affecting each other in different and interesting designs. On both sides, it took an idea, start trying to figure out its practical requirements.

Behind these ideas into a revenue making three dimensional. Initially, be created in the desired form is drawn and ideas about the draft that made working models based on drawings. Developing the product because of design into the final work on a similar form is almost a necessity to succeed.

2. Wearable Architecture A Design Of A Deployable Space

For the first time in the relationship between body and space scientific and mathematical as a replacement out it is possible to say that the Renaissance. Leonardo da Vinci had drawn in the year 1492, nested in the middle of a circle and a square is drawn, the arms and legs are drawn on top of each other, including open and closed position a naked man depicts "Vitruvian Man" body rates investigated, resolving problems in the relationship of the body and space on behalf of a very important start. Drawing, Leonardo's human and understanding the relationships between the space in which the work initiated on behalf of the turning point.

Your body's relationship with the philosophy of perception of space (perception) look upon the perception of the body, we will explore the powerful persuasive Ponty Marleau who blab. Ponty, poetics of the body next to the effect on the body as a place where the active position of space and has revealed the importance of the body. Ponty, a spirit in the form of a body and has two separate tracks as the perfect integration of the soul with the body separation. Ponty each part of the universe around us and according to but can reach him through the understanding body. The rest of the body will detect each entity, including around us, while the other side of the universe through each element in the body. This is the way to look at this body what is the subject nor object, but space is part of the meaningful and useful. Ponty's perspective, the detection of a place, including the spatial volume of that space for the brothers, and this within the framework of the integration of the body both as important both aware that control. (Mahdalickova, 2009)

According to Vitruvius; seeing and design principles of the temple without proportions cannot be determined; It means, just like physics properly between items in a man has a significant relationship as it is. Because the natural design of the human body, face, hair on top of the bottom from the roots up, a boy is one-tenth the length of the front. A hand is on the tip of the middle finger at the same rate from the wrist. Likewise, a general measure of all of the elements of the temple with a large convenience. Still, it is the heart of the central point of the human body naturally. Because, as a man open to the hands and feet back down the ends of the fingers and toes when placed on the belly of a compass around the apartment. (Akyol, 2012)

3. Architecture Driven Fashion as Wearable Architecture

In the past, architects have explained the modern architectural movement with their positive and negative comparisons with clothing. In prehistoric times, clothes were like a shelter, but over time these clothes and shelters changed towards the formation of primitive structures. Animal skins and textile materials produced from plants that protect the body from climate conditions gradually transformed into the panels forming the roofs and walls of the structures (Tangay, 2004). In the 13th century, the details of the "Architectural Fashion" concept, which are transferred directly from clothes to clothes without going through too much abstraction, form the basis of today's "Architectural Fashion" concept. The elaboration of clothes from the ornamental and decorative elements of the 19th century was matched for the purpose of modern architecture (Frank, 2000). It is a matter of "summed up.

In Rome, the Dorian and Ionian garments in ancient Greece were clearly designed in analogy to architectural structures. The human body is considered as a column and the design concept seen in architectural layouts is also used in the design of these clothes. The corrugated areas used in the columns in Greece refer to the drape floors and cylindrical form of 'chiton', the most popular garment of the same period. In ancient Greece, we see that clothes and architecture are designed in harmony with human figure proportions.

Gothic architecture, which can be described as a show of power between the papal and the kingdom, is seen to affect the sharp edges of fashion. Garments have gone beyond the limits of the human body. The most used outfit is undoubtedly the fluffy dresses. A special skirt circle in women's clothing sets the woman's lines. The two ears are one on top of each other. The skirt edges are adorned with drapes; inspired by the splendid curtain designs of the palaces, drape, pile, and headlamps were embroidered. In men and women, hats are extremely long and pointed shoes are used. In comparison, the similarity is clearly observed. Nowadays, many brands turn to the past and make designs, but the fact that fashion is being consumed quickly slows down this effect. Especially the movements such as minimalism and deconstruction are adopted and spread very rapidly in fashion.

When we look at the Renaissance, the excess of the period of the decorations in palaces and period architecture has shown itself in the costumes as well. In the Baroque period, the preferences for jewelry, hair, and clothing, which can be called an art suitable for exaggerated show tastes, have proved the above-mentioned excess. In the period, the skirts of the floor, which are flowing like the water-worn by the ladies, have parallelism with the architectural features.

In the 18th century, there is an architecture approaching the female body with its artificiality, charm, elegance and decoration features. In the 19th century, there is a different approach. The ornamentation is considered separate from the artificiality of fashion. In this period, men's clothing features come to the fore. In the 19th century, when the foundations of modernist architecture were laid, clothing was one of the most important elements. Some architects have interpreted the structure as a suit that is sitting on the body, and they try to remove the architecture from the ornaments. Men's clothes in that period were very different from women's fashion and were far from extravagance. The architects argued that they should have the simplicity and functionality of their styling men's clothing. These principles formed the principles of modernist architecture in the 1930s.

Inflatable experiments were conducted in the 1960-1970s. Ant Farm, an art community active in this period, made initiatives on this subject. The giant yapılmış cushions tarafından, called inflatable areas, are made of tape and polyethylene and are inflated by normal fans. In their opinion, everyone can do it easily. It was cheap and built almost everywhere. The changing organic shapes contrasted with the flawless shapes and proportions of Modernism's emphasis on dictatorship. Hale says, "You come in and this is the complete destruction of Modernism. H Düzenli Modern architecture tidy and tidy; right angles are weight. You're in a bubble here, there's no structure in translucent environments. A dice held by a fan. It's so simple, and it's all about the modernism. "Balug, m The area of the sky was not just for the gods, but also for the people who managed to fly through science," he said. Adır Traditionally, a utopia is an island where you pass boats, sails, and wind. The idea of inflating as utopia, being a vehicle, is a hot air balloon that takes you there. In the twentieth century, the bubble becomes a closed space from the world. Get inside the balloon and get off the Earth. "

In 1970, in one of the first books to classify and define the movement in architecture, Zuk, and Clark state that "nothing is permanent." After the building is built, it continues construction. Kinetics are characterized yer the architectural form can be naturally displaceable, may be deformable, can be expanded "(1970). Robert Kronenburg, from a portable point of view, states that kinetics are building or building components. Changing design physically changes the structure, shape, or skin of structures, including changing the space, shape, and shape. An architecture that opens, closes, expands and shrinks Aç. And portable "It involves buildings that move from place to place to play the role better: rolling, sliding or flying architecture".

Bradley Quinn makes his architectural presence feel at the highest level. Flexible metals, membrane structures, light goggles and plastic used in building construction are crawling on the podium. As they have done, their impact on the latest textile developments has produced fabrics that allow clothing to exchange information with embedded sensors, creating climate-controlled environments that result in wearable residences that function as shelter and clothing. At the same time, architects borrow from traditional tailoring to design flexible, interactive, inflatable, and even portable buildings, curling, punching, cutting, and casting. Although the relationship between architecture and fashion was known more than a century ago, the connection between them was rarely discovered by historians, designers or practical architects.

Architecture Fashion, Martin Margiela, Issey Miyake, Alexander McQueen, Tadao Ando and Daniel Libeskind, such as ideas, images, techniques and materials used by examining the contemporary relationship between architecture and fashion, the very first attempt to examine the contemporary relationship between. While covers ranging from Hüseyin Çağlayan and Rei Kawakubo to Rem Koolhaas and Zaha Hadid describe their architectural role in the formation of fashion identities, new readings are emerging in both areas. The Fashion of Architecture is the most comprehensive study of this exciting area to date.

According to Issey Miyake's concept of origami and regeneration, garments in expressions consist of a series of narrowed forms, creating a flat surface when folded. However, when raised (when opened) a three-dimensional shirt forms clothes, jackets, skirts or bags (Fig.1). If it is angled, it turns into something that can be worn in countless ways. The title explains the notion: a single piece of fabric, a reduced three-dimensional shape, and the fifth dimension (in physics), which Miyake described as the moment when the garment was worn and brought to life through communication between people. The fifth dimension is a hypothetical dimension after the three spatial ones and the fourth one of the time. (Some astrophysicists argue that the fifth dimension is the universe in which we live.) First of all, the forms had to be reconstructed into a more manageable two-dimensional form than the bulky volume.

Miyake clothes want sustainable as possible, made from recycled plastic bottles, but much more refined fabrics. Cotton poplin feels and appears as a thin white fabric and silk fabric more similar prohibiting him to chose a bright black. The materials are lightweight, stretched and breathability features. Cut and sew the fabric, instead, based on the computer-generated formulas Mitani Khanna, flawless, with permanent creases such as permanent would endure origin. When folded, garments such as the stars and folds flat round will consist of geometric shapes. When turned on, day dresses, cocktail dresses or long gowns, such as versatile skirts will become the angular tubes. Tubes to make it more versatile, Miyake is the key locks the invisible to memorably, so that you can change the shape of temporarily wear or pants or a jacket sleeve to create a double tube can add. To return to the way the suit will be enough to open the locks. Miyake "these clothes are like air is very light and seasonally remote," he says."I hope people will keep them for long and it's not going to change every two months. For me, this is the essence of sustainability."(Fig.2)

Figure 1: Issey Miyake's Dress Design (URL1) (left), **Figure 2:** Issey Miyake's origami art transformed into a bag (URL2) (right)

The technology development of communities, cultures, lifestyles, needs, and expectations are changing quickly. This architecture is influenced by development and change. Today, buildings, process, in the context of functional user requirements/quantitative/spatial change requirement. A close up of the persistence in architecture, structure, one of the most important design criteria for resistance against time, nowadays the building can change, can be converted to be able to keep up with the external conditions, able to respond to rapidly changing needs one of the properties being searched every day. Instead of a fixed space can bring any function but employing different needs across. For this reason, the concept of "functional Flexibility" is a concept design up to date. Functional flexibility inside the shell (spatial combination/spatial decomposition), shell (spatial growth). (Fig.3)
So much architectural and fashion have in common the biggest difference between them while there is no doubt that they give material and scale. Architects will be a lot of people together, creating a space that is a very big area of design while working, while fashion designers based on a body. A fashion designer in architectural design and reduce the scale of the human body that affected.
But the difference in this large scale between two of the design area to be affected is not a condition that affects each other. These two design branch is in constant data exchange. (Fig.4)

Design architectural design, without any difference whether a fashion design has on the climate, is perhaps the most affecting factors. Design in which country, in which climate, vegetation, sometimes affecting the design completely constraining sometimes is a factor. Using a design size, climate space in architecture its shape, the shape that will be applied to the direct way with the material.

Fashion is in the design of climate influence the type, material. When looking at these two areas and climatic aspects are very similar and would give each other ideas in this regard. In a suit that turns into the accessory place instances today. However this made projects every climate, every community, every weather condition, it is not suitable for every human being. This lack of appropriate to the type of material, color, texture, use format, usage pattern, which depends on the purpose. Nomadic living projects often made or have been made for the homeless. Examples of the mainframe as the venue transforms into a tent. These applications are a very large part of the disaster that people are to be retained. Work on this issue in the disaster that took place in San Francisco who after Lee Searched violence against women as a result of such a study is located in the.

Figure 3: The intersection of fashion and inflatable architecture. (URL3) (left) , **Figure 4**: Gabriella Geagea Tent Raincoat Design (URL4)
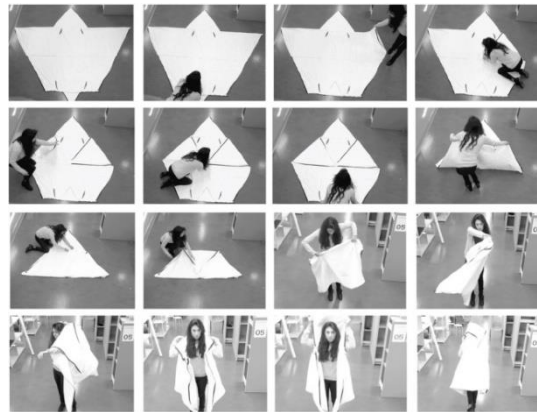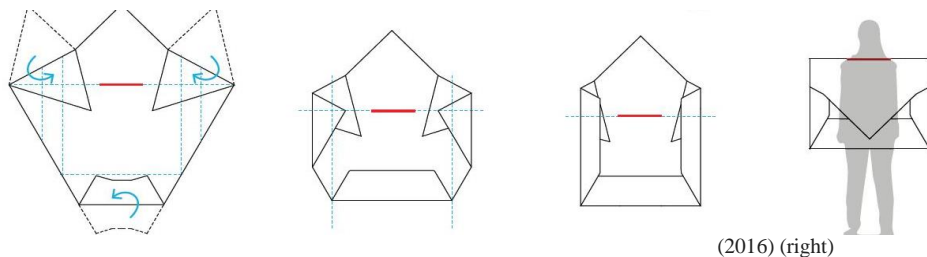
(2016) (right)

Figure 5: Issey Gabriella Geagea's Design Transformation Scheme. (2016)(URL5) (left) , **Figure 6:** Example of Two-Dimensional Plate (URL6) (right)

There is another that affect the scale and design climate much design feature. When selecting a scale the ingredients need to be considered, the climate needs to be considered, the purpose of use need to be considered, whose use should be considered. After this data is obtained the material opaque, transparent or figure out. By design stretchable, tough, Bendy vs.be given decided. This analysis, architectural wood, concrete, brick etc, us area While in the fabric of the fashion area, directs the color. In addition, both disciplines are also basically two-dimensional materials, manufactures three-dimensional design products. Shares that can be accessed between interdisciplinary fashion and architecture, similarities, common designs appear two discipline interaction. What is very important to choose the material. (Fig.5)

Enduring it as best possibilities should be provided, as well as Sun-proof and water-proof. Because of this material was used as a fabric made of polyethylene and paper. Resistant anti-abrasive paper (protect-paper) polyethylene and merging with the fabric.

In this way, different uses and protection features, special use and protection it is possible to create custom material for my needs. Merged protect paper anticorrosive protection, waterproofing, and strength of polyethylene fabric incorporating the capacity desired material. (Fig.6)

Folding techniques, also known as origami, the generic term for paper folding, has been applied to many fields, such as in material research, robot structure, electric devices, and architecture design. Folding techniques are popular in architecture design mainly for two reasons, possessing a creative architectural structure with advantageous load-carrying capabilities and generating esthetic and deployable architectural form. In architectural terminology, the term folding structure means structures consisting of plane polygonal elements which made of plates and sticks. Some designers also call it origami construction.

At the University of Tokyo, research is being conducted by Tomohiro Tachi on rigid deployable origami, origami structures that consist of stiff plates and that are foldable. The research focuses on making 3D shapes from flat objects and making them into units that can build various structures. He has developed rigid-flat-foldable discs and cylinders by introducing bi-directionally flat-foldable planar quadrilateral meshes resulting in 3D structures that can be flat folded in two possible ways.

4. A Model Proposal: A Design Of A Deployable Space A Wearable Architecture

This deployable architecture is been designed as a backpack, because of easy transportation and deployability. The scope of this article, "according to daily seasonal event bag for slicker turn into, a place where users can use as a shelter. While this design is its function of the bag must not be ignored, the bag becomes the place also bags feature compromise. Because of this, the venue will be transformed into parts bags with separate sections of the way people think, was conceived. (Fig. 7)
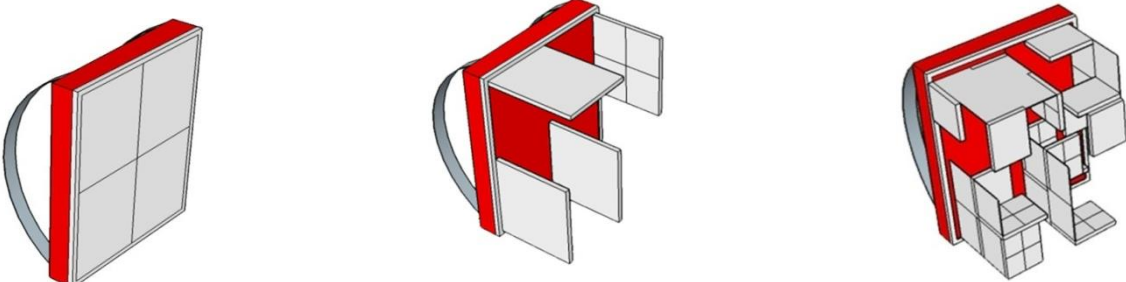
Figure 7: Design process of wearable module

The case will become part of the place is designed on the exterior of the bag. Where indicated with red bag part. The case turned into the place for the opening of the squares on the surface one by one. In this design was already used in the art of origami. Origami crane, a person on the basis of the size of the venue, a bag to protect the surface of much of the space. When even smaller squares of four square.
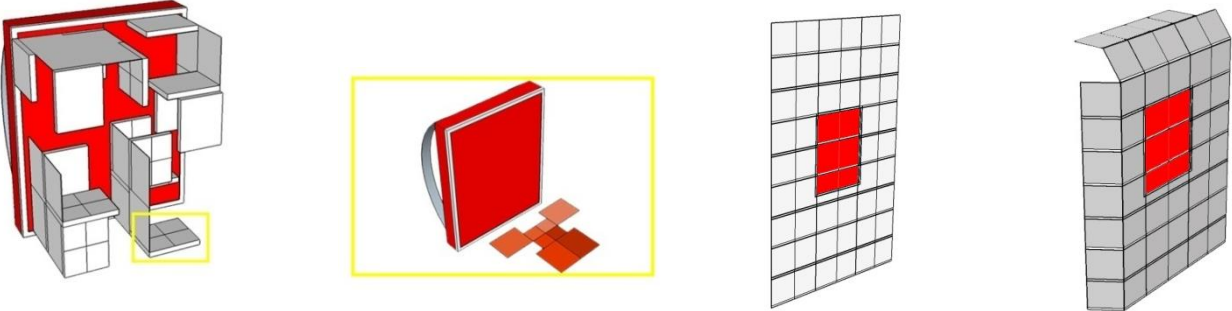
Figure 8: Folding systems of the module

The small square is all interested in a large square. Because of this, when all the squares individually reach a size that will protect the body, creates the place. As shown in the diagram squares end with the help of origami. Design that is another important subject material, the material pliable, bendy, the shape field and must be watertight. In this design the bag and raincoat material polyethylene fabric with the help of the merged paper hinges to each other. So that should be used when announcing the bag continues to perform its function. It also created space within the bag. In this way, the bag and inside the bag is protected from events targeted at natural stuff. (Fig. 8)
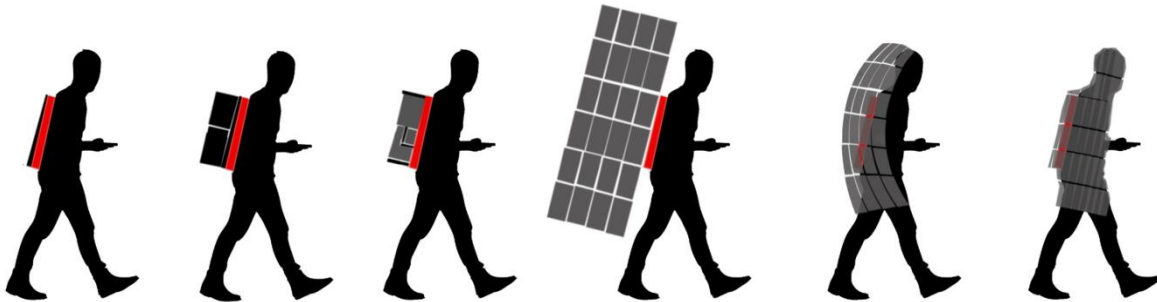
Figure 9: Usage of the module

The disclosures are more clearly illustrated here. The compartment used for the space bag function shown in red. The black part we see in the first diagram is covered in the raincoat. In other diagrams, it was tried to explain the opening of the squares as a draft. The small squares of the big squares are shown and how the big squares are opened. Since the design can be opened in all directions, the mechanism on the back does not prevent the protection of the upper body. The design folds upwards and protects the neck and head. When all the squares are opened and then protected, they cover and cover here. In this way, it creates the intended space. The use of the design, which was also considered in the last diagram, was shown. (Fig. 9) In this application, it is important that the design is fully foldable. The reason for this is that the design should be kept in a good way and it is a design that will be used only in the moments of need.

Grasshopper was designed with the help of surfaces. At the same time to ensure the format of the grammar that can be folded is taking advantage of (Stiny Gips, 1972). This grammar is the product of the deployable count a variety of design rule predicts. In many applications, it is important that structures are completely foldable. For example, if they need to be stored in an efficient way. Symmetric reverse folds are always completely foldable while asymmetric folds, with different beta angles, generally are not. For a reverse fold structure to be foldable certain requirements need to be fulfilled. Through experiments, it has been discovered that if the longitudinal folds have the same angle from the bisectrix and if the dimensions of folds are placed on different sides of the bisectrix the structure is completely foldable. .A design for which a variety of rules were envisaged was made in the identification of a positioned product. The last time and the developing technology will affect these two art branches in the future as well as in the future. With the development of technology, designs that cannot be anticipated to be made have been made or even applied. The main reason for the technical transition in fashion design is to maximize the functionality and performance of the garment and, in some places, offer the user more independently. The effect of architecture on fashion becomes more evident in the development of technology. This effect is clearly seen in terms of material. Therefore, the development of technology will no doubt continue to affect the two disciplines. It is foreseen that the developing technology and this technology will affect and develop these two disciplines and not only the weather conditions of a particular region but also the designs that can adapt to each climate, every country, and every vegetation. This model proposal will be applied as a physical fabrication with the details of the structure.

5. Result

Architecture and fashion disciplines all share the common methods of design. While some designers consider architecture and fashion as two holistic disciplines because of their design approaches and styles, some designers have ideas that they are only inspired by each other. Regardless of the point of view, the architecture observed in

each design approach is also used in many of the basic design elements in fashion during the design phase. The discipline basic design diğer used in the visual arts and other branches of art is interdisciplinary and covers other disciplines. Dot, line, stain, light and color, rhythm and motion, matter and structure, weight and mass, space and space are the plastic form values. Basic design elements used in architecture; spot, line, direction, volume, format, shape, space, measure, ratio, spacing, texture, color, motion, light, shadow, rhythm and repeat, convenience and contrast, balance, unity etc. basic design principles that are frequently used in fashion design; composition, similarity, balance, orientation, proportion-proportion, symmetry, line-gold ratio, draft and sketch; contrast, color, contrast, form; organic and inorganic approaches etc. the same principles used in architecture.

The use of such qualities and quantities in architecture and fashion makes these disciplines more attractive, catchy and qualified. Thanks to the increase in communication between fashion and architecture, a conscious fashion audience is interested in the architecture. This communication between fashion and architecture reveals the existence of different, unique designs, and demonstrates the positive approaches in the results of interdisciplinary interaction. The areas of fashion and architecture are influenced by social, cultural, economic, political, historical and technological factors and affect the process of creativity. It is possible to see these effects in terms of architecture and fashion throughout history, especially with shapes, patterns, forms, and decorations.

Based on the human and human measurements in both disciplines, the material is brought into three dimensions and constructed on the body to form structural structures. The primary objective for both fashion and architecture; Although shelter instinct is to protect and cover the body, scientific, artistic and aesthetic associations emerged with the developing technologies and methods. Both disciplines affect each other and reveal different and interesting designs.

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PERFORMATIVE ARCHITECTURE: A CASE STUDY ON DESIGNING A SPACE FOR AN ARTISTIC PERFORMANCE

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Abstract

The concept of performance is a way of thinking which is used in many fields. While in architecture, performative architecture is addressed through approaches such as performance-based design, in art it is addressed through as performance art. The art of performance is alive and artistic and can be seen in dance, theater, and the art of placement (installation). In the performance-based design approach, dance, one of the performance arts mentioned, will be discussed in the scope of this paper. The reason for this is that in dance, the body is constantly in motion and in constant contact with space. This relationship between dance and space leads to the question that "Is it possible to have a space that directs the body choreographically?" In the context of this question, the body and body movements are subjects which the disciplines of architecture and dance have discussed for many years. Each movement has its own unique dynamic; with the succession of these movements, the art of dance, which is in constant motion, comes into being. The relationship between performance art of dance and performative architecture has been examined through researches on the use of space in dance, body-space relationships, and examples on dance and choreography.

This study is grouped under three main headings: First, in order to understand the relationship between body and space, studies of the nature of the body throughout history has been examined. Moreover, answers were searched for important questions such as what the body meant for dance and architecture, its place in the dance-body relationship. Also the kind of bond that would be formed among body, space, and dance if the traditional alignment of dance-body, architecture-space were to collapse. In the context of these relations, how the concept of choreography emerged as a result of the interaction of the body with space in the historical process, and how it is shaped today has been evaluated with examples. In addition, the way dance evolves parallel to the development of the notions of choreography and social changes along with how these processes reveal the need for space was investigated. In line with the principles of designing performative space, guided by the connection among performance, space, and architecture, the link of choreography and performance with space, their bond between themselves, and their constructs were analyzed. In addition to examining how choreography manages the space, its evolution in the historical process and how it adapts the space to its needs, the guidance of space in relation to the evolution of dance, theater, and installations were also reviewed. These interconnections were scrutinized under two main topics: the transformation of the choreography into space, and the incorporation of the body into space's choreography. This type of formation first examines the examples that choreography turned into space and reaches the performative place, which is the type of design that space encompasses itself. In these spaces, how space activates, directs, and creates choreographies for the body are examined. The ways of creating a performative space and its shaping under the "performative architecture" approach were inspected. In the final phase, using the results of the research, the performative space, which mobilized the body in the context of the performative architecture and performed a dance performance by choreographing it, was designed. It is explored how this performative space can evolve along with technological developments in the direction of the future of architecture. With these new approaches, space is not taken as a ground; it is taken as something that co-exists with the body, adapting itself to the body, and adapting the body to itself.

Keywords: Performative architecture; Choreography; Body; Space; Dance

1.Introduction

Since the history of architecture, the interaction of the body with space has been the subject of many architects and choreographers. Vitruvius wrote the first written document, *"The Ten Books on Architecture."* .Vitruvius said that he has developed guidelines for the immortality of his architectural works and that these rules were based on proportions of the body (B.C 25). Vitruvius has been inspired by many architects with this work, still continues to be. Leonardo da Vinci's *"golden ratio"* diagram, again takes its inspiration from the human body (1490). After Vitruvius's works, by making the Vitruvian man, Da Vinci is still a guide to us today and has shed light on the relationship between body proportions and body-space. Moreover, the concept of *"Modulor"* by Le Corbusier has been inspired by the human body. There, the body has been used as a design tool. In addition to the relationship between the body and architecture, these studies have enabled better knowledge, usage, and management of the body. In the body itself, a partitioned system was formed. In these studies, the body is considered a standard in the relationship between body and architecture. However, the body is not standard; it is always in motion, does not repeat, and unpredictable. Therefore, the concept of space is dissected into two according to its relationship with the body. The first one is the space that the body creates and governs; the other is the body directed by the space, formed by the direction of the place. Within the scope of this study, it was aimed to design a space where space

will govern and direct the body and oriented to it. The space mentioned will lead us to the discourse of performative architecture. Bernard Tschumi, studying the relationship between body-space and performing architecture, advances the theory that when the body has involved the concept of a space associated with action and movement, contrary to an inactive architecture advocated in previous studies, challenges the traditional concept of an objectified, standardized body. (Tschumi, 1994). Tschumi says: *"Architecture is about the movement of the body and the activation of space."* (Khan, Hannah, 2008). In other words, the body and space cannot be thought of separately. Just as the body would be undefined without space, so would be the space without the body.

Many disciplines are questioning the place in which the body experiences its movement. As in architecture, dance is a discipline that takes body and body movements into focus. Dance is thought to be the discipline that is triggered the most with bodily movements and choreography, while also being the discipline that experiences the place to the utmost extent. Because dance is one of the disciplines in which the body is most active. In dance, each movement has its own dynamics, and while dancing, the body is in motion. In this way, dance enables the body to experience many different movements, to discover the boundaries of the body, and to experience it in the consciousness of the space. Establishes relationships with space through geometric shapes and forms created by body movements. In architectural design, a space without a body and body without space cannot be considered. Dance has been associated with architecture as a discipline that complements these two elements. In this way, it is aimed to bring a different approach to the body-space experience by allowing the dance to experience the body outside the way of understanding the space. For this reason, the space that will be created within the scope of this study will be discussed through the dance discipline. Thus, in architectural design, body awareness will be created through dance. As Brown said, both dance and architecture are practices of space. The place is experiential. While space is experienced through dance choreography, in architecture life is created in form (Brown, 2003). Dance and architecture are very different disciplines, but at the same time they have common points with each other, and from those points of contact emerges a whole new discipline. In this context, the question *"What kind of relationship does the body have between its place in architecture and its place in the dance?"* comes to the mind. *"How can we establish a relationship between body, dance, and space?"* Along with these questions, the relationship between dance, space, and body alongside the connection of the body in architecture are examined besides the points that these relationships lead. Laban's "*Labanotation*" and choreography studies will be examined on paper, helping to further our understanding of the relationship between dance and architecture.

The concept of dance choreography is the form of self-expression of the body shaped around it. Performance is the meaning produced by physical practices in the most general sense. The place that choreography needs and defines is different from the place which performance will define. The spaces formed by these concepts will be examined under these headings: the space created by the performance design of choreography and the performative space established by the performance design of space. Firstly, examples of studies in which body movement and choreography are transformed into an architectural expression will be given. In the third part of the section titled performative space, a similar reading will be carried out through examples of places that activate the body. The ways in which the places created by performance affect body movement and choreography will be discussed. In conclusion, the contexts of choreography and architecture, which are the subjects of the following part, will be examined through the concepts of body and space. In each section, the study will be examined on points where it has a related, similar, or equivalent meaning in architecture.

2. Body and Space

In architecture, place defines the body just as the body defines the place. In the words of Gümüştaş, there is no meaning in which the place is conveyed. The body is undefined without space (Gümüştaş, 2015). For Ponty, the body is a being that exists in a system of exchange with its environment. The relationship of space with the body and vice versa has a motion that complements each other and at the same time allows them to separate in a sense.

This means that the architectural space and the human body cannot be considered apart from each other. Space exists with the body and the body with space. Merleau-Ponty said, *"The human body is graveled at things so that we can reach their truth... We have access to every other creature except us only through our bodies..."* (2005) in his words, he describes the inseparable relationship between space and the body. The experience of space depends not only on the qualities of the elements that make up space but also on the behaviors and actions of the experienced body against these qualities. Because the body that perceives the space has the potential to transform the space with its behaviors; it has the potential to mobilize the body with its qualities in the space that perceives the body. Dance performance also defines the body. Without the body, the place and the dance become undefined. In other words, the body is considered as having a leading role in architecture and dance. For both disciplines, the body is

not just what is experienced; it is also the one that experiences it. The place is where the body exists in architecture and dance, where it is understood, where the body belongs and is involved. According to Vitruvius, using the proportions in the human body is the method of designing an immortal and perfect building. In the Renaissance, when space and the body-space relationship began to be questioned more, Leonardo da Vinci created the Vitruvian Man by reinterpreting the work of Vitruvian Man and said that it was an analogy to the functioning of the universe refers to Golden Ratio. The harmony between the subjective order of the body and the objective, mathematical and compulsory natural order has been proven. The relationship between the body and space with the Vitruvian Man has proved to be more questioned, studied and reflected in the design of the body proportions.

When we look at the discourse of modern architecture in the 20th century and later, in relation to technological developments and standard and serial production, architecture dictates how the user should live in a structured environment. The modernists' human model is composed of a body that is universally qualified, possesses similar emotions, us and senses, which is designed, altered, and can be quantified physically, divided into parts and defined by certain forces (Dervişoğlu, 2008). A new rate has emerged along with the 20th century Le Corbusier's grid unit called modular; a system module was developed using the Golden Ratio and Human Dimensions. Claims to be a new norm in spatial design and construction practice. The aim is to seek a standard in architecture. The aim of this study is to create a space that rejects a standard space, establishes a relationship with the body, directs the body of the space, stretches the fluid and boundaries, adapts to the movements of the body. Therefore, the Modulor Man of Le Corbusier will not be taken as a guide. Unlike the Modular Man, the body will be taken as a guide that expresses itself, that exists and exists, that perceives and moves, that interacts with space, that adapts to space, that adapts to space itself. Direk directly expresses: *"The mechanism of the body forces it to take a position in the face of its tasks, and every movement of the body is aimed at an object and directed to a point other than itself. The subject forms the environment surrounding itself through movement"* (2003). Considering the relationship of dance with the body, dance is the way the body expresses itself. Dance is either directed by the body or mind. It is the art of self-expression of the body that forms, directs, mobilizes the body. From the time when the human body was aware, it has come to our day by becoming unconsciously, later becoming art and taking on different styles. From the transformation into art, it is a discipline that is affected by social events, as in architecture, and that changes according to the period in which it is present. Throughout history, architecture has been influenced by dance and dance has been influenced by architecture. As a result, dance is influenced by social events, and the types of dances vary according to the country, traditions, and culture in which it emerges. Different types of dances have emerged from the different uses of the body, movements, speed, and mimics. Some dance types use upper body arm, waist and head in the foreground while some dance types have feet in the foreground. The way the body is used in dance gives direction to the place. For example, the space that is formed while dancing by the use of the upper body in the framework of the rules with slow movements is different from the one created by improvised dancing with fast movements. Besides the importance of the use of the body and movements, in some dance types dress and posture supersedes qualities such as performance. According to the qualities in the forefront, space formation and its use and needs vary. As we can see, the use of the body, speed, rules, posture, dress, and similar features while dancing affects the place that the body creates. The ballet, which has a starting characteristic in the history of dance, has been a guide for the types of dance that will be revealed later. The classical ballet, which began as a royal dance of noble people, then evolved into contemporary ballet. The rules are important in two types of ballet. The movements are predictable and clear, and cannot be excluded from the rules. The most important difference between classical ballet and contemporary ballet is that classical ballet attaches importance to dress and posture and puts the dance movements back into the background, while the dance movements and performance for contemporary ballet are at the foreground. Although these qualities are the same type of dance, they change the space and spatial needs. Ballet prescriptive and cannot be changed, although the organic and unpredictable, a type of dance is not repetitive, consisting of spontaneous movements, occurs. This dance type, which is the opposite of ballet, has undergone changes in the places it needs. Since the body is free from the rules, dance movements have been more improvisation and flow. Laban's theories, which examined the boundaries of the body and analyzed the relationship between body, dance, and space, led us by this new type of dance, have been important both in architecture and in dance. Laban's work on the movement is divided into two topics. The notations of the movement are collected under the heading *"Choreutics"* and also known as Labanotation. The second title, known as Laban motion analysis, is *"Eukinetics"*. As Chromatics deals with exactly what the movement is, Eukinetics deals with how the movement is made. Eukinetics has four subtitles: body, effort, space, and form (Mordeniz, 2011). According to Laban, the movements of human limbs are congruent when they are towards the corners of a 12-pointed crystal called "Icosahedron" (Laban, 1975). The concept of space that Laban defines is the relationship between the body and the body with all kinds of things. Inspired by the structure of the body, that is, it is clearly

expressed by the symbols that define the movement and its recording, and the direction graphs that are required in the movement. A symbol determines the part of the body that performs the movement with its position, shape, the direction of the movement, detail, line, length, and the duration of the movement. Basically, it consists of three basic vertical lines. The central line separates the right side of the body from the left side, just like the backbone. The second line separates the upper body from the lower body. The third line divides the shoulder line into two; it divides the body into two, front and rear (Ersöz, 2012) Choreography is first shaped on paper, as architects work on paper before space is formed. In Laban's work, contrary to what was done previously, nor the body neither space was tried to match with each other. The body and space are considered as a whole and directed to be adapted to each other. For this reason, it has been a guide to the field of architecture in order to understand the relationship between body-space. As we can see in Laban's studies, choreography has become a more focused concept. With these studies, the first stage of the organically developed dances began to replace the dances created with choreography.

Unlike the choreography concept, it is possible to define the concept of *"performance"* as the meaning produced by bodily practices in the most general sense (Güner, 2012). The concept of performance art corresponds mainly to the artistic works that are realized live and instantaneously. Art from the position of the object, the actual moment of being witnessed, the body has been involved, the interaction of the body-space has increased. As Duru said, the audience did not know when and how it was produced but made a transition from an art form to a new form of witnessing production every moment. The artist has gained value by melting the boundary between the audience and interaction (2015). With the evolution of the concept of performance, there have been changes in the architecture understanding, in the way it deals with space, according to the type and needs of performance. Starting with mythological plays in Ancient Greece, from dada to surrealism, from there to happenings, from the theatrical work at Bauhaus School to the modern performing arts, performance arts have used increasingly changing and differentiating venues. In Ancient Greece, for example, performances were displayed in amphitheaters, while today, contemporary performance art has changed the need for space and other types of performance art, such as installation, other than dance and theater. Outside the theatre and dance context; as a result of the concept of performative turning, all actions in daily life are considered to be performance. In the words of Dirksmeier and Helbrecht, although the act was previously understood in a theatrical order, social life began to be studied as the scene of the action without the need for drama or Comedy needed by the theatre (2008).

Today, with new approaches to performance, space is not like a ground on which events take place, but like space on which events take place. In Duru's words, both the designer is concerned with the *"performance design"* and also with the *"design performance"* of the space, which is concerned with the organization of the body relations and orientations (Duru, 2015). These two design methods lead us to the relationship between choreography and performance concepts with architecture. Considering the concept of choreography, the transformation of choreography into space becomes performance design; by creating a choreography of space, the body orientation becomes design performance. It is aimed that the product which is intended to be produced within the scope of this paper shall be under the heading design performance. These meanings of performance lead us to so-called *"performative architecture"* in architecture discipline. This new conceptual space in architecture: what is space, what it does, what potential of the relationship between the body and space, as well as the space experiments that are looking for answers to questions. As Duru said, performing bodies and spaces in the fields of art and architecture, which emerged with this new approach, set the balance between the two at the limits of their possibilities, unlike the physical space that is produced in everyday life. This means that interaction between the body and space can be monitored more visibly in performance examples, based on manipulating each other (2015).

The changing conditions in dance, architecture and body relationship with modern architecture affect the types of dance, as well as the changing types of architecture with modern architecture, has been adapted to the changing types of dance. The modernistic ideas of Bauhaus School, one of the results of the modern architectural steps, have been effective not only in the field of architecture but also in the dance. In architecture, it is important to go to simplicity and to the more functional one, and in dance, the responses to classical ballet started to emerge and the steps of modern dance began to be taken. The relationship between dance and architecture, with the transition to modern architecture and modern dance, changes have been made in stage designs. Walter Gropius, one of Bauhaus founders, explains the relationship between the stage and the architectural structure as follows: *"The stage is connected with the art of the building and the orchestra in a unity; both are exchanging with each other. Just as all elements in a structure give up their own selves for the sake of the integrity of the work, many artistic problems in the stage work come together towards a higher unity than themselves. The stage originates from a metaphysical longing in its essence, which serves to transform a sensuous "idea" into a form for the senses. The power of the influence of the audience and the listener on the spirit depends on the transformation of the "idea" into a visual and auditory sensory elongation."* (Candan, 2003).
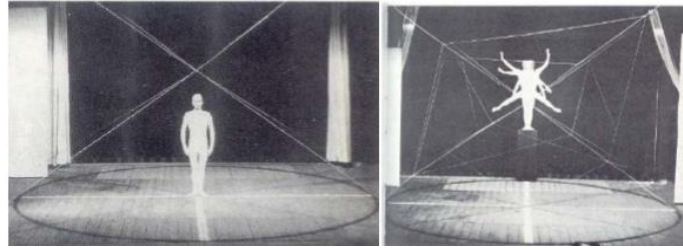
Figure 2.1: Schlemmer's body space dialectics (Schlemmer, 1961).

In Bauhaus School, the stage experiments by Oscar Schlemmer have brought sound to the modern art world. Schlemmer calls the scene space and describes this space as cubic. It aims to capture space-body dialectics in cubic stage space, to form, color, space triplets, to cover the sphere, cube, and cone in geometry with height, depth and width dimensions of the stage (Figure 2.1). In this way, the actor can be an element of the *"dynamic spatial plastic"* expression described by Schlemmer on stage (Alpar, 2006).

In his study of creating a space that the body directs the space, Schlemmer considered the movement of the body as invisible networks and examined what kind of space they describe. These invisible networks are similar to Laban's Icosahedron work. In both studies, space is defined by the movements of the body, choreography. So the body shapes the space. In the study to be prepared as a result of the paper, it is aimed to achieve the opposite result. In other words, it is aimed to obtain a result product where the body will be directed by space.

Choreographer George Balanchine, the founder of the School of American Ballet, inspired the modern dance with his stepson contemporary ballet. He used the weight of the dancers and the instantaneous movement changes of the body movements on stage. Contrary to classical ballet, the conservative rules of ballet, the body is not fictional, instant movement, created by the stance and angles of the choreographed. His work can be considered as a source of inspiration for the choreographies that are intended to be created within the scope of this paper; the ruleless, instant, with the guidance of the space

3.Performative Space Design Principles

The choreography is the expression of dance on paper. Tells the relationship of dance movements with the place and other dancers. As in architecture, the design of dance movements starts on paper first and then transforms into performance. It is affected by space and affects the space. Sometimes when determining the smallest aspects of the motion; by drawing the broad lines of action in which variation can occur, it forms a boundary defined by a plan or choreography formed by choreography movements. Thus, buildings choreograph the space and the movements between people (Foster, 2011). As Susan Leigh Foster said; the purpose of this paper is to choreographically create dance movements. In order to reach such a place, we must first examine the structure of the body with choreographies. Therefore under this heading, examples of performance will be given in which the body movement becomes an architectural expression.

In architecture, space and forms are first created by the ratio of the limbs of the human body to each other, then the human body and space are created by the ratio of each other. Space is shaped according to the way the body experiences space. The boundaries are determined. Space is directing the body, and it is directed by the body. Space is the description of where to walk to the body, where to go, how to move, the boundaries of their movements. *"Can body movement create an architectural space?"* or *"Is it possible for an architectural formation created by the body during the choreography process?"* questions can be narrated (Birsöz, 2015).*"Do our daily movements choreograph us, or does the day organize our movements?"* (Foster, 2011). The question of whether the body directs us or is directed by the space is discussed within the context of the relationship between the body and space. In this section, the work of the choreographers and architects who examine how the body directs architecture, how it can form spaces and forms will be examined. The question of how a space surveyed will guide the body will first be reached by examining how the body will guide the body.

The Triadic Ballet developed by Oscar Schlemmer at Bauhaus School (Figure 3.1) it is designed considering that the body is a tool for space. The costume body shapes the body space. It is examined how the body constrained by the costume is allowed to choreographed and created by observing how it defines the places. The body is considered as an architectural object and space is directed to the body, the body is directed to the place, and the costume is directed to the body.
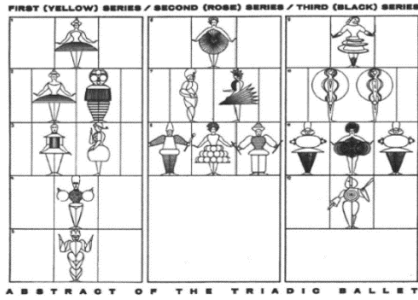
Figure 3.1 : Triadic Ballet sketches Schlemmer (1961)   Figure 3.2 : Space Dance (URL-3)   Figure 3.3: Silent Collisions (URL-4)
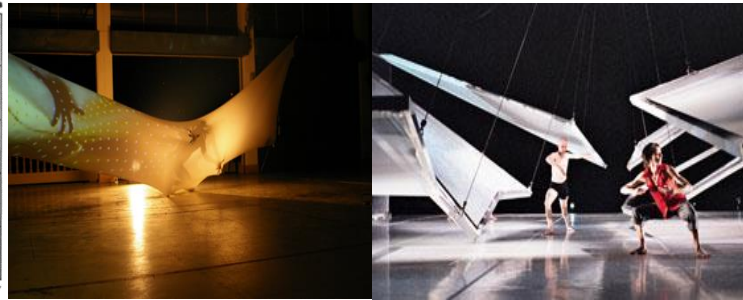
Body movements will always have limitations when choreographed. These limitations are guidelines that direct the place and the body and the relationship between the body and space. Schlemmer tried to force the limitations of the movement in the space with costumes. The person wearing these costumes had the opportunity to explore space boundaries with different movements (Alpar, 2006). In the resulting product of this paper, it is aimed to make these limitations of the space itself; to give direction to the body, to give shape to the body, and to create choreographies to it.

It can be used in other ways to transform the body into an architectural model. Without any add-on to the body, the movements that it is in its pure form space. From daily movements to dance choreographies, every movement of the body will define a different place. What is the difference between a moving body and space at the point where it intersects, and what are the boundaries between them and how do these boundaries change? (Birsöz, 2015).One example of the answer to this question; butoh dancer Tetsuro Fukuhara's *"space dance"* work. Fukuhara uses a flexible textile material that allows movement to appear and transforms the movement into space within the textile material (Fig. 3.2). Space, body, and motion are experienced in one another. Flexible material helps the body to format space. As the body moves, the space moves. It will disappear on the move. It is always in motion; again and unpredictably. The body becomes an architectural body, the structure of textile material, volume, height. On the other hand, he explains his relationship with the Fukuhara dance venue: *"I don't have to create the energy myself. It exists in my relationship with the environment. The energy is related to the relationship between body and space. Butoh dance is about how you manage energy with your body, not how some Western dancers create energy and then use it until it's gone. I am constantly filled with energy. I take this energy from the physical environment, from the ground, from the surfaces..."* (Fukuhara, 2009).

Choreographer Frederic Flamand and architect Thom Mayne's Silent Collisions performance is another work which the body is associated with space through dance. In this study, 11 cities are represented in the book of Invisible Cities of Italo Calvino. The choreography is inspired by the dynamics and motion of the body. In this performance, choreographer and the architect directed the dancers in the venue on the stage. This is due to the movement of the kinetic space along with the movements of the dancer. The movement of the kinetic space is also directed to the dancer. Thus space and dancer interact with each other in this four-dimensional space with constant or kinetic levels, interspaces, inclined planes, and fluctuations.

Bernard Tschumi states that in the relationship between body and space, there must be a movement of the body to produce space: *"There is no non-program architecture, nor is there an "eventless" space. Time is available at the core of the event and program."* (Tschumi, 1990). The intersection of *"action"*, *"event"* and *"everyday life"* in a different and unexpected way gives designers a dynamic perspective but also defines a new architectural approach (Güleç, 2012).

4.Performative Space

In contrast to directing the body's space and shaping it, this topic will examine how space can direct the body, how space can create choreographies to the body, and how the architects and choreographers manage the space's body and activate it. Is it possible to have a place that activates the body? In general, the concept of space in scenes where body-oriented artistic performances are exhibited is present as game details, stage object and display element in the vicinity of the bodies. For this reason, the relationship between body and space can not go beyond the contact of objects with each other, which is wanted to be told to the audience and monitored to the audience.

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However, it is possible that the spatial data may influence the choreography and direct it (Birsöz, 2015). In the space to be created within the scope of the article, it is aimed to carry the characteristics of the body-Space relationship created in the scenes and which are inadequate, by incorporating the body more and more. Also, activate it and to comprehend it, to incorporate it into space and to adapt it to space, to direct its choreography, For this purpose, space will be searched for its corresponding features in the context of performative architecture. In order to fulfill the qualities of the performative space, the body and space must grasp each other. In this section, instances which space grasps sets in motion and directs the body in order to form a choreography were analyzed. The common subject of all examples is how the place can incorporate this body into its own choreography in the relationship between body and space. The bodies that will be worked in the context of this paper are non-professionals and not professional dancers. Non-professional bodies are thought to be more integrated into space within the scope of the study. Professional dancers are aware of their bodies and try to control choreography. However, since the body awareness of the non-professional bodies is less than those of the professionals, they leave themselves more in the direction of the choreography created by the space which causes them to experience the space more.

The increasing interest in performing arts in architecture, the formation of the performative architecture discourse, the architect and choreographs have brought together. William Forsythe has been a guide to many people working on this subject under the title of performative space. One of them is the *"Scattered Crowd"*, an installation designed for non-professional bodies. Two types of balloons were used: one transparent and the other white. While white balloons, filled with helium gas, rise to the ceiling of the room, transparent balloons remain on the floor because they are filled with oxygen gas (Fig. 4.1). Visitors are given two balloons and they are asked to leave the balloons anywhere in the room. Thus, space is created with balloons left by visitors with their own preferences. As a result of a production environment, space is filled with balloons of different people and a common production emerges. With the accumulation of balloons, the balloons understand all the bodies. The body and space integrate.

Figure 4.1: Scattered Crowd (URL-5)

Also, the *"Nowhere and Everywhere at the Same Time"* work designed by Forsythe is a choreography work with a different method. Forsythe positions the body between the pendulum moving with how many forces the center. Pendulum as an architectural object, the grid system has formed a space that is narrowed, stretched, narrowed and widened by hanging from the ceiling (Fig. 4.2). The bodies that move around and around these pendulums, which move at random from their oscillations, move according to space's ever-changing empty and full areas and experience the space. In the previous example, the control of the body movements provided by the balloon, in this study, the control of the body movements were achieved with Pendulum. Forsythe has established systems based on dynamic artistic performance by using different methods of activating and directing the body with space.

Figure 4.2: Nowhere and Everywhere at the Same Time (URL-6)

Figure 4.3: Floor of the forest (URL-7)

Figure 4.4: City of Abstract (URL-8)

Thus, even non-professional bodies can create a choreography performance can be mentioned. Forsythe continues the experimental choreography approach that he wants to create on stage by creating a choreographic environment. He believes in the experimentation that the random motions of those objects add to choreography (Birsöz, 2015).

Many choreographers and architects have worked to increase the awareness of non-professional bodies and to make them experience space. One of them is Trisha Brown, the choreographer. In the floor of the forest, she took on the fabric and cloth pieces hanging on the ropes and the bodies that were involved in the space, which were comprehended and integrated with them. (Figure 4.3), the body passes through the hanging fabric, ropes, and settles into them. In other words, the body is directed by the space, adapted to space and incorporated into space. Awareness of bodies is increased. Both the audience and the participants experience the space. In this study, where space is directed by the body, experiences and involves itself, space creates a choreography to the body. In this example, it is a performative architecture that corresponds to the orientation of the body, adaptation, and inclusion of the body.

Another study is the City of Abstract by Forsythe, which shed light on how the performative space can evolve in the future. In this study, with the help of technology, the movements of human bodies are distorted and reflected from behind. Another way of organizing the moving bodies in the choreographic environment was created (Spier, 2011). It has caused the body to organize and move in different ways. It has re-established the space experience by disrupting the habitual space. In this study, the transition from physical space to virtual space exemplifies how the performative space can be created beyond a physical space to create different experiences in the future.

As shown in the examples, space can decide how the body will use the space, how it will be involved, and how it will direct it. Space can govern it without imposing it on the body, by activating it and by adapting it to itself. There are many ways to do this, as the choreographers and architects in the examples do. This can be done on the scale of the city, special and smaller scales, directing and adapting the body can be created to manipulate the venue. In the works of the examples, the relationship between architecture and dance was established by professional dancers. The relationship of amateur bodies with space is designed not based on dance choreographies, but on the body's own choreographies. Within the scope of this study, it is aimed to bring a different approach to space design which is designed solely for the experience of professional dancers and which is not based on amateur bodies. This will be done by performing space design, which allows amateur bodies to experience space outside the perception of shape. It is aimed that amateur bodies perform choreographies with the guidance of performative space. In this way, the elements of the body and space, which are the focus of architecture, will be associated in different ways through dance, which is the discipline that is most closely associated with them.

5. A Model Proposal: A Choreographic Space Design

The fact that the body is in the lead role in architecture and the dance has made them into disciplines which, together with the reactions of the body, strike them out, rebel and adapt when the time comes. Within the scope of this study, a space that adapts to itself and includes the body will be designed within the boundaries of dance and space in this relationship of architecture and dance. There are two options for designing space. First, the body's movements and choreography create a type of space. This space is examined under the title of design performance; the other option is a space that moves the body, including itself and adapts it, forming choreographies to the body, which is studied under the title of performative space. The venue that is intended to be designed within the scope of this study is the type of venue that will create choreographies for the body by activating it: performative space (Fig. 5.1 &5.2). The bodies that will be discussed in the study will be non-professional dancers. Because until this time, the bodies that are taken into consideration over the dance are professional dancers. In order to bring a different approach to this, it is aimed to design a space where the amateur bodies can interact with space through dance. At the same time, studies have shown that professional dancers have more body awareness than amateurs. Therefore, to experience the space intended to be designed will make it difficult to adapt to space by trying to control their bodies rather than allow it to be guided. However, as non-professionals do not have experience, they are supposed to deliver their bodies to the directions of the place and be more involved and adaptable to the place. The aim of the performance-based space design to be performed in connection with performative architecture is to include and adapt the body to space at the maximum level. For this reason, the type of dance to be addressed for non-professional bodies will be modern dance. Ruleless, dynamic, with its unpredictability, the modern dance will define the performative space when it interacts with the non-professional bodies.
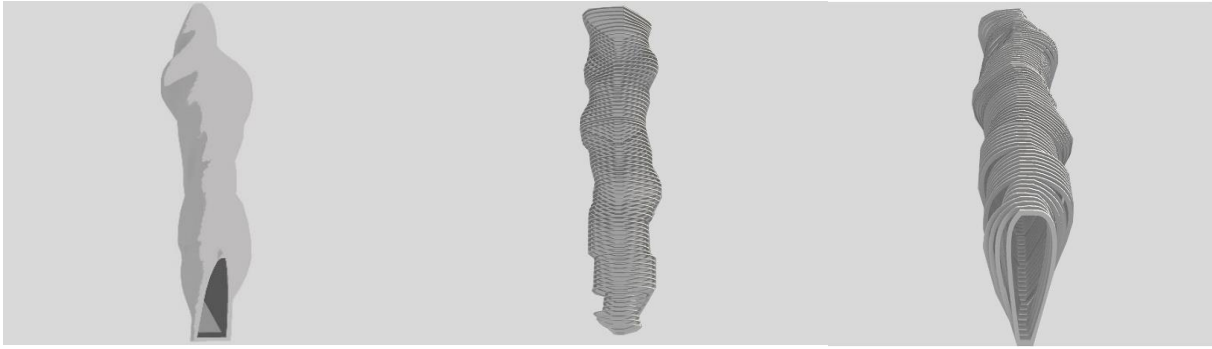
Figure 5.1: the Designing procedure of the choreography oriented space

In order to make it easier to adapt to space while the module is being produced, it is thought that the dance movements should be simple, understandable and fluently. Modern dance basic steps, which are simple and understandable movements, are studied as non-professionals of the user genre. Basic steps are the kind of moves that are made in everyday life that have become a dance. It's easy to understand and it's a movement that can be done by people who don't know how to dance. Therefore, performative mechanics, basic steps are created by combining a choreography. In this way, it is thought that everyone who will experience the space will be able to adapt to it by making the dance movements easily. First of all, the performative space module has been created by arranging dance movements in the digital environment. With technological developments, the possibilities provided by increased reality in the digital environment have made it possible to experience space in the space production process. In this way, the place was first produced in a digital environment and possible errors were eliminated before the physical production took place. In this context, the performative space was first produced in the digital environment. This production was made with the Grasshopper interface of Rhino, the parametric design tool. When manufacturing in the digital environment, the choreography was re-analyzed and different variations of choreography's conversion to form were tried. In this way, space was analyzed before it was physically produced. First of all, it has been determined that the place, which is produced as a whole by the kneeling of dance movements, is not fluent and understandable, but will also make physical production difficult.

Figure 5.2: Usage of the module that is designed dance driven space

For this reason, space is divided into an axis, easier to understand and fluent progression of choreography. This division in the physical environment" one-axis waffle structure " has found the equivalent. The "waffle" technique, which is a digital fabrication technique, has created a lightweight and durable structure and facilitated physical production. In this way, the equivalent of the performative space in the physical environment has become an easy-to-produce, understandable and fluid space. It is aimed that the individual surface that is manipulated is to be able to dance, to better perceive the place and to facilitate production.

6. Results and Conclusions

It is thought that a place that can teach dance in the near future, without the need for a choreographer or dance instructor, can be created in the context of this study when the future of architecture is given perspective. Today, human intelligence has become inadequate as expertise and speed. Innovations in the field of architecture such as artificial intelligence, machine learning; it is more practical, accurate and economical than man. It is thought that a dance teaching space can be produced dynamically in the context of machine learning. Problems of the non-

professional body with software to the machine is taught by designing algorithms of the machine to solve the problems that arise; it is thought that by adopting that space to the body, it will be able to design an adaptive, self-producing space. A machine like this has been taught in a car before. Project Dreamcatcher has its own nervous system, designed algorithms to solve problems that occur in the context of circumstances. Thus, it can produce instant solutions without the need for external intervention against new problems. It is thought that the use of this machine learning to design space for the human body will lead to the solution of body-space-focused problems. This learning creates a space that is shaped according to the body, dynamical, creating answers to the problems of the body, giving answers instantly; adapting to the body. It is thought that such learning can also be provided for space design by automating the creation process where it is needed. By this innovative method, it is thought that there will be an interactive architecture where the production design will accelerate, every possible solution will be found and space will be able to perceive and react.

In the context of the future of architecture and performative spatial design, machine learning and artificial intelligence usage in relation to performative architecture, a design that can be learned from space, has the capability to adapt to body's issues. Also, buildings are thought to have the possibility to be designed by machines without the need of any human or designer expertise. By associating with virtual architecture, it is thought that an interactive space design can be possible beyond physical space, through virtual reality, augmented reality and mixed reality, interacting with the body. In this case, the future of architecture means that humanless architecture is possible by developing artificial intelligence. For the developing industry of the dance, instructors are the most important branch of these disciplines. By applying this model to some installation or architectural spaces, instructors can be the only guide person to use these spaces with its needs.

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QUESTIONNING THE PHENOMENOLOGICAL UNDERSTANDING THROUGH ARCHITECTURAL SPACES

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Abstract

This paper focuses on the architectural phenomenology through questioning the existence. Senses throughout the experiences, present multisensory perceptual aspects of the human body, into architectural theory. From the user perspective, the sense of belonging to the space is not simply that of being able to orientate our self in surroundings, but has to do with a much deeper process of identification that means to be interacted with the context. Interpretation of any existence or thought is not presenting common answers. All the answers are questionable in this world if we exist. In a more concrete way to express, our body is transition in between the inside and context. Feeling within the senses acts like receiving the signals from the outside. We also want to reply. How? Art plays the role to reflect the instinct. Art is unique, art is individual… art is for touching the senses. Is it possible to say art is a timeless tool for communicating with the world? Or art is art at its time? Phenomenology is somewhere to clarify these questions. Is there clear answer? Much more curious beings all ways exist and act gives guidance to the World to be more aware and understandable. They compose, write, draw, sing or combine. And success to be bold or light, loud or silent. However, at the true time they reply the signals that were received from the outside. Man started to create from the very beginning of existence. And everything that human being did, call man- made. Architecture is man-made. Man, made something. What is in between the man and making something? This questionable space in between display the experience and existence. If architecture is man-made, that is the transition between the users and context as interrelation between the earth and sky. At this point, phenomenological understanding is presented in this study and abstracted through architecture. n this study, the individual perception of the user that is related with the hapticity is related with the architectural character. In this study, after the introduction that presents the topic, structure of the paper will be clarified by theoretical information. According to the definitions, a framework will be provided in order to evaluate the "Room Without Roof" as case study. This example is temporary accommodation unit constructed in Singapore and designed by HYLA Architects. Throughout the evaluation specific characteristics related with contexuality will be revealed within comparison as a summary.

Phenomenology, abstracted logic, , sensory experience, haptic architecture, architectural reflections

1. Introduction

Question, questionning, wondering, feeling and being in relation with the rest. What is the rest? Is only the things that we see around? Is it only seeing the things around? Is seeing the only sense to perceive the around? Only the senses are the tools to perceive the existence? Does experiencing the existence mean individual perception? What is individualitity? Is the time manner for being? Does new born baby recognize the rest as an old man?....

As humanbeings we are predicters. Where do we stand? Are we somewhere in between the earth and sky? We are standing on the earth, walking on the earth, seeing arond, smelling the soil and the air, hearing the voice of the water or living organisms and feeling the texture of everything that touches to our skin. However, we can predict that there are more and more that we can not experience in between the surface and nucleous or beyond the sky, the limitless universe

We are creations and creators. Who we are? Humanbeings, animals, plants, all living organizms. After the big bang, we used to accept the theory that World is a tiny piece of universe that presents life time for living organizms. According to researchers very long time before, "boom" happened and todays' existence began to occur. All organizms has interaction in between and these interactions led them to complete eachother by discovering. All we are in relation with each other and all we have common senses that intagrates the earth and the sky. On the other words, engagement of the giant magnet and limitlessness.

Combining, matching, interrelating and creating units by the elements. Is there technology behind everthing? Today's smart gadgets come to minds while defining the technology. However, when we rewind and melting the pieces it might be possible to accept very beginning of everything. The meeting of humanbeing or animals with natural shelters and attachment of themself by the context may define the growing of technological order.

German Arhitect, Ludwig Mies Van Der Rohe and German Philosopher Martin Heidegger asked questions, answered these questions, eliminated the World and interpretated the tiny pieces of the World. Main point is that during the life, trying to find out our place in space and if the life is presented to us in the World, giving answers by questionning the timeless experiences at the World through the frame (in between the birth and death)... In order to present the understanding of existence, phenemenology behind the philosophers, their commonalities, interpretations and differentiations will define the primary structure of this paper. In relation, the role of philosophers for the abstracted environment accepted as a tool and inspiration for architecture will define the abstracted logic through linguistic approaces and finally one of the recent examples "Room Without Roof" designed by HYLA Architects and situated at Singapore, acts as tree points at the end of this philosophical study.

2. Architectural Phenomenology

Phenomenology might be defined as the attempt to describe the relation of the subject with the objects of the world as a complex experiential and interpretative process. It attempts to lay bare or explicate the horizons of our consciousness, the mental process by which we actually live our lives. Inner horizons are the experiences, memories, desires, or concerns with which we confront or perceive the things of the world. Outer horizons define the larger context within which things appear and gain or modify their meanings. The ultimate goal of phenomenology is to achieve a greater philosophical understanding of the human condition; it constructs no models or norms for human existence but rather concerns itself in a concrete way with the lived world of human experience.

Phenomenology is formulated as the study of human consciousness that is to say, the various ways in which things present themselves as "appearances" within our everyday experience in the world. It was largely a Continental movement set up in opposition to the empirical and logical positivist traditions of Great Britain, but it also broke with earlier Continental thought in its rejection of metaphysics, which in the nineteenth century had dealt with the human condition largely through conceptual abstractions [1]. Husserl's "To the things themselves" demanded a return to the realm of phenomena or essences. According to the basic phenomenological notion of intentionality, our psychological relationship with the world is always a consciousness of something, awareness directed toward concrete people, objects, and related ideas. For philosophical purposes, however, phenomenology posits a reduction, or a placing of these appearances in brackets, by which process one suspends one's belief in and judgment of the reality of the world in order to examine phenomena free of suppositions.

Thus phenomenology might be defined as the attempt to describe the relation of the subject with the objects of the world as a complex experiential and interpretative process. It attempts to lay bare or explicate the horizons of our consciousness, the mental process by which we actually live our lives. Inner horizons are the experiences, memories, desires, or concerns with which we confront or perceive the things of the world. Outer horizons define the larger context within which things appear and gain or modify their meanings. The ultimate goal of phenomenology is to achieve a greater philosophical understanding of the human condition; it constructs no models or norms for human existence but rather concerns itself in a concrete way with the lived world of human experience.

Phenomenological thinking manifested itself in the postwar years first through the philosophical currents of existentialism, which generally dealt with ontological issues and themes of human alienation growing out of the war. Two individuals in the 1950s, however, gave phenomenology a very specific coloration with architectural implications: Maurice Merleau Ponty (1908–61) and Martin Heidegger (1889–1976).

Merleau Ponty's *Phenomenology of Perception* (1945) is a landmark work because of its emphasis on the prereflective, perceptual, spatial, and temporal world of everyday experience. The central theme is that the body is not a neutral, abstract entity positioned randomly within a three dimensional vacuum of space; it is rather an amorphous, kinesthetic, perceptual field that dwells in the present and through which we generate spatial and temporal relations a frontier which ordinary spatial relations do not cross and thereby define our lived presence in the world. The body determines what is interior (our self) and exterior (the world); it determines what is in front and what is behind; its orientation and motility determine how we experience certain sensations, such as those that occur as we move through a room. Moreover, the complex perceptual variables of this experiential field vary widely among people of different ages, cultures, training, and experience, thereby placing an emphasis on the qualitative aspects of these relations. Thus a generally abstract phrase such as "interpenetration of spaces" would have very little meaning from Merleau Ponty's point of view; it is too general and would only be intelligible after a rigorous phenomenological reflection on a specific experience or set of experiences. Merleau-Ponty's perceptual phenomenology (or phenomenology of the body) should be

distinguished from Gestalt psychological theory, such as that initiated by Max Wertheimer (1880–1943) and Wolfgang Kohler (1897– 1967). Gestalt theory, which seeks to be scientific, analyzes perceptual data in terms of structures (*Gestalten*) or visual wholes composed of parts. For instance, Gestalt psychologists might conduct experiments on how one perceives the space of a room as it is affected by elements of lighting, perspectives, or auditory qualities. The line between Gestalt psychology and phenomenology becomes blurred, however, in the work of Rudolf Arnheim (1904), beginning with his *Art and Visual Perception: A Psychology of the Creative Eye* (1974). His interest in visual organization with respect to works of art and architecture frequently took on a distinctly phenomenological cast, and his books were widely studied by students of architecture.

Phenomenology was also popularized in architectural circles through the later writings of Heidegger. This German philosopher completed his doctorate in 1913 and was beginning his teaching career at Freiburg University three years later when Husserl arrived to join the faculty. He worked closely with Husserl in the following period, during which he wrote his best-known study, *Being and Time*, published in 1927.

Although phenomenological in its impulse and overall approach, Heidegger in this book departed from Husserl's method in several respects chief of which was his hermeneutic orientation and his concern with the ontological issue of being. Yet Heidegger's analysis, for all of its scholarly erudition, is anything but classical in form, as he pursues a phenomenological account of *Dasein* (literally "being there") that is, the human entity thrown into a world of moods and situations, always projecting itself into the future while experiencing a multitude of everyday concerns. He thus brings the analytical tools of hermeneutics, which originally were used in the reading and interpretation of biblical texts but later came to be applied to law and history, into ontology in a search for an interpretative understanding of *Dasein* in its everyday life.

During the 1930s Heidegger began to shift his focus from being to such issues as art and technology, and his 1951 lecture "Building, Dwelling, Thinking" had a strong impact on architectural thought. The essay considers the hermeneutic or etymological associations of the word "building". The Old English and High German word for building, *buan*, means to dwell, to stay in one place, and it is related to the German *ich bin* (I am). Building, dwelling, and existing are thus related linguistic concepts. Similarly, the German word for space, *Raum* (related to the English "room"), originally was not synonymous with the abstraction "space" (of Latin derivation) but rather meant a clearing in a forest for living or dwelling. This fact underscores the concrete relations of "belonging to" or making one's place in the world and therefore becoming "at home"; by building our world, we at the same time construct our identities. Architecture, as this argument suggests, cannot be objectified into a set of abstract rational principles, such as utility, efficiency, economy, or functionality. It has more to do with constituting the world and giving meaning to our lives. Whereas phenomenology sought out meanings within our everyday existence, the linguistic movement of structural- ism considered meanings in more general and universal terms.

3. Existence and Bodily Experience

How we perceive bodies and spaces and how it is reliant upon the person experiencing it? Merleau Ponty's "phenomenology of perception" is a book that talks about senses and perception. Mainly concentrated on making the reader realize and understand about the thinking being as this body sheltered within a physical form, and the only way it perceives about how the external world is, is through this transfer of data, how we perceive the world, which in the end it acquires through to the real us. This put a huge weight on sensory experience but also a significant importance on the perception of information. We don't just process data as humans, but we are absorbed within each experience that is the physical world. We scheme into the physical world what we want to see and what we want to experience, we do not just understand and receive empty information, our perception is reliant upon us. We see what we choose to see. Human beings generate their personal perspectives on things, places and spaces. In real meaning there is nothing wrong with attribute to a particular resource of perception. We don't always have to go through a procedure for the data we receive, because we have a natural perceptive of surroundings and things like space and our connection within it. As Merleau Ponty believes, sensory experience could add a very motivating and fascinating element to design.

4. Linguistic Meaning

Merleau-Ponty hoped to show that language itself is merely derived from our lived experience and thereby to reverse the priority given to it in Heidegger's earlier analysis. As he describes it in the preface to his book:

To return to the things themselves is to return to that world which precedes knowledge, of which knowledge always speaks, and in relation to which every scientific schematization is an abstract and

derivative sign language, as is geography in relation to the countryside in which we have learnt beforehand what a forest, a prairie or a river is.

The American philosopher John Dewey, in the book *Art as Experience,* also used a similar formulation to explain his understanding of the work of art: *The epidermis is only in the most superficial wayan indication of where an organism ends and its environment begins. There are things inside the body that are foreign to it, and there are things outside of it that belong to it...*

Heidegger 1951"Poetically Man Dwells", he gives a further accounts of the importance of the history that is sediment within language: But where do we humans get our information about the nature of dwelling and poetry? Where does man generally get the claim to arrive at ' the nature of something?

It was the depth of meaning in the poetic image that held the key to Bachelard's interest, and he pursued this theme into the realm of architecture with his 1958 book *The Poetics of Space.*

Peter Zumthor has written in a recent collection of essays; "When I concentrate on a specific site or place for which I am going to design a building, if I try to plumb its depths, its form, its history; and its sensuous qualities, images of other places start to invade this process of precise observation: images of places that I know and that once impressed me, images of ordinary or special places that I carry with me as inner visions of specific moods and qualities; images of architectural situations, which emanate from the world of art, of films, theatre or literature" [2].

In 1960 an early warning was sounded against the limitations of functionalism in architecture, in the manifesto written by two German architects and published in the Berlin journal *Der Monat:*

"Architecture is a vital penetration of a multi-layered, mysterious, evolved and structured reality. Again and again it demands recognition of the genius loci out of which it grows. Architecture is no longer a two dimensional impression but is becoming experience of corporeal and spatial reality, achieved by walking around and entering into ... The subject- object relationship has been done away with ... Architecture is the enveloping and sheltering of the individual, and hence a fulfilment and a deepening".

Architectural detail shows a further influence of phenomenological thinking, as the expressive potential of a building's materiality is seen as enriching the experience of form and space. As Marco Frascari a former assistant of Scarpa's wrote on this theme:

"In architecture feeling a handrail, walking up steps or between walls, turning a comer and noting the sitting of a beam in a wall, are coordinated elements of visual and tactile sensations. The location of those details gives birth to the conventions that tie a meaning to a perception".

As a philosophical discipline, phenomenology is a well-defined approach to considering the phenomena of human consciousness or experience, and in more recent times, with the new scanning technologies directed to studying the brain, it has evolved into such esoteric realms as neurophenomenology that is, it has largely been fortified by the insights and discipline of the biological sciences. As an architectural term it has never been so precisely defined, yet it nevertheless offers architects something different as a critical perspective. If architectural theory over much of the last quarter of the twentieth century had been focused on politics, meaning, and the formalist composing of buildings, phenomenology returns the focus to the human experience that is, how we perceive or understand the built environment. In this way, as an approach to design, it is naturally aligned with a experiential point of view translatable into architectural terms [4].

The work of Steven Holl is an interesting case in point. In his early monograph, simply entitled *Anchoring* (1989), he evoked much of the language of phenomenological description without specifically using the word. He pleaded strongly for the interplay of a building's materiality with its site. The need for the architect was to consider selected materials in relation to local lighting conditions, historical memories, and characteristics of the site.

In the second volume of the monograph, published in 1996, Holl now spoke in explicit phenomenological terms by addressing architecture metaphorically as an "intertwining" of "structure, material, space, color, light, and shadow," of which the most suggestive is perhaps the "metaphysics of light" [5].

In between these two studies lay "Questions of Perception: Phenomenology of Architecture," a special edition of the Japanese journal *a + u* that Holl edited in 1994 along with Juhani Pallasmaa and Alberto Pérez-Gómez [6].

4.Architecture Through Senses

Holl was also one of the first architects to explore a phenomenological perspective in practice, as we find in his Chapel of St Ignatius on the campus of Seattle University, completed in 1997. In one of his early sketches for this project, a series of colored and twisted bottles with distinct overtones of Le Corbusier's Ronchamp are set within a masonry frame by representing an aspect of Catholic worship. The

idea is, in fact, carried out with a series of roofs with tinted clerestories, which sporadically splash the interior walls with episodes of colored light. The single space of the chapel is subdivided into smaller areas through highly articulated and textured ceiling planes, which gently bend over the differing width of the spaces (see figures 1-3).

Figure 1: Steven Holl, Chappel Sketches [7]

Figure 2: Steven Holl, Chappel Exterior [7]

Figure 3: Steven Holl, Chappel Interior. Engagement of Natural and
Artificial through the light [7]

In his addition to the Cranbrook Institute of Science (1998), Holl articulated the building's entrance (figure 4) with what he would call a "Light Laboratory," in essence, a sample board of different types of glazing: clear, reflective, bent, and translucent. These panes of glass again impress the interior surfaces with varying reflections, shadows, and textures over the course of the day.

He also likes to work with the experience of space. In his contemporary design for the Kiasma Museum of Contemporary Art in Helsinki (1998), Holl sought to "intertwine" two existing axes within the building: one axis, a line linking the site to Alvar Aalto's nearby Finlandia Hall; the other, defined by the site's relation to nearby Töölö Bay as contexuality. Holl used these imagined axes to structure a series of dramatically lit interior spaces in which pieces of the building's curved metal roof are sliced open to admit the geographically sparse, low Nordic light. This folding of a building upon itself, as promised in one of his sketches, is found in the building's top-lit central lobby space with its textured walls and curving ramp (figure 5).

Another architect whose work is often described as phenomenological is Peter Zumthor. He came to international prominence in the mid-1990s with two dramatic works: the exquisitely detailed Art Museum in Bregenz and his masterful paean to material and the senses, the Thermal Baths at Vals (Figure 6).

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Zumthor often describes his work in terms of sensations recollected from childhood, sensations involving primary experiences of smell, touch, and sound:

When I work on a design, I allow myself to be guided by images and moods that I remember and can relate to the kind of architecture I am looking for. Most of the images that come to mind originate from my subjective experience and are only rarely accompanied by a remembered architectural commentary. While I am designing I try to find out what these images mean so that I can learn how to create a wealth of visual forms and atmospheres [8].

Figure 4: Steven Holl Cranbrook Institute of Science entrance [7]

Figure 5 : Steven Holl, Kiasma Museum, curved axis and light [8]

Figure 6: Thermal Vals by Peter Zumpthor [9]

5.Hapticity

Thoughtful essay by Pérez-Gómez on "Meaning as Presence and Representation," emphasized architecture's essential metaphoric values. Holl followed a series of meditations on the "Phenomenal Zone" or the artistic impact of such things as spatiality, color, light, time, water, sound, hapticity, proportion, scale, and perception in design. In the essay "An Architecture of the Seven Senses," Pallasmaa emphasized architecture's more recent loss of plasticity, in his view largely the result of the way in which

contemporary architects privilege the visual over the other senses [9].

Every touching experience of architecture is multi-sensory; qualities of matter, space, and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle. Architecture involves seven realms of sensory experience that interact and infuse each other [10].

Not only does Pallasmaa underscore the fact that we touch, scent, hear, and viscerally feel the spaces that we inhabit, but also that we interpret them in terms of our own bodies: what he calls images of muscle and bone, and bodily identification. For Pallasmaa, as his later writings make explicit, buildings and their craftsman like acts of making are profound rites of a culture that shapes our connection to the world and our collective past, and the vehicles of their mediation are principally our perceptual experience and the memories they reignite in a neurological sense.

We measure buildings with our bodies in more ways than we generally imagine as he points out visual perception cannot be separated from tactile feelings. He also underscores how viscerally and somatically our emotions and feelings interact with and bring positive and negative values to our perceptual experience. In this way, perception is not just a form of thinking; it is the very act of thought. In the end, Pallasmaa lays out a psychological and physiological framework for architectural design that builds upon the earlier efforts of Richard Neutra and Steen Eiler Rasmussen [11].

6.Evaluation Regarding to the Case Study

Depending on the case study, that is "Room Without Roof", perspective through architectural phenomenology redefined within engagement of contexuality and existence by questioning the meaning. Interpretations about "being", it is more understandable that answers are questionable. Each of us has unique perception within experiences. The engagement of the body and soul is kind of re-interpretation of perception and experiences as the space in between the earth and sky. Accordingly, architecture is a kind of questionable answer that interprets the reflections. Regarding to the theory through hapticity, multisensory perception, architectural expressions can be evaluated in a concrete manner.

Room Without Roof

"Room Without Roof", (figure 7) acts as a concrete logic of architectural phenomenology behind the architecture. Inside and outside theme throughout the surfaces (figure 9) touch to the eyes by visualizing the nature by the skin. The abstraction blurs the distinction between the senses and existence. Surfaces present more than what we perceive. There is something behind, through and further.

What "through" abstracts? Are all these thoughts refer to hapticity? Is it tangible or intangible? From another perspective, is "intangible" in "tangible"?

Figure 7: Room without Roof, Exterior by HYLA
Architects [12]

Figure 8: Interior Perspectives of Roofless Room [12]

Figure 9: Grey Bricks of the Room, Playing with the light
[12]

Walking through by naked foot and looking to the patterns of shadows give "the sense". One of the most inspirable abstracted logic is that grey void bricks (figure8). They are combinations of units. The units combined elements. They are acting like bricks and they are voids. And they say, "yes we are grey, somewhere in between", "we are void bricks", " we are not same, if you do not perceive that we are playing with the sky…it is on the ground!" as a kind of linguistic meaning.

Throughout the senses, "Although architecture is often defined in terms of abstractions such as space, light and volume. The experience of architecture is tangible: the grain of wood, the veined surface of marble, the cold precision of steel, the textured pattern of brick". "Room Without Roof" presents the multisensory space to us in a concrete manner. The   surfaces acts as transitional elements as same as the synchronization in between the senses [13].

Considering the interpretation of the "Room Without Roof", while crossing a square, the texture and form of the grey bricks can be perceived actively while walking and the dimension of the geometry gives sense when sliding feet along its boundaries and passively the wind blowing through the streets adjacent to the square, which consequently informs user about the connection between the geometry and the surrounding environment.

7.Conclusion

Our bodies, minds, experiences, predictions and expectations redefined as creations within the senses. Without haptic sensibility to the World how it can be possible to question the answers? As the main distinction, architects play role to abstract the logic of existence. It brings, art, design, creation, representation, usage and integration with the context. In this study, many perspectives revealed, abstracted and questioned regarding to architectural phenomenology, existence and bodily experience, linguistic meaning, architecture through the senses and hapticity. According to the theory behind and perceptual reality, a perspective presented as a research study.

In this study, the "Room Without Roof" identified regarding to the soul of the building through the senses. It is possible   to clarify the designer approach, in dependence to the reflection to the character of the dwelling more than visual consideration. As it is mentioned in the literature, we do not only perceive the

environment with our eyes. Also, the skin of the materials, smell, temperature and the voice of the spaces are the parts of our individual perspective throughout the experience. In order to provide this multi-sensory point of view, architects play an important role to reflect the features of hapticity.

"Room Without Roof" questioned. However within the guidance of experienced readings of pioneers of philosophy and phenomenological architects, the new frame for analyzing the architecture through the users and context may be possible to win for our self, body and soul.

Acknowledgement

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EXPERİNCE OF SPACE, PLACE AND IDENTİTY AS CONCENTRİC ORGANİZATİON: THE ISLAND CİTY FAMAGUSTA

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Abstract

Many philosophers enhance the intimate correlation between space and body, an interdependence which comes forth also is more space oriented discourse, such as geography or architecture. According to Relph, space as a place we inhabit, gains the meaning by its spatial context with experience and the places are 'significant centers of our immediate experiences of the world'. (Relph, 1976) Islands are one of the exclusive geographical grounds for experiencing the 'center' which are figured out under the explicit condition of 'isolation'. They are physically independent from the continents while having active, transformative connections with others. The water is one of the major definitive elements on the identity formation of the islands which defines the boundaries while not standing as a barrier. Social, political and commercial relations act through the water throughout history. Especially, it is possible to see similar identification in the Mediterranean islands as a part of common history and culture. 'Being apart' from continents brought the necessity of 'protection' against the dangers which is reflected by military architecture as a physical presence. Walled cities mostly developed in the coastal cities as a man made boundary /protection layer beacuse of that necessity. And each walled city has centripetal organization which collects the city at the center with architectural spaces. (Such as squares and landmarks...etc.) Architecturally holding the city in a compact unit, at the same time provides holding the community to be 'together' as well. This kind of spatial organization relies on a multilayered, clustered formation and thereby effects the identification process. Each layer coexists, contains and supports other one while constitution the spatial entity. Famagusta is one of the coastal cities in the Mediterranean island of the Cyprus. It was chosen as a case study because of its multilayered explicit spatial organization which supports the experience of 'sense of place' and 'sense of community. The purpose of this study is analysing city by considering the 'sea' as a major identity constituting element of the island.The research explores the identity formation within the correlation between space and body. By way of analysis the research tries to comprehend the relation between space and its boundaries and understand their effects on experiences. It studies the identity features also in terms of a memory and experiences of everyday life. By understanding of such effects, the purpose is to provide awareness as to how body sense and collective memory can be used as potential of the 'sense of place'.

Key Words: Identity, body, islands, spatial organization, sense of place

1. Introduction

The space identity is the combination of variety of specific characteristic features which defines the place. Identity stands as an organic form while being very mass. It's not always physically visible while making someone or something belong to it. It has ability to contribute while it could be distributed. It has an important role on the transformation of architectural space to the dwelling places. It is strong evidence of history which links to the collective memory of everyday life.

Mortal human being need to be aware to be in the world with full of bodily and mentally experiences. This is an existential reality that could describe as dense vital experiences. The present and the past are different types of experiences which are connected with their transitional effects to each other. Experiences gained by using multisensory system. And the reactions occur by filtered of these experiences through the consciously, pre-consciously and subconsciously layers of mind. This system keeps the stimulate the awareness of 'being in the earth'. (Heidegger, 1971)

Famagusta Walled City was chosen as a field study which is the coastal and historical city in the Mediterranean island of Cyprus. The city depending on the identical features able to provides rich experiences. In this research, the identity of the city has been explored by its architectural tracks from different periods throughout the history. The research will try to figure out architectural elements by considering identical values that effects memory of everyday life. There are lots of people that worked on the specific titles, senses-experiences (Pallasma, Spindler, Damasio...etc), spaces/places (Tuan, Bachelard, Heidegger), sense of place/place attachment (Altman, Low, Lynne C. Manzo, Patrick Devine-Wright). However, the space identity as a result of the correlation between sense of place, multi-sensory experiences, spatial organization and their effects are the lack of study in literature.

Islands stand as an isolated form in terms of the geographical condition. However, islands should be considered with sea that surrounds them. They are physically independent to the continents while they have high strong connections with others. Mediterranean Islands like; Rhodes, Malta and Cyprus stands as a transition spaces.

This structure gives them multi-cultural dimension with their own unique identities. Famagusta contains lots of characteristic traces from different cultural and historical throughout the history.

The 'sense of place' has interconnected relation with the learning process of the place. The knowledge could gain by multi-sensory, individual and collective experiences and memory. Spatial organization has power to give direction to this learning process. Famagusta walled city has central organization, defined by several layers which highlighted by the very strong determinations. And each layer emphasizes the secondary. This kind of geometrical organizations which also has historical value provides strong identities and experiences to the people. The centers depending on their geometrical identity have collecting affect that represents 'togetherness'.

As a result space identity occurs by the composition of many layers. And the sense of place, experiences, memory, spatial organizations have important role at this composition. Famagusta walled city is the particular example to understand how this layers provides identical features on space.

1.1. Identity and Spatial organization: Islands as a Centre

An island defined at Oxford English Dictionary as an 'a piece of land surrounded by water'. Continents are also in same situation but their large extension distinct them from the islands. When a location is surrounded by deserts, water or mountains insularity is generally used for describing the physical conditions of it. On the other hand, the word of 'isolation' expresses as the description of absolute disconnection from the other places or people.

The word of the 'isolation' which is derived from the 'isle- a piece of land within sea', signifies the condition of 'being (al) one' while having enhanced awareness of its surroundings. This could be acceptable as an exclusive way of occupying space with a particular state of perception. Distinction seems as a major condition of isolation and this state of detachment at the same time indicates the sense of centering. (Öztürk, 2014) Sea can be an example that physically seen as distinctive natural element. It is used for describing a case based reflections of limitations on the way of living of a community, group of individuals or a person with limited connection or absolute disconnection from other groups with potential communication due to limitations of physical conditions.

The Word of "place" though the etymology arrived from Greek plateia (hodos) "broad (way)", from Old French place "place, spot" and directly from Medieval Latin placea "place" , from Latin platea " courtyard (open space), avenue". The geographically the place used since 1970 as a "location", then it emphasized into "a place – to dwell'' a place a home, later as a theory, called " genius loci" the spirit of place- 'gathering', 'thing', 'dwelling', 'being-in-the-world' and 'truth' as inspiration source to establish his unique perception of architecture. (Heidegger, 1962) Tuan noted that space could transform to the place depending on the knowledge gained by experiences. (Tuan, Y., 2001) People feel the sense of place through; 'experience-express-imagine-know the place in which they live'. Generally the Word of place accepted as a; 'location of a town city-neighborhood-house on the Earth's surface'. The place while including the locational elements, it also contains associations and feelings of unique spaces. (Qazimi, S., 2014)

As mentioned by Bourdieu's sociological work, the two main notions that establish links are the 'habitus' and the 'field'. The habitus is the formation of embodied configuration depending on the everyday social experiences; division of space and time, of object and actions, of gender and status. The habitus blend 'habit' and 'habitat' to form a sense of place and the sense of one's place in a social hierarchy (Dovey, K., 2010)

The experiences in space-place relations are not only effects on individual perception and existence. Those experiences abiliy to combine with collective experinces which also effect individual experiences and memory. The organizational memory production supported by the fusion of place and organizational cultural identity. The images, icons and structures which occurred by organizations decrease the complexity and amplify shared motivation and expectation that support to the organizations ability to 'construct memories.' (Gavin, D., 2015) Identity has strong relation with spatiality which could be explained that generic spaces act as sites for the performance of identity. (Vidra, A., 2014)

The importance of the center in terms of symbolic value, stands as an unitary human conditions that depend on dwelling necessity. It is tototally integrated with the feeling of home in a certain place as a force that holding it together. Human being is not the alone creatures, they always being-with-others. The centers could grasp all individuals and their senses however, centers belong to and supported by community. Actual center places provide collective experiece as a plural gathering in to a community. (Harries, K., 1997) During the interaction between human and built environment, the centers perform as an attracting and accumulating elements for the certain activities.

Centralized organization presents a maximum of compactness and it hints the hierarchy. Centrality accentuates the secondary spaces which surround it. The circle, the dome and the square of the structures are the most inherent characteristics of a centralized organization. (Meiss, P., 1990) The centers serving 'the social act' to space by its physical invitation to body. Bodies integrates with space to share emotions, getting experiences and

conduct with pre-experiences as remembering and produce news for future to remember which very effective in collective memory.

1.2. Mediterranean city of Famagusta: Sea as an Identification Element

Famagusta is coastal and historical city in Mediterranean which has rich identical features through the geographical, historical and cultural aspects. Several different cultures ruled the city of Famagusta throughout the history. The city had its development according to seven particular periods: the early periods (648–1192 AD — the foundation of the city); the Lusignan (1192–1489); the Venetian (1489–1571); the Ottoman (1571–1878); the British (1878–1960); 1960–1974; and the period after the war in 1974'. Therefore city helds variety of cultural identities and their heritages. Within this aspect, it provides opportunity to the visitors/citizens to have open air museum experience in their everyday life.

The relation between spaces and identity discussed on island identity on the article of 'Water and identity in the ancient Mediterranean' by Paola Ceccareli. She explained the impacts of sea on the identity with her statement 'the sea as a free space that can be attracted into discourse of power, control and identity. The Mediterranean as an inhabited, connected space, a space occupied by islands' (Ceccarelli, 2012). In the book 'Islands and Military Orders' beside the similarities of military orders it explains trading relations of Mediterrenean islands like Cyprus, Rhodos, Malta..etc. where the sea has important role that shape their cultural, social, political and economical conditions. According to historical documentations, the island of Cyprus, not only because of it's exclusive geografical location but also quilified products (such as cotton, sugar, olive oil, wine… etc) of the island make it important trading point throughtout the history. Being in the Mediterranean zone provides convenient climate to have these kind of productions.

The transition function of the sea provides connection between the continents. Therefore the physical conditions of the islands ceased their isolation form by connection. (Buttigieg, E., Phillips, S., 2016) According to Ceccareli the condition of 'being different' as a reflection of the identity of distinct form of islands reveals the positive effects. This distinction brings respect to others as a result of the high interaction. Broodbank mentioned with his statements '; 'It is just an interesting to see what people have made of islands as what islands have made of people'. The 'Being transition' is one of the identical properties of the islands. This characteristic feature does not bring the condition of 'the loss of identity'. Instead of that it provides diverse, rich, multi-cultural identification which is very productive at the formation on 'being unique' while improving their own identity. Lin Foxhall expressed that common themes and constraints can be seen in the Mediterranean landscapes because of their integration and shared historical connection. However, different cultures which consisted on diverse politics, society and space shaped their own identiy. Different landscapes are able to produce different ideologies (Foxhall, L., 2006). It provides powerful positive healing effects on community where the 'tolerance and empathy to the others' reveals under the ability on finding shared identical features from others while keeping own condense identity.

1.2.3. Memory, Experiences and Architecture

Human percieve the environment by having experiences in the space. Each sense provides different dimension of recognition and each one contributes the main essential value which is the existence. 'Being in the world' required vital awareness and connection which has direct releation with field and body. Depending on this approach architecture took the dominance by serving the 'dwelling' for individuals. Painting, sculpture and architectural places varies according to body experiences. The painting, picture or photograph generally experienced by standing in front of it. The sculptures provake bodies to change their position such as walking around them. The architecture is not only direct the position, it also provides body to enter it which means it gives more bodily integration and awareness than others. (Harries, K., 2000) Also it gives more deep learning process than other kind of art experiences. The major action of the 'dwelling' requires recognition and awareness which can be occur by multi-sensory experiences. The living quality according to existential reality of human being can be measured with the participation by the usage of multi-sensory experiences. Booth expresses it with his phrase; 'The participation is the only thing that provides fuller satisfaction to the individual's life' (Smith, K., 2012)

Architecture is not only physical organism it is also connected with memory, dream and past. According to Edward S Casey the capacity of memory depend on the body memory. People remind with their bodies equally as nervous system and brain. Architecture, contrary to the thought of primarily visual experience, it is powerful multi-sensory experience. The historical buildings are valuable examples that provide this kind of rich experiences. Their specific pattern which shows time and process of ages on their surface with their own colour, texture and also their specific smell provides multi-sensory experiences which link with memory directly. The serenity is the most fundamental hearing experience that created by architecture. The silence of architecture can mostly experience at historical buildings which enable people to understand the space. The primitive people used their bodies to understand proportions, measurements during their constructions. Body reminds and knows through muscular and tactile senses. Primordial knowledge passes through the genes and architectural knowledge

transferred and develops with in this way. Architecture within their materials expresses the identical features and that invite touching experience. (Pallasmaa, 2005)

Remembering the past events occurs in the conscious moment that express how memory works within the awareness. (Tulving, E., 1989) According to Pillimer (1998), the memory; express a certain event at precise time and place and includes remembers individual conditions. Architecture has an important role by directing the space organization, position and movement of bodies and experiences of events. Also Pillimer (1998) contributes that the events considered together with the verbal narrative and sensory images and the details or sensory images of memory correlates with moments of specific / phenomenal experiences and according to rememberer's belief, the memory is exact reflection of occurrence. (Mentis, H., M)

2. Case Study

2.1 Famagusta Walled City
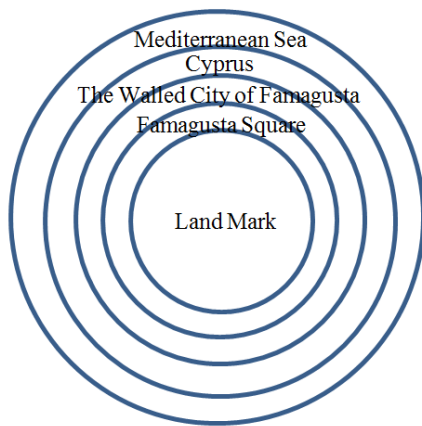
Fig. 1. (a)

Fig. 1. (b)

Fig. 1. (a) Central organizations, (b)Mediterranean Sea and the location of Cyprus
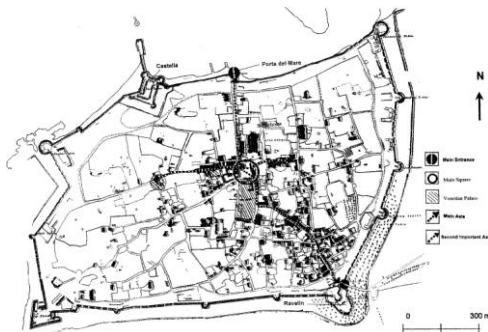
Fig.2 (a)

Fig.2 (b)

Fig.2. (a), Famagusta Walled City, (Önal, Ş., Dağlı, U., Doratlı, N., 1999). (b) Famagusta Walled City, Photograph taken from

http://www.cynum.org/old/famagusta.html.

After the Mediterranean Sea, walls which surround the city divide city from the rest of city scape. And the walled city stands as a distinct and entity which gets its identification within the physical form. The walls constructed during the medieval time and then rebuilt at Venetian time. Also some reparations occurred during the Ottoman and British period. The Sea Gate (Porta Del Mare) and the Land Gate (Porta di Limisso) are two gates of the walled city of Famagusta. The Sea Gate built in Venetian time and the new gates were subsequently opened at the sea side. There is Main Street which includes historic markets remains between the Land Gate and the Sea Gate. (Arkan, M., S., 2011) This organization has poetic definition that express the island 'transition' identity by having two openings; one's opening from city to sea or sea to city and another one; city to land, land to city. And social, collective activities (shopping, gathering, trading... etc.) of people occurred in between of them.

The walls are symbolically identifying the city by standing as a huge frame. They provide massive, powerful boundary that determine the old city while highlighting the centralization, the landmark and square. These walls define the city that gives direction to the movement that people can walk around it. The city is next to

the sea which connect it to wider area while having second boundary. The walls are higher than human scale and made by thick stones which present the power and protection. The natural materials give information about time, history, story of their origin and their human that used them. (Pallasmaa, 2005) Those Stones carries their own textures on them which highly stimulate the tactile experiences and memory. The Famagusta walled city provides multi-sensory experiences those riches 'the sense of place'. They provide information about time; durability and history which is awaken the sense of being in the world. This sense highly supported by its central organization. Observations show that walls are quite important for citizens in their daily life. Their routine walking tours take place at the route of the walls.

2.1.2 Centre of the Famagusta Walled City: Square (Piazza)

Fig. 3. (a)   Fig. 3. (b)
Fig. 3. (a), Namık Kemal Square, Famagusta Walled City, photograph taken from https://www.flickr.com/photos/du-ciel/14663707729. (b), Famagusta Walled City, (Önal, Ş., Dağlı, U., Doratlı, N., 1999)

The squares are the centers for the communities by serving convenient space for communal works in daily life. The center is symbolically significant by its integrated connection in human condition depending on their main necessity which is 'dwelling'. (Harries, K., 2000) Public squares support the social and local identity where collect citizens in common space for different reasons and events. Their symbolic meaning is 'coexistence'. Also they have special role to the expression of democracy in the cities. They provide equal accessibility for different social, cultural, economic variations which they have to respect each other. This integration contributes the city's identity, collective memory and provides healing effects on society depending on vested tolerance. (Memluk, M., Z., 2013). According to Langer, there are two original symbols of centre: 'space' and 'mass'. (Langer, S., 1953) In Namık Kemal Square, centre occurred by the existence of St. Nicholas Cathedral where the mass supports and reveals the space as a square. Namık Kemal Square holds cultural, political, social activities and events which collect people together in the defined boundary. The square has historically rich environments that provide it to have its own unique identity. There is St. Nicholas Cathedral and Venetial Palace in two opposite side of the square which is precisely defined the square. The square is mostly active in the day time. However, in the night time silent combines with historical monument and buildings and city transforms to the dark place which expresses the experience of uncanny. The memory already works in conscious moment within the addition of uncertainty, the effects of awareness sharply increases which is definitely productive. (Öztürk, M., 2010) The square surrounded by historical images and most of them provide haptic experiences which contribute the memory.

2.1.3 Dominant Landmark of the Famagusta Walled City

Fig. 4. (a)   Fig. 4. (b)   Fig. 4. (c)

Fig. 4. (a), (b), (c) are St Nicholas Cathedral / Lala Mustafa Pasa Mosque and Namık Kemal square, Famagusta Walled City. Fig. 4. (a), photograph taken from https://infinity-homes.se/galleri-norra-cypern. Fig. 4. (b), photograph taken from https://allansartworlds.sites.ucsc.edu/travel-writing-2/. Fig. 4. (c), photograph taken by Cansu Denizhan.

St. Nicholas Cathedral / Lala Mustafa Pasa Mosque is special example of the Medieval time which has been constructed (1298 and c. 1400) during the richest period of city. In northern France and the Rhineland, structure referred as 'The Daughter of Notre Dame of Reims', it is a spectacular symbol that presenting the wealth and prosperity with its all aesthetical quality. (Walsh, M., 2005) The landmarks because of their physical dominance, they provide knowledge to people that they are in the center which means they are in the safety and crowded zone. Also landmark helps to measure the distance by considering it as a reference point. It has centripetal effects that collect people. It is highest building in the walled city and it connects to square which give the sense of dominance, hierarchy and importance. It is religious building which emphasizes its significance and its effects of togetherness in community in a different term.

3. Conclusion

In conclusion, the study worked on the correlation between sense of place, spatial identity and memory by considering experiences and senses. By this study, the aim is provide explanation according to relation between spaces, boundaries in Famagusta walled city to understand their effects on experiences to the bodies. And detect powerful identities which have symbolic values that effects memory and experiences of everyday life. So within this understanding of those effects could provide awareness on memory to use its potentials on sense of place in collective memory of everyday life.

The research shows how 'being on the earth' can be concretized in architectural form. It allows arguing that a concentric spatial organization can strongly contribute to the experience of place. And the old city, with its place identities and historical values, is a convenient and exclusive place for these experiences. Mind can easily connects to the feeling of 'being in the earth' by extension to the past era which has healing effect on people. Famagusta is rich with spatial identification that occurs by variety of different cultural heritages. The walls, Namık Kemal Square and St. Nicholas Cathedral, are some of the most significant symbols that represent 'coexistence' and have ability to collect people in defined spaces. They are powerful symbols in the city that play important role in collective memory and place identity. They have productive effects on individuals and society by providing tolerance and empathy through the collective events. Depending on the spatial identity the walled city is a special place for community to feel 'togetherness'. And the togetherness provides the 'sense of protection' and this condition is parallel to humans natural status. Olds materials, buildings and elements encourage the haptic experiences. And within their own smell, sound, vision it give chance to have deep learning process by using multi-sensory system. The city able to provides different experiences to have 'The sense of the place'. This research provides detection of identification constituents which effects body, memory, experiences, sense of place in everyday life. By understanding their potentials and effects it could makes awareness to use them more efficiently than current time. And also comprehension of the city values can invite and stimulate the goverment and people to have more conservative and sensitive attention to those city identities.

Dwelling as a natural condition of the human existence occurs during the inseparable correlation between space and self (Heidegger, 1971). The knowledge of the environment arises out of multi-sensory experiences of the self/ body as a path of the recognition. Identity formation is operating within the concentration of spatial organization, which correlates with the body via experiences. The 'place' as an inhabited space, according to Relph (1976), gains meaning by its spatial context, where places are 'significant centers of our immediate experiences of the world'. Accordingly, the city of Famagusta offers, in analysis, a deeper understanding of 'place' in terms of a concentric structure with increasingly specific features, where the sense of boundaries, protection and focusing is supported by various 'layers'. Hence the sea can be considered as a major elemental definition of the island's identity as 'place'. Within this, the city, and the old city fortifications of Famagusta support the study and conceptualization of the effects of such concentric spatial organizations at various levels with respect to everyday experiences, memory and identity formation. Understanding of those effects, then, would provide awareness as to the potentials of the sense of place in collective memory of everyday life.

Islands are one of the exclusive geographical grounds for experiencing a 'center', as they present the explicit condition of 'isolation'. The surrounding sea acts as a definitive element for their identity: it defines boundaries without positing a barrier. It is possible to see how such spatial contexts points to similar identification in the Mediterranean islands as a part of common history and culture. The condition of 'being apart' from continents brought the necessity of 'protection' against intrusions reflected in military architecture as a physical presence – the walled cities. Each walled city has a centripetal organization whereby architectural space is collected towards a city center (such as square, landmark buildings, etc.). Architecturally holding the city in a compact unit, the center at the same time provides 'place' as holding the community 'together' as well. Hence the chosen case study allows discussing how this kind of spatial organization affords a multilayered formation effective in the identification processes, where each layer coexist and supports the others with explicit and tangible spatial clues, enhancing experiences of 'sense of place' and 'sense of community'.

As a result the research shows that space identity occurs through the correlation of body and space. And their relation links to the multi-sensory experiences, spatial organizations, memory and the sense of the place. They have inseparable relation that emphasizes the existential reality of human being. Architecture has force on

the movement of the body, multi-sensory experiences, social and individual memory and experiences. Being coastal city in the Mediterranean island connects city to wider cluster. The Famagusta walled city has its own unique identity through its particular development that expresses variety of experience. It can be accepted as a collective place depending on its spatial organization behind its silent, massive historical structure. The uncanny which occurred during the night time of the city increases the awareness of the mind and body to the environment and it is also kind of productive experience. There are dominant images and symbols which supports the identity of the city. This study reveals the potential of central organization by its healing effects on the community which could increase the peace and the 'sense of community' in the society. Also protecting and emphasizing symbols and features as a part of identity can support cultural, economic, political, social, mental conditions which are important for vital values of society and life quality.

Acknowledgements

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INDUSTRIAL BUILDINGS TRANSFORMED; THE IMPACT OF FORM AND FUNCTION IN THE ADAPTIVE REUSE PROCESS

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ABSTRACT: The analysis of form in the whole field of architecture has always been a critical aspect of the comprehension of architecture of various periods and a vital key in the design of space for various human interactions and programs. Form as a vital element for space definition, and location of points in space, plays an important role in the organization of space to make it functional. In adaptive reuse process the critical role of form is usually overlooked, placing more emphasis on the contribution of heritage to the adaptive reuse process in which no doubt is relevant to the repurposing of a space.

Due to this above the paper is centered on evaluating the impact of form on function of interior space in adaptive reuse process, thereby bridging the gap between theory and practice. To achieve this evaluative research method was adapted, which is broken down into two, the review of literatures and evaluation of case studies; which involve power stations that can be identified under the industrial building typology, which were adapted to contemporary museum and galleries such as the Tate modern in London, Sanstral Istanbul museum in Istanbul and the last adapted to a boutique hotel that is The Turbine Hotel on the island of Thesen in South Africa. In the review of literatures the key themes (form, interior space, Adaptive reuse, function and typology) of the study were looked into critically to extract the theoretical background that is needed to support the argument of the study.

The findings of the methodology show that there is a strong link between the several keywords adapted for the study, and they are dependent on each other to perform the numerous roles in adaptive reuse process. The essential influence of form is observed in the chosen case studies though the various comparative analyses of the various alteration on adapted cases that were evaluated in this study.

Further studies is required in this topic, to provide more ways in which formal elements can be analyzed and documented for the purpose of bridging practice with theory in the field of architecture, in which some case there may be a gap between them.

Keywords: *Form; Interior space; Adaptive Reuse; Function; Typology; Industrial building*

1. INTRODUCTION

Form and its contrast space comprise the basic elements of architecture. The mutual relationship is relevant, provided that the core purpose of architecture is to give human an enclosed space for their various activities (Crisman, 2016). The analysis of form in the whole field of architecture has always been a critical aspect of the comprehension of architecture of various periods and a vital key in the design of space for several human interactions and programs. Form as a vital element of space definition, and location of point in space, plays an important role in the organization of space to be functional. In adaptive reuse process the spectacular role of form is usually overlooked, placing more emphasis on the contribution of heritage to the adaptive reuse process in which no doubt is relevant to the repurposing of a space.

The paper is based on evaluating the impact of form on function and interior space of adaptive reuse process in order to bridge the gap between practice and theory. Important theme that play vital roles to form in the interior space of adaptive reuse process, which is the function that would be introduced, according to the typology of the host space.

To achieve the aim for this paper an evaluative research approach is employed. The methodology is divided two parts the review of literature which takes care of the theoretical aspect and the evaluation of case studies that would evaluate the practical aspect. Power stations are selected as case studies because of the generosity of their host spaces like the boiler room, the turbine hall, generator rooms, switch board room, chimney vent spaces, size, form, façade installation and volume/mass might depend on the primary energy source of the power and also the message the Architect may want to pass. Power stations belong to the industrial building typology, industrial buildings are buildings designed to accommodate industrial activities and give the required conditions for the operation of machines and workers alike (Edwards, 2017). The Tate Modern, London, The Turbine Hotel, Thesen islands South Africa and Sanstral Istanbul museum, Istanbul, were pervious power station but where adapted to their present use, and are all successful adaptive reuse projects for power stations because their industrials heritage context are kept (The Turbine Hotel and Sanstral Istanbul kept some of the parts of the machine from the power station period

in place, while the Tate modern kept the facades of the host space), this is important because during the adaptive reuse process the authentic function has not been erased, instead it has been exhibited as an important element of space.

The implication of this study is to bridges the gap between theory and practice in the adaptive reuse process. It also gives comprehensive understanding of the host space and provide guide for the reuse of that space.

2. METHODOLOGY

This study began from the view that form is pertinent to interior space and function in the adaptive reuse process. The above argument might sound clear and while form might be of strong relevant to the adaptive reuse process, not much has been done to evaluate its impact. To do this, it is paramount to evaluate the impact of form on interior space and function.

The research method employed for this study is an Evaluative research method through the lenses of qualitative research analysis. The case study approach is the technique for evaluation which would involve Tate Modern in London, Sanstral Istanbul museum, in Istanbul and The Turbine Hotel in Thesen islands in South Africa. These case studies were chosen for their distinctive manipulation of formal components in their interior spaces and the successful adaptive reuse process of the power station through their conservation of the industrial heritage of the host spaces. A comparative analysis of the of the various case studies selected for the study were looked into in detail using heading related to adaptive reuse; Functional alterations, structural alterations, alterations regarding the circulation route, additions/subtractions of mass, and façade alterations to analyze the case studies.

The other part of the methodology would be the review of literature of the various keywords like form, interior space, adaptive reuse, function and typology, were critically looked into, to extract the theoretical background to support the study.

2.1.1 INTERIOR SPACE

According to oxforddictionaries.com space is the expanse in which all material objects are located and all events occur. For interior architect the vacant space between wall, ceiling and floor is the location in which event or activities occur, which are under our control, (Meiss, 1998). In his book (production of space) Lefebvre (1991) classified space into three, which are social space, physical space and mental space, Lefebvre argues that space is not just what is gotten from the past or that which is handled by the principles of the spatial geometry, but human produce and reproduce space, in which they coordinate their everyday activities. Therefore for a particular space produced by the interaction or activities of individuals, experiences are produced and the spaces where these experiences are produced are called "social space" by Lefebvre (1991). Space is organized in accordance to the needs of the intended users of the space. The interior architect bring into being the atmosphere in space, through the organization of space and its elements (Arab, 2012). Interior space can be defined as an enclosed space in which specified material objects forms are located and also specified events or program takes place. Interior space is the platform, in which designers express their unique qualities of design. It could be in three dimensional volumes, space and mass. Ching (1995) categorize planes which are used for space definition into Base plane which serves as the floor of the space, Overhead plane that serves ceiling or the roof of the space and Wall plane that forms the configuration of the space and enclosure.

2.1.2 FORM AND FUNCTION

Since the establishment of Architecture as a profession, architects like Corbusier, Alberti, vitruvious and palladio have given critical attention to the notion of "form" in their scientific footing (Gunce et, al 2005; Weber, 1995). As can be witnessed from several characterizations of Architecture through various periods, it is now clear that, in which ever way the goal of architecture is presented by the theoretician; "form" takes a significant part. In the field of Architecture, form is substantial complete part which is composed by logical relationship of the formal components. Norbery-schulz explains the term "component" in Architecture to be the basic distinctive unit which is one of the formal elements in Architecture, he went further to classify these formal Architectural components as "Façade", "Mass" and "Space" (Gunce et, al. 2005). Form can be defined as the amount of three- dimensional space occupied by object (Jirousek, 1995). Forms are shaped by the space they occupy, which is seen as an object or thing and also a state of existence (as a process). Form is one of the basics elements of the interior, it is the meeting point between mass sand spaces. The definition of form does not simply describe the physical and the

utilitarian aspects of form, but the aesthetic, psychological and semiotic considerations (Malnar & Vodvarka, 1992). Form can also be seen as plane three-dimensional elements in space, which are overhead plane for the roof or ceiling the space, Vertical element or wall element enclosing the sides of the spaces, Base plane or floor plane for enclosing the bottom of a space (Ching, 1995).

Function of the space is the program in which the fiber of the space is design upon. Christian Norberg-Schulz (1968); Malnar & Vodvarka (1992) identified four building task parameters, which he argued that the function of architecture is to organize the environment in order to permit human interaction. First parameter is the Physical control; organizing the internal arrangement of the building, second task parameter is the Functional frame; providing the quality of interior space, size and access. The third task parameter is the Social milieu: indicating a broader range of social interaction within and without a structure. The forth task parameter Cultural symbolization: symbolizing common symbolic system and values.

2.1.3 ADAPTIVE REUSE

According to the Australian department of environment and heritage Adaptive reuse is the process which changes an obsolete thing into a new thing which can be used for a different function. Kee.T (2014) states that, "*adaptive reuse is the method of reusing old building for new purpose, instead of demolishing and rebuilding new one on the site*". Adaptive reuse is the development in reverse, the land (or site) and the building is known, giving way utilization and rehabilitation as the existing variables (plevoets, 2014). According to Brooker and Stone (2004), the term is also known as "Rehabilitation" or "Refurbishment" which happens to be, the function is the well-known change, but other changes may be done to the structure of the building itself which may be the orientation, the relations between spaces, circulation route, an additional part may be added to building and some part might be demolished. Adaptive reuse provides the dual strategy of preserving historical heritage, while evolving to the needs of the present day society and also keeping the essence of the existing space. According to the Australian department of environment and heritage, the benefits of Adaptive reuse can be classified into three. First benefit Socio-cultural benefits; here adaptive reuse serves a dual purpose of preserving historical heritage of the building and site, while changing with evolving needs of the society. Second is the Economic benefits; here, since the process of adaptive reuse involves a brown field rather than a green field, this translates to saving energy consumption and also reducing waste. Then the third is the Environmental benefits; the energy consumption in adaptive reused building is reduced to a considered amount, and it might involve demolition to a considered extent, thereby reducing what would be taken to the land field.

2.1.4 TYPOLOGY

In the field of architectural design typology is considered as a rigorous method for analysis, organization and classification of varieties of buildings into representative classes (Lawrence, 1994; Schneekloth & Frank, 1994). According to Firley (2009), building typology refers to the study and documentation of a set of buildings which have similarities in their type of function and form. Firley (2009) categorized building typology into two; functional typology and formal typology. Functional typology classifies building in classes based on their similarity of use, thereby creating groups of building which are further classified into six typologies by Cantacuzino(1989), which are further subdivided into several building types, they are Public buildings, Residential building, Commercial building, Industrial buildings, Ecclesiastical buildings, Military buildings. The second type of typology is the Formal typology. This typology classifies building according to their forms, which might be based on format or relationships of structure of street and configuration. The functional typology is closely related to the formal typology, this is because a particular functional class can be broken down into formal types. The formal typology varies from one part of the world to the other which might be influenced by climate, local materials, technology, financial strength and cultural habits (Firley, 2009). The power station is classified under the functional typology of an industrial building. According to TICCIH (2003); Edwards, 2017; industrial buildings are made of the following:

…buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.'

According to energyeducation.ca (2019) a power plant or station is "an industrial facility that generates electricity from primary energy". Formal typology of power station is dependent on their primary energy source, which might be coal fired, wood clips fired, oiled fired, natural gas and not limited to nuclear energy, this in turn influences the form of the power station affecting the proportions/ size, volume/ mass, façade treatment of spaces like the Turbine hall, boiler room, generator spaces, switch board room, and other spaces, found in the organization of the power station.

The impact of form on interior space and function in adaptive reuse process is profound. Form influences space with it various formal components like façade, mass and space. These in turn determines the organization of the various interior elements in the interior space that influences the human interaction of the space, hereby creating a social space. The arrangement of these various formal elements is predetermined by the program or function that is specified for the space. This function is also influenced by the typology of the host space. If the generosity of the host space is adequate like a power station (with a large volume of space and existing formal components) the adaptive reuse of the host space can give way for suitable function depending on the context. Due to above argument, it could be deduced that there is a strong link between form interior space, function, typology and Adaptive reuse.

3. CASE STUDIES EVALUATION

The impact of form on the function on the adaptive reuse process, which are analyzed using the formal components(mass, façade and space) to evaluate the major spaces that played an essential role in the adaptive reuse process, are looked into in detail within the tables for each case. Architectural details (floor plans, sections) and images of the before the adaption and after the adaption of both interior and exterior are included in the tables below. Selected case-studies of this research involve industrial buildings that were being transformed into contemporary museums and/or galleries, namely; the Tate Modern in London, Sanstral İstanbul in Istanbul and the Turbine Hotel on the island of Thesen in South Africa. The tables below (Table.1, Table.2 and Table.3) include detailed information on each case-study.

Table 1: Basic Details of Tate Modern, London; adapted by authors; from tateorg.uk, www.archdaily.com; Edwards, 2017			
INITIAL ARCHITECT:	SIR GILES GILBERT SCOTT	**ADAPTED FUNCTION**	CONTEMPORARY ART MUSEUM
INITIAL FUNCTION	POWER STATION	**DECOMMISSIONED YEAR**	1981
INITIAL YEAR BUILT	1947&1963	**YEAR OPENED**	2000
POWER STATION TYPE	OIL FIRED STATION	**ADAPTED MAJOR MATERIALS**	CONCRETE,TIMBER, STEEL, GLASS
ADAPTIVE ARCHITECT	JACQUES HERZOG &PIERRE DE MEURON	**INTERIOR INTERVENTIONS**	FIVE FLOORS OF GALLERIES

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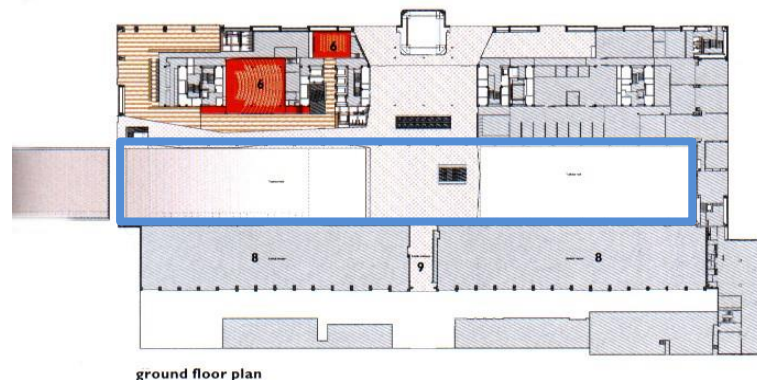
ground floor plan

Fig. 1 ground floor plan (scale approx. 1:1300) of Tate Modern, London. Image source: http://www.arch.mcgill.ca. The turbines were removed giving a huge volume in the Turbine hall which is marked on the plan as blue rectangle.
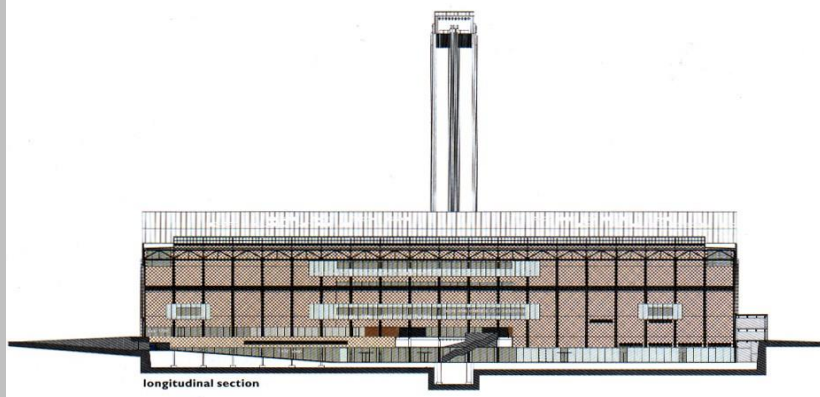
Fig. 2 longitudinal section of the Tate Modern, London. Image source: http://www.arch.mcgill.ca. Here the chimney is conserved as a façade element.

Fig. 3 The turbine hall before. Image source http:// www.archdaily.com	Fig.4 The Turbine hall after. Image source: http:// explorelondon.co.uk	Fig. 5 exterior view of the Tate Modern, London. Image source: tateorg.uk. Here showing transformation of the façade and conservation of the brick wall and the chimney.

In the adaptive reuse process in the Tate Modern, London, especially considering the Turbine hall which can be seen from above image of the ground floor and the section and also its before and after adaption, the turbines were removed giving generous space for temporary art exhibition and installation and also how the form of steel column and the façade were kept. The manipulation of the components of form (mass, façade and space) in the Tate modern, give way for provision of more space exhibitions that lead to the production of social space that give way for human interaction. Form was also critical in creation of space through additional mass producing an interior façade which is shown in extension of mass in the Turbine hall.

Table. 2 SANTRALISTANBUL, MUSEUM,ISTANBUL; adopted by the authors from; elifgkose.wordpress.com; thomasmayerarchive.de			
INITIAL ARCHITECT	UNKNOWN	**ADAPTED FUNCTION**	CONTEMPORARY ART MUSEUM
INITIAL FUNCTION	POWER STATION	**DECOMMISSIONED YEAR**	1983
INITIAL YEAR BUILT	1910&1950	**YEAR OPENED**	2007
POWER STATION TYPE	COAL FIRED STATION	**ADAPTED MAJOR MATERIALS**	CONCRETE, STEEL, GLASS
ADAPTIVE ARCHITECT	EMRE AROLAT NEVZAT SAYIN	**INTERIOR INTERVENTIONS**	IBRARY, MUSEUM, CAFÉ, CONCERT HALLS
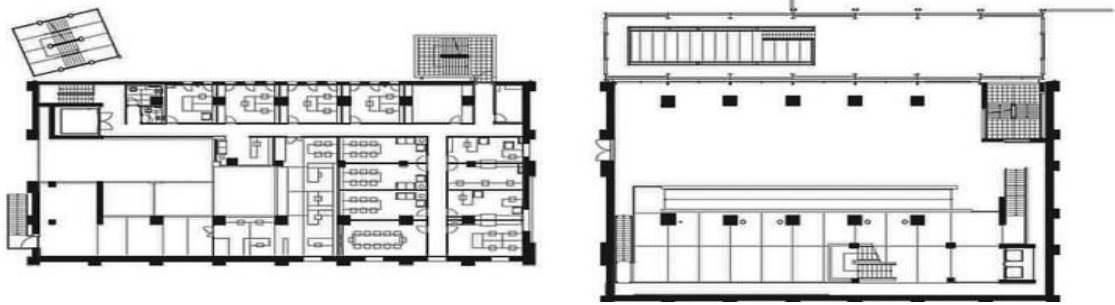
Fig. 6 ground floor plan (scale approx. 1:1500) of Santral Istanbul, museum, Istanbul. Image source: www.e-architect.co.uk. The turbines were removed giving a huge volume in the Turbine hall which is marked on the plan as blue rectangle.
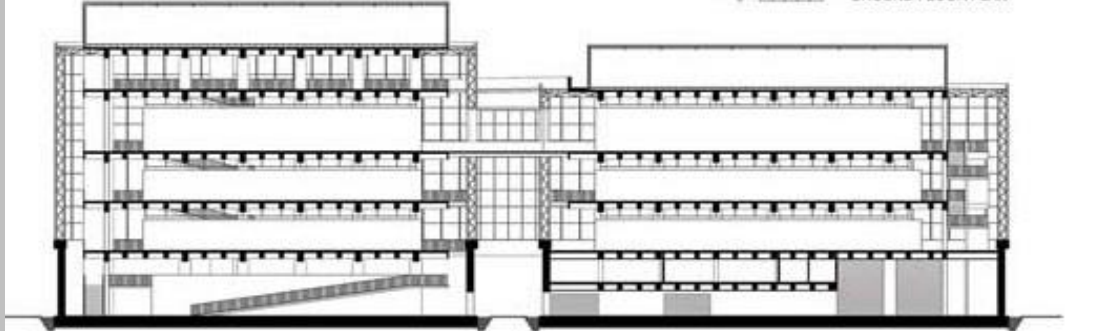
Fig. 7 longitudinal section of the Tate Modern, London. Image source: www.e-architect.co.uk. Here the ground floor is transformed to be like a base platform in which other floors are supported on.

Fig.8 The SantralIstanbul, museum, Istanbul before. Image source http:// www. elifgkose.wordpress.com	Fig.9 The Exhibition hall after. Image source: http:// thomasmayerarchive.de	Fig. 10 exterior view of the Santral Istanbul, museum, Istanbul Image source: elifgkose.wordpress.com. Here showing transformation of the façade and conservation of the chimneys as elements of space.

Form play critical role in the adaptive reuse process of the Istanbul power station to the Sanstral Istanbul, museum, this is due to form in relation to mass, in which the ground floor was made like a base for the building, and also the play of form in relation to façade with the columns and mass form in the exhibition space and how the formed base provided a unique space at the ground floor, providing a social space for human interaction. New spaces were also created in the exhibition spaces with mass elements and the steel columns of the host space were kept and used for space definition.

Table 3: THE TURBINE HOTEL, THESEN SOUTH AFRICA; Adapted by the authors from, louw, 2015; Edwards, 2017.

INITIAL ARCHITECT	UNKNOWN	**ADAPTED FUNCTION**	BOUTIQUE HOTEL
INITIAL FUNCTION	POWER STATION	**DECOMMISSIONED YEAR**	1970

INITIAL YEAR BUILT	1939&1940	YEAR OPENED	2010
POWER STATION TYPE	WOOD FIRED STATION	ADAPTED MAJOR MATERIALS	CONCRETE,TIMBER, STEEL, GLASS
ADAPTIVE ARCHITECT	CHRIS MULDER & ASSOCIATES	INTERIOR INTERVENTIONS	24 SUITIES,BAR, SPA & CONFERENCE
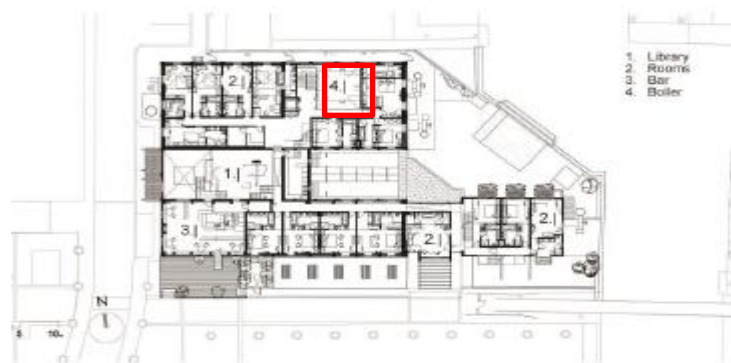
Fig. 11 First floor plan of The Turbine Hotel. Image source: Rhys Ivor Brian Edwards, 2017. The boiler room is which is conserved and is seen in the plan in the red box, in which a space was created out it, with a glass floor and it providing a visual connection to the boiler.
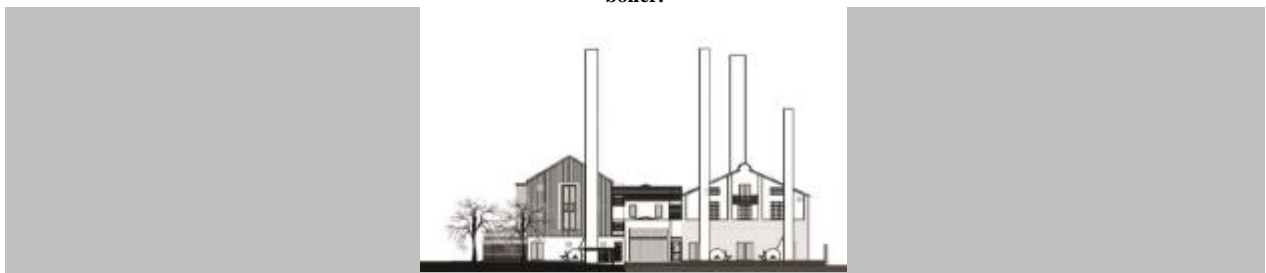
Fig. 12 East elevation of The Turbine hotel. Image source: Rhys Ivor Brian Edwards, 2017. Here the chimneys are conserved as a façade element. Also showing the adding parts of the adapted building.

Fig.12 The old boiler space before. Image source Edwards, 2017	Fig.13 the new boiler space. Image source: http:// www.tripadvisor.co.za	Fig. 14 exterior view of the Turbine Hotel. Image source: www.cedarberg-travel.com. Conservation of chimneys as a formal element of the façade.
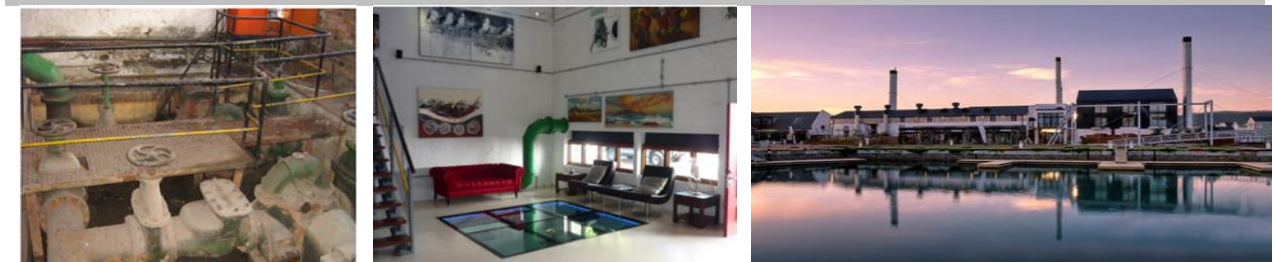
Another good example of how form performed a unique part in the adaptive reuse process is the Thesen Islands power station which is converted to the Boutique Hotel, known as The Turbine Hotel, a special case concerning the relation of form to mass, façade and space in the interior of the Turbine Hotel is the boiler room, in which a base plane was provided using glass, thereby keeping the context of the space and using the form to provide space, façade of the space which is now serving as entrance lobby for the hotel and also a point for human interaction. Some parts of the machines are kept, serving as space defining elements in the hotel impacting on the function of the space. The authentic function is visible and conserved as an important element of space.

4. COMPARATIVE ANALYSIS OF THE CASE STUDIES

In this section it is aimed to provide a comparative analysis of the selected case-studies. Following the literature review, here the case studies are comparatively analyzed under 5 headings; Functional alterations, structural alterations, alterations regarding the circulation route, additions/subtractions of mass, and façade alterations. These sub-headings will therefore focus on main issues regarding the adaptive reuse process of the case studies.

Here, as the case studies of this research consists of buildings that were originally built as power station buildings, in terms of functional alterations we focused on some main spaces of this typology; namely the turbine hall and the boiler rooms, these space has a huge part in played in the adaptive reuse process of industrial building, this is so in that they take a huge volume of space in power stations, and what is done with those spaces during adaptive reuse process is critical.

Table 4: Comparative Analysis of the case-studies according to the key-words driven from the literature reviews of this study. Adapted by authors from, louw, 2015; Edwards, 2017; thomasmayerarchive.de; elifgkose.wordpress.com; archdaily.com.			
	TATE MODERN	SANTRAL ISTANBUL	THE TURBINE HOTEL
Functional Alterations • Turbine hall • Boiler room	The turbines in the turbine hall was removed which provide a huge volume of space for exhibition and circulation.	The boilers in the boiler room were kept, but the space was converted to an exhibition purposes.	The boiler room was converted to the entrance lobby, after the floor was formed, kept traces of the boiler.
Structural Alterations	More columns were added to the existing structural element to support the existing elements and new ones.	Addition of structural elements together with the existing columns and beams to give support to the additional floor spaces	Columns and beams were added to the existing structural system to support the addition spaces.
Alterations regarding the circulation route	The turbine hall serving as a major circulation route	The basement floor creating circulation connection to other floors with stairs	The boiler room providing coordinated circulation center to other spaces
Additional mass/ subtractions of the mass of the building	Creation of additional floor spaces for exhibition purposes.	Additional four floor spaces.	Additional 22 suites, bar, library, conference room.
Façade alterations	Minimal alteration to the façade of the exterior and installation of new glass floor. In the interior extension of mass form providing additional space.	Creation of a grilled frame for the exterior, concrete and metal finishes was used in most part of the interior.	Great part of the brick facades are conserved and additional corrugated surfaces, for the exterior and painted surfaces for the interior.

The impart of form on the adaptive reuse process of the above industrial buildings now museums and galleries that is seen from the above table with spaces turbine hall and the boiler rooms through functional alterations, structural alterations, alterations relating to circulation routes, façade alterations and additional mass / subtraction of mass in the building. The table illustrate the link between theory and practice of adaptive reuse process in which the industrial heritage of the above cases I kept and appreciated.

5. CONCLUSION

The analysis of form in the whole field of architecture has always been a critical aspect of the comprehension of architecture of various periods and a vital key in the design of space for various human interactions and programs. Form as a vital element of space definition, and location of point in space, plays an important in the organization of space to make functional. In adaptive reuse process the critical role of form is usually overlooked, placing more emphasis on the contribution of heritage to the adaptive reuse process in which no doubt is relevant to the repurposing of a space.

The paper is centered on the evaluating the impact of form on function in interior space in the adaptive reuse process. To that the various keywords stressing the strength of this impact were evaluated. The main question of this study which what are the various components of formal elements was also evaluated.

The research approach adopted for this study is an evaluative research approach, which is also qualitative in nature. The case study technique, was also employed in which three previous power station adapted to museum and boutique hotel were critical evaluated using the various component of form (mass, façade and space) to analyze the case studies.

The review of literature and the evaluation of case studies, provide one with practical and theoretical background to stress the critical impact of form to adaptive reuse process. A proper analysis of form in adaptive reuse process would provide a vital comprehension of the mass, faced and space of the host space, which will be critical in the repurposing of the host space, hereby providing a meeting point between theory and practice in the adaptive reuse process. The various forms of alterations that played a key role on the impact of form on the function of the interior space, were analyzed between the various case studies, it was deduced that in adaptive reuse process, form affects the functional, structural, additional & subtractive mass, façade alteration and alteration in circulation route are all affected in the manipulation of component of form, thereby providing a link between theory and practice. From the comparative analysis from the three case studies it is important to note that much effort was been to conserve the context or identity of the hidden space with the help of the existing form with the support of additional formal elements to give meaning to the adapted function of the buildings. These case studies can be said to be successful because their adaptive reuse process acknowledges and reminds users the authentic function through it spaces. Further studies is required in this topic, to provide more ways in which formal elements can be analyzed and documented for the purpose of bridging practice with theory in the field of architecture, in which some case there may be a gap between them.

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CHANGING ROLE OF INSTRUCTOR IN CONTEMPORARY EDUCATIONAL APPROACH: BLENDED LEARNING EXPERIMENT IN INTERIOR ARCHITECTURE EDUCATION

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Abstract

Quick changes and expanded multifaceted nature of the today's world present new difficulties and put new desires on education system. There has been generally a growing awareness of the necessity to change and improve the preparation of students for productive functioning in the continually changing and highly demanding environment. Underpinning students' social development in knowledge transfer is one of the paramount points of education.

This paper proposes flipped learning as an alternative pedagogical model; flips lecture and homework elements of a course whereas teacher's role changes in the meantime. In this context role of the instructor changes and gets more important. Removing the direct instruction from the whole group changes the dynamic of the classroom and allows the teacher more time to personalize and individualize the learning for each student. Instead of turning into the source and the deliverer of information, the job of the instructor will be a mentor or the guide on the side.

Keywords: _Flipped learning; Changing Education; Changing role of teacher; Social development_

1. Introduction

In the present fast changing world instructive foundations need to stay aware of pertinent technological advances so as to be successful in conveying graduates that can flourish in the 21st Century. Students need to develop skills like being great communicators, applying critical thinking, knowing how to collaborate with diverse people, and being creative.

Electronic advancements have progressively changed the association among instructor and understudy. For a large portion of the twentieth century, education included pen and paper, the typewriter, and the postal service, which gave the sole connection between the individual instructor and the individual understudy. With the improvement of the radio and afterward television, it wound up conceivable to transmit instructive courses, projects and substance generally utilizing these mass media distribution channels (Moore and Anderson, 2003). The improvement of the Internet and satellite empowers much more extensive access to university courses (Sherry 1995).

Furthermore, due to open access provided by Internet to unlimited resources on any possible issue (Kudryashova, Gorbatova, Rybushkina and Ivanova, 2015) a descending value of instructors as the significant source of information being witnessed and students' expectations or demands from educators in a learning environment have also changed drastically (Hargreaves 2003).

Alteration in the instructor's role was also aggravated by amendment of requirements from university graduates due to the burden of communal, academic and industrial community (Selevich and Golubeva 2015).

Current world anticipate that graduates will have the capacity to make utilization of the acquired learning as well as to be fit for demonstrating leadership, ready to settle on choices in non-standard circumstances and to discover, analyze and process data on their own responsibility (Chodasováa and Tekulová 2015).

Consequently, traditional teaching techniques and instructive methods at the appropriate time should be changed and supplanted and should bolster the improvement of such capacities and skills by the interest of the present context.

J. Patrick McCarthy and Liam Anderson depict traditional teaching as lecturing being "the centerpiece of instruction, where students passively absorb pre-processed information and then regurgitate it in response to periodic exams" (McCarthy and Anderson 2000, p. 27=9).

The significant job of an instructor in this type of teaching at that point is to transmit and evaluate knowledge. This teaching method would give impetuses to learn just at the surface (passive) level as opposed to deep (active) learning (Marton and Saljo 1976; Jaques 1992) and does not fit to the contemporary demands of an educational environment and current targets.

With the adjustment in the vision of individuals of the current era and by an ascending and faster access to information, education is presently alluded to as "experiences in which students are thinking about the subject matter" as they interface with the instructor and with their companions (McKeachie 1999; Chickering and Gamson 1987).

Thusly the traditional job of instructors as transmitters of knowledge has changed into that of coordinators and accomplices in understudies' learning (Badley and Habeshaw 1991). These days, instructors and understudies assume a similarly dynamic role in the learning procedure furthermore, active learning techniques allude to an assortment of community oriented in-class exercises extending from long-term recreations to five-minute agreeable problem solving exercises (McKeachie 1999; Chickering and Gamson 1987).

Educating and evaluation become associated and understudies' level of picked up information is estimated through differentiated strategies for both formal and informal appraisals including written and oral inquiries, execution evaluations, project reviews, portfolios and self-reporting.

According to Deborah Nolan (2010) the fundamental point in learning as opposed to instructing is to move the concentration from the instructor and the delivery of course content to the understudies and to reinforce their dynamic engagement with the course material (Nolan and Temple Lang2010).

By the triggering effect of active learning techniques, understudies would escape from the conventional role of passive receptors and would learn and practice how to apprehend information and abilities and later on would utilize them definitively. Tolerating the need to revise and improve the conventional way of educating, it is significant to search out possible ways of teaching to encourage understudy's education and likewise to determine both the roles of students and instructors (Kudryashova, Gorbatova, Rybushkina and Ivanova, 2015).

Active learning techniques are broadly spread these days; four imperative standards of active learning could be summarized as:

1. Students develop their own importance (students are not latent learning absorbents, they make information significant and valuable in a new circumstance);
2. New learning expands on prior information (students join old and new data and understand it);
3. Learning is improved by social collaboration (students settle clashing thoughts in social settings taking part in small group exercises first and exchanges inside the whole class later);
4. Learning creates through "authentic" tasks (students' activities ought to recreate those that will be experienced, in real life) (Kudryashova, Gorbatova, Rybushkina and Ivanova, 2015; Cooperstein and Kocevar-Weidinger 2004).

In the course of active learning although instructors stay at the focal point of understudy learning, they would never again go about as a source of knowledge. Instead, their role principally will be to create the atmosphere with diverse methods/approaches of teaching where understudies will be occupied with learning in association with their instructors and peers (Kudryashova, Gorbatova, Rybushkina and Ivanova, 2015).

On the other hand, currently, understudies require shorter pieces of instructive materials, because of their contracting capacity to focus. Bite-sized learning joined with different encouraging techniques isn't simply a desire, however seems a real need (Sherry 1995). More technology can be coordinated into the instructive scene, and different learning modes can be given understudies different methods for learning.

Currently, various pedagogical approaches witnessed in different fields of education such as distance learning, blended learning or flipped learning. Accordingly, this study mainly focuses on flipped learning and its application in the field of interior architecture education. Aim of the study is to find out various effects of flipped learning approach during teaching and learning process both on instructor and student; through a case study. Accordingly, at first study initiates a brief discourse on the flipped learning approach and then implementation details – method and procedure of the research - is put forward and third conclude with findings and results of the study.

2. Flipped learning

Among the different learning modes, the "Flipped learning" is viewed as a potential and elective learning strategy that draws in understudies in applying their learning information and leading higher request considering, as opposed to getting immediate teaching instruction (Foldnes 2016).

The expression "flipped learning" represents the learning approach that trades the time used to convey fundamental information in class and the out-of-class time for applying the learning or doing homework as it were this model is an academic model in which the typical lecture and homework components of a course are turned around (Steen-Utheim and Foldnes 2018). Course materials, for example, short video lectures are seen by understudies at home before the class session, while in-class time is dedicated to activities, projects, or idea exchanges.

Accordingly, understudies take in the course content online freely then subsequently that class time can be utilized to practice or talk about the ideas learned at home individually. Students learn at home via online coursework and lectures, and instructors use class time for instructor-guided practice or projects (Keegan 1998).

Flipped learning then again is one of the student-centered models, which by expelling the immediate instruction from the entire gathering changes the dynamic of the classroom and enables the instructor more opportunity to customize and individualize the learning for every understudy (DeLozier and Rhodes 2017).

As opposed to turning into the source and the deliverer of learning (sage on the stage), the job of the instructor in this model will be a mentor or the guide as an afterthought (Figure.1). Additionally group work of understudies in this learning strategy could expand peer learning because of cooperation and commitment of understudies in class exercises other than having the dynamic role amid class time interaction (Afacan 2012).
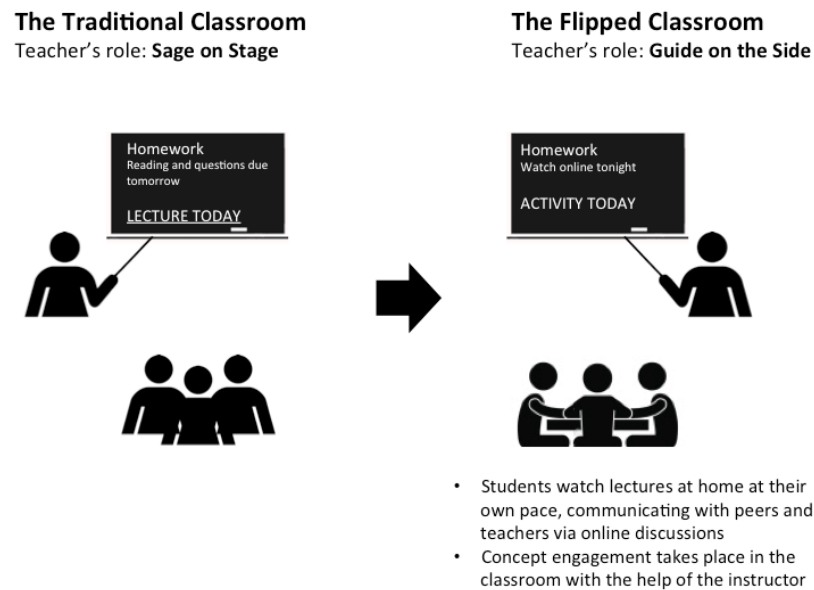
Figure1: Flipped Learning Model

Interaction is one of the other significant aspects of flipped learning, furthermore, one that adjustments in the online environment. Learning includes two kinds of association: cooperation with content and collaboration with other individuals (Sherry 1995).

Technology accessible today permits association with and about the content. Previously, this relational collaboration has happened exclusively among instructor and understudy though in flipped learning, it is progressively feasible for understudies to communicate with each other.

Sellers (2001) mentions that traditional classroom teacher filled in as the initiator of all classroom exercises, and all things considered, he/she is in charge of understudies' learning opportunities. On the other hand, flipped learning is at last student-centered and understudy driven. The online environment empowers student-centered learning in which intellectual obtaining replaces the educational power of the teacher as the fundamental impulse of learning. Hence, a standout amongst the most critical issues in this instructive move appeared as the job of teacher. In flipped learning, the instructor turns into member of a team; accordingly, the instructor never again has the whole control of the learning environment. For various years, teachers have overseen classes by righteousness of their control on information. Presently, with direct access to immense resources online, understudies are never again subordinate exclusively on the instructor for information. Muirhead (2001) argues that flipped learning would request changing the conventional role of educators from data transmitters to guides who organize important learner-centered encounters (Sherry 1995).

3. Method & Procedure Of The Research
3.1. Method

The study was conducted with an action research method where one of the researchers was the instructor of the course of which flip learning approach was implemented (Figure 2: Action Research Cycle). The module that has been developed during this research was built around the flipped learning approach. An experiment was conducted at EMU, at Department of Interior Architecture during Presentation Techniques Course with the second year students (N=61) during 2016-2017 Fall Semester. The study was reported to the Eastern Mediterranean University -Research and Publication Ethics Board from which has been received an ethical approval for the research.
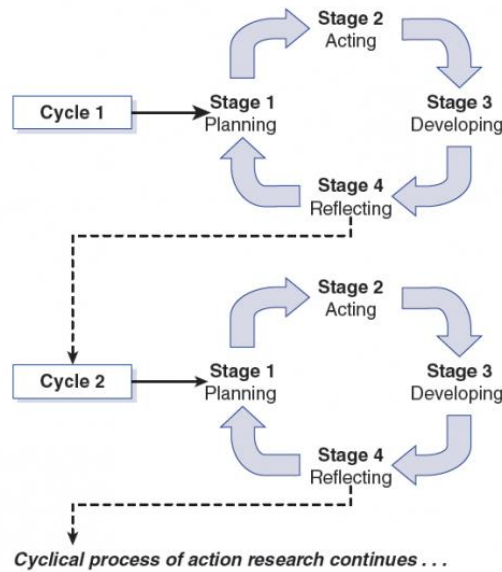
Figure 2: The ongoing,   cyclical process of
action research. Mertler   (2017, p. 38)

Cyclical process of action research continues . . .

*3.2. Implemented Flip   Learning
Procedure*

Flipped learning approach was developed (stage 1-DESIGN), implemented and observed during the mentioned semester and data collected accordingly during the implementation (stage 2-IMPLEMENTATION). All the students learned with the flipped learning approach. Students in all groups engaged in the same learning activity. The course was divided in 2 main parts, 6 sessions before and 6 sessions after midterm exam. During the first 6 sessions of the course the goal was teaching architectural presentation techniques through free hand and rendering techniques. Prior to the class activity, videos related to the next session's topic were given to the students weekly via digital platform. Students were expected to watch the videos carefully, take notes and practice at home. In class time they were asked to do classwork according the video they have watched before. Class sessions started by giving classwork and students were responsible for doing their works under the supervision of the instructor by getting critics. At the end of class students have submitted their class work and they did not have any homework to do. Actually their homework was to watch the uploaded videos and develop ideas about upcoming class session. After the first 6 sessions, they had to submit portfolio of their class-works. The portfolios were evaluated and graded as the midterm grade. During the second 6 sessions of the course, students were expected to learn architectural presentation via digital tools. In the second part of course the same method was applied. Before coming to class students were asked to watch the related video carefully, take notes and do some practices at home. During class sessions they were requested to do some practices and submit the classwork at the end of the class time. Students were responsible with watching the videos at home, yet at the beginning of class the videos were replayed with instructor's comments and explanations. By the end of 12 weeks, students were evaluated by the final exam.

Data collection during implementation was mainly based on in-class observations and students feedback from semi-structured interviews. Each in-class activity monitored and notes were taken immediately after the session to document instructors' role and students' actions throughout the implementation (stage 3-RECORDING). At the end of implementation, the collected data was analyzed / evaluated in order to determine instructor's role during flip learning experience and student insights about this different approach of teaching (stage 4-EVALUATION).

4. Evaluation Results & Discussion

4.1. Main highlighted issues as a result of flip learning experience

This sort of learning method connected provide a solid learning component by which understudies can screen their own learning procedure and assess the most proper learning techniques for them. This study enabled the understudies to encounter dynamic learning and get personalized criticism in view of their learning status, which was additionally seen as a successful imply that enhanced their self-efficacy. Besides, the pre-class assignments that understudies finish online as proof of their planning for class additionally assist the educator with assessing their comprehension and tailor the class exercises to focus on zones where they are battling.

Understudies require feedback for the most part amid their learning procedure. That is the main way they can adjust their activities and accomplish the outcomes they seek after. Instructor in flipped learning upheld

understudies in their imperfect learning missions and helped them to comprehend and conquer the oversights they inevitably make.

It is seen that in the flipped learning approach understudies figure out how to learn, understand. Besides, this open door decreased the measure of pedantic educating and permits more opportunity for assemble based exercises. Semi-structured interviews with students emphasized that in the flipped learning, understudies could take control of their own learning pace, and were in charge of their own learning procedure. Then again, they underline that class time is authorized with the goal that educators could create important exercises to invigorate the understudies to take part in higher order thinking.

4.2. What may be the difficulties in moving from traditional learning to flipped learning?

In the traditional learning setting, understudies are presented to content first, for the most part in coordinate with classroom guidance, for example, traditional learning, or some other sort of movement where the teacher instructs on the material. This immediate guidance is followed by homework exercises as a type of training for the understudies.

In flipped learning approach, the guidance in the classroom is significantly different. Understudies are first presented to the substance as homework. Hence, the understudies are getting readied for class the following day, where their new thoughts are applied. What's more, class time is utilized for in fact dynamic learning- engaging exercises, problem solving, discussions, debates, crafting. Perceptions amid the flipped learning experience uncovered that there is significantly more high-level state thinking going ahead in the flipped learning approach.

Furthermore, instructors found opportunities to personalize learning by using altered groupings in the classroom. Students learning speed varies and any student, who needed extra support besides supervision, utilized this opportunity for extra one-on-one time with the instructors. Assessments also exposed that lecturers could form small groups and students could rehearse the material and connect encourage in that high level thinking.

The educator's job in the flipped learning approach is currently to become the facilitator of figuring out how to ensure that understudies are getting what they require.

By the help of this setting, instructor also able to rectify misguided judgments or give understudies quick input at whatever point they require it within flexibility. It is also critical for educators to ensure that they are truly giving that dynamic learning environment those engaging activities, with the goal that understudies can understand their general surroundings and interface thoughts together. Another viewpoint to consider about in teaching is the job of making arrangements for teachers. In conventional learning, the educator generally designs and schedule and homework exercise to take after.

With flipped learning however, this alters slightly so that the instructors can spend longer time to find or build materials and lessons reachable online with proper content. It is significant that the instructors get actually proper and helpful lessons or videos accessible online for the students to watch and really understand. Tutors can also consider additional activities going parallel with those online tutorials, to trigger students' learning by note down some of the ideas or answering questions while watching. They can use what they have learned during the activities being involved the following day. It was also witnessed that it is critical that educators must discover and make follow-up exercises for the classroom to allow that collaborative learning and problem solving.

5. CONCLUDING REMARKS

This paper gives an explanation on the necessity of more concentration on learning rather than on teaching nowadays, considering the role of an instructor in the current academic environment that leads to effective learning and gives the student central part in the learning process. The paper also indicates that modern educators need to alter their old view of an instructor as just a transferor of knowledge. They have to consider the teacher as a multi-role instructor who is capable of getting students involved in the knowledge acquisition process and developing skills by themselves. A modern instructor's main job is to build an educational setting in which learners can acquire the original knowledge while the instructor supports and guides them at each level of cognition.

In such an environment, the instructor is a facilitator in a flipped learning approach rather than a teacher who answers the students' questions. The students are helped to find the answer to the questions asked by the instructor. To help this kind of teaching succeed, the instructors have to provide students with the time they need to investigate the material and make the experience meaningful. In this way, it is an evident assumption that the role the instructors and the students play in learning process is changing.

The instructors' role alters when the learners' experiences are integrated with technology. The teachers are not in charge any more, but they can manage this integration in an appropriate way. The educator's job is to make it possible for the learning environment to give the learners the opportunities to build meaning from a certain problem. In this way a learning environment where students actively participate in the process is build.

As the concluding remarks, the restrictions of this study have to be observed. Due to the small scale of the experiment, the findings might not be precise enough to be generalized to other studies. Furthermore, because of limitations that the evaluating tools bear, the findings may include biases.

As a consequence, other follow-up researches may be examined. These researches can include the usage of suitable learning plans through flipped classrooms as well as examination of the pertinent subjects in long term experiments that are of extensive samples.

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EXPLORING INTERIOR SPACE ATMOSPHERE: LOFTS THROUGH LENSES OF INTERIOR SENSIBILITY WITHIN ARTISTIC VALUE

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Abstract

Adaptive reuse is a process that changes the function of building to accommodate changing needs. Industrial buildings are suitable buildings to adapt them to the new usage. Lofts are the adaptation of industrial buildings to residential use. It could be said that lofts are new lifestyle of residents. The result of adaptive reuse process created a new concept as "loft living". During the formation of lofts there is a juxtaposition of existing building and the new use besides a holistic view of the way that users use and enjoy the space. Lofts present a unique exemplification of a user - space interaction while personalization and the creation of the sole interior atmosphere. Remodelling is a process of adaptive re-use where in this study grounded on the concept of "interior sensibility", it constituted the main backbone of this research that also shed a light on the development of a framework that is used during the exploration of the selected lofts. The concept for the interior atmosphere was broken into two distinct parts as strategy and tactics. Strategy is general information of existing building for interior design and tactics are the details of design proposal and individual elements, which gives character to the space. Therefore, this study aimed to read selected loft spaces with the lenses of interior sensibility concept, which contains artistic value in terms of developed framework through qualitative research method that was employed to conduct this exploratory study. 6 cases were selected from 2 different metropolitan cities of the world; London and İstanbul for the case study.

Keywords: Loft spaces, adaptive re-use, design approach, strategy, tactics

1. Introduction

Adaptive reuse is a process that changes the function of building to accommodate changing needs according to users besides ameliorating the financial, environmental and social performance of buildings[1-2]. It is stated as an opportunity to reuse obsolete facilities, which also supports sustainability through offering a sustainable building site with existing infrastructure and materials[3]. Adaptive reuse originally developed as a method of protecting historically significant buildings from demolition as Cantell[4] highlights, yet this process at the same time enriched the change of disused or ineffective items into different purposes. If a building loses its original function, it is possible to save it by adapting to a new usage.

Cantell[5] stresses on the relevance of industrial buildings to adaptive reuse especially due to their large, open spaces; industrial complexes and buildings are impressive architecturally, both in their size and muted decorations. Currently it could be seen that existing unused industrial buildings are adapted according to certain necessities often. There are various cases and the most popular adaptations are adapting industrial buildings into museum, art studio, live-work spaces, offices, setup spaces of the film industry, residential units or schools.

Lofts are the adaptation of industrial buildings to residential use that preserve industrial characteristic features in it. According to Culto[6], generally, the term loft means an open, semi-transparent space which are located in industrial buildings nonetheless today, lofts possess new meaning such as large, renewed space that industrial architecture is used for domestic purposes. As Culto mentions: "they are pointed by minimalist strategies; this is not a minimalism related only with smooth surface areas that are white colour, this is a minimalism used to create useful and flexible homes that satisfy the architect and client's wishes". The results are simple domestic spaces that the structural elements used as design element, creating a warm space without the use of designing appliance in the interiors[7].

It could be said that lofts are new lifestyle of residents. The result of this adaptive reuse process created a new concept as Zukin defined: "loft living"[8]. She mentioned that until 1970's living in loft considered neither chic nor comfortable. Furthermore it was impossible to imagine showing a desire of moving downtown into a former sweatshop or painting plant. However, transforming lofts from old factory spaces into hot commodities resulted as 'loft living' as a possible residential style and people began to find the notion of living in loft attractive. She has pointed out unique individualities of lofts upon several examples during their evolution. As she stated at first

"…lofts as new residential convey a sense of modern elegance through sparseness of design enhanced by opulence of large-than-life decoration and industrial appliances; easily adaptable to an eclectic juxtaposition of 17th ArtDeco and HiTech design within enormous scale that seemed to be quiet a problem with too high, too empowering bare walls, high ceiling, exposed brick walls and open spaces that become so well-known as they inspire parody". Later on during 1980's it was described as a space that is open and the feeling is larger than life with several distinctive characteristics that are open space, a relation between art and industry, a sense of history and a fascination of the middle-class imagination within the artist's studio[9].

Banks and Tanqueray[10] also pointed out the similar features of lofts as open plan where the industrial and useful materials are becoming the new domestic; the usages of flexible furniture that are informal and independent, which are not depending to the rooms appeared; gave freedom to their user instead of traditional residential use and traditional approach to design; the parameters of interior style have been changed and unprecedented design freedom has been started.

During the formation of lofts there is a juxtaposition of existing building and the new use besides a holistic view of the way that users use and enjoy the space[11]. Users have an interactive relation with the interior space. As Marcus[12] states, no matter what the space is, an individual add a personal touch to it; therefore personalizing it. According to Wynveen, Kyle and Sutton[13], space meanings not only related with individuals and their social interaction, but also related interpretations of a setting's physical attributes. Lofts furthermore present a unique exemplification of a user - space interaction while personalization and the creation of the sole interior atmosphere.

This study therefore shaped around the quest of the issues effective on the creation of unique interior atmosphere of the lofts as an alternative example of a space as a result of the adaptive reuse process besides the user-space interaction who believed to be effective on the created atmosphere. The way it presents an unconventional residential lifestyle besides appearing as one of the predominating examples of private space in different parts of the world recently, triggered the attention of the researches to convey a detailed research specifically on the created interior space atmosphere of lofts. As Norberg-Schulz pointed out: "Space denotes the three-dimensional organization of the elements which make up a place, and character denotes the general atmosphere which is the most comprehensive property of any place"[14]. Therefore it is assumed that lofts would be a significance instance of this statement and determined as the main scope of this study. Accordingly, at first, remodelling stage during adaptive reuse process and the features affecting the creation of interior space atmosphere is put forward briefly.

1.1 Remodelling

Currently, this process is one of the key study areas of the field of interior architecture. The interaction between new and the existing space pointed out recently by several researchers[15-18]. For instance, Brooker and Stone[19] ground their remodelling theory on the concept of "*interior sensibility*". This theory constituted the main backbone of this research that also shed a light on the development of a framework that is used during the exploration of the selected lofts. In the so-called concept, there is an acceptance of what is already on-site and a willingness to highlight those found qualities. Thus, narrative of the existing space can guide the architect; some particular or intrinsic qualities could be chosen and emphasized as the basis of design during re-modelling. Interior design process described as an act of creating interior space and a strategy that is naturally transgressive which interprets, conforms or disobeys existing orders[20].

As a result of the reading of existing qualities, Brooker and Stone stress on the ways (interpretation, conforming or disobeying), how architect could employ a particular approach to the development of the concept for the interior atmosphere mention that the approach could be broken into two distinct parts as *strategy* and *tactics*.

Accordingly, the overall design of interior and development of a general, overarching plan for the design of the space this is *strategy* and often dictated by the amount of integration between old and new, by the amount that the existing interacts with the proposed. The dictionary definition of strategy is "a plan of action designed to achieve a long-term or overall aim"[21]. Accordingly, at this stage the general approach besides degree of intervention and its steps could be planned.

Brooker and Stone[22] states, "strategy is general information of existing building for interior design such as history, context, function and form and how it controls the proposed design of interior spaces". An architect can develop the strategical approach either by electing to fully hold the given restrictions and limitations hence propose an interior that is responsive to its contextual environment or can choose to reject the constraints and influences of the existing space and create an interior that is autonomous[23].

On the other hand, Brooker and Stone[24] states, tactics are the details of design proposal and intimate detailed design of the individual elements, which gives character to the space. The dictionary meaning of tactic is "a plan or procedure to achieve a result"[25]. These intimate details support the strategic approach of interior space and thus tactical employment of materials and elements support architect's particular approach. Furthermore they form an extensive, expressive, and significant design vocabulary and its meaningful manipulation imbues/fills interior with its character and quality. The tactical deployment of the detailed design can also be informed through a comprehensive and meticulous study of the existing on the other hand. For instance, through the use of materials and forms and detailed design, in a subtle (elusive/intangible/hidden) or ostentatious (flashy/attractive) manner,

the designer can connect the interior with its situation[26]. In addition, these are physical and aesthetical characters of an interior and planes, form, color, texture and other design elements and fundamentals within the interior is important for space values which is called artistic value of interior spaces[27]. The artistic value contains the artistic aspects, sprit of the space, structural, functional and material honesty, and tradition and vernacular values. Furthermore, Gang[28] stated, artistic value contains, architectural heritage due to its spatial composition, plan, color and texture patterns, material, texture, façade style, fine details and structure of a space. Additionally, artistic value of a space can be defined as an aggregation or a composite of its cognitive, aesthetic and possibly historical value.

Since one of the emphasized issues is the user - space interaction while personalization and the creation of interior atmosphere of lofts; the role of user should not be excluded from the tactics/course of interior space that need to be concerned while remodelling and designing the interior atmosphere. The interior could be accepted as the narrative of life due to personality and character of the space since design of it represents the image of user/character. As it is stated by McKelfresh, Clemons, Banning[29] "…interior space is the most effective element between human and environment that ties deep relationships between them".

Accordingly, as a result of the abovementioned issues, framework below is established to guide investigation of the selected loft cases with the lenses of interior sensibility concept (Table 1).
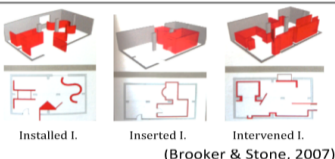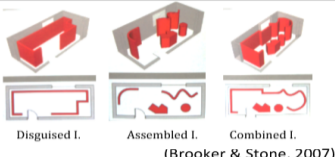
Table 1. General framework of investigation based on Brooker & Stone's interior sensibility concept
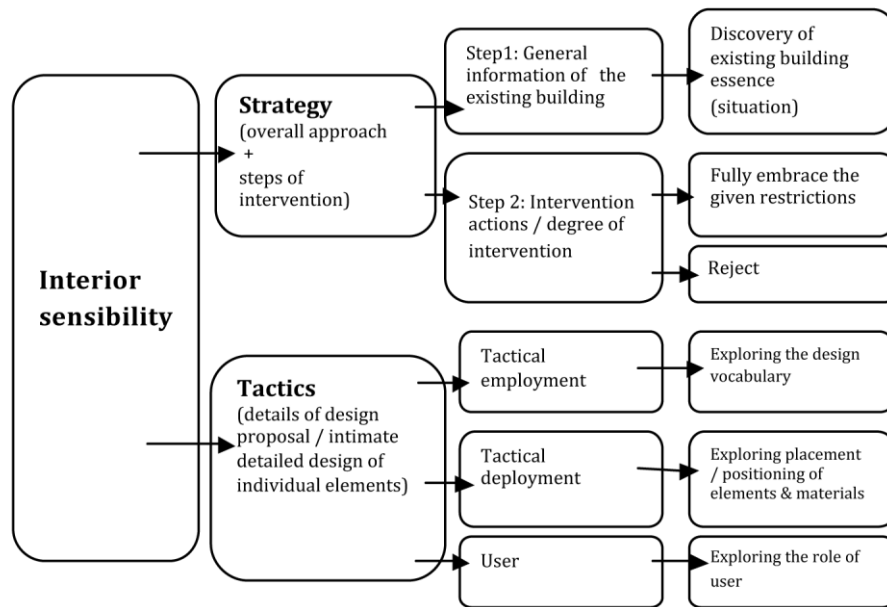
2. Methodology
A qualitative research approach was employed to conduct this exploratory study. Cases form 2 different metropolitan cities of the world London and İstanbul has been determined for the study. Accordingly, interior sensibility within artistic values in the selected lofts was explored through the investigation of strategical approach and tactics. Above framework elaborated with the additional indicators that are used as the main instruments of an analytical investigation (Table 2).

Table 2. Method/Model for Exploring Interior Sensibility

Interior Sensibility				What to measure	How to measure
	Strategy (overall approach of intervention + Steps of intervention)	*Step1:* General information of existing building		Discovery of existing building essence	Exploration of existing building: value, building typology (form + function), structure, construction material, space organization (# of story, proportion of space)
		Step 2: Intervention actions / degree of intervention		Discovery of what to preserve, change and how to intervene	Decision of fully embrace the given restrictions (**Responsive**_ Installed, Inserted, Intervened) Installed I. Inserted I. Intervened I. (Brooker & Stone, 2007)
					Reject existing restrictions (**Autonomous**_ Disguised, Assembled, Combined) Disguised I. Assembled I. Combined I. (Brooker & Stone, 2007)
	Tactics (details of design proposal / intimate detailed design of individual elements)	Space Aspects	*Tactical employment*	Exploring the design vocabulary	Assessment of materials + elements used (plane, object, surface, light) in order to understand their manipulation that imbues interior with its character.
			Tactical deployment	Exploring placement / positioning of elements / materials	Exploring elusive / subtle (discovering the hidden/ intangible issues) to find the connection of interior with its situation
					Exploring ostentatious / flashy (discovering the attractive issues) to find the connection of interior with its situation
		User Aspects		Exploring the role of user	Discovering effect of user (culture-social aspects) on the modelling of interior space - gender, age, marital status, # of users, occupation, hobbies / interests etc.

3. Case Study: London Real Lofts and Istanbul Set-up Lofts

Three real loft spaces at London and 3 set-up loft spaces at Istanbul were explored during years 2012-2016 through on-site observations. Entirely, 10 loft spaces were observed during 2012-2016 at Istanbul/Turkey that was organized as set-up lofts. Consequently, 3 of them have been selected as the cases of the study, which were the most frequently used industrial buildings, subjected to an adaptive reuse process as set-up lofts. Furthermore, 3 real lofts from London were selected among observed 10 lofts as the cases of this study for a comprehensive investigation. It is believed that determination of the cases as real lofts and set-up lofts would bring a diverse dimension besides an opportunity for a comparative discussion to the investigation. Since the main scope of the study is the adaptive reuse process and the conversion of industrial buildings into a new function that is living; set-up spaces assumed to be a significant instance for this process as an alternative approach. However, there is exhilaration of the aspect that the created living space is "Virtual in reality" but the perceived interior space is "Real behind the screen". More than their virtual nature, the perceived space on the screen is taken as the case of exploration as real cases. Furthermore, taking set up spaces as the cases of this study also possesses auxiliary significance since set-up spaces are one of the essential study areas of interior architecture and film industry is a vital sector for the sustainable use of existing building stock.

London has been selected as the area for real cases due to its prominence as being one of the origin cities in Europe throughout the spread and evolution of lofts. Furthermore, as Gyford[30] stated "London is a prime location for flagship, high-profile regeneration projects that reflect its symbolic and political pre-eminence" and as a result of the urban regeneration process many different loft cases arose as a result of the adaptive reuse of many industrial buildings. And Istanbul selected as the case for set up spaces since it is one of the prevailing cities of film industry in the last decades especially with the serials sold out to various countries and as loft spaces appeared repeatedly in several serials often recently.

3.1. History of Selected Six Lofts from London and Istanbul
3.1.1. London Lofts: There are selected 3 different loft spaces from London that were determined as the cases of this research. Loft 1 was built in 1840's and re-modelled to loft apartments in 1990's. The old function of this building thought to be clothing, furniture or printing warehouses[31]. Nowadays, the user of this loft space is a family who has 2 children. The age of parents are around 40's years old. Loft 2 is named as Banner Building. It was built in 1840's and re-modelled into loft apartments in 1996. At the beginning, it was used as a glue factory[32]. Current users are architects who designed the interior of this space in its current situation. They are two males who are around 40's. Loft 3 is named as Royle Building. The building was built in 1826. Old function of this building was printing warehouse. This loft space was designed between 1997 and 2000[33] and user is a couple around 30's who don't have any children.

3.1.2. Istanbul Lofts: There are selected 3 different loft spaces from Istanbul as the cases of this research. Loft 4 was built in 1950/60's. The old function of this building was warehouse of carbonated water. In these days, it is used as set-up loft for serials. One of the serial is "Intikam" that was analysed for this study. The user (character) of this loft is a male around 30's. He is a stockholder and owner of a communication company. And he is single. Loft 5 was also built in 1950/60's as soap factory. It was used for "Son" serial. The user (character) is a male around 30's and he is an architect who is single. Loft 6 was built in 1810 as shoe factory. In these days, it is used as plateau for serials and films. There is a loft space, which was used at "Gunesi Beklerken" serial. The user (character) of this loft is a student who is 17 years old. He is a male and single.

4. Results: Exploring Interior Space Atmosphere Of Lofts Through The Lenses Of Interior Sensibility Concept
4.1. Exploring "strategy"

Exploration has been initiated with the discovery of existing building essence. Survey revealed that original function of the buildings were industrial usage such as glue, soap or shoe factory and printing, clothing or carbonated water warehouse. It has been determined that there are several differences between building forms besides structural system and construction materials. London lofts are multi-storey apartment type masonry buildings constructed with load bearing system mixed with skeleton structural system whereas İstanbul cases are single volume / double storey load bearing buildings either constructed with brick or stone material. It has been revealed that variety between existing building characteristics provides diverse opportunity of formal and spatial intervention; lower storey height would limit the formal intervention whereas the higher single volume would open up the degree of intervention.

Accordingly, it has been investigated that all of the London loft spaces were remodelled by an *autonomous approach* where there is a majority in rejection of the existing building character and existing building essence is perceived limitedly whereas the design of interior space was provided independently from the existing building. Survey revealed that the character of new designs emphasized in the interior space, which has their individual

independent design identities; existing wall surfaces are covered in some cases or a dominant element is created. It has been achieved that combined interior, which is a subtype of autonomous interiors, were preferred in 3 cases in order to organize London loft spaces; main volume of the existing building was divided into different spaces with the help of vertical and horizontal planar elements.

On the contrary, survey investigated that Istanbul lofts were remodelled by the *responsive approach* where existing building restrictions were fully embraced and it controls the proposed design; new interventions have strong ties with the existing building's character. Furthermore, character of the existing building has dominancy in the interior; existing building possibly perceived from planar elements. It is revealed that 2 cases in Istanbul set-up lofts were organized with installed interior; linear, folded and curvilinear planar elements are used as vertical planar elements in order to define surfaces. Although set-up lofts were designed with responsive interiors, there is one case, which was designed with autonomous interiors. Correspondingly like as London real lofts, combined interiors were used to organize this loft space (Table 3).

Table 3. Explored strategy of six loft spaces

London Lofts		
Loft 1: Autonomous Interior - Combined	**Loft 2: Autonomous Interior - Combined**	**Loft 3: Autonomous Interior - Combined**
Istanbul Lofts		
Loft 4: Autonomous Interior - Combined	**Loft 5: Responsive Interior - Installed**	**Loft 6: Responsive Interior - Installed**

■ ⟶ Existing   ▩ ⟶ New Addition

4.2. Exploring "tactics": Space Aspects "tactical employment / tactical deployment" and User Aspects
4.2.1. Space Aspects – Tactical Employment (Exploring the design vocabulary): This study revealed that tactical employment in the explored cases has mainly achieved by the manipulation of vertical planar elements. For instance, preserving existing building walls with their original character retain significant role in the creation of different spaces within the London real lofts besides partition walls whereas the horizontal planar elements do not have the principal role in loft interiors. On the contrary, it has been determined that more than existing building planes, self-supporting vertical planar elements maintain the significant role in Istanbul set-up lofts. Furthermore, it is explored that elevated spaces in the volume were also created with horizontal planes.

As a result of the exploration of "object manipulation" that is one of the primary instruments of tactical employment, this study put forward that the main effective type of objects are displays; accessories and intimate visual details of spaces. It is determined that displays reflect an essential role both in London real lofts and Istanbul set-up lofts that were used especially for the personalization of interiors while imbuing a peculiar meaning to the interior of lofts. One could see that it is the display that essentially defines the character of interior atmosphere of loft spaces; functional or visual accessories were used in loft spaces such as wall hanging lamps, pillows, a retro telephone, comic figures or bicycle used as display object within the space (Figure 1).
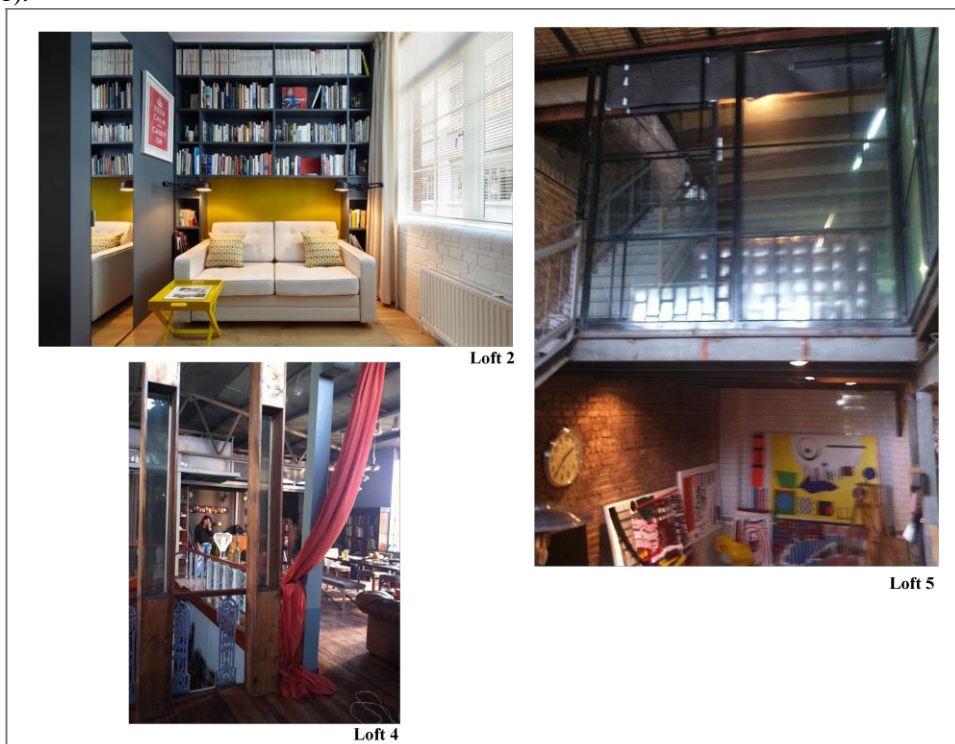
Fig. 1. Tactical employment at London and Istanbul lofts, Photograph by Zehra Babutsali

*4.2.2. Space Aspects – Tactical Deployment (Exploring the use of forms and materials):*Preservation of the existing structural elements and using them as found object as a part of interior space encountered repeatedly in London loft spaces as an instrument of tactical deployment as a result of this study. Therefore, existing columns such as cast-iron, timber or concrete were explored in the cases that retain a significant role to connect interior with its situation. Furthermore, it has been exposed that, freestanding furniture deployed as the focal element within the interior space in several London and Istanbul lofts such as a long dining table or a shelve system; used as a significant character defining ostentatious objects (Figure 2).
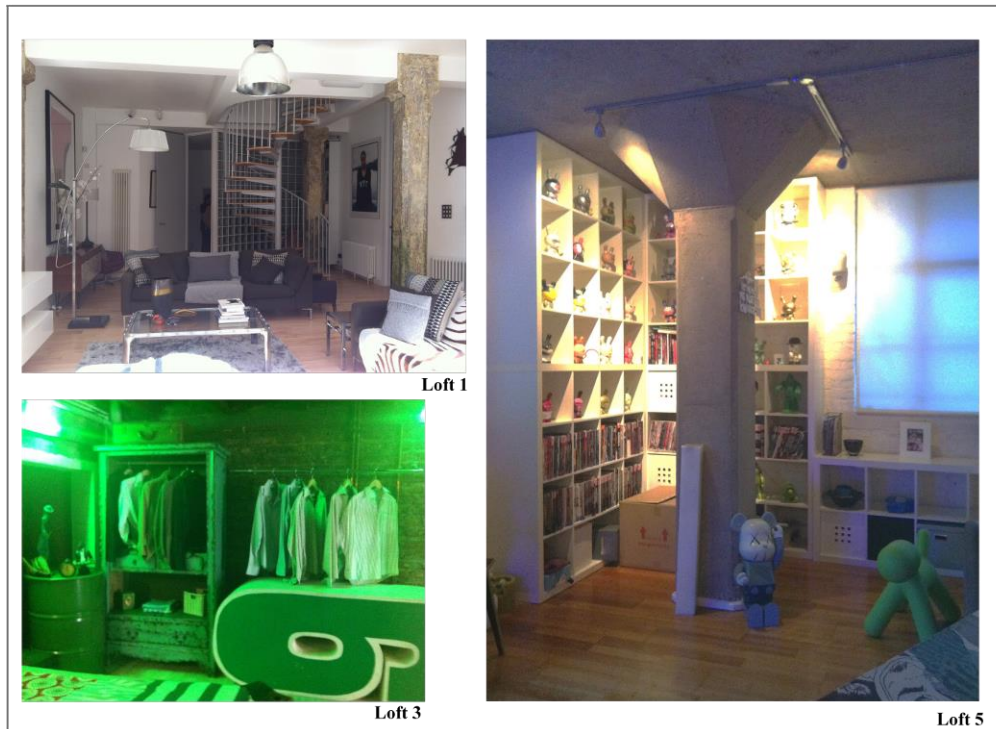
Fig. 2. Tactical deployment of existing columns and furniture in London and Istanbul lofts, Photograph by Zehra Babutsali

It has been revealed that surfaces and their alternative treatments are chief effective deployment tactics in London and Istanbul loft spaces. For instance, it has been explored that the use of colour specifically emphasized individual design details such as displays. Particularly, tactile texture of existing wall surfaces is deployed as a part of design; either used with its original character or painted in white has been observed in London lofts; strongly connects interior with its situation. Furthermore, it has been detected that visual perception of the created interior atmosphere is achieved through the use of both natural and artificial lighting elements in the surveyed lofts; the big existing cast-iron windows were preserved and natural light penetrated inside the spaces. In turn, it has been found that different artificial sources could be seen in London lofts as ambient, task or accent lights. Alternatively, artificial lights are used on floor and furniture, which were designed as freestanding lighting elements while in the Istanbul set-up lofts, ambient and focal lights were used. Besides, lighting elements were used on furniture as freestanding to be a part of display of loft space (Figure 3).
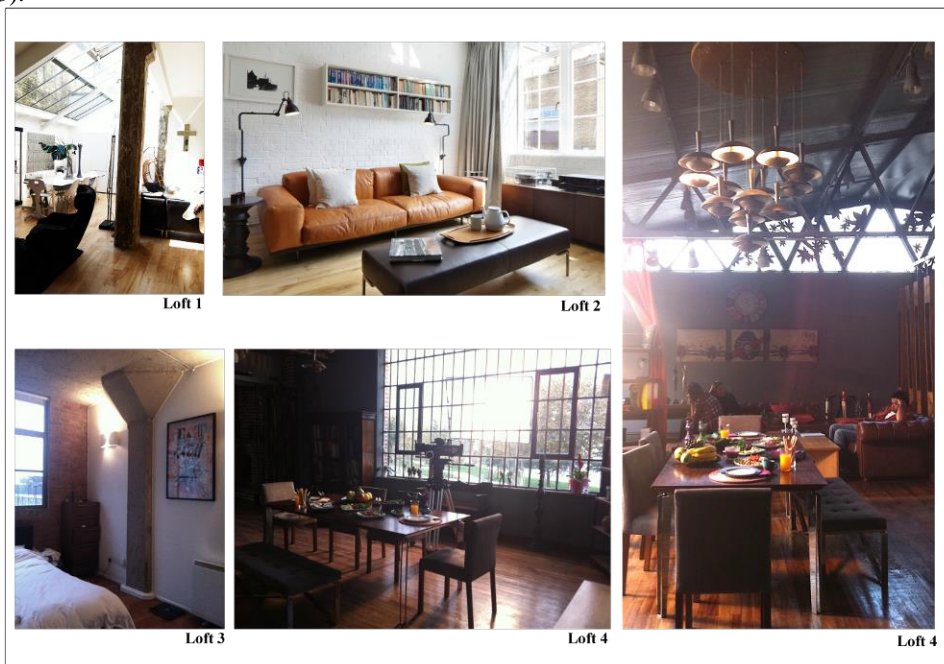
Fig. 3. Tactical deployment of surface finishes & lighting in London and İstanbul lofts, Photograph by Zehra Babutsali

4.2.3. User Aspects – Exploring the role of user: It has been revealed that there is a special emphasis on the personalization of the observed cases. Accordingly, effect of user on the created interior atmosphere of lofts evaluated through exploring users of the selected cases. As it was aforementioned, the interior could be accepted as the narrative of life due to personality and character of the space since design of it represents the image of user/character. Accordingly; as a result of the exploration of 6 loft cases this study put forward that users of London lofts are family-couple around 40 years old with 2 children, two male users that are architects around 40's and a couple around 30's with no children. Besides, users of İstanbul lofts have been detected as a male user around 30 years old, a male architect user around 30 years old and a 17 years old male student. As a result of the exploration it has been noticed that each case was personalized distinctly by their users. One could see that there are certain features in the spaces, which characterize the interior atmosphere specifically. For instance, Loft 1 (London), which belongs to a family, possesses a more domestic atmosphere compared to the 2 other cases in the same building. However, one common feature investigated in all three cases is the display elements that reflect either interest of the users or their profession. Loft 2 where two male architects live is designed with a thorough order of objects on the wall or on the shelves manipulated within a tranquil atmosphere. Furthermore, at Loft 3 it is observed that on one side personal items of the users exposed as displays and on the other side there is a demonstration of numerous animation figures in the spaces at various corners; investigated as the chief elements defining the atmosphere.

Furthermore, it is explored that İstanbul lofts also possess similar effect of user / space interaction on the definition of interior atmosphere. Per se there are certain display features existing in the explored spaces that were found effective on the formation of the atmosphere. In Loft - 4, repetitive order of display elements on the wall in various spaces, in Loft – 5, several found objects or retro objects such as empty bins as visual / functional objects besides exposition of books as visual objects in the space and in Loft – 6, several objects that reflect users interests such as boxing machine, a table full of painting / sketching equipment in the middle of the space or found objects as furniture were investigated in the space that defines the interior atmosphere (Figure 4).
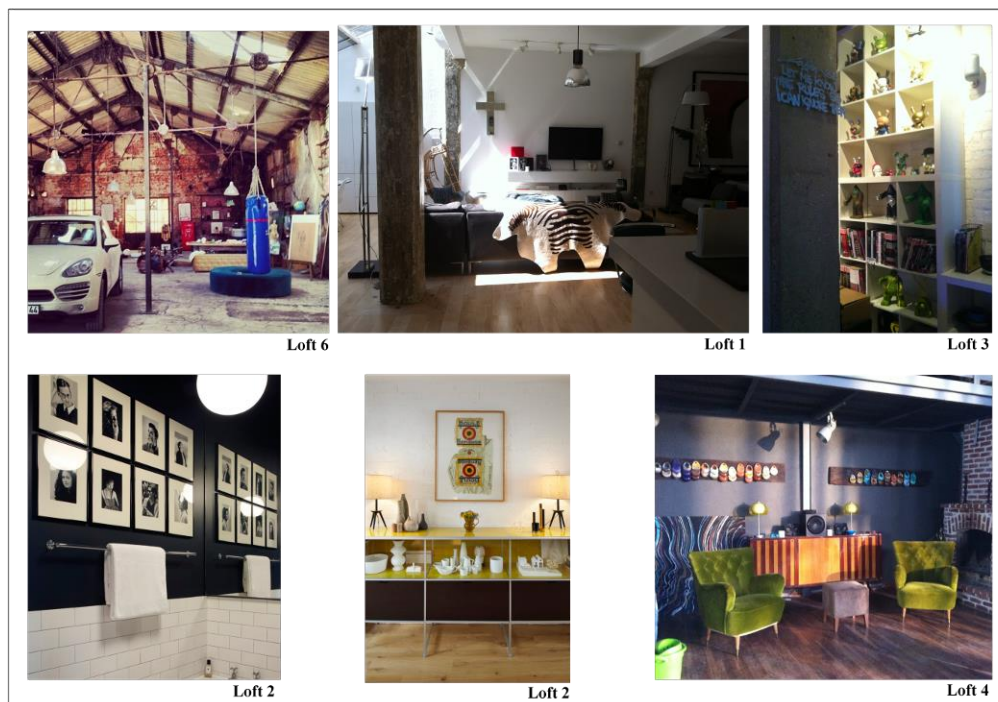
Fig. 4. Personalization of London & İstanbul Lofts, Photograph by Zehra Babutsali

5. Conclusion

This study therefore concluded with the exploration of the issues effective on the creation of unique interior atmosphere of the lofts that are significant cases of adaptive reuse process besides the consideration of user-space interaction due to the created sole atmosphere. Accordingly, as a result of the exploration via lenses of interior sensibility within artistic value at two different types of cases, study put forward that existing building form is a decisive factor of the remodelling process. Thus, survey highlighted the effect of building form on the overall approach of intervention (strategy) and spatial / formal intervention. Hence it is investigated that surveyed lofts with lower height followed an autonomous intervention whereas the higher ones followed a responsive approach of intervention. It is also revealed that the type of remodelling approach is effective on

the influence of existing building character on the created interior atmosphere. It was observed in London lofts that existing building character predominantly veiled due to the organization of new sub-spaces according to the new use as a result of autonomous intervention.

Results of the tactical employment exploration put forward that in the autonomous loft interiors (mainly London real lofts and 1 İstanbul setup loft), manipulation of the existing building planes and additional vertical planes are effective on the created interior atmosphere. On the contrary in the responsive loft interiors (2 setup cases in İstanbul) it is explored that freestanding vertical planes besides horizontal planes organized the space as a result of the restrictions given by the existing building and those new elements are decisive on the created interior atmosphere more than the existing building. As a result of these findings this study conclude that two different strategy brought either permanency or flexibility in to the created interior atmosphere due to the manipulation of existing building planes and the organization of space via freestanding elements. As it has been mentioned beforehand by Culto[34] that lofts has *"minimalist strategies. This is not a minimalism related only with smooth surface areas that are white colour; this is a minimalism used to create useful and flexible homes".* Findings of this study support this statement and further revealed that in responsive situations more flexible loft interiors could be created.

Furthermore, as a result of this exploratory study, one of the achieved results put forward that tactical deployment of displays are one of the main decisive factors in the created interior atmosphere, which is manipulated ostentatiously when it is compared with another type of living space such as an apartment flat or a detached house that has quite different interior atmosphere. Especially, either handling of the selected objects or the involvement of the found industrial object within the interior that belongs to the previous function of the building brought a peculiar essence to the interior and makes the interior atmosphere unique compared to the habitual ones.

As last but not the least, investigation up on user – space interaction concluded that users have an effective role on the achieved interior atmosphere. Especially, this study revealed that users' personal objects manipulated specifically and differently that imbues interior with its character. It is revealed that there is a variety in the definition of interior space atmosphere and users preferences found very decisive on this variety. Accordingly, this study concluded that both existing building characteristic and also users affect the created sole interior atmosphere and created interior atmosphere is unique, hence makes lofts alternative living spaces.

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RE-ESTABLISHING THE "HOME": A CASE ON SYRIANS IN TURKEY

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Abstract

The civil war that started in Syria in 2011 have made the migration phenomenon as a current issue both Turkey and the World. No doubt that, every act of migration has a 'challenge' in itself. The most important of these challenges is the acquiring of livable place that evolves due to the need for shelter that is one of the most essential needs of humankind. On that point, the task of the people, who specialized in the disciplines of design and architecture, is to draw this contemporary issue through the spatial aspects of migration. Today, the spatial distribution of migration in Turkey is divided into two groups as accommodation centers and cities in general. In the case of emergency, well-intentioned accommodation centers were built as temporal response to this problem to find an immediate solution. It is aimed that meeting the basic human needs in the proper way, but these spaces couldn't give the feeling of being at home. Instead of staying in the accommodation centers, due to the various difficulties and dissatisfactions experienced in these areas, the process of acquiring a place by migrating to various cities results with establishing a 'home'. In the process of searching for livable place and re-establishing of the home, individuals past experiences and the role of the new place in memories becomes essential. Therefore, this article focuses on this issue within the scope of the theoretical framework based on 'acquiring a livable space', 'developing sense of belonging' and 'establishing a cultural attachment'. This framework will be used for understanding the re-establishment of 'home making' process of Syrians living in Sultanbeyli, İstanbul, Turkey within the content of the field study conducted in 2016.

Key Words: (Migration, livable place, sense of belonging, cultural attachment, home)

1. Introduction

Turkey has embraced the Syrians escaping from the civil war and conflicts in Syria since 2011. Turkey has hosted Syrians with 'Open Door Policy' during the beginning of the war. After that, they have been recognized as 'Syrians under temporary protection' since 2014 according to Temporary Protection Regulation formed by Republic of Turkey Ministry of Interior Directorate General of Migration Management (1). Syrians are the most crowded population among the nations coming to Turkey from the surrounding countries, and having a shelter is one of the biggest problems encountered by them both within Turkey and other neighbor - western countries.

Despite all the negativities that have taken place; against all the difficulties, the shelter needs of some of Syrians in Turkey were solved by temporary accommodation centers consists of tent cities and container camps in the short and midterm timespan in the beginning of the war. On the other hand, the shelter problem of the Syrians, who were distributed in different provinces and districts of Turkey over the time and whose number is extremely higher than those living in the temporary accommodation centers, is a current significant problem requiring to be argued immediately.

So, this paper focuses on the housing problem of Syrian families living out of the accommodation centers. In the beginning of the first migrations to the cities, it was observed that the Syrian families were living in the places that were turned into residential places form abandoned venues. However, they have adopted to a settled life over time and preferred to live in residential environments such as apartment flats around. Nevertheless, as it is faced during the field study conducted with Syrian families in 2016[1], not every house is a 'home' for people. Because, house is a concept referring 'where we live', however the home describes 'how we live' essentially.

Based on this, the acquiring of a livable place after a migration, which is explained as a displacement action, will be examined in the framework of 'home' concept in this article. It is valid to emphasize that home

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1 The field study which is mentioned in this paper was held for the Interior Architecture Project III, conducted by Assoc.Prof.Dr.Özge Cordan as an advisor, under the scope of International Masters of Interior Architecture Design Program-IMIAD in 2016. This field study was used for developing a research project titled "Determination of the Housing Interior Design Principles and Developing Design Proposals Suitable for the Modern Life and Cultural Conditions for the Adaptation of the Syrians under Temporary Protection" and granted by TUBITAK with the grant number 118K441 in 2018. The results in this paper is based on the first field study which was conducted with Syrian families living in Sultanbeyli neighborhood in Istanbul in 2016. The second field study, which has started in January 2019, is still in progress under the scope of TUBITAK research project. So, there would be no comparative analysis and discussion of the field studies in 2016 and 2019.

is more than having a basic shelter and migrants have gone through the process of transforming their living space into a real home over the years. In this context, this paper is related to how Syrian families re-establish their homes again, and how much they can access the real meaning of 'home' for themselves after leaving their own values behind. The target of this study is to make a query about how to establish a 'home' after a disaster or a war, in another country within the theoretical framework based on acquiring a livable space', 'developing sense of belonging' and 'establishing a cultural attachment'. This framework will be used for understanding the re-establishment of 'home making' process of Syrian families living in Sultanbeyli, İstanbul, Turkey through the field study within the scope of interior architectural discipline, conducted in 2016.

2. Theoretical Framework

This study examines the re-establishing of home based on migration phenomenon for Syrians. As it is shown in the graphical documentation below; the theoretical framework of re-establishment of home is formed around the 'acquiring a livable space', 'developing sense of belonging' and 'establishing cultural attachment' (fig. 1). While the terminology of 'home' is discussed around the reference from Lawrence (1987); 'acquiring a livable space' depends on Pala (2015); the 'sense of belonging' is based on Gifford's (2014) studies; and the 'cultural attachment' is formed with the help of Rappaport (2004).
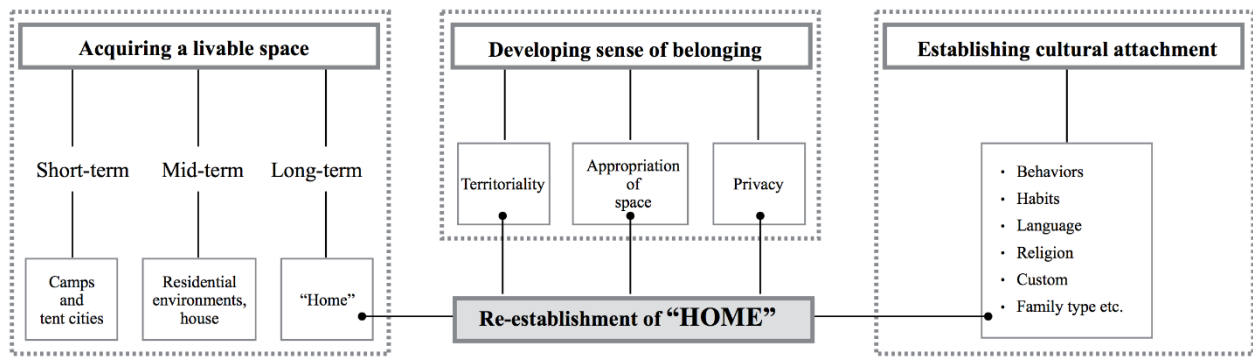
Fig. 1. Graphical documentation of theoretical framework

2.1. Process of Acquiring a Livable Place after Migration

In the history of mankind, societies have sometimes migrated compulsorily because of war, deportation, disasters, and sometimes voluntarily hoping for better living conditions. It is valid to say that migration is a dynamic that accompanies social, economic and cultural changes and reshapes the spatial distribution of the population and it is a dynamic of the population caused by human mobility and geographical transportability. For this reason, migration is a social change process that involves the geographical displacement of people to settle for some or all of their future life. Migration calls an act of 're-location'. Above all, displacement should be argued as a spatial phenomenon. With the current international migration actions, the 'border' that forms the 'walls' of a space has become a popular concept considered. While the borders are getting higher and thicker on the one hand, at the same time they are over crossed, drilled, redrawn or losing the meaning (2). So, it is certain that the border is not constant. Especially as architects, it is usually a material or a space presumed when the meaning of the border is considered; the border is thought as a wall or a wire mesh. However, as Bedir mentions (2), the actual border is neither the line that appears on the map nor the wall itself. The border can be assumed as a situation in reality which always getting softening – tightening, sometimes it becomes perforated or solidifies suddenly.

Both because of the 'flexibility' of borders as mentioned above and 'Open Door Policy' of Turkey, Syrians have first crossed over to Turkey with big masses. Most of them are often placed in schools, gymnasiums, unused warehouses and factories as an urgent solution in the early stages of the crisis. Temporary shelter needs for displaced population in Turkey was required to be planned suddenly as a result of that, the governance designed the first planned and managed camp in Hatay, Yayladağı in April 2011in cooperation with AFAD (3). In the later stages, most of Syrians were placed into temporary accommodation centers around. It can be said that temporary accommodation centers are intended to meet only basic housing needs with a few social areas. The daily practices of Syrians living there transformed these places over time. Each individual tends to use the space given to him / her out of its defined function by transforming it with his / her own daily life needs, way of living etc. When the continuous and daily re-produced movement of the space is considered, it would be a mistake to say that the space will remain unchanged. As Lefebvre (4) mentioned, while the user interferes to the space, the space interferes to its occupants at the same time and this brings the

spatial transformation. People in the accommodation centers move towards transforming the environment and establishing permanent living conditions according to their own habits, although they live in places designed by the rules determined by AFAD. Although the temporary accommodation centers provide a solution for the problem of shelter in an urgent and temporary period, it is obvious that the areas defined by boundaries that contain compelling conditions. According to Gürkaş and at all (5), everyday life is defined around 'temporality' in those centers. As they mentioned that, all humanitarian needs are planned to be met here, but this is still not a 'home'. Syrians, who are stuck in these areas that are not certain (home and non-home), hope that this situation will pass and life will return to the 'normal' one day.

Today, there are 3.636.617 Syrians under temporary protection and just 143.068 of them living in the temporary accommodation centers in Turkey (6). After the war, the acquiring of a livable place of Syrians out of the accommodation centers is not just physically migrating from one place to another, it is also to set a new life on the arrived place with the memories of place left behind. The process of re-building a normal life for Syrians consists of these steps; first is developing the sense of belonging and second one is establishing cultural attachment after providing the basic family needs by focusing on the vision of the present and future.

During the process of acquiring a livable place, the past experiences of people and the image of space in individual and collective memory plays an important role. Briefly, this process, which is called as a relation between human and space, can be explained with 'spatial meaning' formed after the perception and comprehension which are both mentally and emotionally emerged actions (7).

Thus, 'acquiring a livable place', 'developing sense of belonging' and 'establishing a cultural attachment' are closely related concepts with each other. With migration phenomenon, people bring their values, judgments, culture and identity to their new environment. People in search of livable places have most impact on residential environments and neighborhoods. While migrants try to establish a relation with the current environment, the problems about sense of belonging, which should be considered in spatial meaning, manifests themselves.

2.2. Developing Sense of Belonging

Geçkili (2018) says, the actual requirement of a migrant is 'sense of belonging' while establishing new ties to the new environment (8). Adopting to the social and physical space and to create an attachment to the new place after sudden displacements becomes difficult, if the characteristics of re-located place does not show similarities to the original. For this reason, the question of 'where do migrated people belong?' becomes essential over time for the migrants, who interact with the new living environment.

According to Maslow's Hierarchy of Needs (9), the need for 'belonging' is the third important step of pyramid, coming after physiological needs and safety ones. In general terms, the identity of the individual or a group and where they are from are directly related to the concept of belonging (Fig.2).
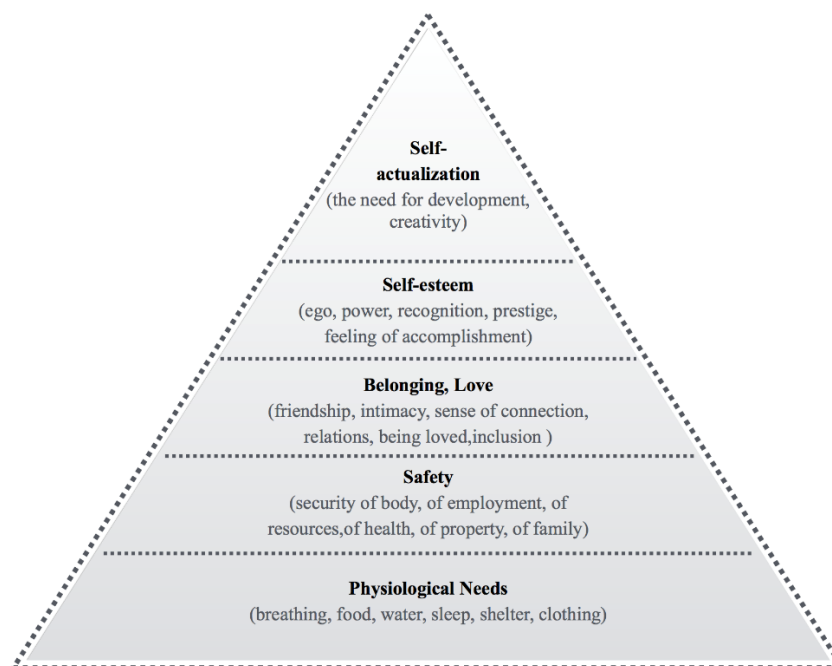

Fig. 2. Maslows' Hierarchy of Needs (9)

Sixsmith, investigating the concept of attachment to the place of the immigrant individual, examined this subject in personal, social and physical dimensions (10). The individual dimension of belonging is the ability of a person to express himself well, to be able to relate the meaning around and to show attachment to a place he/she feels. In the social dimension; it is important to established relations with others and qualities of these relations, the satisfaction level of activities conducted in social environment etc. and it affects the belonging of individuals to a space. When the physical environment is directly related to individuals in quality and quantity manners; space, the structural characteristics of a space and other spatial and physical values of it become an integral part of the system (11). In Figure 3, personal, social and physical dimensions were shown.

Personal		Social	Physical
Happiness	Privacy	Type of relation	Infrastructure
Belonging	Time	Quality od relation	Services
Responsibility	Places that make sense	Social environment and activities	Architecture
Expressions	Information	Emotional environment	Working environment
Critical experiences	Desire to go back	Critical experiences	Spacial aspects
Permanence, persistance		Others	

Fig. 3. Attachment of a place: personal, social and physical dimensions (10).

Arayıcı (2015), explains the attachment of a place as belonging to a specific culture and understanding the language formed by experience and communicating with it (11). While the space is a physical tool in this communication; the communication is related to society, geography and time. The traditions, habits, myths and common experiences that make society; the human characteristics of the geography experienced on it, the state of being in the world, the life span and the sense of common history that associate himself with the society in which he/she lives are the main factors that shape the space and communicate on it. When a person influences the space, the space responds as another impact on the person and a spatial communication occurs between them. This dialog between space and the occupant turns into a 'spatial belonging' over time (8).

If the 'home' is considered as a place where the communication between person and space can be observed in its natural form, spatial belonging thought to be analyzed as a feeling of being at home. To give an example; being a refugee in a country points some drawbacks about ownership. Especially, when the low economic status of Syrian families is thought, the conflict occurs between ownership and not having a property resulted from being a refugee. This can be interpreted as follows; as much as spatial communication, being owner of that space or being a tenant affects the feeling of belonging.

It might be claimed that, those in the space are able to explain their identity with common values. However, for migrants, there are transitional spaces experienced instead of exact ones; and being in or out of a place becomes difficult to define for displaced persons. It is not possible for individuals who migrate across countries to belong to certain places with sharp lines and to talk about certain boundaries, because their identities are moving, mobile and permeable (12). Therefore, belonging is a contentious and multidimensional concept that needs to be positioned at different levels. Eyinç (2015) shortly explains the dimensions as fallow; while macro level of belonging refers supporting an imagined society or community, meso level explains sharing similar ideas or ideologies with people in surrounding, and lastly micro level of belonging describes the level of individuals' adoption of daily life relationships (13).

In this situation, migrants must have long-term 'time-space-society' relations to complete the process of belonging at the macro and meso levels. On the other hand, the state of belonging referred in the micro level is important for how much life can be fulfilled in daily life practices and how much similar is this new life to the life behind gains importance.

So, sense of belonging and the attachment of a space are related to the space, time, memories, experiences, social relations, culture, psycho-social requirements, identity, ownership; they develop with the perception by current environment. Sense of belonging and attachment to a place are evolving as a result of the dynamic relationship between the individual and the environment. Appropriation of space, territory and privacy issues are important needs in migration process, play an important role in creating the sense of belonging as well.

2.2.1. Appropriation of Space

The appropriation of space includes the meaning of an individual to do something for himself / herself and to use it for his or her own benefit and to accommodate the characteristics of the sustained spatial environment. According to Lefebvre, appropriation of a space means a modified natural space to meet the needs and

opportunities of users (4); so, this is considered to be the best and most necessary condition satisfying the feeling of belonging with a property as mentioned above. Kılıçkıran (2018), by giving reference to Miller emphasizes that; while the user tries to make the place appropriate for him/her, he/she changes and adopts himself/herself to the place, he/she is transformed unconsciously by that place at the same time (14). According to this approach, appropriation is understood as a process of mutual reconciliation for space and user.

Three types of appropriation model are mentioned by Güleç (2017); while the physical appropriation is defined as the physical entity of the group in a space, the social appropriation is greeting, establishing relations with others, and relaxing in social environments (7). The third type is territorial appropriation explaining the control of the home and close circle of home environment and asks how much the user feels free in this limited space.

Since there are 'making' and 'acting', the appropriation presents itself as a transforming and changing process. This also shows that appropriation is a user authority and audit indicator that appears in the transformation of a place (7).

To make an appropriation in the space for Syrians, feeling of ownership and defensible space play an important role in the frame of belonging. In ownership, the control of personal domination area is controlled by the same people and thus the protected / defended space emerges against the psychological and physiological threats. Places are protected as much as they are owned. As the space is defensed and used, the ownership gets increased.

2.2.2. Territoriality

One of the most important factors for the formation of belonging is that people can create a territoriality in their environment. Territoriality for humans is a pattern of behavior and experience related to the control, usually by nonviolent means such as occupation, law, custom, and personalization, of physical space, objects, and ideas (15). According to Lang (1987) the domain of territory is used as a mechanism by people to formulate the limitation against others (16). For Gifford, males are often more territorial than females (15); that is also quite common in Syrian culture.

Territoriality mainly covers the behaviors of personalization and marking of a space. Marking means placing an object or substance in a space to directs one's territorial intentions. On the other hand, personalization means marking in a manner that shows one's identity.

The sense of temporality that develops with the action of migration, results in a search for re-establishment of territoriality on a place for users. People, in a production effort in such an environment, try to make the place appropriate as their own, express their differences through the space and reflect their lifestyles into the environment.

It is mentioned that a repetition of a previous production action, while calling the Syrians' re-establishment of residential areas. This situation is a very complex area which has a wide place in architectural theory, including the original and the copy, the primary and the secondary, the real and the virtual concepts. People, escaping from the spaces which are in the extinction process and out of control of the user territoriality, create one of the sociological phenomena supporting the acquiring a livable space because of seeking for a new settlement as a refugee.

2.2.3. Privacy

There is a very close connection between privacy and territory and the need for privacy is supported by the territoriality. People, who cannot establish the territory, cannot create a privacy and then not able to be comfortable in their own environment. It is also a necessary factor for achieving the defensible space; if a place is not safe enough, the sense of privacy is not obtained. Shortly, privacy is the way of control of the visual or auditory relationship of individuals or groups with others.

The translation of concept term of 'private' is 'mahremiyet' in Turkish language, comes from the Arabic word of 'haram'; explains something that is hidden from others, unwanted to be seen, heard or known by them and prohibited by religion. Beside it is also used in terms of being secret, unqualified and intimate (17). In this direction, the situation of being private can be explained briefly as privacy.

According to Rappaport (2004), different groups require different privacy needs and shapes; privacy is a basic human need (18). It differs according to the form of relationship established by the individuals (7), the person who is connected, the type and the culture. According to various social status and culture, privacy is evaluated in four different titles; intimate, personal, social and public (7). While intimate privacy is about hygiene, health or sexuality, the personal privacy depends on the preferred distance with family and other close people like friends. On the other hand, the social privacy covers social relations such as business friendships, neighborhood and reveals itself in the area created with the expectation of social communication around the temporality. The last, public privacy occurs in an area where individuals do not expect to communicate directly with others and it is observed in the relations between the public spaces and the temporary relations between foreigners.

It is known that the concept of privacy is very important in Syrian families having more conservative living habits. With the concept of privacy that brings an introverted way of life, houses with inner courtyard, high garden walls, small windows are typical features of Syrian architecture. Privacy plays a decisive role for Syrians in the process of re-establishment of the home in other lands as well

2.3. Establishing a Cultural Attachment

In the process of establishing the 'home', it is valid to say that culture is the keystone because of its strong relation with space. Culture is formed by people who consciously choose and benefit from their experiences, beside it is a collection of assessments from the past (19). As Rappaport (2004) mentions, it is not an object; is an idea, a concept, a structure that people believe and tag for many things that they do (18). It encompasses both social behaviors and what people do, including material culture (20); social behaviors that are unique to the members of a particular society constitute a whole as custom, piece and behavioral models and they pass through generation to generation. Therefore, culture is a purely social phenomenon, and every society has its own culture

The common purpose of the culture is to present a life design that demonstrates how to do things in a variety of ways. Culture divides the whole into parts and gives meaning to each piece (18) according to Rappaport; thus, the positions of the objects to each other are determined within a frame. Meanwhile the groups begin to be identified; and it might be summarized as a mechanism that separates or differentiates the groups.

Migration is a movement of population that brings about significant changes in the social structure as well as being a geographic displacement process. Migration does not only lead people to geographical settlements, but also and more importantly, provides a critical perspective on cultural formations and new emerging cultural capacities. In this context, migration creates a serious changes and transformations in the social and spatial way of living. Since, the migrants move not only with their bodily assets but also with socio-cultural effects to the new living environment; they create a cultural interaction (19), (21). This interaction between migrants and the citizens of the host country has started the process of cultural change, mostly because of transported culture by migrants. Because the migration process leads to create a contact and communication between culturally and geographically separated individuals and it swaps the behavioral patterns between migrants and localities (21). Thus, new ideas are formed and culture enriches while becoming widespread. In short, the migrants carry their cultural pattern to the settlements where they migrate, and they play a role in the process of cultural transformation.

Culture is a learning product; in the basis of this learning there is a communication and interaction between people, whether through time, place, mind or intuition. Hence, all kind of abstract or substantial facts, elements and resources related to culture are created by human beings. In this way, it cannot be considered that the new homes produced by the immigrants entering the resettlement process will be independent of culture. It should be kept in mind as Rappaport mentioned (2004) that the mechanisms that connect man and place are cultural and change with culture (18).

3. Re-establishing the 'home'

Home is a key factor for re-establishing the living place especially for the migrated people such as Syrians. Since the loss of the house is not only loosing of an economic sphere, but also the lack of everyday life practices, culture, territory, networks of solidarity, belonging and therefore it covers a complete sense of self missed. Refugees placed in temporary accommodation centers want to protect their sense of 'home' as the focal point of their existence. As a way to build a territorial space, people have marked (considered as sense of belonging) some areas which are used by their own in tents in temporary accommodation centers (22).

The practices mentioned here include meeting the need for accommodation for the family, and furthermore, they can be read as an effort to create an area of existence. For this reason, instead of staying in the accommodation centers, Syrians aiming to transform the houses they rent in different cities are instinctively in search of the real meaning of 'home'.

According to Lawrence (1987), the house is a physical unit that defines and limits the space for the members of a household; it is just a build environment (23). It provides shelter and protection for domestic activities. Yet, the fact that houses in the same society have quite different shapes and sizes, and re-built with a range of construction materials, suggest that beyond pragmatic parameters, other factors are of at least equal importance in determining their design. For example, one purpose of the design of each house is to distinguish between public and private domains. These spatial relations express the administrative, cultural, judicial, and sociopolitical rights of the residents, visitors, neighbors, and strategies.

However, a home is more than just 'a territorial core' and not just 'an ordering principle in space', but a complex entity that defines and is defined by cultural, sociodemographic, psychological, political and economic factors. In this respect, it is noteworthy that 'home' is a more elusive notion than 'house'. It is

emphasized that home is a place, but it has psychological resonance and social meaning and it is a part of the experience of something we do, a way of weaving up a life in particular geographical spaces (23).

The home is in the intersection point of the relationship between domestic life and self-identity. It is only possible to talk about the home when the emotions in the space are felt at an obvious strength. The issue of belonging to the home is expressed as if a place is felt as a home. The home might be supported as completely a symbolic place for emotional attachment.

As Shirley Mallet states (2004), while the 'home' basically refers a shelter area or the interaction between mankind and space for daily activities; it can be single or plural, fixed or mobile in the same time (24). In this respect, while the home may be connected to the family, only the body itself can be perceived as a home, it can be a place where social alienation is felt, as well as the place where it belongs to. In other words, while the home can be understood as an ideological fiction, it can be considered as one of the foundations of existence.

Every person, who migrates to the other countries, carries the roles and cultural values he has learned from the geographies in which he grew up. It is not possible to understand the process of establishing a livable space as a 'home' independent of this burden. This indicates that the experiences of individuals in the past are important in the researches on the home concept and shows that it is necessary to reveal the culture that creates the home and to be associated with today.

Likewise, many studies show that the 'home' does not just consist of an 'interior'; the home and every concept it appeals are in fact directly related to a much wider world and complex social processes. Migrations, as events on a global scale, infiltrate the boundaries of the private space and transform it. Therefore, it is important to adopt a relational approach that allows us to question the boundaries between indoors and outdoors, rather than considering home as a closed place isolated from its surroundings, as it is often assumed to be able to understand the real meaning of 'home'.

4. Discussion

In this part, the process of acquiring livable space of Syrian families, development of belonging to the place where they came, the establishment of cultural attachment will be discussed within the concept of re-establishment of 'home' based on the interviews, surveys and observations within the scope of the field study conducted with 5 Syrian families living in the various quarters (Fatih, Abdurrahmangazi, Hamidiye, Turgutreis) in Sultanbeyli in İstanbul in 2016 .

In the beginning of the research, Sultanbeyli is determined as a place where interaction and adaptation between locals and the migrants were achieved spontaneously. This fact is a 'preference' than a 'necessity' due to the factors such as similar way of living, beliefs and economical standards between the locals and the migrants and the relationship with the other migrated families, most of them are affinities with each other, from Syria. Additionally, this 'preference' is a phenomenon that supports concepts such as territory and defensible space and increases belonging to the environment. So the 'preference' here is a 'hope' for re-establishing the life again. It is also very supportive, when we consider Syrians who have various traumatic events and faced social and psychological problems during the migration process.

However, neighborhood relations could not established with the locals in the immediate surrounding affect the perception of defensible space of Syrian families. Although there are Syrian relatives around, it is observed that the locals are in majority, and the Syrian families face negative discrimination by them. In order to defense the home better, Syrians use various marking methods; mostly they hang a Turkish flag on the doors, windows or the balconies. Thus, they can protect the home better and give the message to the environment, "*we are not foreigners, we are part of you*". It can be stated that, Syrians want hosting people to accept them, and they wish to constitute a 'host- guest' relationship with the locals.

When families are asked about their feeling related to their development of belonging to their new living place; the answers were categorized as 'home' and 'the feeling of security at home'. In Sultanbeyli, the development of belonging as a tenant is becoming more difficult in terms of ownership. Being a migrant in a country points some drawbacks about ownership. It is understood from the interviews with Syrians; they do not feel belong to the houses, where they are living, because of being tenants and not having enough memory about that house. So, it is not an actual 'home' for them in this manner. In addition, most families are unhappy with the home owner and live in a fear of being expelled from the home at any time. It was determined that such situations prevents the development of belonging.

As a result of the research conducted in the field study in 2016, it was determined that most of the families feel worried about the future and lived in a vague state. In other words, it can be said that the communication between memory and the future is not realized in the new place. However, considering the similarities between previously lived space and the current inhabited space, affinities facilitate belonging. It was faced that all the families mostly coming from the periphery areas of Aleppo and Damascus in Syria, feel much more belong to current living environment due to similar physical characteristics between those cities and Sultanbeyli in general.

The cultural commitment of the Syrians conducted in the field study will be discussed in three main category in order to reflect their cultural behavior and habits to the new living environment as family structure and need of privacy and beliefs. Besides those, the cultural habits such as seating, eating and sleeping on the ground indicate the daily life habits, behaviors and routines of the cultural aspects. The definition and use of spaces are also related to cultural issues.

As a result of both economic reasons and habits, it was observed in the field study that most of Syrians live with relatives such as uncle and aunts and/or other relatives, including nucleus (parents and children) and patriarchal family members (grandparents, parents, children and so on), (Fig. 4). In other words, most families have preserved their family structure like in Syria. Therefore, the concept of family supports the re-construction of the home in terms of the sustainability of culture.
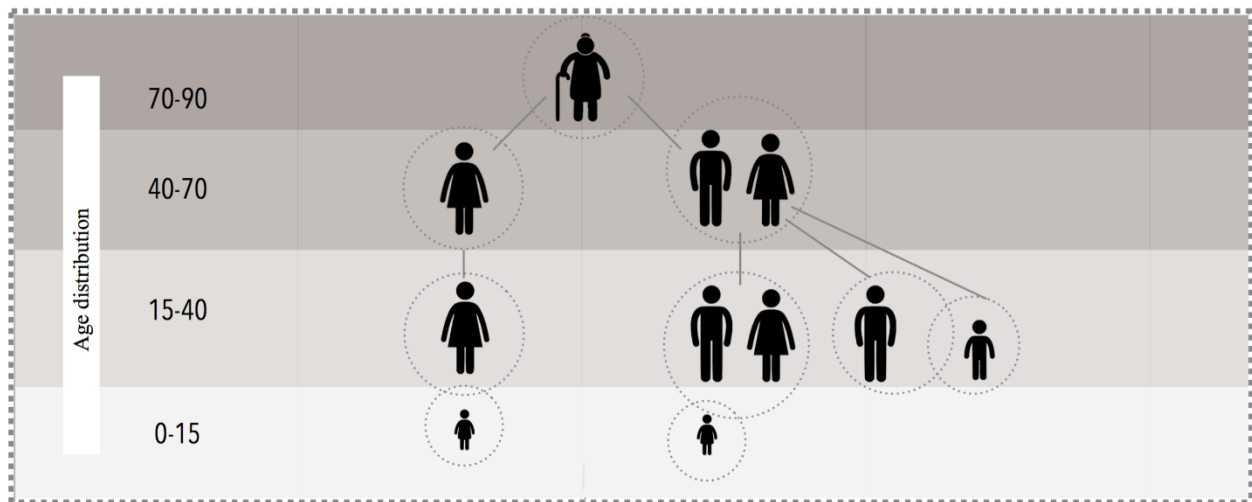
Fig. 4. Family structure of one of the visited families

Privacy is a concept related to the both establishment of culture and constructing personal space, territory and development of belonging. It is observed that privacy need comes first for Syrian families in their home environment. Especially the privacy of female members of the family are describing the cultural behaviors and spatial use of the house. As observed in the field studies, male and female have separate spaces, while the guests are hosted. In addition, it was found that there were limits and thresholds between boys and girls in terms of sleeping space. For example, when a boy was sleeping in a room alone, it was learned that six girls in the home sleep in a single room during night.

Reflections of culture in space use indicate that sex segregation is quite important in living environments. Syrians have separate male and female domains in their homes in Syria. This separation tradition reflects itself in the homes in Sultanbeyli as using curtains in/between the rooms like a divider to prevent the visual connection. Using curtain in the room provides both female and male members with doing different activities as well. The use of curtain tradition, which might be considered around both appropriation and defensing the space for female members, is directly linked with privacy needs (Fig.5).

Fig. 5. Using curtains in living space

Moreover, due to the hosting guests and crowded living traditions of Syrians, it has been determined that large spaces are needed. In the field study, it was learned that the space used for these needs in their homes in Syria was called as 'saloon'. However the 'saloon', in contrast to its general meaning, describes the entrance, where all room doors opens to it (Fig. 6). This can be evaluated as a reflection of introverted life style and spatial counterpart of traditional plan schema with inner courtyard. It has been determined that Syrian families tend to use 'saloon' for their daily routines and activities. They have cushions on the ground attached to side walls of 'saloon' and all rooms were totally covered with carpets in use. Therefore, this can be considered as an appropriation of space as well.

Courtyard in Traditional Syrian Home

Entrance for Common Usage - 'Saloon'
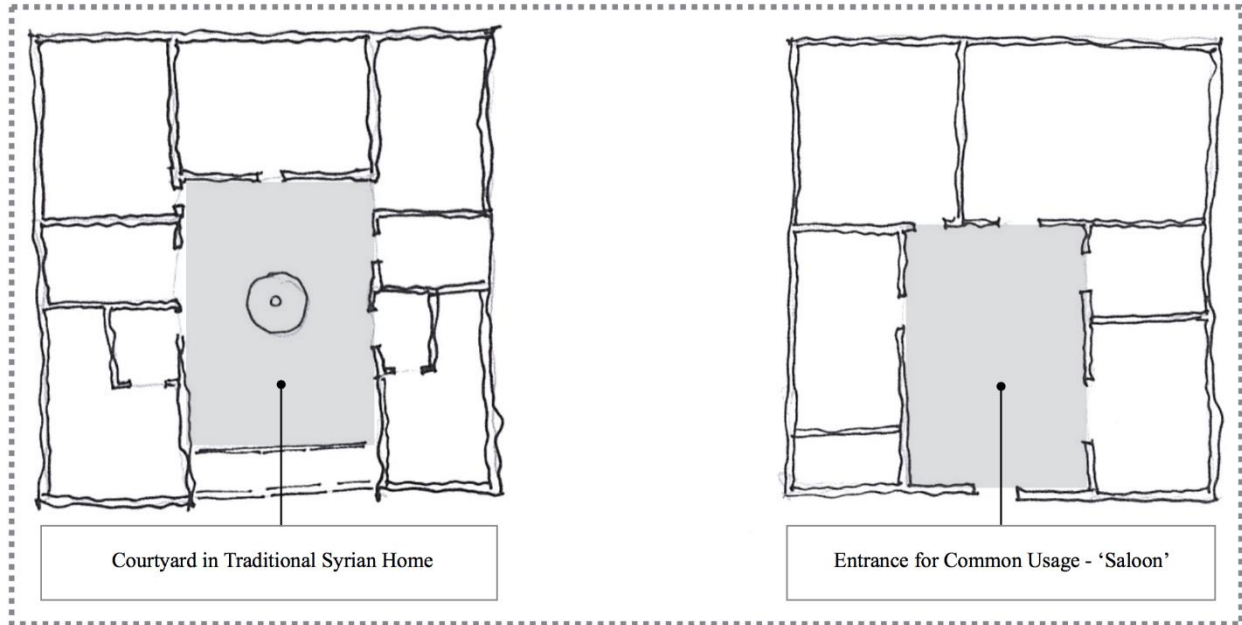
Fig. 6. Depicting 'saloon' for Syrians perception

The cultural attachment to everyday life around immediate surroundings of home can also be evaluated through religion. First of all it is known that the reason behind mass migrations from Syria to Turkey are both related with geographical accessibility and 'religious brotherhood'. The majority of Sunni-Syrian families stated that the people in Sultanbeyli had the same religious practices as themselves, so they can share the daily life with them. It can be said that religion, which is one of the most important components of culture, has a significant effect on the establishment of social relations and spatial use at home. For example, a Syrian male participant in the field study stated that his wife could get out of the street with head scarf comfortably, because most women in Sultanbeyli were dressed as the same way.

On the other hand, low seating and related sleeping and eating traditions indicate cultural behavior and habits of Syrians migrated to Sultanbeyli. It has been observed that all families have a tendency to sit on the floor by using mattresses both in terms of suitable budget and cultural appropriation (Fig. 7). One of the families stated that they would prefer to sit on the floor even if it was a luxury house, because it was more comfortable for them. Besides this, they are also sitting on the ground for eating and laying down for sleeping activities. Those findings are very important clues for re-establishing home for cultural behaviors and habits. Because of these activities on the ground, it is preferred to cover the whole floor with carpets. Items such as mattresses, carpeting the floor and ground table can also be considered as examples of appropriation of space in use in terms of culture.

Fig. 7. Low seating, sleeping and eating activities

5. Conclusion

In this article, the field study conducted in 2016 was discussed under the topic of re-establishment of home within the framework of 'acquiring a livable space', 'developing sense of belonging' and 'cultural attachment'.

As a result, the perception of 'home' for Syrians who try to re-establish home environments in migrated countries might need 'time'; in order to develop sense of belonging and built cultural attachment. It has been learned from the conducted researches that all the families' homes in Syria have been bombed. In other words, with the 'home' in Syria, the memories attached were totally destroyed.

After the war, the acquiring of a livable place of Syrians is not just physically re-location from one place to another, it is also to set a new life on the arrived place with the memories of place left behind. It is a period that needs a time to achieve finally a 'home' in real meaning. In this journey from displacement to the establishing a home, the concepts of belonging and culture dominates whole the process. People brings their cultural clues and experiences to the new settlements and they sustain the traditions in the new places. Also, they require to say "*this is my home*" to enhance the belonging. Based on these, it can be concluded as the re-establishment of home is related to 'time' and constructing new memories in migrated places around the notions of culture and belonging.

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A NEW TOOL FOR INTERIOR ARCHITECTURE STUDENTS FOR SENSING THE SPACE AND VISUAL THINKING

Genco BERKİN

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Abstract: Interior architecture students face problems in realising and sensing the given space in their project lecture. They usually try to design from plan. The objective of this study is to implement a new tool for interior architects to overcome their handicap. The students are given an apparatus to use for drawing their creative design in the form of a perspective while sitting and looking through the given space. By this way they would be able to design through visual thinking.

Key Words: Perspective, Space Sensing, Interior Architecture, Visual thinking, Drawing apparatus

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1. Introduction

Visual thinking was the climax pursuit for Leonardo da Vinci, Alberech Dürer and Salvador Dali in their artistic artifacts. Recently a pioneer researcher, Rudoplh Arnheim, has put forward the principles of seeing and critical sketching in his book Visual Thinking. He wanted to underline the principle that the whole pattern is perceived firstly then we recognize the details. It means that the sense of sight directs us to detail. The importance of visual thinking lies under the realisation affairs by sensing the space and designing the furniture in a reciprocal way.

Learning to make perspectives is a part of every interior architecture curriculum. Students struggle with several confusing descriptive geometry rules to depict the existing space and planifying within the perspective projection. Besides, the learnt technique is immediately being forgotten and the points of the rules of perspective is dimly remembered.

Interior architects analyze space by drawing, reinterpret the forms and create a new space. Drawing perspectives is a communication tool for interior architects. As Gabriela Goldschith (1994) underlined seeing is receiving while productive thinking is giving. To enable this, interior architecture students are subjected to think via perspective drawings by sensing the space. Arslan and Dazkır (2017) stated in an article that perception as a concept plays an important role regarding how we analyze and understand our near environment.

According to Serpil Özker (2014) the easiest way in educational life results in computer-aided products with similar quality that serve the same purpose. In some ways this can be accepted but when you model the real space into digital milieu the genius loci has been lost. Researchers have to find and implement other techniques to boost architectural education.

The interior architecture student has to adduce harmonic orders within furniture and space proportions to redesign an existing space. By using this apparatus, interior architecture student can fit in the design elements while inquiring the optimum mass and scales. The student can resolve unexpected geometries and establish new orders by drawing the perspective while determining the angle of view.

Figure 1: Drawing Apparatus

2. Materials and Method

We have designed a drawing apparatus for enabling interior architecture students to sense the given space and motivate them to create designs via visual thinking. The drawing apparatus is 170x80 cm. The drawing frame is 70x100 cm. The structure of the frames are made from aluminum. The drawing pad is made from 3 mms transparent plexiglass . They were also given a boardmarker in several colours. They were designing the existing FSMVU restaurant in their 2nd year Interior Project Studio. We asked them to draw the perspective of your design on the drawing apparatus while sitting in the above mentioned restaurant. The students had only plans at that phase. When they experienced drawing perspective in the given space they said it provided great convenience for visualising the space and designing the furniture. This was the expected result since we wanted to eliminate the paper media for drawing a distorted vision (perspective) disjointed from main space otherwise it would have been carried out in the studio. 23 participants have used the apparatus in this research.

23 interior architecture students taking the second year project studio were directed to the existing university restaurant which they were obliged to design a new restaurant in the given space. One by one they were asked to draw a perspective on the drawing apparatus of their design. After their performance the drawing on the transparent plate was photographed to be used in the jury. All the students were asked one question during face to face interviews: How did you find the drawing apparatus? Was it useful for you to depict your own design? The answers were almost the same: They said that they could scrutinize the space while drawing the perspective.

The students were so enthusiastic while performing the perspective drawing some of which confessed they hesitated before starting since they cannot draw on paper. It showed that the students who are timid of drawing perspectives were encouraged.

Figure 2: Interior Architecture Student Drawing A Perspective While Sensing the Space

3. Conclusion and Remarks

By using this apparatus the interior architecture student would be recognizing the problems in the existing space much more easily and by this way it would be an eye-opener. Expressing the thoughts on design by using this apparatus is easy to master. The only challenge for this apparatus is some students have

closed their one eye while drawing. Students have reported that they have incorporated furniture in a much easier way than the conventional design method. As a result this apparatus have raised the motivation of the interior architecture students regarding sensing the space and mental thinking. Besides this apparatus is time saving since the student otherwise had to model the given space from a computerized software drawing.

Figure 3: Visual Thinking via Drawing Apparatus

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NEW TRENDS IN ARCHITECTURAL COMPETITIONS

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Abstract (Times New Roman, 9pt, Bold)

Architectural, town-planning and landscape competitions are design contests to evaluate different proposals in a formalisied procedure. Designs are compared on the basis of a defined programme, specified tasks and evaluation criteria, which are announced in advance. Such a procedure allows the client to procure an optimal high quality project and realize it. The most requirements are of aesthetic, technical, functional, economic, ecological and sustainabilty meaning. Newly more and more priority is given for including cultural values, benefits to society, the challenges of sustainability and climate change. A short guide though the competition activities of UIA will be given with an accent on the first international architectural competition in Slovenia, that was held in 2011. The description of the contemporary Maribor's architectural competitions, second largest city in Slovenia, with some very qualitative results. Due to the regulations and with the support of the Chamber of architecture and spatial planning of Slovenia there has to be an open architectural competition for the most public buildings or spatial planning. Open competitions ensure a wider range and diversity of solutions and are promoting new talents. Therefore they contribute to the corporate picture of the built environmment, they rise the awarness of the wider public fort he built environment. The results provide people new opportunities of coming together, engaging with the community. If public spaces and buildings are successful they are inclusive of the diversity of groups present in our cities and create a social space for everyone in the society to participate in.

Key Words: (architectural competitions, trends, regulations, international competitions)

1. Introduction

1.1. Brief history of architectural competitions

Architectural profession as the boundary science between the art and technics, between invention and remembrance, between the braveness of modern and respect for the past is one of the finest adventures in the world. Communication is the most interesting part in the architectural world, exchange of new ideas or a mutual search of them, being in the creative flow and having the sense of belonging to the whole world. In such way a competition builds a dialog, a bridge between users and developers.

Architectural competitions as we know them today have more than 2500-year-old history. In 448 B.C. the Acropolis in Athens was a result of an architectural competition, as were many cathedrals in Europe in the Middle Ages.

During the Renaissance period, many projects that were initiated by the church have been decided through design competitions. There were competitions held in 1419 for the Spanish stairs in Rome and later to design the dome of the Cathedral in Florence, which was won by Filippo Brunelleschi. Many open competitions were held in the late 18th century in several countries like Great Britain, Ireland, France, Sweden, Austria and United States.

Famous Karlskirche in Vienna was built after the architectural competition in 1713 where Johann Bernhard Fischer von Erlach was awarded the highest prize.

In 1792 there was an architectural competition for the White House in Washingtom D.C. The architect was chosen in a design competition which received nine proposals, including one submitted anonymously by Thomas Jefferson. President Washington was fond of an Irish architect James Hoban, that designed Charleston County Courthouse and it influenced on a decission of selecting his submission on a judgement in the competition.

As the entrance to the 1889 World's Fair in Paris the Eiffel Tower was constructed in 1887-1889. Initially it was criticised by some of France's leading artists and intellectuals for its design, but later it has become a global cultural icon of France and one of the most recognisable structures in the world. [1] In 1886 Jules Grevy was re-elected as the president of France and Edouard Lockroy was appointed as minister of trade. A budget for the exposition was passed and, on 1 May Lockroy announced an alteration to the terms of the open competition being held for a centerpiece to the exposition, which effectively made the selection of Eiffel's design a foregone conclusion, as entries had to include a study for a 300 m four-sided metal tower

on the Champ de Mars. On 12th May, a comission was set up to examine Eiffel's scheme and its rivals, which a month later decided that all the proposals except Eiffel's were either impractical or lacking in details.

1.2. First architectural regulations for competitions

In the 19th century England and Ireland there have been over 2500 architectural competitions in five decades, with 362 alone in London. So in 1839 The Institute of British Architects drafted a first set of rules and a set of formal regulations in 1872. The German regulations were introduced in 1867 and in the same period in the Netherlands an Association for the advancement of architecture started organising conceptual competitions with the aim of stimulating architects' creativity.[2]

1.3.The meaning and common types of architectural competitions

Competitions shall promote research and experimentation, encourage new synergies between students, architectural designers and businesses and stimulate studies into issues linked with social changes in the future.

Competitions in architecture, town-planning, landscape and other related fields are design contests to evaluate multiple proposals in a formalised procedure. Designs are compared on the basis of a specified task, a defined program and evaluation criteria, all of which are announced in advance, and anonymously assessed by a professional and independent jury. A design competition is a quality-based and solution-oriented form of procurement. A design competition allows the client to procure an optimal high quality project and find in its author the partner with whom to achieve its realization. Consideration of aesthetic, technical, functional, economical and sustainability requirements are typically encompassed in the design competition. Priority is given to a project's qualitative merits, including cultural values and benefits to society. [3]

There are a variety of competition types resulting from the combination of following options:[4]

• *Open* competitions (international, national or regional) or *limited*, *selected*, *non-open* competitions, depending on who is allowed to participate.

• *Project* competitions or *ideas* competitions: depending on the intention of building the project or generating new ideas.

• *Single-stage* or *two-stage* competitions: depending on the scale and complexity of the competition

• *Anonymous* or *cooperative* procedures: anonymity supports greater objectivity during the evaluation and award-granting deliberations. In cooperative procedures, the authors are invited to make in-person presentations to the jury in order to explain their design strategies and allow individual discussion.

• Student design competitions.

2. International Union of Architects and competitions

2.1. About the Union

The International Union of Architects is the only international non-governmental organization that represents the world's architects, now estimated to number some 3.2 million in all. [5]

It was founded in 1948 in Lausanne, Switzerland with a General Secretariat in Paris. It is regonized as the only global architecture organisation by most United Nation agencies, including UNESCO, UNCHS (United Nations Centre for Human Settlements),WHO (World Health Organisation), WTO (World Trade Organisation) and some more. In 1956 the UIA and UNESCO ratified the standard regulations for international competitions and in 2016, 60 years after, rules and guides for conductiong competitions were reviewed. This was made becuase of the growing demands for competitions for increasingly complex projects that not only include buildings, but also city development, planning and urban regeneration. In the early stages the objectives were to emphasize fairness in the evaluation, quality and innovation. Now they are set against the challenges of sustainability and climate change. In this manner at the UIA General Assembly in August 2014 in Durban, South Africa, the Assembly passed the Resolution 22 with a strong call for more creative solutions that will enhance the quality of life fort he communities and their users. Designs and creations must have an impact on the local social framework and serve as an inspiration for future planning. The UNESCO – UIA rules are characterized by the principle of anonymity, transparency, equal treatment and non-discrimination. They protect intellectual property and copyright for the competitors and promote creativity. It is the best way to achieve high value projects and to commission the architect/winner.

2.2. International competitions according to UIA

The designation 'international' applies to competitions in which participation is open to architects from different nationalities residing in different countries, with a jury composed of persons of different nationalities, one of whom is appointed by the UIA as its representative.

In several countries design competitions are itnegrated into public procurement law and the competitions may be subjected to further constraints by national legislation.

Competitions that were already made by the UIA gave some of the great contemporary architecture:
- Georges Pompidou Centre, Paris, France
- Indira Gandhi Centre, New Delhi, India
- Bibliothèque Nationale de France, Paris, France
- National Museum of Seoul, South Korea
- Prado National Museum, Madrid (rehabilitation and extension), Spain
- Opera House, Sydney, Australia

2.3. Competition types according to UIA
- The ideas competition, which demonstrates numerous conceptual approaches and proposals, without the intention of directly realising the task or the project
- The project competition, which demonstrates numerous solutions for the intended realization of a project

Ideas competitions seek to elucidate certain approaches to architectural or planning problems. The winning project is not generally destined for realization and its author is therefore not comissioned as the architect. If the client intends to make use of the winning or any other scheme, he shall undertake some form of formal collaboration with its author. In certain cases a contract with the winner as architect – consultant may be envisaged. [6] The objective of a project competition is to find the best solution for the project to be ralized, with the author of the winning submissioned as architect for its realization. [7]

2.4. Competition stages according to UIA

Competitions can be conducted as single stage competitions, two stage competitions or in rare circumstances multiple stage competitions. [8]

Ideas competitions are usually single-stage competitions. In some instances ideas competitions may be the first stage of a two-stage competition in which the second stage is a project competition.

Project competitions may be organised as one or two-stage competitions. This must be clearly stated in the brief. When possible, project competitions should be organized as one-stage competitions.

Two-stage competitions require a substantial, additional commitment for both the client and the participants and therefore their use is advised only for particularly complex architectural tasks. In two-stage competitions, the first stage should have reasonably high submission requirements, constisting of a general approach, usually an overall conceptual plan accompanied by schematic drawings and sketches sufficient to demonstrate the intentions of the competitor.

The jury will discern which of the first stage submissions demonstrate strong architectural promise. The authors of the entries selected for futher development are entitled to participate in the second stage. A reasonable honorarium shall be paid to each upon the submission of the entry. This remuneration is intended to partially reimburse the competitor for the additional work carried out in the second stage and shall be in addition to the prizes awarded.

In order to maintain anonymity, a person of confidence not connected with the jury, for instance a notary, should open the envelopes containing the identity of the author of the desings retained for the second stage and be in charge of communication an invitation to participate in the second phase. The envelopes are then sealed until the end of the second stage. Any communication with the authors of the projects chosen to participate at the second stage will be done through the notary, who will keep the authors' identity secret.

It is not recommended to make the names of those competitors selected to proceed to the second stage public.

Each competitor who participates at the second stage receives an individual critique of the jury for his project of the first stage. The jury may also make general remarks, which will be communicated to all participants of the second stage.

The author of this article took part in an invited two-stage international competition for the landscape design and architectural design of the 'Chappel of peace' located on the Lake Faaker in Austria. The first stage was designing the landscape area with the expansion of the sourrounding graveyard. Due to the quality

of the solution the project group with Slovenian architects Tomaž Kancler and Mateja Katrašnik was invited to the second stage and at the end won the overall 2nd prize.
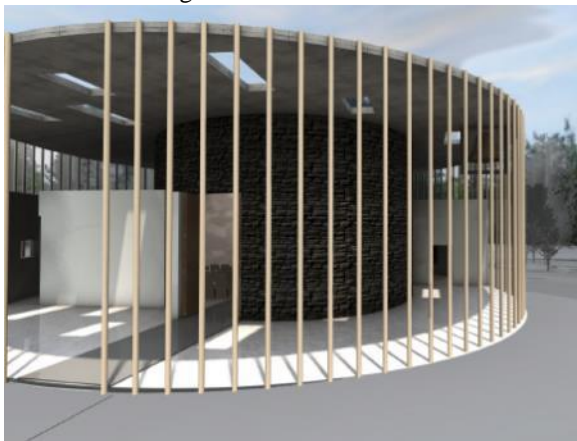

Fig. 1 Chappel of peace, Lake Faaker, Austria (Katrašnik, Kancler)
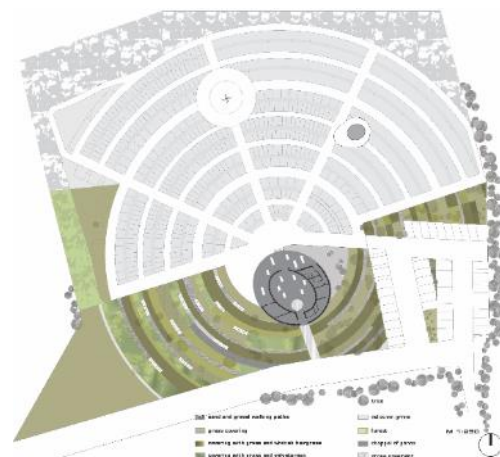
Fig. 2 Landscape design, Lake Faaker, Austria

Existant cemetery is located near the lake Faaker in the southern part of Austria in the middle of the forest. Powerful central radial form of a circle defines the whole area. Two existant round forms are the only accents in the space. The project included the cemetery extension with the landscape design, placing and designing the new chapel of peace and rearranging of the traffic concept. With the location of new chappel in the midpoint of the existant complex the new spatial emphasis was made. Together with the two existant all three objects built symbolistic form of triangle in a location at the border triangle of Austria, Italy and Slovenia. The strongest natural element of design are the existant trees that embrace the area. They create the feeling of safety and inner peace. On the western side there is a new urnfield with the landscape design of pathways and green coverings. As few as possible trees were removed to build a new space for the cemetery extension, so that they appear in between paths and green. Different kinds of green coverings are planted out in a radial form between the urnwalls.

Chappel of peace is located at the radial crossing of the existant cemetery, sourrounded by trees as the main landmark. Central structure with hall purpose builds elliptic form.

Main entrance on the northern side is located at the midpoint of the complex. Through canopy and open foyer the sacred area is reached. Interior in the form of an unending fresco allows not only laying out and Mass celebration, but also other activities such as concerts, readings and lections. Main light source with natural light from above is enabled through openings in the roof slab. This concept builds the play of sun and shadow and points to the divine light and heaven. Interior decoration is restraint so that the fresco accentuate the space.

Forecourt is without architectural barriers and with direct access to the hall as wwell as to the existant cemetery. Main axis connects the crux, runs through the hall and divides it into two areas.

Chappel of peace has 70 seats and 100 stances. Through the main axis twisted elliptical form creates suitable atmosphere also for smaller groups.At the southern side there is entrance for interment with necessary rooms for staff.

2.5. Procedure types

Competitions can be organized in the following three forms: as open, restricted or invited. Open procedures permit all eligible professionals to submit entries. Restricted procedures permit only selected professionals to submit entries. Clients occasionally wish to limit participation to professionals with specific expertise and experience. In such cases, eligible professionals may submit requests to participate accompanied with references and requiered qualification documents. An evaluation panel then selects the professionals who seem to be most capable of providing successful solutions for the envisioned project, using an appropriate prequalification procedure and established criteria. The majority of evalutation panel members should be professionals with professional experience similar to that required of competitors. The selection criteria should focus on quality of accomplished work. Required references should be reasonable, in relation with or analogous to the task of the competition.

Procedures by invitation allow clients to determine which participants will be invited to take part in the competition. In combined procedures open competitions also include a few invited competitors and are not advised due to not respect the principle of equal treatment.

In restricted procedures and procedures by invitation a sufficient number of participants must be chosen in order to ensure a sane concurrence and obtain a variety of solutions in relation also to the significance of the project. Participations of local profesionals should be considered.

For the choice of the appropriate procedure type consultation with the professional association of the country in which the competition is launched is recommended. According to public procurement law procedures by invitation are usuallyonly permitted for the procurement of services under a certain threshold.

An invited architectural competition by a private client for the architectural design of the City hotel in Maribor, Slovenia was held in 2010. The hotel was to be built at the important traffic connection into the city centre by bridge over the river on one side and leaned on the subtile riverbank at the other side. The authors group of Tomaž Kancler and Mateja Katrašnik won the competition and the hotel was built in 2011.

Fig. 3 City Hotel, Maribor, 2011   Fig. 4 City Hotel, Maribor, 2011

The main accent of the designing of the façade was to show the function of the building with different types of finishes. The hotel part has got the perforated metal sheets in golden colour and the part with bank facilities and some public services is made of dark grey pflastering.

Another example of providing an invited urban planning - architectural competition which resulted by the realisation of the new masterplan is the urban planning competition for the Revitalisation and urban devevlopment guidelines for the town centre of Selnica ob Dravi, Slovenia. In this small town on the outskirts of Maribor the competition was held by Maribor Association of Architects and won by the group of authors Tomaž Kanclr, Mateja Katrašnik and Barbka Šušek.

In the existant traffic sheme new pedestrian zone, redesign of the Main square and renewal of public space was added. From rearranging the centre in the same east-west axis the densed housing facilities were added, and to the west the existant bussines and trade zone has been thickend. New housing development with housing of lower density to the outskirts of the town was planned with inbetween green belts, that come from the sourrounding hills and intersect the urban area. New public spaces of interaction were created as wide public open platforms that serve pedestrians. With placing of public functions in sourrounding buildings the space is being incorporated into the town structure. All design materials are typical for the local region (wood, gravel, greenery, stone) and appear as an element of area regulation and 'induction points' of treated area.
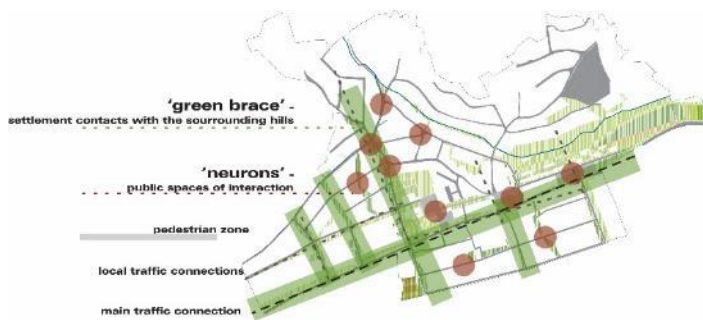
Fig. 5 Architectural sheme, Selnica ob Dravi, Slovenia

Fig. 6 Urban planning sheme, Selnica ob Dravi, Slovenia

After that proposal the urban planning development and new official regulations were made for the town of Selnica ob Dravi, will be in long term use and are already being realised.

2.6. Eligibility

Eligibility must be clearly stated in the competition regulations. Eligibility can refer to disciplinary fields (architecture, town-planning, landscape architecture, interior design), to professionals of different degree (licensed professionals, young architects, students) or to geographic, economic and cultural specifications.

Competitions may be restricted to a specific geographic, economic or cultural area on national or regional level or be international according to the requirements of national legislation. Setting an example with the Republic of Slovenia the Chamber of Architecture and Spatial Planning of Slovenia is the organisier of all national competitions. According to national law for main public buildings, open spaces and also larger areas of private investors many architectural and urban planning competitions are held each year. The Chamber also prepares and organises open competitions in spatial management and architectural and landscape-architectural solutions for an investor, public, private or joint-ventures of public-private partnerships.

2.7. Young architects competitions

Competitions may be launched exclusively for young architects. There is either an age limit or a specification with the obtainment time of the master degree. The age limit for young architects is maximum 40 years old.

In Minsk, Belarus, in 2005 the first International Competition for young architects under the UIA patronage was held. It covered young professionals from the II. UIA region (Central and Eastern Europe). The international jury awarded the author of this article the highest prize – Grand Prix for the best realization and First prize for the category of public buildings with a realised project of municipality building with multipurpose auditorium in Gorisnica, Slovenia.

Fig. 7 Municipality building, Gorisnica, Slovenia

Fig. 8 Municipality building, Gorisnica, Slovenia

Gorisnica is a small town in the southeastern part of Slovenia. The new object is located on the place of the former village school. Together with the existing elementary school and the new gym it rounds up the area of the village main square and as a new accent encirles the central village space. With its strong volume and contemporary architectural language cerresponds with historic church With the landscape design we achieved its integration into the village space and offer the residents new public areas. Parking spaces are

arranged on the existing ones. Design of the building follows the urban solution, which foresees the lower part of the building being functionally separated from the other contents. The building consists of three parts: multipurpose auditorium, 2 shops and a part for the municipality. Through wide and open entrance the external public space slipps into the interior of the building. The Auditorium has its own entrance from the main square enableing lagrer activity space for the higher concentration of public during the events.

Public access to the municipality is from the road side. One of the leading planning points were the clearity of the entrances and communications.

Addind and removing of the volume ads the third dimension and playfull architecture to the basic form of the cube.

3. From the praxis

3.1. First open architectural competition of a private investor in Maribor, Slovenia

As an interesting fact for the city of Maribor, the second largest city in Slovenia, its municipal, cultural, technological and commercial centre I would like to go back in time to the first competition held by a private investor for a housing complex in the city centre. It is described as a legendary luxury of the worker's block.

Hutter's block is of special significance to expert circles, as much as to the inhabitants of Maribor. The investor in the large housing block was Josip Hutter, a successful and well-known textile industrialist from Maribor, who had an exceptional sensibility for social issues, and who considered the quality of a person's residence as particularly important. The making of his living environements is strongly connected with his business philosophy, which was on one side strict, prudent, consistent and modest and on the other side settled, calmed and with providing a comfort and increasing the quality of life for his workers.

The authors were architects Saša Dev and Jaroslav Černigoj, who won the architectural competition together as the synthesis of both solutions. They were both students of Jože Plečnik, the most important Slovenian architect and they have set the foundations of the Maribor architectural school with recognizable projects. Their different approach to the economics of construction was in the foreground and it resulted in a higher degree of rationality and guaranted the users more space and better quality of life. The building was built after the first global economical crisis between 1939-1940. It was the first contemporary residential building in Maribor's town centre, settled between the 2 city parks and in front of the municipality building in terms of technical achievement and in realization of the architectural concept, which was based on the models of Middle European residential construction principles from the 19th century and the models of most contemporary principles at that time, like f.e. Karl Marx hof in Vienna. The principle of closed block grids enabled maximal usability of space and at the same time created an inner atrium which was moved away from the town's noise and acted as a functional complement to the constructed block. The spatial concept is divided into a higher part with 6 floors in the nort and south, and a lower one with 5 floors in the east and west. At the points of contact of the building corpuses, the architects used the motif of wall openings and balconies with which the building mass is more strongly structured. The block appearshomogenous and uniform to the outside, but it is actually divided into 10 parts with each its own entrance, staircase and lift, which was at that time a big novelty. It consists of about 150 appartments of different sizes, from one –room flats to bigger ones with 6 rooms, each with own kitchen, bathrooms, central heating and all contemporary necessarities.

Example of Josip Hutter has been very important for the whole living culture of the city and improved and set the standards for the living conditions at the new very high level. His relationship to housing was manifested in the level of equipment in the factory (it was also a kindergarden for the workers children there, salaries were significantly higher then in other similar facilities) and factory area, which included parks, fountains and

walking paths as well as in the extraordinary rational and humane concept of the housing settlement built for his workers.

Fig. 9, 10, 11 Hutter's Block, Maribor, Slovenia

3.2. International architecture competition European Capital of Culture Drava River 2012

International, public, anonymous, single-stage architectural ideas competition for the selection of the professionally most suitable solutions for the arrangement of the Drava River Area in Maribor, Slovenia was the first international competition in Slovenia ever held. It was organized together with the Municipality of Maribor, Maribor Association of Architects, UIA and Chamber of Architecture and Spatial Planning of Slovenia.
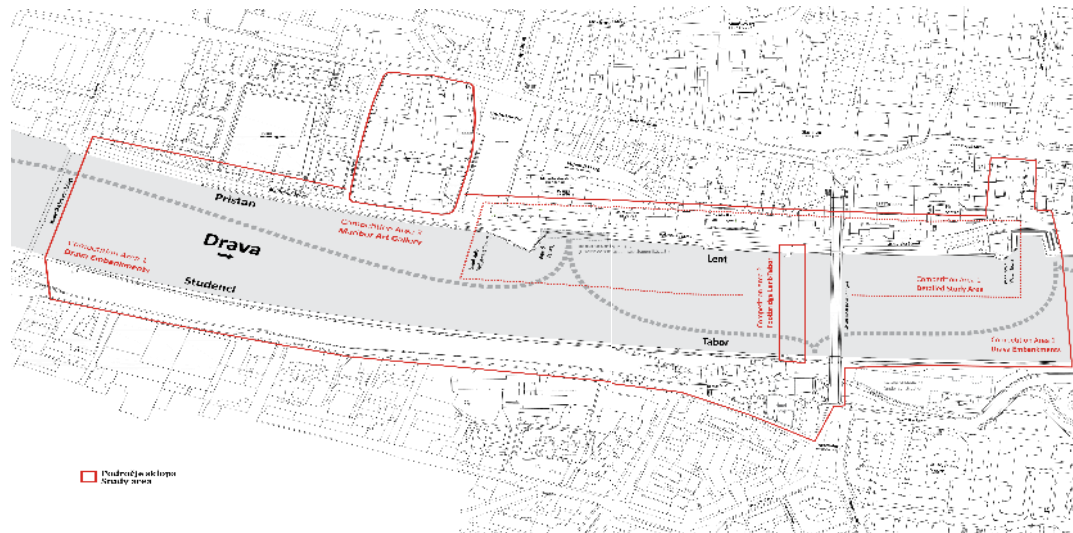
Fig. 12 3 Competition areas in the centre of Maribor

There were 3 competition areas:

Competition area 1: Drava River embankment between Studenci Footbridge and the Water Tower
Competition area 2: New pedestrian bridge between Lent and Tabor embankment
Competition area 3: New building of the Maribor Art Gallery.

400 architectural proposals entered the competition, called for in November 2009: 59 for the arrangement of the Drava River embankments, 124 for the new pedestrian and cycle bridge, and 217 for the new Maribor Art Gallery. The competition participants are architects and architectural bureaus from 48 countries, of which the majority comes from France (35), Slovenia (27), Italy (22), Greece (21), Hungary (19), Germany (17), USA (15), Croatia (14), Serbia (13), Austria (12), Poland (10), Spain (9) and Turkey (8). Two international expert juries have chosen the most suitable solutions and announced them in March 2010.

Competition area 1: Drava River embankment between Studenci Footbridge and Water tower:
The Drava River embankment, together with its bridges, roads and streets descending towards the water, with the old town, its defence towers and former port – Lent, are the main landmarks of Maribor. With 5 km of the Drava riverbed, Maribor has the largest water coast of all thecities in Slovenia. With the competition for the layout of the Drava River embankment the city acquired solutions for the arrangement of public spaces, primarily intended for pedestrian and bicycle use, which are designed lively and will become attractive spaces

by the river, in harmony with historical patrimony and modern points, mutually interconnecting a set of spaces in the city centre on both banks of the Drava River. This competition area contributed architectural ideas fort he rearrangment of both river banks in the lenghtof 1000 m, of which 500 m of the Lent bank, under the old town, are particullarly exposed. Besides the Drava banks. The rearrangement includes squares, streets, promenades, green spaces and piers for watercrafts.

First Prize was awarded to Deli Sabatini Architetti from Rome, Italy.

The project won the first prize because of its very simple, but strong idea. It is at the same time a new, urban presence and an idea, which has the maximum potential to be realised in a flexible and responsive way in a continuous process that could even be articulated and changed over time. This very big urban deck is at the same time a clear statement, a very expressive urban element, one that could even be classified as urban furniture, and it collects all the different future activities in one place. The whole space is designated as an event space; it is clearly readable, and has a respectful relationship towards the historic urban structure. Placed on the edge of the north bank of the river and slightly over the river, it distinguishes itself from the neighbouring houses, and at the same time, it dedicates the northern embankment to the urban experience. The jury particularly appreciated that the basic idea of the proposed solution allows all the connections to the city to develop themselves naturally over time and in accordance with different and specific site requirements. An important consideration in giving the award was a practical one: the large piece of urban furniture added to the embankment is easy to build and to eventually remove − thus significantly adding to the scope of its appearance and programme definitions.

Fig. 13 First Prize Left Bank   Fig. 14 First Prize Landscape design plan; Deli Sabatini

Competition area 2: new pedestrian and cycle bridge between Lent and tabor embankment: The present Old bridge, built between 1906 and 1912, was one of the most attractive bridges of the Austro-Hungarian Empire, but the demolition of its wooden precursos that connected the lower banks, caused the decline of the city parts next to the river. With the competition for the new pedestrian and cycle bridge the city acquired a solution for modern bridging of the Drava River at the location of the oldest bridge in Maribor, between the old port Lent and the Tabor embankment. The bridge shall shorten paths for pedestrians and cyclists, improve the connections of the city centre at both river sides and contribute to a better tranience of the Drava embankments.

First prize was awarded the office Burgos Garrido from Madrid, Spain.

The project "Žametna črnina" (Velvety Black) won the first prize, because it is one of the most elegant and simple proposals in the competition for the new pedestrian and cycle bridge. A very elegant curbed line across the riverbanks in the shadow of the big old steel bridge is modest and as light as possible. This bridge complements both embankments with a gentle and simple placement on both ends, and leaves the opportunity to embrace almost any design of the embankments. The wooden cladding and appearance addresses both the historical and contemporary character of the site. Concealment of the rational and very slender steel structure is also complementing and tries not to compete with the old steel bridge structure. The load bearing construction with two supports and maximum slenderness is rational and not complicated to execute. Its wooden appearance is at the same time warm, simple and noble. From the construction point of view, this is a simple, elegant and economic bridge. Its main construction is the steel structure, and complete cladding (all over the section) is wood. This is a continuous beam bridge on two supports with the overall span divided in equal thirds. In cross section, it uses an overall "U" shape, so handrails are also a load-bearing element. Side beams (handrails) are main beams, and transversal beams are secondary beams. Stability is achieved and enhanced with mass tune dampers for vibration. The height clearance is 4 metres, which is measured, as

written in the report. Also all other measures are fine and correct and the technology used in the project was thoroughly elaborated in the project proposal.

Fig. 10 First Prize Footbridge – Burgos Garrido Architects   Fig. 11 First Prize – Burgos Garrido Architects

Competition area 3: The Maribor Art gallery is the central museum-gallery institution for visual art in northeastern Slovenia and it is the second largest institution of its kind in Slovenia. With the competition for the new Art Gallery the city wants to obtain a modern, attractive cultural centre and the engine of urban regeneration. The vision of the new Maribor Art Gallery is to develop as an open insitution with cutting edge contentism as a space for the whole family and as the driving force of knowledge and creativity. This competition area contributed architectural solutions for the building of the new Art Galllery and an urbanistic solution for the whole part of the old medieval centre. The gallery activity area is occupying 8000 m2, the Children's museum 700 m2, The Centre of Creative Industry 1200 m2, The Architectural centre 500 m2, a gallery retail and restaurant area 650 m2 and open outdoor spaces 1500 m2.

The final result of international jury with members Jürgen H. Mayer, Hrvoje Njirić, Peter L. Wilson, Luciano Lazzari, Roger Riewe, Andreas Ruby and Saša Begović was a vote of the jury for the project by Hungarian architects Tamasz Levai and Agnes Joszai as first prize.

The jury was of the opinion that this was the project among the finalists that could guarantee the city of Maribor an elegant, achievable and well-functioning cultural focus and statement. The proposed building form is carefully considered, well-placed and balanced, particularly in terms of the urban spaces it frames – a protected park-like playground adjacent to the Children's Museum; Library and Creative Industry and Studios respectively activating the transverse street; a generous terrace ("City Living Room") facing the Drava River panorama. This subtle, delicate and extremely logical urban anchoring is complimented by two corner, street-animating, event spaces (the large Lecture Room to the north-west and the transparent Architectural Centre to the southeast). Movement routes (the life of the city) flow naturally from outdoor spaces into the well-planned, extremely visible and inviting Entrance Hall. The upper two floors contain exhibition spaces, articulated by six hovering boxes for the permanent collection. Continuously flowing spaces offer a variety of atmospheres for a wide range of instillations and time-based events. The whole upper exhibition volume is enclosed by what the authors call "thin wall beams". To the rear, these walls are orthogonal, well mannered and city grid matching. To the riverfront they take on sensuous curves − dynamic and inviting architectural waves. Again at the upper levels, the careful placement of corner windows make localised and specific connections between gallery spaces and outside city tableaux. This defines what the authors appropriately term "introvert and extrovert spaces". A museum organisation that is spatially rich and at the same time thoroughly and professionally planned both in terms of lighting, and temporary or permanent exhibitions. The much-discussed question of 'image and statement' is with this proposal answered with a unified and sculpted volume in elegantly curving "uniform, white, polished resin-based plaster", a strongly light reflecting façade "like a wet skin". This simple quasi-iconic unity above the active and transparent base locates the gallery as a unique and significant moment in the city. Regarding the very important question of an acceptable heritage profile in relation to adjacent new and historic structures, this project with its maximum façade height of 19.40 metres was one of the lowest and most sympathetic of all competition entries.

Fig. 12 New Art Gallery first prize Levai/Joszai   Fig. 13 New Art Gallery First Prize – Levai/Joszai

With the international competition Drava River 2012, the city acquired a solution for a functional and physical rearrangement of the three competition areas at the Drava River.

3.3. Designing of a city through the competitions – Maribor, Slovenia
In the contemporary times due to the regulations and under the supervision of the Chamber for architecture and spatial planning of Slovenia The city has acquired the majority of its architectural solutions from public architectural competitions, which speaks well of the highly professional and transparent work of the city. On the city map it is presented how and which buildings and open spaces were made and designed through the procedure of an architectural competition. Maribor as the second largest city in Slovenia and former one of the biggest industrial centres in the former Yugoslavia was the first city in Slovenia with the urban regulation plan. After the independence in 1991 it has got the Urban Development Plan in 1995 and first drafts appear with new concepts for urban development corresponding to envolving economic conditions.

- Baumax, 1996, by Hrvoje and Helena Njirić was the first conceptual iconic shopping centre in the Balkans and it set Maribor on the architectural map of Europe
- Koroški Bridge, 1996, by Peter Gabrijelčič
- Multicinema Kolosej, 2001, by Janko Zadravec and group of authors
- Maribor Football Stadium, 2008, by OFIS arhitekti
- Maribor aquarium, 2011, by Kaja Pogačar and Marko Jaušovec
- New pedestrial zone –Square Leon Štukelj, 2010, by Aleš Prinčič
- Footbridge Studenška brv, 2010, by Reichenberg arhitektura
- Maribor City Market, 2011, Atelje Hočevar
- Maribor Puppet Theatre, 2012, Atelier arhitekti
- The Main square, 2009, Reichenberg arhitektura, yet unrealised
- Maribor main Library, 2011, yet unrealised
- Housing area Pobrežje, 2018, by Reichenberg arhitektura
- Pekrski Potok – landscape design competition, 2018, by Plan B

Fig. 14 Baumax, Maribor

Fig. 15 Maribor Football Stadium
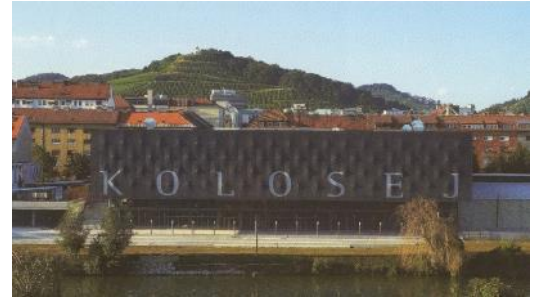
Fig. 16 Multicinema, Maribor

Fig. 17 Fotbridge, Studenška brv

Fig. 18 Puppet theatre

Fig. 19 City Market

All those examples show the relationship between the city towards the architecture as a conscience of the built environment, due to the fact that Maribor is a city with 100.000 inhabitants and almost for all of public spaces and buildings are taken solutions from the architectural competitions.

3.4. Ergo

    All architectural design, landscape and urban planning competitions shall uphold the highest cultural and artistic values. They are important as the promoters of a quality-based solution oriented procedure. Open competitions ensure a wider range and diversity of solutions and are promoting new talents. Therefore they contribute to the corporate picture of the built enviromnment, they rise the awarness of the wider public fort he built environment. The results provide people new opportunities of coming together, engaging with the community. If public spaces and buildings are successful they are inclusive of the diversity of groups present in our cities and create a social space for everyone in the society to participate in.

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EVALUATING THE PHYSICAL ENVIRONMENT OF ECOLOGICAL KINDERGARTEN BASED ON THE REQUIREMENTS OF EARLY ENVIRONMENTAL EDUCATION: A CASE STUDY IN DÖŞEMEALTI, ANTALYA

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Abstract

In recent years, Early Childhood Education has been widely influenced by ecological approaches and sustainable design. The reason for that could be named as the increasing number of studies which claim to invest on promoted awareness of young children towards the natural environment which has roots early childhood education. Environmental education in early childhood is a holistic concept that encompasses knowledge of the natural world parallel with developing children's emotions, dispositions, and skills. The current study is tracking the architectural features of a newly built ecological kindergarten in Antalya, Turkey that has adopted environmental education to explore its compatibility with the NAAEE guideline for Early Childhood Environmental Education Programs. The methodological approach of this study contains a detail site-analysis, physical environment of the so-called ecological kindergarten, as well as the profound questionnaires for teachers and parents to share their ideas related to the weaknesses and strengths of the physical environment of the kindergarten. Comparing the data collected from the questionnaires with the one from the observation survey, this study concludes that the outdoor space of the kindergarten is more compatible with environmental education. While the architectural features of the ecological kindergarten do not meet the approved requirements of an ecological design, this design approach promotes a noticeable development on the environmental education of the neighborhood and its surrounding.

Key Words: Kindergarten, Physical Environment, Architectural Features, Early Environmental Education, Nature-Oriented

1. Introduction

Respecting and protecting nature has become societies main concerns, and therefore many different professions and industry are developing new strategies to support this concern. Early Childhood Education is one of these industries. Many initial childhood settings around the world have started to create an environment and educational system that would increase the children's awareness of their impact on the environment and ways to minimize it. According to Kahn (2002), encouraging children to be involved with nature will last a lifetime, and since modernization has removed the new generation from the natural environment, childcare centers, kindergartens, and preschools can set the world on more sustainable pathways in the future by educating children about the importance of nature and environment.

Richard Louv (2008), an author best known for his study of children's current and historical relationship with nature, identified "time" and "fear" as the barriers between children and natural environment. The time factors that decrease children's direct exposure to nature are the parents' schedule, children's schedule, and electronic devices. Louv argued that "time in nature is not leisure time; it's an essential investment in our children's health" (p. 120). Some researchers have claimed the crucial role of nature in children's well-being. Faber Taylor and Kuo (2006) has argued that outdoor activities in natural environments improve children's social and cognitive development and Kellert (2005) has claimed natural environment increases children's stimulation and as a result, encourage them to engage in more learning opportunities. Nature is now considered as a broad classroom which provides opportunities for children for better development in social, cognitive and learning skills (Fitzgerald, 2018), and therefore the number of kindergartens and childcare that adopt nature-oriented education is increasing.

"In Scandinavia, children attending nature nursery schools experience a complete immersion in the forest as their outdoor play space. In Australia, some early childhood centers have recognized the importance of nature for children and created nature-based outdoor play spaces (Davis & Elliott, 2004)". A survey in 2017 by NAAEE established that 250 nature preschools and forest kindergartens are operating across U.S. Eco Farm Kindergartens (EFK) is another innovative project that focuses on enhancing active eco-farming activities. Seven countries (Estonia, Italy, Lithuania, Norway, Portugal, Romania and Turkey) are involved in this project (URL 1).

Kindergarten that has adopted the content of EFK project in Turkey is ecological kindergarten which is located in Döşemealtı, Antalya. This kindergarten takes an educational system in which children are getting involved with nature in most of their daily routine. This kindergarten has started education in the middle of September 2017-2018. With the establishment of this kindergarten, request for nature-friendly education has

increased among the parents, and interestingly in a brief time, many other kindergartens in surrounding have started to include the nature-friendly activities in their slogans and social media.

Although the concept of this kindergarten has increased the local awareness on including nature-friendly activities in early education, it is also essential to learn if the physical environment of the kindergarten provides the requirements for nature-friendly education and activities. Environmental education in early childhood is a holistic concept that encompasses knowledge of the natural world as well as emotions, dispositions, and skills and therefore, the current study aimed to evaluate the physical environment of this kindergarten based on the requirements of space Early Childhood Environmental Education Programs.

In this research 'Guidelines for Excellence, Early Childhood Environmental Education Programs' is adopted as the primary resource and items that are defined in this guideline as the main keywords for providing an excellent space and place for early environmental education are used as evaluation checklist. The physical environment of the kindergarten is evaluated according to the established checklist, and later teachers and parents have participated in the questionnaire survey to share their ideas about the physical environment of the kindergarten. Data collected both stages of research has compared and interpreted, and the strength and weakness of the architectural design of the kindergarten have been defined accordingly.

2. Review of the Literature

"If schools do not undergo radical reform, they will simply cease to exist as the primary source for 'education." (Nair, 2000)

An expanding body of studies entitled the early childhood years as the prominent periods of one's life, upon which the rest of the life is constructed, developed and progressed (Rutter 2002, Mustard 2000, Davis 1998). Early environment experiences have been positively associated with the improvement of imagination and curiosity, two essential motivators for lifelong learning. Some studies indicated that the initial perception of the human-nature relationship is partially constructed and complete during early childhood stages (Phenice & Griffore 2003). By providing an inviting, comfortable setting in the early stages of life, children can enhance the sense of connectedness with the natural world and consequently attachment to it. (Cobb 1977, Wilson 1996, Wilson 1996, Louv 1991, Altman & Wohlwill 1983).

Accordingly, there is an international awareness growing towards the importance of early environmental learning and its impact on the environmental-friendly behavior of children later in life, the sociocultural and also the economic advancement of communities and nations (Alp et al. 2008; Hungerford & Volk 1990; Hines et al. 1986). Exposing to an environmentally friendly setting in early childhood may help to obtain a fundamental understanding of the environment with its associated problems. Additional studies have mentioned early childhood outdoor recreational experiences as playing an essential part of the formation of environmental behavior. (Ewert et al. 2005, UNESCO-UNEP 1991). However, different studies have declined a strong relationship between ecological knowledge and environmental-friendly behavior (Alp et al. 2008, Makki, et al. 2003, Kuhlemeier et al. 1999).

Numerous studies have indicated the crucial role of the child's environment in the early environment education where the setting is offering opportunities for exploration and experiment. On the process of a child's physical, social and cognitive development, the physical environment is addressed as the 'third educator,' alongside the teachers and educational program. Such indication clarifies the critical role of the physical environment on early environmental learning where a design offers proper access to the natural settings (Berris & Miller 2011; Moore & Sugiyama 2007, Moore 1987). An essential part of early environmental education is the design of the interior (e.g., rooms size, rooms layout, and lighting) as well as the exterior (e.g., outdoor spaces, nature, play equipment) of the physical environment where children can improve learning and development skills (Evans 2006).

By offering active and passive play places at different angles and levels, as well as open and closed spots, children not only would encourage to explore and, experience the environment but also would participate in social exchanges to develop the identity and a sense of self-worth (Berris & Miller 2011, Malone et al. 2003).

For a long, the physical environment of early childhood education centers has been seen only as places where the school is 'kept,' and just by the end of the 1980s have been addressed as places that can directly support or restrain learning. By the beginning of the 1990s, innovative buildings were designed and introduced concepts of sustainability, disability movement, use of green materials, micro-climates and fuel-efficient approaches to pre-school educational buildings (Clark 2002).

"It might be speculated that in some schools the physical environment may not be a necessary condition of effective learning ... [however] a key component in the strategy for improvement has been the close attention paid to the physical environment" (National Commission on Education 1996).

Most of the studies on early environmental education, addressed the importance of the link between the interior and exterior environments, natural playgrounds, accessible green areas, wide openings and efficient access to solar energy and natural daylighting for children (Dudek 2000, Wilson 1994, Gaylord 1987).

Still, there are relatively limited studies that have focused comprehensively on the role of the physical environment of early childhood centers and the impact of interior and external space design. The failure of studies on the architecture of early childhood educational buildings has conducted to neglect the fact that schools are physical entities as well as organizational units (Jamieson et al. 2000). This inadequacy of interest in the relationship between physical place and learning process has contributed to the mismanagement of specific areas of the schools such as seating arrangements and classroom layouts. Further, the importance of educational space regarding its size, location, and layouts in affecting social interaction between students and teachers has to be widely examined (Wasley 2000).

The gap in the literature regarding the architecture of early environmental education centers contributed to understanding the critical need for such studies. Considerably, this study carries out a profound physical characteristic's analysis of an ecological kindergarten as an outstanding concept in early childhood environmental education. The strengths and weaknesses of the physical environment the strengths and weaknesses of the physical environment will take into the account and may grant the suggestions for improving the physical environment of such entities in future research.

3. Methodology

This study is established through two stages of data collection. In the first stage, the aim was evaluating the appropriateness of the kindergarten's physical environment in responding to the requirements of early environmental education. Consistent with this purpose, an evaluation checklist has been developed based on the 'Early Childhood Environmental Education Programs: Guidelines for Excellence' (NAAEE, 2010) and the physical environment of the kindergarten was evaluated accordingly in several visits. During the checklist evaluation, teachers and staff were also engaged where it was necessary to collect proper and reliable data. Each item of the checklist has been rated as either weak, strong or moderate (checklist and its implementation method are included in the appendix). At the end of this stage number of weak items, successful items and moderate items were classified, and the strength and weakness of the physical environment have identified accordingly.

In the second stage, the aim was learning the strength and weaknesses of physical environment from teachers' and parents' point of view to see if they would mention other subjects that have not already considered in checklist evaluation. Based on this intention, all teachers and 50% of parents have participated in a questionnaire survey. Data collected from both groups of participants were analyzed and similar and different answers were classified to identify the weaknesses and strengths of the physical environment for parents and teachers. At the end of the second stage, the results of the checklist and results from the questionnaire survey were compared and strong and weak features of the physical environment have established accordingly. At this point, some additional items were also suggested to be included in the evaluation checklist.

4. Findings

In the first stage of research, the physical environment of the Ecological Kindergarten was evaluated using a checklist that has been built during several visits (Appendix I). In the course of these visits staff and teachers were engaged in the evaluation of the physical environment that contributes to achieving consistent data. 'Spaces and places to enhance development' was the first critical characteristics for such an assessment. kindergarten in general rates highly effective in response to the six items of this list yet fails to address the rest five (Table 1).

Table 1. Evaluation of the spaces and places to enhance development in Ecological Kindergarten

1. SPACES AND PLACES TO ENHANCE DEVELOPMENT		
Evaluation Items	Comments	Rating
1.1	There are no natural elements available. Instead, the garden is equipped with artificial objects in the playground.	Negative
1.2	Collecting natural pieces and materials from the garden, children created artworks. They were also constantly observing and appreciating plants growing as well as petting animals kept in the yard.	Positive
1.3	Sensory experience: Touch: The sand pool, the soil and the plants create a touchscape for the children. They can touch a variety of organic and natural materials in a variety of activities such as cooking and science-based games. Smell: Although there is not a dominant scent at the Kindergarten teachers are using a mixture of organic ingredients to teach the smellscape. This follows by the cooking activities. Sight: Children have a full view of outdoor from all the rooms and classrooms. Also, there is complete visual access to the central garden from the corridors. Taste: While there are local fruits and vegetables available for the children, they collect the self-growth ones from the garden as well.	Positive
1.4	All learning materials are displayed in open shelves and cupboards in the classrooms.	Positive

1.5	Sprinkler, Piles, and shelves are only the materials that children can use in the yard. They are kept in storage under the supervision of teachers.	Positive
1.6	Lack of a semi-open space makes it difficult to use the outdoor spaces during the winter. Moreover, the lack of shading elements limits the use of outdoor spaces during the hot summer days.	Negative
1.7	There is no ample shade in the garden. Instead, there is an out of scale pergola to be used by children. Although having a bright sunny indoor spaces is mostly appreciated due to the transparent facade of the building, it is not responding to the climate of Antalya during hot summer days. There are no windbreaks. The teacher believes that it would be better to offer larger areas to the central garden. Children have no access to the passive spaces inside the Kindergarten as teachers do not let them be anywhere alone. Besides, due to the lack of physical spaces these spaces are used as storage for the books and gaming objects. The small gathering area is unavailable due to the built-in furniture. Art activities are happening inside the classrooms, but according to the teacher's lack passive spaces and corners did not allow them to create learning stations. There is a separate room for `music and movement.`	Negative
1.8	There is plant all over the place, and children participate in watering them inside and outside. Children also feed the animals in the garden.	Positive
1.9	Except for the eating area, there is no other space that all the children and teachers can share. The entrance is too small, and the children cannot gather all together there.	Negative
1.10	Indoor spaces are well-defined, to entering and exit the space and the activities do not interfere with one another.	Positive
1.11	Use of soft and neutral colors in most of the rooms and classrooms prevent children from over stimulating. There is a lack of sleeping room that makes resting time a challenging phase.	Negative

Evaluating the natural components was the second step in this stage. According to the findings, Ecological Kindergarten mostly failed to respond to the evaluating criteria, which is one of the main weak points of this kindergarten regarding early environment education (Table 2).

Table 2. Evaluation of the availability of natural components in Ecological Kindergarten

2. NATURAL COMPONENTS		
Evaluation Items	Comments	Rating
2.1	There is no asphalt outdoor, and the artificial stones and tiles cover the walking paths. No natural materials are used to define the pathways.	Negative
2.2	No natural material is used in the indoor and outdoor play area.	Negative
2.3	There are loose parts and earth materials, but there is no rough ground.	Neutral
2.4	There is no water source outside. There is a pool, but it is empty due to technical problems.	Negative
2.5	There have been some human-made bird nests located in the garden, but no birds have ever lived in them. There is a Palm tree in the central garden that turned out to be a natural habitat of the birds and children visited this tree from time to time.	Neutral
2.6	There are plants located in indoor space.	Positive
2.7	Maki tree is Antalya's local Tree. There is no Maki tree inside, but there is a couple of Maki trees visible from the window in the surrounding areas. Except for the fruits, children are not exposed to any other local heritage.	Negative
2.8	Natural materials such as seasonal fruits, local organic food, and natural materials are used in hands-on activities. Due to lack of enough space entrance is mainly used to exhibit these materials. Transparent façade allow children to observe climate change through seasonal changes.	Positive

'Children's and teachers comfort' was the third characteristic that has been evaluated in Ecological Kindergarten. This characteristic was another failing regarding the early environmental education (Table 3). Based on the observations, the lack of enough space was the main reason behind most of these flaws.

Table 3. Evaluation of the children and teachers comfort in Ecological Kindergarten

3. COMFORTABLE FOR BOTH CHILDREN AND ADULTS		
Evaluation Items	Comments	Rating
3.1	There are nooks and furniture for children's interaction but and teachers have personal areas. There is a lack of a functional gathering area and children do not use the particular areas.	Negative
3.2	Sufficient seating areas are provided.	Positive
3.3	While the spaces are safe and inviting, this Kindergarten is not a barrier-free one, and physically impaired children cannot have access to the second floor. the	Negative
3.4	Only the small zoo looks adventurous, whereas the corners remain un-used and shallow.	Negative
3.5	Shading elements and wind protections are missing.	Negative
3.6	They use natural ventilation by opening windows on both sides. Transparent façade brings in natural light and keep the area warm in winter. Solar panels provide the electricity for heating and cooling.	Positive
3.7	Use of colors and soft materials together with the transparent facades make the indoor space look attractive. The Circular form of the building along with the transparent walls makes the architecture attractive.	Positive
3.8	There is not enough play area inside and outside. There is a chest area inside, but the chest is not a local play. Hide and Seek and Hopscotch are local plays which children play time to time with their teachers.	Neutral
3.9	Outdoor looks more exploratory in comparison to the interior and the adventures are more activity-based rather than physically-based.	Negative
3.10	There is storage in the garden separate from the main building for keeping the children's art crafts, and also they store natural materials in this storage. The manager and teachers believe that it would be better if they had bigger storage inside.	Negative

'Maintenance and usability' was one of the strong characteristics in this kindergarten and most of the necessary items were rated as positive. Lack of sustainable materials in the construction was the only weak item (Table 4).

Table 4. Evaluation of the children and teachers comfort in Ecological Kindergarten

4. MAINTENANCE AND USABILITY		
Evaluation Item	Comments	Rating
4.1	Children are using sprinklers to water the plants. Taking planting tools from the storage under the supervision of teachers, children make organic composting.	Positive
4.2	Lack of record on sustainable construction materials.	Negative
4.3	Indoor signage is appropriate and outdoor path is defined, but fences are not from natural materials.	Neutral
4.4	Appropriate items are accessible to the children via open shelves, and inappropriate things are kept out of the reach of children.	Positive
4.5	All facilities meet applicable regulatory standards.	Positive
4.6	Children clean their classrooms every Friday. They also participate in collecting their dishes and garbage after their meal and to clean the used area.	Positive

'Health, safety and risk' is one of the features that have successfully provided in Ecological Kindergarten (Table 5). This fundamental characteristic is very crucial because the lack of these characteristics would make the physical hazardous.

Table 5. Evaluation of health, safety and risk' in Ecological Kindergarten

5. MAINTENANCE AND USABILITY		
Evaluation Items	Comments	Rating
5.1	Risk assessment concerning the environmental, biological, chemical, and structural hazards.	Positive
5.2	Established Americans with Disabilities Act (ADA) is not applied, but health and safety standards are followed, and a risk management plan is in place.	Negative
5.3	Emergency plans are established, shared, and understood by staff.	Positive
5.4	Outdoor activity has been emphasized by most of the parents as a positive feature of the kindergarten.	Positive
5.5	Staffs are well trained by participating in ongoing training; emergency and first aid supplies are available.	Positive
5.6	Staff members know their disposition toward risk.	Positive

In the final step of this stage 'environmental sustainability' of the kindergarten was evaluated. Because of the lack of sustainability concerns in designing the kindergarten, items related to this essential characteristic were mainly weak and missing (Table 6). However, Administration staff claimed that they are aware of this point and they are planning to consider that for the extended development of their branch.

Table 6. Evaluation environmental sustainability in Ecological Kindergarten

6. ENVIRONMENTAL SUSTAINABILITY		
Evaluation Items	Comments	Rating
6.1	A solution to collect the rainwater is not considered even though Antalya rains all winter. However, time to time children water the plants with the buckets that have to collect the rainwater. Children participate in gather the recycle materials. Children prepare food, Jam, and tea by using the fruits and vegetables they collect from the garden. Solar panels on the roof support the electricity of the building.	Positive
6.2	Design of the building does not meet the validation criteria for the sustainability, regarding material and layouts.	Negative
6.3	Materials are easy to clean and prevent sliding. But no other special consideration.	Neutral
6.4	Except for the solar panels, there is no other consideration that contributes to indoor sustainability.	Negative
6.5	Chemical poison used for the mouse in the garden but children access to the yard was denied at this time. No other insect emergency has reported.	Positive
6.6	Maintenance practices and supplies are not used with sustainability in mind	Negative
6.7	Rainwater is collected occasionally by using buckets.	Negative

According to the final report of checklist evaluation, weaknesses and strengths of the Ecological Kindergarten's physical environment are as Table 7.

Table 7. Evaluation environmental sustainability in Ecological Kindergarten

Strengths	Weaknesses
- Availability of the appropriate activity areas	- Lack of natural play elements
- Providing a variety of sensory experiences	- Lack of semi-open spaces
- Accessibility of the learning areas	- Lack of enough outdoor spaces
- Availability of an outdoor storage areas	- Lack of a well-design indoor storages
- Central courtyard	- Lack of common areas
- Well-defined activity areas (Music room and cinema room)	- Failure of design in creating various active and passive adventurous spaces for children and their interaction with the environment/nature
- Integration of plants with indoor space	
- Various comfortable seating elements	- Lack of a water source in outdoor
- Transparent façade for natural lighting	- Insufficient use of natural materials in indoor and outdoor
- Natural ventilation	
- Availability of zoo in garden	- Design solutions to collect rainwater and windshield
- Solar panels	- Lack of enough play area
- Safe and secure environment	- The inappropriate design approach for disabled users
	- Failure of response to the sustainability

In the second stage of research, all 13 teachers and 50% of the parents (total 56 people) have participated in a questionnaire survey. In this survey, same questions related with strength and weakness kindergarten's physical environment were asked and only in parents' questionnaire they were also asked to mention the reason they have to choose Ecological Kindergarten. Most of the parents had similar reasons to choose this kindergarten, which categorised in the eight main keywords, represented in Chart 1. Some parents have indicated more than one answer to the question that causes the overall percentage to be over 100%.
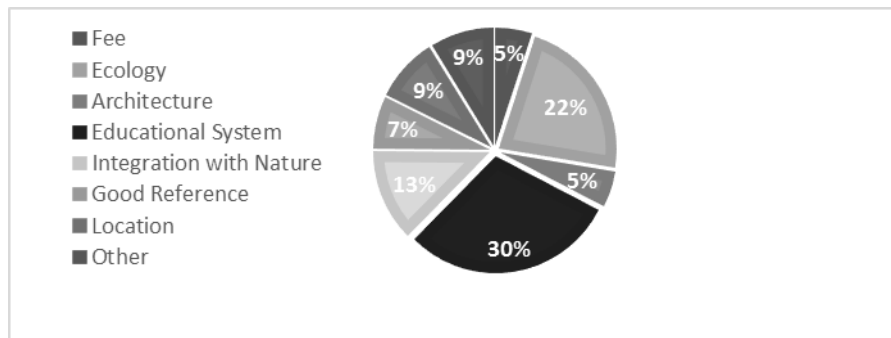
Chart 1. Parents' reasons for choosing Ecological kindergarten

Findings showed that parents mainly prefer this kindergarten because of its ecological approach and the educational system. Analyzing how the kindergarten is reflecting the environmentally friendly approach, the answers were classified in four different categories (chart 2). As some teachers and parents indicated more than one answer to the questions, the overall percentage is over 100%.

Chart 2. Features that reflect the environmentally friendly approach of Ecological Kindergarten according to teachers and parents

In another question both parents and teachers were asked to mention what they like and what they dislike about the physical environment of the kindergarten. The results are addressed on Table 8 as below. As some teachers and parents indicate more than one answer to the questions, the overall percentage is over 100%.

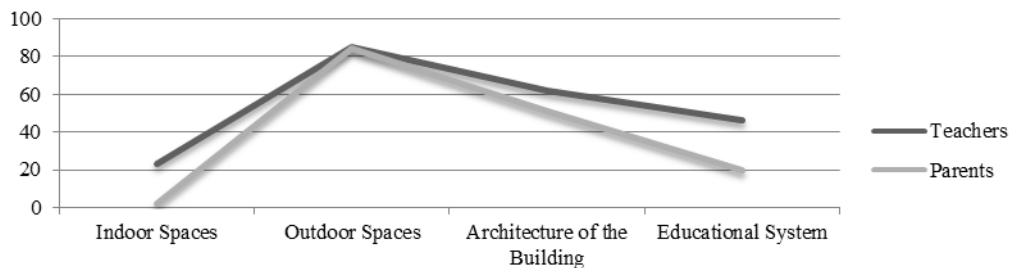Table 8. Feature parents and teachers like/dislike the most about the physical environment of the kindergarten

		Teachers	Parents
The most liking features of the kindergarten	Indoor Spaces	38%	13%
	Outdoor spaces	38%	22%
	The architecture of the building	69%	62%
The most disliking features of the kindergarten	Indoor Spaces	69%	14%
	Outdoor space	38%	4%
	The architecture of the building	31%	11%
	No dislikes	0%	66%

38% of the teachers liked the indoor spaces most because there are music and cinema rooms, there are washrooms inside classrooms, and everything in classrooms is made of wood. 13% of parents liked the indoor spaces due to the furnishing, washrooms in the classes and the cinema and music rooms. 69% of the teachers have disliked the indoor spaces because of the lack of a sleeping room, the size, and the shape of the classrooms, the materials of the furniture and the lack of toilet on the ground floor. 14% of parents didn't like the indoor spaces because there is no space to do sport, the dining hall is small, corridors and the entrance are narrow, and the carpets are not enough to warm the floors. 69% of the teachers liked the architecture of the kindergarten since the facade of the building is completely glass, and every classroom has a door which opens directly to the garden, and the building is round and designed for as a kindergarten, not as an apartment. 62% of the parents who liked the architecture of the kindergarten the most have also shared the same idea with teachers and only instead of not only mentioning transparent façade but also colorful façade. 31% of the teachers didn't like the architecture of the kindergarten since it is not one story building and big enough.

38% of the teachers liked the outdoor spaces the most because of the garden, while 38% dislike the outdoor area because space is limited and small. 22% of parents liked outdoor spaces because of the garden and animals, and only 4% have disliked the outdoor space due to the lack of a lack of semi-open path between the kindergarten's entry and garden. They have mentioned that they experience difficulties during rainy days. To compare the checklist evaluation with teachers and parents' responds, both groups were asked to name the strength and weakness of Ecological Kindergarten. The aim was to identify the response that includes items related to the physical environment. 42% (all parents) didn't say anything about the weak features of this kindergarten, but rest of the participants have mentioned more than one weaknesses, and therefore, the overall percentage is over 100% because most of the parents have more than one answer. Common answers of parents and teachers' answers have classified as different keywords (Table 9).

Table 9. Strong and weak features of this kindergarten according to parents

Strengths	
Response	Percentages
Architecture	14%
Garden and animals	11%
Ecological concept	20%
The education system and teachers	70%
Location	2%
Facilities	14%
The activities	9%
Washrooms in class	4%
Easy access to the administration	
Other (monthly fee, food, hygiene, reliability, being institutional, etc.)	20%
Weakness	
Response	Percentages
The field of the kindergarten is not big enough	4%
The education system and teachers	20%
Location	6%
Kids are getting sick a lot because of being outside in cold weather.	%
Hard to find natural materials for daily activities	6%
The security	6%
Lack of enough ecological design solutions	6%

Rainwater is accumulating in the path of kindergarten	
Other (monthly fee, being institutional, lack of school bus, insufficient activities, etc.)	14%

According to Table 9, the percentage of features related with the physical environment of the building as strength or weakness is lower than 50%, and education system is considered as the main strength of this kindergarten. Building's architecture, availability of a place to keep animals, facilities, and availability of washroom in classrooms are mentioned by participants as strengths of ecological kindergarten, while lack of a solution to collect rainwater, lack of appropriate storage to store natural materials and lack of semi-open space are mentioned as weaknesses of this kindergarten.

Finally, both groups were asked if they think this kindergarten add a new dimension to its context. All teachers and most of the parents' answer to this question were yes. Participants believed that Ecological Kindergarten with its name, design, and educational system had added plenty of values to Döşemealtı context. Findings from the second stage of research confirm some of the extracted information of the first stage. Some of the participants also mentioned lack of enough outdoor space, lack of storage, lack of a solution to collect the rainwater, lack of a semi-open space and lack of common area as weakness physical environment. Parallel with the checklist result, most of the participants have found the transparent façade as strength. Some of them also mention the availability of zoo, music room, cinema room and appropriate furniture as positive features of Ecological Kindergarten. The façade of the kindergarten, outdoor spaces and some of the indoor spaces are as Table 10.

Table 10. Photos of the Ecological Kindergarten

(a) Translate Façade	(b) Music Room
(b)The Entrance	(d) Animal Shelter
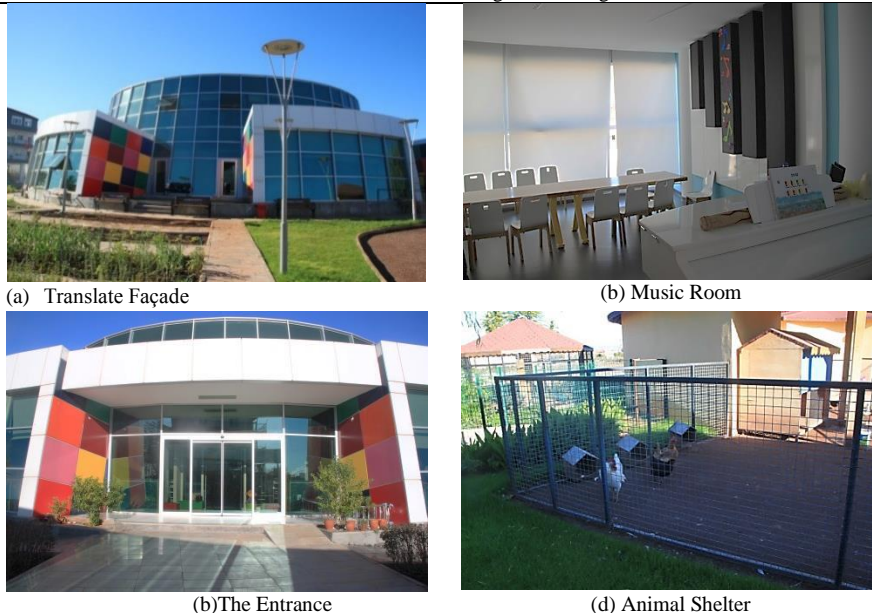
5. Conclusion

There is a global movement towards supporting environmental-friendly behavior of children during early childhood (Alp et al. 2008; Hungerford & Volk 1990; Hines et al. 1986), this resulted in increasing the number of nature-oriented kindergartens. An Ecological Kindergarten in Döşemealtı, Antalya is a newly built kindergarten which has gained popularity among local people because of its approach to the environment. This study intended to evaluate the physical characteristics of this kindergarten and identified the strengths and weaknesses of its physical environment based on the requirements introduced by the 'Early Environmental Education.'

An evaluation checklist and a questionnaire survey are used to explore strengths and weaknesses of kindergarten's physical environment. Finding shows that kindergarten is achieved more success with the offered educational program rather than its physical space. According to the results of the checklist evaluation, the physical environment of the kindergarten does not meet the requirements of sustainable architecture. Having to say that the 'Environmental Sustainability' aspect of the building presented the weakest part of its layouts and characteristic. Results from checklist evaluation questionnaires identified similar weaknesses and strengths. According to both stage of research, well-defined activity areas (Music room and cinema room), various comfortable seating elements, Transparent façade and availability of zoo in the garden have add quality to physical environment, lack of semi-open spaces, enough outdoor space, well-design indoor storage, common areas and design solutions to collect rain-water and protect wind reduced this quality. These

similarities can be considered as physical environments' main positive and negative features in terms Early Environmental Education.

This study claims that an additional design solution can apply to Ecological Kindergarten to improve the quality of space and place for a better environmental early education. The gap in the literature regarding the architecture of early environmental education centers make it essential to conduct further studies and to identify the design requirements of nature-oriented early educational settings.

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ARCHITECTURAL QUALIFICATIONS OF ICONIC BUILDINGS

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Abstract

Iconic architecture is result of a particular point of view; and related to the notions represented. In architectural context, an iconic building stands strikingly within the city with features like concept, meaning, form, technology, material, style, and generally maintains a high level of contrast among its surroundings. The unique design, representation and specific messages of these buildings are the integrated components of the concept of "iconization"; and it is the major condition of being an iconic building to stand out in the surrounding environment. Iconic buildings reflect the cultures to establish relationships between users and construction. Since architecture is an instrument that renders cultures, social structure, history and beliefs, buildings defined as iconic possess symbolic meanings of cities. As well as the buildings themselves, their interior spaces also retain the iconic concept; which generally complete or enrich the legacy of ingenuity. In other words, interior of an iconic architectural piece is complementary with its exterior, and has bonds to the environmental context. In this study, the concept of iconic architecture and interiors is examined in terms of properties that makes them unique, and the contribution of their tangible features in their interiors will be questioned through selected examples worldwide.

Keywords: Iconic, Architecture, Interior, Symbol, Meaning.

1. Introduction

Iconic buildings are not only outcomes of modern times, also are concepts that have always existed in the historical process. As an iconic object, they are results of specific point of views. The definition of the icon is related to the concepts it represents. As Frank Gehry states "architecture should speak of its time and place, but yearn for timelessness". When considered in the context of architecture, an iconic building stands strikingly in form and style within the city and generally maintains a high level of contrast between its surroundings. An iconic design is usually 'ground breaking' and one that sets new standards in its field. It is a design that other designers and manufacturers follow, as it becomes a benchmark for other similar products. For example, the Gherkin building in London is remarkably remarkable compared to its surroundings with its radical use of technology, material, its unique contemporary form and style. Another example of this is the Beijing National Stadium, which has been iconic in its environment with its distinctive structure, birds-nest-inspired ecological concept and steel system and materials.

Figure 1. (a) Gherkin building, London, the UK, (b) Beijing National Stadium, Beijing, China.

According to Oxford English Dictionary, the iconic word means "an image, a figure or a presentation, a portrait, a book illustration; a solid object or sculpture; a sacred object" (1). In the current dictionary of the Turkish Language Institute, the iconic word is defined as "a figure, or figure that symbolizes and describes a person, idea, current or anything" (2). According to architect Patrik Schumacher, legendary architecture includes compelling application of new ideas; and buildings that are considered iconic commonly own a groundbreaking aspect, something that had not seen before (3). Such as, the application of parametric design on a huge scale in Gehry's Guggenheim museum in Bilbao, the unparalleled verticality of Burj Khalifa, or the grand use of steel in Eiffel Tower which was built in a city defined by stone.

Features such as use of different architectural designs, concepts, symbolic value, alternative construction techniques and materials make a building "iconic" indeed. The uniqueness of the design idea and the buildings that are notable for its history, touristic, religious or any other reason can be called the iconic building. Many of these buildings are quite impressive and different in terms of form, size, material and construction efficiency. Niels Luning Prak says that architects use forms and materials as symbols. The idea of geometric shapes, materials and concepts created by architects depends on their intentions and countries. The purpose of these constructions is to reveal their socio-cultural characteristics, religious signs and spatial characteristics" (4). To describe the iconic building, Jencks (5) expresses that the iconic building is designed to make money, to earn money, and the normal criteria are not used in the evaluation. In addition, the iconic building should give a striking new impression to spectators due to their features such as height, form or location. In some cities, iconic buildings are also used to create boulevards or squares, as reminding city icons and landmarks. Cleo Broda defines iconic architecture as large-scale revolutionary designs that are familiar to community (6). Generally, iconic buildings are considerably differentiated, highly noticeable in its surroundings and designed by a recognized architect. As a result, architecture here is a vehicle that influences the appearance of the building and the location in which it is built. 'Image', 'technology' and 'culture' affect the iconic buildings during planning process. In any cost, iconic buildings have contrasting form and materials than their surroundings. The environment in which the building is located comes to foreground due to the presence of the large sized iconic building there. The socio-cultural dimension is also very crucial to define iconic buildings. Because an iconic building is a bridge between the people and the icon, it should reflect the culture of the place where it is established. Already architecture is a tool that represents the culture, social structure, history and beliefs, iconic buildings reflect the symbolic meanings of cities.

2. Characteristics of Iconic Architecture

2.1. Incomparable Silhouette

Silhouettes of architectural pieces have a quite significant role in being immortal in built environment. Iconic buildings all have a recognizable silhouette that can be depicted easily through basic forms or lines. Some silhouettes start out unique, and become less so due to their style becoming ubiquitous in time. However, being the first one with that shape already made those buildings remain as iconic as ever.
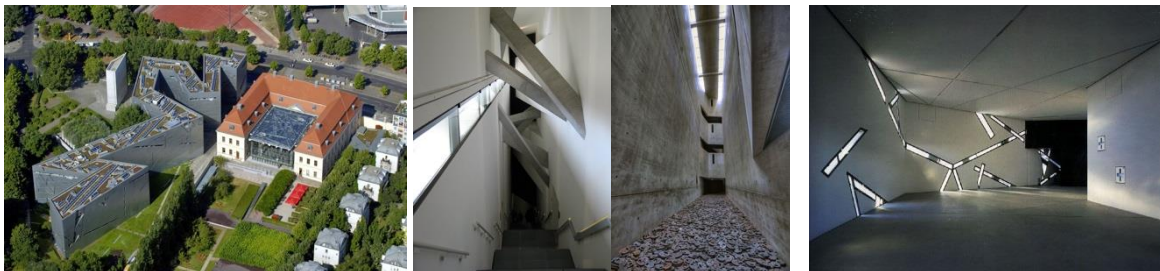

Figure 2. Jewish Museum, Berlin, Germany.

2.2. Simplicity

Architectural pieces do not have to obtain very complex, complicated or elusive characteristics to be considered as iconic. As a supplementary and integrated part of building's silhouette, simplicity is a common trait found in many of the most famous architectural landmarks around the world. A singular, affecting gesture may culminate in a structure that is highly memorable. For sure, buildings belong to a specific time period or architectural movement may be far from the idea of simplicity, which does not mean they cannot be considered as iconic.

Figure 3. Guangzhou Opera House, Guangzhou, China.

2.3. Symmetry

Although there are many examples of iconic buildings which are not symmetric at all, when looking at the most well-known buildings across the globe, a harmonious symmetry catches the eyes. As seen in Hagia Sophia, Burj Al Arab, Taj Mahal, Bahai Lotus and Jin An Temples etc., all utilize strong symmetry to leave an impression on the minds of anyone who visits. Besides, there are some examples of challenge the order in this respect, such as Daniel Libeskind's Military History Museum in Dresden, Germany, that cuts away the symmetry through a controversial effect.

Figure 4. Bahai Lotus Temple, New Delhi, India.

2.4. Meaning

Architecture has been utilized as a symbol to represent a person, a region, an entire city or country for a long time. Therefore, architectural expression can reflect a concept, notion and statement. For example, Gateway Arch in St. Louis, Missouri, conceived by Eero Saarinen as a monument to the western expansion of the United States and widely considered a masterpiece of patriotic design. Santiago Calatrava's PATH Terminal in New York City has a skeletal appearance, with white walls that resemble ribs, intended to evoke a bird in flight. It is a quite emotive design which also has a multi-layered metaphor for freedom, peace and the spirit of adventure, all key elements of the American Dream.

Figure 5. PATH Terminal, New York, the US.

2.5. The Honest Use of Materials

As many architects throughout history have advocated and implemented, in architectural design it is significant using materials with strengths and leaving them exposed to make them communicate with their nature. Use of materials as they really are, has remained a common ingredient in the design of iconic buildings regardless of context, program or scale. Materials that pretend like some others generate decoys and decors instead of genuine spaces; and decors creates temporary fake emotions.
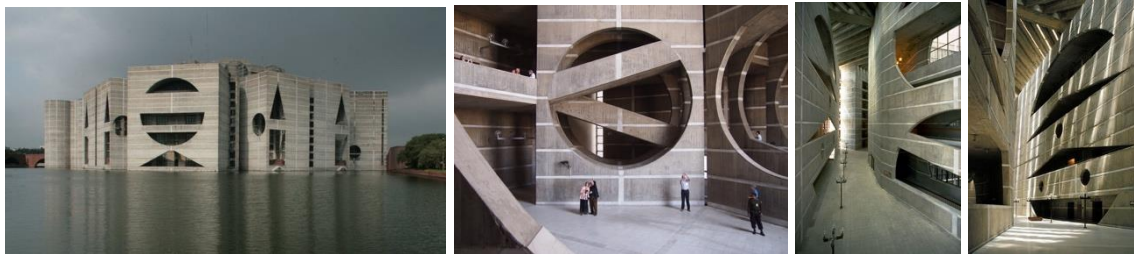
Figure 6. National Assembly Building, Dhaka, Bangladesh.

2.6. Technology/Engineering

Iconic architecture pieces generally utilize developed technological features of the time they have been constructed. Besides, many of the world's most admirable iconic buildings have been shaped and constructed by teams of innovative engineers, working in collaboration with architects to find ways to realize their visions. Two of the most well-known examples are the Eiffel Tower, named after the engineer who refined its now-immortalized curving structural elements, and Jørn Utzon's Sydney Opera House, which was brought to fruition thanks to the architect's close collaboration with the engineers of Ove Arup.

Figure 7. Sydney Opera House, Sydney, Australia.

2.7. Unique Back-story

Many iconic buildings take on added significance when their reason for being is revealed. Because human beings are created sentimental, buildings or spaces with stories have more emotive power than others. In a sense, an impressive story behind architecture can trigger people's feelings towards the building. For instance, Taj Mahal- the ornate mausoleum was designed and built for Mumtaz Mahal, the favourite wife of the Mughal emperor, and has stood as a shimmering symbol of love for three and a half centuries. An English poet, Sir Edwin Arnold best describes it as "not a piece of architecture, as other buildings are, but the proud passion of an emperor's love wrought in living stones" (7).
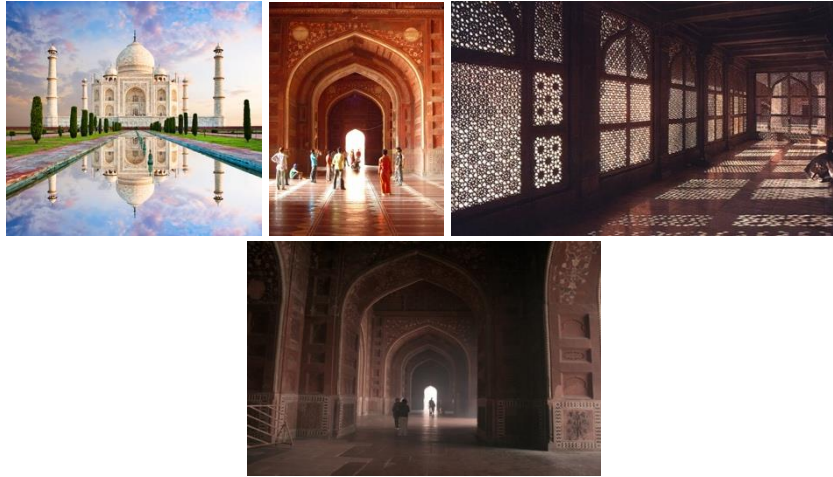
Figure 8. Taj Mahal, Agra, India.

2.8. Environmental Context

While many architectural designs blend seamlessly with their surroundings, there are also huge amount of instances where the beauty of a building lies in its stark contextual contrast. Furthermore, iconic buildings can be examined in two parts as contemporary ones in historical surroundings and historic ones in contemporary architectural surroundings. In both categories, the iconic features come from the contrast between the building and environment.

2.8.1. Contemporary Buildings Iconized In Historical Surroundings

When it comes to the iconization of architectural pieces, contemporary constructions of historical cities come first to the minds. The cities have a long-standing historical identity, and in this identity there is a growing urban settlement. However, expanding city scales and sizes, intense population increase through immigration, inadequacy of old buildings to meet changing demands, new technologies making new building systems possible, make constructing new buildings obligatory. New buildings can be designed in a harmony with the surrounding area, they can be designed not to attract attention, but they can be designed as a product of new materials and technologies in complete contradiction with the historical environment - in this case an iconic contemporary structure is designed in a historical environment.

Basque Health Directorate Building designed by Coll-Barreu Arquitectos in Bilbao, Spain (2008) can be shown as an example for iconic contemporary structure in historical surrounding.
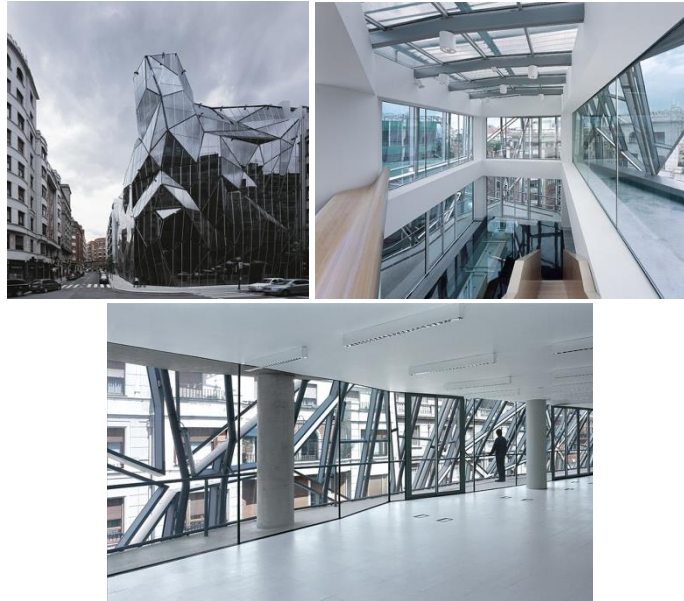
Figure 9. Basque Health Directorate Building, Bilbao,Spain.

This modern and extraordinary structure is designed as a very different public building in a historical texture. This building which is second most photographed after Guggenheim Museum in Bilbao by tourists differentiated and iconified in the surrounding area. The buildings were raised as a single main mass, while the façades were retracted while approaching the building next to them. The buildings in the neighbouring parcels were not exceeded the upper elevation limits of the adjacent parcels and were designed in the same way as the adjacent buildings. The edges and the building were not perpendicular but joined with rounded or crack movements. Although other buildings around look so straight, linear, concrete and vertical, Basque Health Directorate Building differentiates from them through angular, crosswise, diagonal lines with transparent glass façade, and steel construction system.

Building is located in the crossroad of the two most important streets of Bilbao. The restrictive city zoning rules force to repeat the existing building typology, reducing pent housing, chamfering corners and rising a tower. Therefore, this building is thought as a typical one for the area, but with a glass curtain wall system. The building provides vertical communications and general services inside a core, a prism next to the dividing wall that serves to open-plan floors.

The building is quite modern in terms of the systems and techniques used. An important feature of the building is that it is double-faced; the double-layer facade reduces the noise of heavy street traffic, thus resolving the requirements of sound insulation and fire regulations. It also reduced the heat loss of the facade and prevented the use of conventional systems for ventilation. Air circulation between the two layers provides clean air for the interior in the summer, allowing the space between the layers to be used as a balcony.

Besides, that folded element produces multiple views of the city, and changing its appearance depending on the point of view, the hour and the season. The objective of this element is introducing the mutability, the dynamic spirit of the city. Located in a very historic part of the city of Bilbao, this building has become iconic with its own image and, if necessary, with its different and striking forms and materials.

2.8.2. *Historic Buildings Iconized In Contemporary Architectural Surroundings*

Historical buildings, such as the iconic structures constructed afterwards in historical city environments, are also pre-built in the contemporary architectural circles. Old buildings can be damaged and demolished during the historical development process of the cities. Even in some regions, this destruction is so great that sometimes the historical texture is completely destroyed; sometimes only one building remains intact and remains iconic, with new settlements and structures built around it.

An example of the historic iconic building in contemporary architectural surroundings is the Huguang Guild Hall, built in 1759 in Chongqing, China. As is well known, Chinese cities are trying to protect their historical structures, and because of the excessive population density, the necessity of shelter is in line with the fact that new and distorted structures are built up in historical textures and even in some cases they cause damage to this texture. In the vicinity of Huguang building, there are many buildings, such as modern and multi-storey car park, shopping centre.

Figure 10. Huguang Guild Hall, Chongqing, China.

Huguang Guild Hall is now used as a museum, as well as opera shows in certain lounges. In the past, this building was first built with the efforts of the local tradesmen, and has gone through three major restoration and several minor repairs daily. When it was re-opened in 2006, visitors still can find the original style. The wooden building walls, doors and windows were delicately carved with themes of human figures, animals and various plants. Until today, Huguang has grown exponentially by growing clusters of different places; and there are courtyards, opera stages, rooms and gardens. Since it is built by traders who have migrated from different cities of China, there are places in different styles. The building enlarges in horizontal direction on site, has unique vivid colour, and detailed handcrafts. There are giant fires seals dividing the space into a number of small courtyards, every small courtyard can be connected by wickets, and the space is not cut off. This makes each courtyard has its own unique function and the corresponding landscape, rockery plants, small bridge over flowing stream, corridor carving painting of the unique style and characteristic spaces.

These different styles have come together and integrated to create the unique architecture of the building. There is a delicately carved process on the wooden walls, doors and windows of the building. These subtle details, which are supposed to be local cultures, contrast with the sloppy modern and new urban texture in the world. Huguang Guild Hall once carried a glorious past of Chongqing city and it will continue to host the new another piece of brilliance today. Huguang, which still shines with its old air and nobility among the high buildings, is a successful example of the historical iconization in the contemporary environment.

3. Conclusion

In this study, the concept of iconization in architecture, the scope of this concept, its components and formation patterns are revealed. Also, interiors belong to iconic buildings worldwide are viewed to figure out the contribution and results of their iconic design process. The study expresses various different ways of iconization in architecture, although it emphasizes specifically the one related to environmental context. Because, this can be evaluated as the most common one among others due to changing city forms and rapid urbanization nowadays. As it can be achieved with new and modern constructions located in historical sites, it can also be with historical buildings that have succeeded to survive in new urban fabric. If we compare these two ways of iconization, it can be said that modern buildings built in historical circles can attain the same result as the old texture ruins. Historical buildings in contemporary urbanization differentiate them by enriching this modern texture. It can be seen through the examples that many of iconic buildings have dramatically impressive interior spaces, which are shaped by exterior shell, façades, dimensions and openings. These interiors are generally designed in a smoothly harmonious way with building's main outline, but of course between the limitations of the time and culture of the structure built in.

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EGYPTIAN BAZAAR

IN THE CONTEXT OF SPACE AND TASTE RELATIONSHIP

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Özet

This study aims to explore the Spice market with the other known name of the Egyptian bazaar in the context of space and taste relationship.Spice has become an important center of human life with its strong influence in history. The Egyptian bazaar has been a central point of attraction with its spice-based effects as a cultural value and a commercial tool in human life. In this study, it has been evaluated in the frame of spice which has been a symbol of power in the global value.

Key Words: spice, space and taste, globalisation, cultur

1.Introduction

There have been two important trade routes that have driven the economy on the world. Spice production of the Chinese and the Indians caused the two most important trade routes in history to emerge.

Many events that change the direction of history have taken place in this context.

Perhaps the first example of today's communication network, which shrinks the world through telephony, television and the internet, has been established here.

The first example of globalization was seen in this way.[1] One of these trade routes is Silk Road while the other is Spice Road. These two paths are the way of encountering different cultures and cultural elements.The meeting of the East and the West, and then the West embracing the imperial appetite, are the result of the richness of these roads.[2] Spices provide the interaction of different cultures by means of these paths in order to ensure that the spice is kept both for medicinal purposes and for the preservation of food, and for the purpose of using it for the purpose of taste has become a symbol of power and status. The fact that it has a strategic position due to its presence on these trade routes in Istanbul and its effect on the Spice Bazaar as a global center of attraction where this spice sale is made shows the importance of examining the Spice Bazaar in terms of space and taste.

2. Globalisation, Cultur and Spice

The phenomenon of globalization first emerged as an economic dimension in the context of intensification of cross-border trade; in later years, it has started to affect political, social and cultural structures with new dimensions. Located at a strategic point between East and West, Mediterranean and Black Sea, Istanbul has been one of the most lively trade centers in both Byzantine and Ottoman times. Istanbul, on the one hand, was a port city in the Balkans and Europe, and on the other, the North Mediterranean and Arabian Peninsula, on a transit trade route. Trading products, such as silk fabrics, spices, precious stones, textiles and carpets from the East and Arabia, are gathered in Istanbul to be taken to Europe.[3] The first use of food in the Ottoman Empire is the protect of foods and the spices have become indispensable for the taste. Spring means odor in Arabic, and spice is a plural of spring, meaning odors. Spice, which is the first product traveling around the world through trade networks, has been mentioned frequently in written and oral sources for thousands of years. The reason why spices are so important is that spices are the main drugs of ancient

medicine in addition to hiding food and adding taste to them.[4] In the ages when technology is very primitive, the methods used to store nutrients, such as the customs made for storing the flesh, are said to be needed, since they do not leave any flavor in the end. The inde Spice Path ", which is very important in the history of the Middle Ages, even taking into account the fight for control, is a widespread statement about the importance of spice transported to Europe through this road.[5]

Spices, which have been used as a component of different products such as medicine and perfume throughout history, have been suggested to become valuable even under gold in Europe. Today, the spice's journey reveals the cultural and economic values of the West, in particular the critique of consumption habits to the rest of the world, in other words the concept of cultural imperialism.The journey of the spice from ancient times to today is essential due to the trademark of the spice; it has also achieved communication and interaction between the producers and consumers of it and the communities in the journey.[19] In this case, it played an important role in determining social relations.

Ancient Egypt and Mesopotamia are the civilizations that have played a major role as the 'Eastern World' in the spice trade in history, where spices and herbs are widely used. Bober, who claims that many ancient and undeveloped societies determine the social status through food, also shows that in Egypt, slave and workers have a diet consisting of meat-free, more bread, beer, onion-like ingredients; however, this diet is also open to the use of medicinal herbs growing in the countryside and wild. This is why spices have taken a wide variety of forms in ancient Egyptian life. For example, in the mummification methods, salt and spices are used, and the fragrant spices such as mir and cinnamon are put into the dead body. It is also known that spices are served as an offering to the gods with their beautiful scents.[6]

Early New Age, spices, is an extremely valuable trade property. In 1492, five years after the discovery of the US by Christopher Columbus) (1451-1506), seafarer Vasco da Gama (1460-1524) sailed from Portugal's port of Lisbon with four large ships. Two years later, after returning to Asia in 1499, he returned to Lisbon with two   ships.
The cargo of these two ships, filled with spices and other goods, gives him sixty times the entire travel expenses.
Europeans at that time also used the spice as a present to add to the dishes. A wide variety of spices were used to mask the taste of food that was tasteless and nutritious, otherwise uneatable, in the European cuisine of that period, especially in the winter season. In the 16th century, spices were sometimes used to preserve foods, such as meat, for a year or more without freezing.[5]

At the same time, before the use of the refrigerator became widespread, the spices had a function that prolonged the life of the food and added flavor to them, as the food in the hot regions quickly deteriorated[7] In the long term Europe, the phenomenon of un providing status with spices un, which is the basis of the passion for spices, gives information about spices, the structure of society and the roles in society.

'Light in weight but heavy in value', spices and herbs, are not confined to the kitchen; has an important place in life and more generally in culture.[6] Spice in the Spice Bazaar in the context of this semantic value of the sale of the spice and the structure in itself is revealed.

3. Eygptian Bazaar
Each society has its own cultural history and emotional structures and even sensory structures it has built up in its concrete everyday life.[8] The Egyptian bazaar is one of these senses with its strong spice smell and taste. In addition to being a cultural structure, it also has a universal center of attraction with its important position in history.

The Egyptian bazaar, the drug sold in the market and the spice to come through Egypt, the Egyptian Bazaar

in front of the ships coming from Egypt to download goods in front of the first public, then entered the official literature as the Egyptian Bazaar.[9]

The center of pharmacy trade was the Egyptian Bazaar in Istanbul and was built at the same time with the mosque in order to generate income for Yeni Valide Mosque. Construction started in 1597 and completed in 1664.Here, herbalist shopkeepers, pharmaceuticals and spices receives from wholesale traders brought from foreign countries, public and retail sales to small shopkeepers and Turkey could play an important role in the economy. Herbalist shops consisted of two parts. In the front, there was a section for selling wooden benchs and for sorting pharmacy containers, and at the rear was used as warehouse and production hall. Pharmaceuticals were stored in special shaped glass jars, earthenware pots, wooden or tin cans, the name of the pharmacy was written on them. Items sold here include red rootstones, rhododendron, gum arabic, darchnig sugar, clove sugar, an aniseed sugar, rose candy, coriander sugar, palate almond sugar, cheese sugar and camphor sugar. According to the instructions of 1883 (H. 1301), reports and the Egyptian Bazaar, the wholesale trade of chemical and medical substances related to trade and pharmaceuticals belonged to the herbalists. However, it was forbidden to prepare drugs for prescription. It is also reported that the proceeds will only sell medicinal and toxic substances to qualified pharmacists. Again in this instruction, the list of drugs to be sold by the transfer is indicated as a list. In the Nizamnâme, which was later published in 1885, the definition of herbalist was made as tradesmen selling drugs and chemicals wholesale to industry and pharmaceuticals.It was forbidden for the herbalists to sell medicines that are not in combination with special compositions coming from Europe, and the items prescribed by a physician's prescription only in local drugs and pharmacies.[5]

The Egyptian Bazaar, which is a 350 year old architectural structure, is the ottoman bazaar* for Yeni Valide Mosque Complex on the Eminonu coast where it defines the heart of trade and trade in Istanbul.[10] The zoning order, in which the religious and economic activities, which constitute the center of social life, can be carried out together in the form of the Ottomanization in the public sphere, led to the emergence of the buildings. Religious buildings such as mosques, madrasah, social buildings such as mosque, hospital buildings, ottoman bazaar, covered turkish bazaar, were thought together and formed.[3] The land allocated for the monumental structure, as it is today, was among the most valuable lands of Istanbul in the mid-sixteenth century. This market area, which will look at the harbor, which is frequently encountered by spice and aromatic loaded ships from Egypt to India, perfectly reinforces this important trade route. In the seventeenth century, Venice was surrounded by Vasco de Gama, but after the conquests of the Red Sea by the Dutch, they remained in crisis. However, Cairo merchants continued to serve the Ottoman market; Trade continued using the Red Sea.[10] Referring to her relationship with the port, her name was later renamed to Egyptian Bazaar. Therefore, spices, medicines and dyes were imported into Egypt and then moved to Istanbul. It should be noted that the change of the name from the Valide Bazaar to the Egyptian Bazaar is an indication of how the spice has strengthened.The resulting geographical discoveries directly contacted traders and imperial administrators with new food and new culinary traditions.[2] This increased cultural interaction.

Fig. 1: (a) The New Valide Mosque plan[10], (b) The New Valide Mosque and Egyptian Bazaar[16]

The Spice Bazaar is an ottoman bazaar in the ottoman classical style. It was built by Valide Turhan Sultan in 1663-1664 as part of the New Mosque Social Complex. Architect Hassa Chief Architect is Mustafa Ağa. It is rumored that there was a bazaar called Makro Envalos during the Byzantine period in the place where the bazaar was located. The shops in the Egyptian Bazaar consisted of two parts in their original form. In the front section of the

*Ottoman bazaar: A combination of tradesmen doing the same job in bazaars or shopping districts.

shops, there was a room which was used as a wooden bench, for selling and sorting the drug containers, and in the

Fig. 2: Different entrance door of Eygptian Bazaar[3]

back part of the room used as a warehouse and a factory. At night, wooden shutters were closed with wooden shutters and wooden ornaments, drugs and medicines were kept in glass jars, earthenware, wooden or tin cans. Some of the shops in the eaves, providing easy recognition of the shop, fire tower, ostrich egg, scissors, tassel symbols were used. Thanks to these symbols, the locals could easily find the transfer shop they were looking for.

When the bazaar was first built, it was allocated to transfers and cottons; four of them are large, two of them are small six gate. The main entrances at the ends of two large arms are designed as two-storey with six porticoes.

The stairs inside the bazaar are reached to the domed rooms above the canals. Domes are higher than the Grand Bazaar. In addition, the door of the market opening to Tahmis Street is two-storeyed. The Egyptian Bazaar is also longer in the east-west direction(Fig.1). After the fires, the restoration has lost its originality in terms of its layout and usage area.Iwan was connected to the rooms behind them, wooden rooms separated by rooms and iwans were removed, and these spaces were used as warehouses.[11]

4. Egyptian Bazaar, Space and Taste

It is a multi-layered structure with social, economic, psychological and political dimensions. In the sensation phase of the space, the senses such as vision, hearing, smell, taste, touch, balance provide the sensation of the physical components of the space, the phenomena occurring in the space and the whole context.[12] In addition to being a spice market in the Spice Bazaar, it has some physical properties that

contribute to its power as a legendary place. The smell of spices and plants, human voice, movement, temperature etc. has its own climate. Although the small shops in the rows on both sides of the corridors inside the L-shaped building are arranged regularly, the visual result is chaotic. However, this chaos contributes to the ambience. In all this confusion, the cleanliness and simplicity of the architectural idea creates a strong border. The linear repetition of the shops and the symmetrical distribution along the arched street strongly surround the visitor. Strong odor in the air contributes a lot to the vitality of the area and makes it more interesting. This also contributes to the feeling of being in an area where people live[10]

Dan Brown mentions the Egyptian bazaar in his book he's the lnferno; " Istanbul's three hundred-year-old Spice Bazaar is one of the largest indoor shopping venues in the World. The L-shaped structure has eighty-eight arched rooms divided into hundreds of shops. Indigenous trades sells a variety of edible flavors enthusiastically brought here from all over the world: Turkish delight, with spices, fruits, herbs and a kind of confection that can be found all over Istanbul…
Exotic spice casks were placed on both sides of the road:Indian curry, Iranian saffron, Chinese flower tea. The dazzling colors of spices created a tunnel of yellow, brown and gold. They were forming a deafening chorus from spoken languages around the world. As a result of all this, a person was invaded by all people, which triggered all senses".[13] Contributing to the feeling of being in the area where human beings live, he talked about the influence of the Spice Bazaar with the mobilization of all senses.

Fig 3: (a) Egyptian Bazaar,[17] (b) Spice Sale[18]

The fragrance provides information about the users of the space and space and creates an interface between the place and the humanThe place of smell in the space is in XVI century. In June 1549, in Paris, a feast at Catherine de Medicis iy was taken care of 'to spice herbs with a nice fragrance into the hall. It is understood from the painting depicted in 1581-1582 that the tradition lasted for many years, from the sprinkled flowers on the parquet flooring. In 1615, in the rural decoration, laying of plants such as rosemary, mint, violet, wild coral pavilion, lavender in the room furnishing is known.[14] In addition, as he approached 900 years, Emperor VI. Leon has issued a regulation for Istanbul retailers. According to this regulation, the proceedings would take place in a row of sheds between the Million Stone (the remains of the marble columns next to the Basilica Cistern)   and   the   Imperial   Palace   entrance.
The reason for this is that the fragrances emitted from the streams spread to the palace and the surrounding area, and more importantly, to reach the icon of Jesus, standing on the bronze arch at the entrance of the palace. Since the belief that spice odors cleared the air, both in the palace and Jesus, they would be in an environment free of evil spirits.[15]

Here, the place of spices semantically in history, the use of spices in the place of the smell of spices of the Egyptian Bazaar to come to the fore to reveal a special importance. Thus, due to the spice market, it requires to be considered as a power institution with its own trading practices, behavior patterns and cultural meanings. It is no coincidence that the first coffeehouse was opened around this area in 1554. When the construction of the complex was completed in 1664, this part of Istanbul was already filled with hundreds of coffeehouses. It

should also be noted that coffee, as well as spices, is one of the elements of trade that are strongly intertwined for the merchants of Cairo and Istanbul.[10]

The intense smell of spices in the Egyptian market is both important in the sensation stage of the place and gives an idea about the local fauna that comes from the spices and reveals the culture. Because the effect left by the person in the space leaves a mark in the memory and plays an important role in the sense of space. One of the stimuli that stimulates the memory of the moment when experiencing the space in the memory is important for the sense of taste and experience to be created.

In 1874 dated travel of Edmondo de Amicis in Istanbul, the Egyptian Bazaar is described as follows; "As soon as he gets in, he gets a nasty smell of nasty on his nose so he's almost back.This is the Egyptian market, from India, Syria, Egypt and Arabia, all kinds of spices, paintings, hands of the face, paintings, baths, mouths, beards and food, giving the scent of scents, beautiful pashas to give strength to the magnificent city of imagination, drunkenness and pleasure to distribute Essential oil, pills, powder, rotates into ointment. When you walk a little at the market, people start to stun and get away from there; but with this hot and heavy air, the intoxicating odors continue for a while, even when they are out in the open air, and remain in your mind as one of the most intimate and intuitive marks of the Orient".[3] Thus the Egyptian bazaar offers an experience in this architectural environment total; spices, taste and space are interrelated; a place. Spice here means more than its priorities; more than its physicality.[10]

4. Conclusion
For centuries food and spices, especially salt, have been used in important economic and diplomatic missions as a means of exchange or as a gift to build relationships, to build relationships, to build relationships. It has been a sign of power and status in history as a phenomenon of historical, cultural and economic importance
Due to the location of the Spice Bazaar as a center of attraction due to the effect it has been transformed over time.
Spice has lost its influence as strong as in history, and the market has lost its properties in time. The goods sold with the shops are also changed, spices and chemicals, as well as clothing, food and other goods are sold. Due to the use of spices in daily life and integrated with the Egyptian Bazaar, it remains a cultural center with its fauna.
 In this respect, it maintains its importance in the society with its influence and history as cultural and global. People who create social structures and add meaning to events are people, but these structures and meanings have historical origins. Due to this historical value in the Egyptian Bazaar in terms of space and taste, it is gaining importance with the commercial, political and cultural value created by food in history and shaping the structure within this scope.

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THE ROLE OF CULTURAL HERITAGE IN SMART CITY CONTEXT

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Abstract
Smart cities promise solutions to sustainable development and a high quality of life (QoL) with a smart management of city resources, cultural heritage considered as an existing resource that should be protected, preserved and promoted to be a part of the components of a smart city, which is built on economic, tourist, and recreational aspects; heritage term can be transformed into smart heritage beside smart city strategies by using new technologies and generating innovation to create revolution in heritage cities. This paper will shed light on opportunities and strategies adopted by the smart cities in approving heritage in the smart city context. Analytical descriptive approach was adopted in addition to previous studies. The paper concluded that reaching smart heritage city is based on and it helps to create new and effective solutions, implementing information & communication technology (ICT) tools in the smart cultural heritage enable citizens to participate in making decisions as well, and creating open urban systems which is working on the principle of partnership.
Key Words: Smart heritage, Smart city, Smart tourism.

1. Introduction

History considered as one of the main diminution of smart city. [1] The integration of smart city solutions of cultural heritage is based on smart location and smart applications, and it has been noted that the management of cultural heritage can be incorporated into several strategic areas in the smart city, [2]. This paper summarizes the most important opportunities that can benefit from the cultural heritage within the smart city as an effective engine to develop the traditional historical city into a smarter city by reviewing previous studies and quoting global cases. Italy was chosen precisely because of its successful experiences in this field. European cities have recently strengthened the role of cultural heritage as the cornerstone of smart cities by enhancing the potential of smart cities in cultural heritage and tourism through technological innovation, smart devices and data transmission. Fig (1).
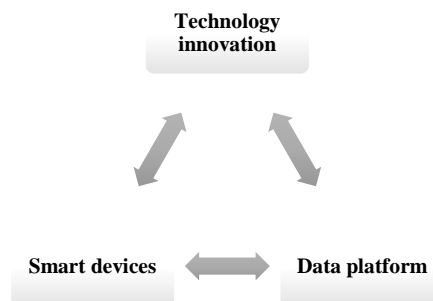
Fig. 1. Smart city potential in cultural heritage. [2]

1.1. Smart city

Smart city is a term of using information and communication technology (ICT) in improving city's operations efficiency. While promoting the quality of life for its citizens. [2] [3]. The smart city is defined as "a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses." [4]

According to [4] the first layer of Smart-city is real estate development where concepts and the vision of the city will be defined by determining the constraints and the local needs. Any city has a basic infrastructure (2nd layer) to meet the constraints of the city which includes energy systems, power supply, and water work and communication network. Then this layer should upgrade to become smart infrastructure (3rd layer) with this layer, the smart city's features will begin to emerge and the Information _ Communication _Technology play a major role in that by supporting urban functions and providing efficient services via a platform that link all the

individual systems together. Creating a new life services based on the Layer 2 & Layer 3 (Basic & Smart Infrastructure) which aims to achieve a high quality of life (QoL). The last layer is concerned about lifestyle, culture and art related to creation of community activities. Fig (2) [5]

| 5th layer: Lifestyles culture and art. |
| 4th layer: Life services. |
| 3rd layer: Smart infrastructure. |
| 2nd layer: Basic infrastructure. |
| 1st layer: Real estate development. |

Fig. 2. Smart-city Layers. [5]

In order to create a smart city, understanding infrastructure elements should gain first this will interact with it through a particular context design (smart city components). Smart city components could be divided to: infrastructure, People, city systems and the ecosystem.[6].
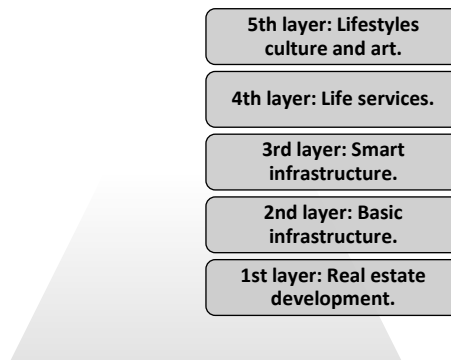
1.2. Smart cultural heritage

The concept of smart heritage first appeared in Spain in 2014 at a cooperative meeting between India and Spain on the subject of heritage management. Since then, this idea has been presented at various meetings dealing with the management of art and heritage throughout the world. Nardi [7] implied that the most important aspects of smart cultural heritage are management, including governmental organizations, public and private institutions and local communities. Archeology and conservation are important parts of the smart cultural heritage that includes responsible institutions, stakeholders and visitors to heritage sites. Fig (3)

Smart cultural heritage can be defined as a cultural heritage that uses latest technologies and creative methods. Smart cultural heritage is an inherent attribute of heritage so that it can be managed in tandem with the Smart city.[8]
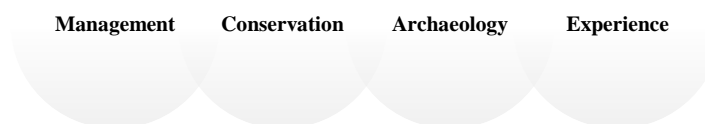
Management   **Conservation**   **Archaeology**   **Experience**

Fig. 3. the key aspects of smart cultural heritage. [8]

1.2.1 ICT for Smart Cultural Heritage

ICT technology could be used in the field of cultural heritage, to achieve benefits of new technological solutions such as: the diagnosis of cultural heritage, digitization, restoration and preservation, as well as the ability of ICT to enhance the attractiveness of the cultural heritage site and the cultural and economic impact on the population. According to Arnold & Geser [9] ICT applications in cultural heritage vary in multiple sectors such as: digitization, conservation, online access and digital innovation.

The smart environment for cultural heritage depends on the communication between many devices, sensor networks and servers in the fixed infrastructure, as well as the growing number of portable devices that are acquired by the population. Different applications provide information to these users instantly [10]

1.2.2 Technology Innovation

Technology for cultural heritage provides an opportunity for exchange and interaction and provides a range of developments, including new applications and websites to share digital cultural heritage. Technology can offer innovative applications and services that shorten the distance between cultural heritage sites such as touristic centers, archaeological parks and museums. It can also be very useful to citizens so that technology becomes a means of interacting with all relevant preachers, through which people can learn about cultural heritage. [11] Through Smart Cultural Heritage, an open platform for smart services can be developed that ensures the preservation of heritage and the provision of knowledge to users. These methods enrich the digital content of cultural heritage such as images, texts and videos [12]

The relationship between the Smart City and the Cultural Heritage has evolved from the need to develop the traditional museum concept. It is no longer the traditional space for presentation and participation but must

be developed as an open source of information based on virtual reality. Combines the smart museum with the original space within the context of the Smart City concept, developing the relationship between the museum and its original context for which it was found.[13] Smart museum could be defined as a museum without walls can work as a relational theater using smart cultural heritage and ICT tools [14] Fig (4).

Museum
without
walls

Smart
cultural
heritage

Museum
as theatre

Relational
museum
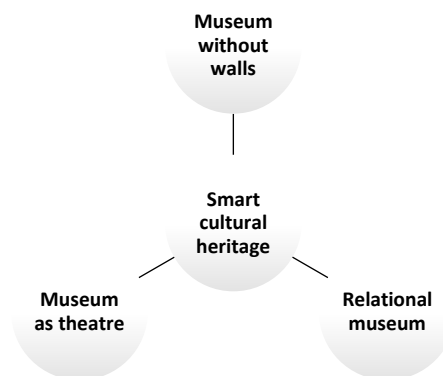
Fig. 4. Characteristic of smart museum in SCH theme. [14]

Smart devices could be used to control the cultural heritage environment such as humidity, temperature sensors, gas and particulate matter sampler devices and smart apparatuses, specific for the monitoring of the biofilms. [15] . Sensors can be very useful in smart cultural heritage, especially the preservation processes of technical exhibitions and all kinds of buildings, archives and others. The sensors work on collecting data in real time platform. Cultural heritage sensors are characterized by many features, including such as: they are always wireless, they can be installed in the heritage places non-intrusively does not affect them, and can be installed in places that are difficult to access and are widely used so that they can measure the standard variables such as temperature and humidity, exposure to light and others. Cultural heritage sensors measure specialized variables such as xylophagus insects, several contaminants that affect heritage and others related to the structure's own stability.

1.2.3 Smart Tourism

The application of new technologies in tourism works to enrich the smart approach related to all the experiences of tourists, including the allocation of presentations and awareness of context and information gathering, which ultimately helps to create more favorable tourism experiences. There are three components that affect the success of smart tourism experiences: cloud computing, internet of things and end-user systems, which are used by tourists. Fig (5) [16]

cloud computing	• technological infrastructure : collect, manage and store a large number of data
Internet of Things	• RFID tags, sensors etc
end-user systems	• smartphones, Google glasses, Oculus Rift and Apple Watch

Fig. 5. Smart tourism components. [16]

1.3. Italian experience

Italy is one of the richest countries in the cultural heritage and has many experiences in transforming its heritage cities into smarter cities. Its projects have been characterized by the development of technological tools that promote cultural heritage resources in a way that serves tourism. These lines of work are integrated into a technological platform, Stakeholders), citizens, tourists and all services. Table (1)

Table 1. Italian strategies in transforming its heritage cities into smart cities.[8]

Tool	Action
Open platform for smart services	• Provide users with information about cultural heritage impact, preservation. • Current methods for digitizing 2D / 3D objects. • Provide innovative strategies such as automatic extraction and cataloging of information from digital content (images, text, video, etc.). • Consolidate databases that belong to the entire tourism industry.
Open source smart systems	• The concept of personal and contextual exploration of cultural interests enables a better understanding of the expectations of tourists affected by social media. • Develop an integrated system of services for the establishment, licensing, regulation, control and promotion of tourist and cultural performances. • Real-time platform to support tourism mobility.

1.3.1. (Living-lab for culture and technology) project

This project is implemented in Catania and Lecce; in order to create a modern technological platform that works in the context of archaeological museums internally and externally and thus create a renewed cultural view of the city within the framework of the city's smart heritage project. [17] The idea of this project is based primarily on building a smart perception of the city by using the current cultural heritage based on the innovative techniques involving of stakeholders (tourists, citizens, government). [18]

Table 2. (Living-lab for culture and technology) project actions and its results. [18]

Action	Details	Impact
Digitalization	Sharing cultural content related to museums, and cultural memory. Promoting cultural heritage through the application of ICT, preservation and digitalization of heritage and cultural activities.	Reach a definition of an old, rejuvenated civilization and to combine knowledge with multimedia technology to generate legacy digital content.
Augmented Reality	Free access to data, information and resources via the Internet. Reuse information, images and 3D models Interactive navigation in space and time.	Virtualize the heritage city with a smart platform that allows citizens to engage and share content in the project.
Computing Platforms	Collect and provide to the virtual visitor in a geo-localized environment, information about urban porticoes. Harvesting of data and make it through a graphical interface for cross-media apps.	Consult information from different databases. Storytelling, gaming and wide participation are factors that converge towards raising the general level of attention to the cultural resources of the smart city.

1.4. Discussion

After reviewing the previous studies and the points of intersection between the smart city and cultural heritage, the researcher summarized the most important tools that can be applied in the smart environment, which will support the cultural heritage. Table 3

Table 3. Smart cultural heritage tools in smart city context (Author, 2019)

Tool	Discerption
Computing platforms	Real-time platform Tourism mobility: control tourist promotion & cultural performances. Smart open platform: digitizing 2D / 3D objects. Virtual exhibition. Geo-localized platform : graphical interface for cross-media apps
On-Site Technologies	Enhanced visualization, mobile and wearable technology to increase the quality. Audio Augmented Reality. Android system with an interactive headset. Heritage App with QR Code for monument information
Pre-Visit Support	Collaborative Filtering (CF): automatic mechanism for making recommendations. Create tourist routes using the smartphone Web Portal for Smart Tourism. "the interface of the project.
Smart transportation	Sustainable mobility systems (car sharing and bike sharing). Catalog cultural tourism destinations: behavioral models for the study of tourist flows and their distribution through the media collected in the region by multimedia. Integration of public transport and routes for tourists and monuments. Applications that allow enhanced mobility and sharing of the public bike and the existence of intelligent parking system.
Smart architectural conservation	Renovation and maintenance of heritage sites, measure standard changing variables such as temperature, humidity, exposure to light, etc; and also specialized variables such as xylophagus insects, several contaminants that affect heritage and others related to the structure´s own stability. Smart museum.

Smart Social innovation	Involve and maintain all stakeholders. Providing innovative services to citizens - which are gradually integrated into their daily habits. Citizen-driven innovation
Smart infrastructure	Participatory urban planning and co-design of public spaces. Smart paths for pedestrian.

Smart cultural heritage tools can be implemented through a comprehensive ICT-based system and collect a lot of data from platforms, through the technologies used on the site to the population or tourists, to the concept of living heritage lab, through which the greatest benefit of cultural heritage will be realized as an effective component. In shaping the city's smart identity. Fig (6)
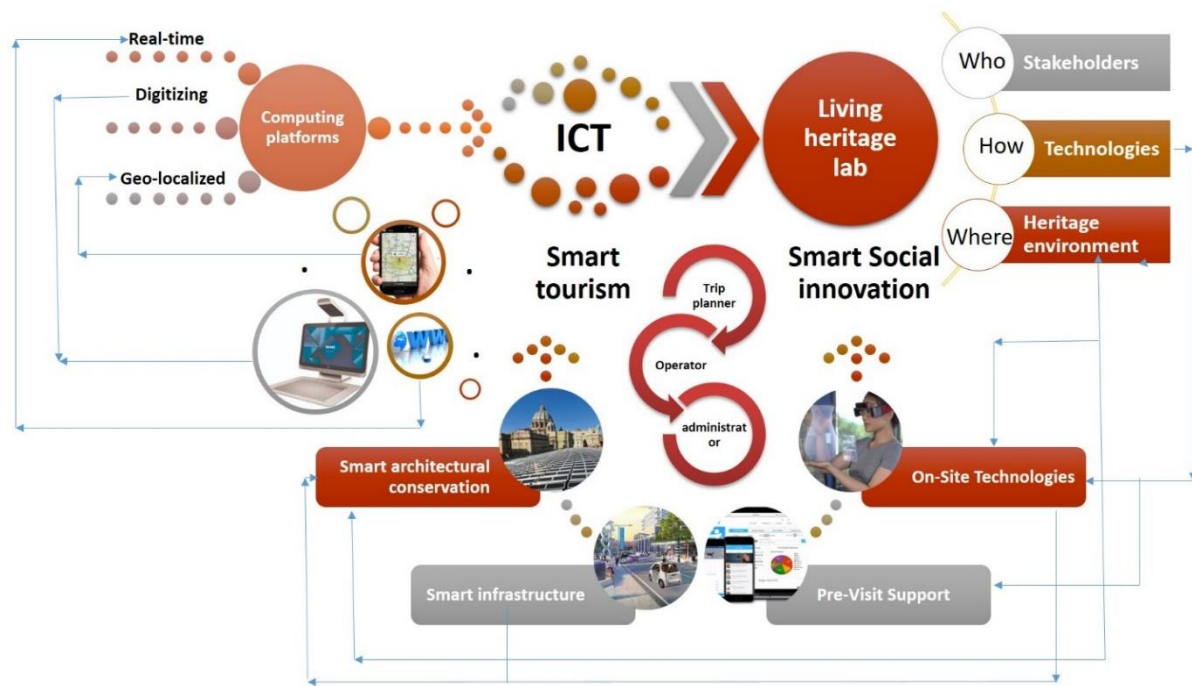

Fig. 6. Smart cultural heritage model application in the smart city environment (the Author, 2019)

1.5. Conclusion

When transforming the old heritage city into a smart city, there are two important opportunities that can be exploited. The first two layers of the smart city components, such as infrastructure and identity are already existed, and that will contribute to the creation of a new smart city with different features than its other counterparts. It's also important, though, to consider the different systems in smart cities according to the choice of a structure whose objective is to effectively serve individuals and communities effectively, taking into account other processes required making progress in the smart city. Smart cultural heritage interacts with smart city in the use of ICT applications. Fig (7)
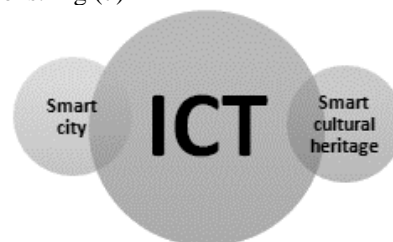
Fig. 7. ICT join point between smart city and smart cultural heritage. (the Author, 2019)

The integration of smart city solutions of cultural heritage is based on smart location and smart & ICT applications, and it has been noted that the management of cultural heritage can be incorporated into several strategic areas in the Smart City. Cultural heritage should be upgraded to a smart one so that it could be a vital towards shifting traditional heritage city into a smart city, by developing a methodology links the three topics (smart heritage, smart tourism and smart city) together.

Based on the Italian experience of smart heritage strategies in smart cities, a set of keys can summarize the mechanism by which it can be applied, to reach of the smart heritage city: technology is closely linked to the smart city, it helps to create new and effective solutions, benefit from the large database in enabling high quality communication channels, sensors, and 3D printing, etc. But technology should not be seen as a goal in itself, but rather as a tool. Its sole purpose is to help make decisions at the city policy level. It is the core of

the present smart city and an organization tool that enables citizens to participate in making these decisions as well, and creating open urban systems which is working on the principle of partnership.

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THE FUTURE OF ECO-CITIES: A COMPARISON OF EPHESUS ANCIENT CITY WITH MASDAR CITY

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ABSTRACT:
Policy-makers have come under increasing pressure to utilize more sustainable approaches in the designs and plans of future cities due to higher population growth rates and global warming. In response, the concept of Eco-Cities was developed to provide not just sustainable but also smart infrastructure, including intelligent transport systems, green buildings, efficient water, electricity, and waste-management networks. Furthermore, Eco-Cities are more dependent on natural energy sources, thus ensuring a healthier and more comfortable life for their residents. This paper presents a discussion on the planning of past and future sustainable cities and how renewable energy solutions can be incorporated into the design and operation of such developments. Its primary objective is to explore the idea of alternative energy sources and its application in Masdar City, in Dubai – UAE, and compare it with the Ephesus Ancient City, in Izmir,Turkey, two countries with different climates, economies, and cultures, as well as to illustrate how both examples can be used to develop a shared understanding of how energy can be utilized more efficiently. Using a qualitative case-study approach, this paper relies mostly on data sourced from a review of the existing literature. Through the conclusions reached in this paper, the authors hope to illustrate how a better understanding of shared issues can aid the development of more resilient and sustainable cities to withstand the challenges of the future.
Keywords: Sustainability, Eco-City, Masdar City, Ephesus Ancient City.

1. Introduction

The necessity of more sustainable forms of development has been brought to the forefront by urbanization trends and rapid population increases in many regions of the world. According to the United Nations, the population of the world is projected to surpass 10 billion by 2100 [1]. Rural-urban migration has also increased significantly all over the world and cities have been projected to house at least 70% of the world's population by 2050. This population explosion is one of the primary motivating factors behind the need for sustainable development in modern cities.

The societal development of every country is centered on and driven by its cities. Conversely, cities are also one of the largest sources of pollution and greenhouse gas emissions, as well as one of the largest consumers of natural resources. Rapidly increasing population growth and global warming is two of the most immediate challenges policy-makers face in terms of improving present cities and planning for the cities of the future. Various stakeholders have, realizing the importance of sustainable cities in light of present challenges, been attracted to the notion of Eco-cities, either built from scratch or remodeled to comply with sustainability principles.

The location of a city, as well as its infrastructure and buildings, have a significant impact on its society, economy, and environment over time; significant changes to these characteristics are also relatively problematic after they have become operational. In an effort to avoid the challenges this poses, there has been a move towards the development of master-planned eco-cities, which are capable of fully integrating the principles of sustainable building and urban planning in the creation of living environments that are more sustainable than would be possible by simply modifying existing communities. Stakeholders can use analyses of current eco-city developments and improvement efforts to determine the strengths and weaknesses of different approaches [2].

The Ephesus area in Turkey is known as one of the country's most important cultural sites. Ephesus is one of the most important ancient cities in history and was significant for both Roman and Greek cultures, causing it to be recognized by historians and archaeologists alike as a prime example of the ancient age. It also contains the biggest ancient theatre in Turkey, combined with houses on the slopes adorned with shielded frescoes and mosaics as symbols of the past. In fact, "The Temple of Artemis", which is one of the seven wonders of the world, can be found in Ephesus. Overall, the Ephesus area is considered to be a vital symbol of ancient culture and history [3].

This paper attempts to distinguish between the conventional site and sustainable cities and to outline the costs of developing Eco-cities benefits. Different components have been identified in the literature as being important for the achievement of sustainability, including culture and heritage, sustainable building materials, sustainable transportation system, waste-to-energy technology, sustainable water conservation, and energy conservation. The obvious starting point for any attempt in achieving sustainability is the buildings, which continue to have a significant influence on their surrounding environment.

This paper also attempts to delineate the similarities and differences between two different cities in terms of their energy demand and supply. The scope of this paper is limited in that it only explores the planning of past and future sustainable cities with a focus on how novel renewable energy solutions can be applied when constructing and operating them by taking a comparative look at the Ephesus Ancient City, Turkey (representing the past) located in Western Anatolia close to the Izmir province, and Masdar City (representing the future), which is a vibrant Middle-Eastern city constructed in the desert in UAE. Regarded as one of modern-day Turkey's great outdoor museums, Ephesus is also quite historically significant because it was a religious center of early Christianity as well as an important trading center. The Ephesus Ancient City has been a subject of much discussion in regards to the ongoing valorization of its sustainable heritage. Today, its place as an important tourist destination deserves to be explored through the concept of cultural heritage valorization. And the proposed Masdar City, with the stated goal of becoming the world's most sustainable city, offers new and exciting avenues to explore the application of various innovative technologies in an urban environment.

The research questions the paper attempts to answer can be stated as follows: How have ancient heritage cities achieved the sustainability issue by the physical, environmental, scale approaches, and land use of the built environment? How has sustainability been attempted in modern eco-cities? And have these attempts been successful?

The study's methodology involves a comparative case-study approach through which it investigates the Ephesus Ancient City in Turkey and the Masdar City in Abu Dhabi, through the literature review.

2. Concepts of Sustainability and Eco-cities

The past few decades have witnessed the proliferation of different definitions of the concept of sustainability. Unfortunately, however, this has been accompanied by a lack of agreement amongst the different definitions being espoused. Regardless, the most widely acknowledged definition is that put forth by the Brundtland Commission (WCED) [4], which defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The understanding of the term sustainability has evolved considerably since then and while a number of recent definitions have chosen to limit the criteria to the maintenance of natural resources and ecosystems, others have added factors such as equity, cultural and spiritual needs, social wellbeing, and economic viability. Sustainability is the intersection of three dimensions: the synchronized quest for environmental quality, economic prosperity, and social equity. More concisely, the importance of sustainability can be extracted from the fact that the economy exists within society, and both society and economy are restricted by the surrounding environment [5].

The development of Eco-cities is now recognized as one way to apply the principles of sustainability in the context of cities [6]. Builders of Eco-Cities often operate based on a broader understanding of the term which emphasizes "reshaping cities for the long-term health of human and natural systems [7]. Consequently, a successful Eco-city is one that adequately accounts for the interdependence of social, economic, and environmental sustainability as well as the ability of each to strengthen and support the others in the city context. It is, therefore, necessary for the Eco-city developers to lay the foundations that support sustainable choices in all aspects of life and work in the city. A number of Eco-cities have been established all over the world, including the UAE, China, Germany, and the UK. These cities differ in scale from small projects like Germany's Vauban and the UK's BadZed, to larger projects like China's Tianjin and South Korea's Songdo.

2.1 Sustainable Implementation: A Framework of Strategies and Methods

The concept of 'sustainable development' has remained a primary concern all over the world since the 1987 Brundtland Commission. The commission's Brundtland Report notes the importance of two key concepts: the idea that the ability of the poorest countries in the world to meet their needs should be prioritized, and the notion that development limits the ability of the environment to satisfy present and future needs [8].

The future sustainability of the building industry is through adopting a multi-disciplinary approach that covers a some of the important factors, including the optimal use of materials, the minimization of material waste and pollution, control of emissions, amongst others [9]. The nature of contemporary building activities can both be kept in check and improved in terms of its impact on the environment without negatively affecting the useful output of building activities. Environment-friendly construction practices can be used to create a competitive advantage when the entire life-cycle of the building is considered within this context. Table 1 outlines the three general objectives identified in the literature as guidelines for the implementation of sustainable building design and construction while remaining adherent to the aforementioned sustainability principles (environmental, economic, and social). These objectives are Design for Human adaptation, Cost efficiency, and Resource conservation.

Table 1. Framework for implementing sustainability in building construction [10]

Sustainable building objectives and strategies
Objectives

Resource conservation	Cost efficiency	Design for Human adaption
Strategies		
1. Energy conservation	1. Initial cost (Purchase cost)	1. Protecting human health and comfort
2. Material conservation	2. Cost in use	2. Protecting physical resource
3. Water conservation	3. Recovery cost	
4. Land conservation		

As a rule, the design and performance of any Eco-city can be estimated utilizing sustainability standard indicators. These indicators, which incorporate efficient energy use, waste management, environmental qualities, construction and maintenance, transport, and government support for business services and infrastructure [11].

2.2 Sustainable Building energy efficiency code and standards

Sustainable construction, maintenance, and energy efficiency are currently regulated by a number of existing international standards for building energy performance, such as the American Society of Heating, Refrigerating and Air Conditioning Engineers, and the British Chartered Institution of Building Services Engineers. The International Code Council. is a membership organization responsible for the development of the International Energy Conservation Code, a novel energy efficiency code dedicated to ensuring the safety of buildings and the prevention of fire outbreaks.

Table 2. Buildings sustainability code and standards rating system

	LEED [12]	BREEAM [13]	Green Star [14]	Estidama [15]
Location	USA	UK	Australia	Abu Dhabi
Rating Criterion	Energy efficiency	Climate Change and Energy Efficiency	Energy efficiency, Climate Change and Thermal comfort	Energy Efficiency and Safety

3. Ephesus Ancient City

Ephesus was established as an Attic-Ionian province in the tenth century BC on a hill, located in Selcuk, Izmir Province, in western Turkey, is a standout amongst the most critical antique urban areas of the world. Ephesus holds a lot of its respectability as an antiquated scene and a model of Roman architecture.

Ephesus contains the theater, the commercial and state agoras, the baths, the city gates, the fountains, the Hillside Houses of Roman nobles, the parliament building, the Celsius Library, the monuments, the Temple of Hadrian, and Seven Sleepers Cave, which is one of the hallowed spots of Christianity, are among the most magnificent and important archeological sites in Ephesus.

One of the Seven Wonders of the Ancient World is it the Temple of Artemis, The temple earned the city the title "Servant of the Goddess". Pliny discloses to us that the heavenly structure took 120 years to construct, only a few circles since it was uncovered amid an archeological unearthing by the British Museum during the 1870s.

The Library of Celsus, the façade of which has been cautiously remade from unique pieces, was initially assembled c. 125 AD. Numerous history specialists theorize that designed with an exaggerated entrance, to upgrade its apparent size, the building faces east so the reading rooms could make the best utilization of the morning light.

With its 25,000 seating capacity, the venue is accepted to be the biggest in the old world. This outdoor theater was utilized at first for dramatization, however, amid later Roman occasions, gladiatorial battles were additionally organized on its stage [16].

The city had a standout amongst the most developed water channel frameworks in the antiquated world, with somewhere around six reservoir conduits of different sizes providing distinctive regions of the city. They encouraged various water factories, one of which has been distinguished as a sawmill for marble.

Fig. 1. Ephesus ancient cities [17]

To understand the role of the colonnaded avenues in the life of Roman people, it is crucial firstly to look carefully at the ancient material remains of Roman cities. Ephesus has the potential to provide important clues about the 'height' of the Roman city, in other words, about its volumetric dimension. The city has three connected colonnaded streets. The Harbor Street (Arkadiane) extends from the Harbor to the Theater. It was paved with slabs of marble; on both sides stood galleries with mosaic floors, behind which were rows of shops. Stated by Ammianus, "the brilliance of the lamps at night often equaled the light of day" [18]. With a similar arrangement, the Marble Road with its richly-decorated surfaces connects the Theater with the Celsus Library. Starting from the plaza in front of the Library, the Curetes Street leads to the State Agora. On both sides of

this street stood various structures and statues dedicated to emperors and citizens who had rendered service to the city. As such, the upright and extensive remains now visible give an impression of the opulence of the city with its imposing and extravagant armatures and public buildings.

The reason for setting rules and indicators for sustainability principles in cultural tourism is backed up by the World Commission on Environment and Development (WCED) who in their research dealt with sustainability in the Ephesus area. They state that in order to preserve the Ephesus area in Turkey as an important religious place for future generations "it is of utmost importance to present a balanced approach which would enable its usage in accordance with sustainability principles" [3].

4. Masdar - The City of the Future

Masdar city is located in the UAE. The development of Masdar City in Dubai is currently underway, using cutting-edge technology to ensure maximum sustainability in every aspect. How then does the design of Masdar, Abu Dhabi aim to ensure sustainability by conserving energy, reducing waste, minimizing water consumption, and reducing carbon emissions? The development of a city to address each of these challenges is a monumentally complex task. As such, the design of the city of particularly important in that its successful combination of advanced technologies and principles could be used as a model for the cities of the future. To this end, the city has been designed in a way that aims to maximize sustainability in even respect. The parent Abu Dhabi Future Energy Company carefully envisioned the conservation of energy in Masdar using photovoltaic and solar panels, utilizing the unique recycling systems of geothermal plants to minimize waste, using desalinization plants to minimize water consumption, and significantly minimizing carbon emissions [4].

The main goals of Masdar City are the creation of a clean global technological hub, running on renewable energy, the world's foremost sustainable development, a low carbon print, an unrivaled platform for the demonstration of sustainable technologies on a commercial scale, headquarters for the leading research institute in the fields of sustainable technology and alternative energy. Intended to serve as a model for future cities, Masdar city was also inspired by the planning and architecture of traditional Arab cities. This can be seen in its incorporation of narrow streets, thick walls, vegetation, window shading, exterior walkways, wind towers and courtyards, and a generally walk-friendly outline [19].

The four main objectives of the Masdar Initiative can be summarized as follows: (1) to aid the diversification of the Abu Dhabi economy; (2) to establish and subsequently develop Abu Dhabi's position in the growing global energy market; (3) to situate the country among the developers and not just importers of technology; and (4) to meaningfully contribute towards sustainable human development. Masdar, which translates into "the source" from Arabic, aims to be the first city in the world that can confidently claim to have zero carbon emissions [20]. A fundamental goal of the Masdar Initiative is "to [position] Abu Dhabi as a global leader and hub for the research and development of renewable energy and sustainable technology". As one of the project's directors, Khaled Awad, is quoted as saying: "Abu Dhabi is an oil-exporting country, and we want to become an energy-exporting country" [21].

Fig. 2. Masdar City [22]

5. Sustainable Concept Features: Ephesus and Masdar

5.1 Culture and Heritage:

Ephesus was included on the UNESCO World Heritage List in 2015 [23]. As a standout amongst the most critical focuses of the ancient era, Ephesus has been occupied roughly for a long time all through the Roman Period, Hellenistic Era, the Period of Principalities, Byzantine Era, and the Ottoman Era. It was an exceptionally esteemed port city and focus of culture and trade, likewise a standout amongst the most imperative urban areas of the Antique Ionia.

The Masdar city design was inspired by Arabic traditional cities, as well as the need for an environmental response to climate change. The city actively tries to minimize its carbon footprint by limiting its development to a finite area that facilitates the easy movement of pedestrians and expands the city's comfort zone by regulating the impact of the sun and wind, which also maximizes the sustainability of quality of life.

The use of shaded, narrow streets minimizes the temperature outside by as much as 20co, thereby allowing people to remain comfortable outside for long periods. Temperatures are also kept low through the use of water features and a carefully planned landscape, which also have the effect of improving the street quality [24].

Fig. 3. a. Ephesus Culture and Heritage [23]   b. Masdar City is similar to the Traditional Arabic Cities [22]

5.2 Sustainable Building Materials:

The properties retain authenticity as far as setting and location, design and form. The well-planned, ornate style and balance form part of ancient Greek designs had an impact on Ephesus designs. In addition, the building materials - stone, block, and mortared rubble - mean the new materials came into utilization in the Roman Empire around this period.

The buildings in Masdar utilize the latest energy-efficient technology and smart designs. Extra care is taken to ensure the use of certified sustainable and recycled building materials for the duration of the construction process. Most of the materials used for the buildings have a high thermal mass, which translates into better insulation in the buildings. The designs also utilize insulation for the walls, coupled with a thin copper foil layer on the outside to prevent heat from penetrating to the interior, thereby reducing residents' dependence on air-conditioners [25].

Fig. 4. a. Ephesus Sustainable Building Materials [26]   b. Masdar's use of energy efficient materials [22]

5.3 Sustainable Transportation System:

In Ephesus ancient city the transportation system was based on walking and horse carriages, and the streets were narrow compared with the present streets because of the lack of transportation system during that time, and the main streets were covered with marble.

Given the present area of Ephesus, the new walking route will keep the damage caused by individuals in the Ephesus ancient city at a minimum and enable tourists to enjoy the site properly. Another route walking will be planned in Izmir's ancient city of Ephesus. The Izmir Culture and Tourism Director said that the ancient city receives around 3 million visitors consistently and the circulation of this number of tourists causes damage to the site. The Izmir Culture and Tourism Director, Abdülaziz Ediz, said that "We will cover wooden beams between the gates of the ancient city and form a walking route. In this way, visitors can move easily and the historic artifacts will be preserved, too."

Masdar is one of the first cities in the world to implement a zero-car design. Cycling and walking are expected to be the very popular form of city transit, facilitated by its pedestrian-friendly design. The pedestrian network is also complemented by two electric transport systems intended to serve longer distances: the Light Rail Transit (LRT) and the underground Personalized Rapid Transport (PRT) system. The LRT connects Masdar to the airport, Abu Dhabi city, and surrounding communities.

The PRT system is a replacement for trains and buses using small vehicles with a capacity of 4-6 people. As the first system of its kind, it is intended by its designers to be more energy-efficient and convenient than conventional mass transit. The PRT system functions as follows: small vehicles (also known as pods) are kept at stations; when an individual or group enters a pod, they select a location to which the pod automatically proceeds without any stops. The pods follow tracks (similar to trains) and are connected to stations by on- and off-ramps with the entrance and exit from the stations being regulated by a computer. The ramps allow individual pods to stop while others proceed on the track to their destinations at high speeds.

Fig. 5.   a. Sustainable Transportation System [27]   b. Masdar's Transport System Personal rapid transit (PRT) [22]

5.4 Waste-to-Energy Technology:

In that period, it was difficult to convert waste to energy due to the lack of the necessary technology. However, they made use of some techniques. Similarly as intriguing are the numerous specialized refinements found in every one of the houses.

These include profound wells chop down to the water table and giving each house guided access to indoor fountains, fresh water. Also included are restrooms with running water provided by an advanced system of water funnels nourished by reservoir conduit, under-floor and wall heating systems in the some bedrooms and bathrooms, an extensive sewage framework and numerous instances of inbuilt goods (for example, hearths, storage spaces, benches, stoves, domestic altars and pools).

In Masdar city, another important goal is to produce zero-waste through recycling, reuse, composting, waste-to-energy technology, and waste reduction measures. Part of this strategy also involves the conversion of biological waste to renewable "E-fuel" as a replacement for fossil fuel or using it to produce fertilizer and nutrient-rich soil, while non-biological waste products are recycled and sorted [25].
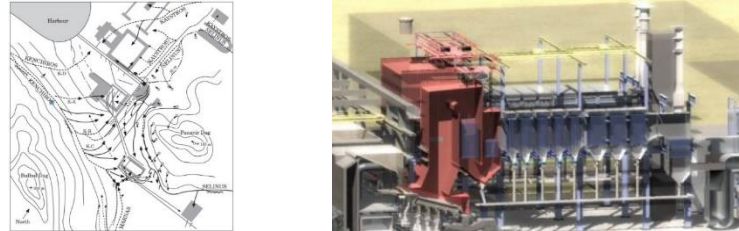

Fig. 6. a. Ephesus Water pipeline system [28]   b. Sustainable Waste-to-Energy Technology [25]

5.5 Sustainable Water Conservation:

Water was conveyed to the city by up to six reservoir conduits built between the Archaic period and the Roman Empire and fixed amid various periods. This point is especially vital since every one of the waters from the reservoir conduits ended in the harbor where they were vulnerable to blending with Cayster river water, marine water, and waste waters of public (fountains, baths) and domestic utilization, just as with water from local workshops [28].

Abu Dhabi is not known for its abundance of water sources. As a result, Masdar will essentially be made a desert oasis through the combination of brackish and other local water resources, as well as the use of advanced water treatment technologies and generally minimal water demand. The city is also equipped with a solar-powered desalination plant where approximately 80% of its water is recycled on-site using various mechanisms [29].

Masdar city is built on the intent to reuse water as many times can be managed. For example, irrigation recovery will be used to capture the water leftover from watering crops. The irrigation recovery mechanism collects leftover water using an underground system, which can then be reused for other purposes.

Grey water is used for the city's landscaping needs while its water treatment plant is used to produce treated wastewater. The city's water-management system also uses rainwater harvesting, dew catchers, and electronic sensors to identify cracked pipes, all the while emphasizing the optimal use of local water resources.

Fig. 7. a. Ephesus Ancient City Water Pipes [28]   b. Sustainable Water Conservation [29]
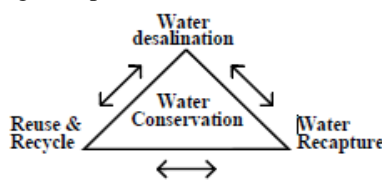
5.6 Energy Conservation:

The Library of Celsus, the façade of which has been cautiously recreated from unique pieces, was initially fabricated on c. 125 AD as an Ancient Greek in the Roman Empire. The library once held about 12,000 scrolls. Numerous historians guess that designed with an overstated entrance, in order to improve its apparent size, the building faces east so the reading rooms could make the best utilization of the morning light.

According to planners, Masdar city is projected to require (200 megawatts) of installed capacity relative to the minimum of (800 megawatts) required by a conventional city of a similar size. Furthermore, the city is self-sufficient in terms of energy provision and utilizes a number of different power sources to meet the demand.

A temporary photovoltaic power plant was installed on-site prior to the commencement of construction as a way to generate carbon-free energy while the city is being built. The plan is for the plant to be relocated to a permanent structure when construction is almost over.

Additionally, the city is also equipped with a solar thermal power plant that utilizes parabolic troughs, which generate steam by concentrating solar energy. The tower is filled with liquefied salt surrounded by mirrors (with heliostats) that redirect sunlight to the tower or solar concentrators. The steam generated by the tower produces energy by turning an electricity turbine. The function of the salt ensures the power of staying on for up to 15 hours even in the absence of sunlight. The land around the city also houses a wind farm.

Excess energy is passed on to the national grid and it has been predicted that the use of these technologies will minimize electricity consumption by as much as 25% compared to other communities of similar sizes.

Fig. 8. a. Energy Conservation [17]   b. Masdar's photovoltaic and solar tower power plant [22]

6. Ephesus and Masdar City Comparison:

One of the most vital challenges faces Masdar's planners is how to provide water for the city, which is located right in the middle of the harsh desert. As such, the city's sustainability plan emphasizes the provision of an efficient water distribution system in which all of its water demand is met by a desalinization plant outside the city powered by solar energy and using seawater to produce potable water. Used water is to be collected and processed for use as grey water for irrigation and other purposes. The planners of Masdar have stated that one of their goals is to reduce the overall water consumption of the city by as much as 60%. Additionally, in their effort to make it a zero-waste city, they will utilize both waste recycling and incineration. Food and other biological waste will be composted in the production of nutrient-rich soil and fertilizers used to grow crops to feed the city.

These aforementioned factors betray some significant flaws in regards to the sustainability of the Masdar city, as well as its potential role as a model. Despite their importance, however, it must be noted that no project is perfect and the visionary nature of Masdar will remain useful for the development of green technologies even if the city itself does not emerge as a useful model. Furthermore, the more successful parts of Masdar, such as the use of zero-waste technologies, solar, and the PRT system, can be adapted for other cities. Because many of these are still in the development phases, the ability of Masdar to prove that they are both cost-efficient and functional will allow for their large-scale deployment.

Ephesus has accomplished effectively in technical, natural, and cultural sustainability. In fact, Ephesus demonstrates how fruitful a multifaceted community can be. In another situation, urban communities like Ephesus can give experience based on the method utilizing planning strategies and design features which are utilized in the city. These techniques are not altogether different from modern sustainable design characteristics. However, applying sustainability techniques and renewable energy technologies for that period is different from now.

Table 3. A comparison between Ephesus and Masdar City from the point of sustainability concepts:

Point of Comparison	Ephesus Ancient City (Izmir, Turkey)	Masdar City (Abu Dhabi, United Arab Emirates)
1. Culture and Heritage	Ephesus is a steady notice of the ancient culture that once overwhelmed the locale and keeps on illuminating its translation in the present.	Compact pedestrian walkways, water features, narrow shaded streets, and landscape
2. Sustainable Building Materials	Marble, Stone, Clay, and Masonry bearing wall construction	Fully efficient materials with a high thermal mass use.
3. Sustainable Transportation System	Walking, Horse and Carriage and the Street are chiefly marble made, and drainage pipes system covering.	Walking, Zero-cars, Light rail, Biking, Personal Rapid Transit (PRT)
4. Waste-to-Energy Technology	Water was conveyed to the city by up to a few reservoir conduits manufactured the waters from the water passages ended in the harbor where they were defenseless to blending with marine, river, and public wastewaters (fountains, baths).	Reducing, compacting, recycling, reusing, waste-to-energy
5. Sustainable Water Conservation:	The city had a standout amongst the most exceptional water channel frameworks in the old world, with no less than six reservoir conduits of different sizes providing distinctive zones of the city. They sustained various water plants, one of which has been distinguished as a sawmill for marble.	All water got from a solar-powered desalinization plant and 80% of water in the Masdar project it reused.
6. Energy Conservation	Celsus building Library designed with east faces to the goal that the reading rooms could make the best utilization from the morning light.	Solar thermal power, Photovoltaic power plants, Hydrogen plant, Geothermal ground source heat pumps, and Large wind turbines,

7. Discussions

Turkey and the UAE have historically relied on their starkly different economies but now they share a growing interest in renewable and low-carbon energy in the light of the rising cost of climate change and energy sources. The development of a country is directly influenced by its capacity to finance renewable energy technologies. Interestingly, the financial aspect of the Masdar project, though essential, has been a relatively secondary concern given the abundance of oil revenues. Regardless, there remains a consciousness of the cost since economic viability is an integral part of sustainability. While energy costs have historically been subsidized by the Government of Abu Dhabi, a plan has been put into effect to make citizens more conscious of their energy uses by making prices more closely reflective of usage. Admittedly, the cost of Masdar city is quite substantial and unrealistic for most countries. This, however, does not prevent it from becoming a learning process for the experiences and techniques of other cities like Ephesus, especially in terms of its orientation, material choices, and openings. Ephesus sustainable urban conservation of historic cities is viewed as a comprehensive approach that integrates several processes that pertain to historic buildings and their physical urban context as presented in the examples analyzed. These along with the socio/economic environment within which the city exists and operates. It is envisioned that for successful sustainable urban conservation projects to take place, it requires a lot than choosing the best conservation strategy, or relocation policies. It should involve educational and environmental campaigns to teach local communities the merits of conservation and to highlight the historical, functional, and ontological ties that bid them with their city. While the climate in Turkey is cooler than in the UAE, it might be useful to determine the performance and efficiency of solar panels in temperatures ranging up to the higher end of global extremes. As a young city, Masdar can learn a lot from Ephesus, which has changed over the centuries of its existence, including the lessons learned from the costs of lock-in infrastructure systems and an over-reliance on a single industry, as well as the need to incorporate means of adaptation in the system designs. Furthermore, Masdar city ought to function as a reflection of the desires not just of the leaders, but also the citizens and businesses responsible for its growth. This suggests a need for new modes of governance, the specific form of which can be determined by further experimentation. The success of the city depends on its ability to withstand not just the extremely arid climate, but also changes in the global economy. In so doing, it will be able to move beyond creating something out of nothing to modifying that which already exists. This also involves its capacity to take citizens' wellbeing into account, such as by ensuring the adequate provision of environmentally-attractive spaces and natural vegetation for people to relax and enjoy the ecological system it provides (as a way to enhance wellbeing), as well as including citizens in decisions concerning the future development of the city itself. As a final point, the resilience of the city can be guaranteed through the use of a 'future-proofing' design, such as by considering futuristic scenarios. A number of such scenarios can be employed, all of which remove users from the constraint of their current context by asking questions that begin with the phrase 'what if?'. This process should be accompanied by a methodology that evaluates the performance of the city based on the three pillars of sustainability and establishes future performance with an intervention in place.

8. Conclusion

This paper has taken a comparative look at two various cities from different periods. The area of Ephesus is viewed as a standout amongst the most essential estimations of social and cultural tourism. It is one of the most extravagant antiquated urban communities in history shaped by Roman and Greek societies. Ephesus Ancient City attracts to be a sustainable tourist place in light of the condition of cultural and natural environments. While Masdar is not yet a city in terms of its size, it is currently being developed into one. The success of this development will depend on its ability to attract inwards migration as a place to play, live, and work, as well as its ability to fund its future growth by generating sufficient revenue. The development of Masdar has been a source of inspiration to the surrounding Gulf states and has placed the issue of renewable energy and sustainability on their agenda by demonstrating the possibilities in that regard. The size of and building restrictions (permitting only energy-efficient low-rise buildings), and the use of smart metering to comprehensively measure performance in Masdar city are in line with its goal to be a low-carbon city. The manner in which the Masdar planners tackle the arid UAE climate is particularly instructive for Turkey, whose changing climate now demands such considerations. Masdar can also learn lessons from Ephesus, including the misguided accompaniment of the philosophy of development with a lock-in of its infrastructure. From this, it can learn the need to create change in the context of an existing locked-in legacy by allowing its design the flexibility to adapt to future changes.

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SUSTAINABLE URBAN AND CULTURAL PHENOMENON IN VERTICAL GROWTH

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ABSTRACT

Today, with the increase in the number of people living in cities, the protection of environmental values, increasing the quality of urban service and ensuring the quality of life is important. At this point, the concept of sustainable urbanization and the development of urban plans in line with this objective are one of the topics discussed in the urbanization literature. The cities that constitute the goal of sustainable urbanization are the settlements where the environment is at least polluted, the resources are used effectively and efficiently, the land is used vertically and not horizontally, the urban mobility is minimized, and spatial designs with livable and human scale are realized. In this context, vertical growth is emerging as a model of urbanization where sustainable urban development will be ideally achieved. The main objective is to re-design vertically-growing cities in less confined spaces to higher density residential areas, mixed land use, and low energy consumption. In this approach, it is aimed to keep the harmful effects of the city in a limited area and to reduce the negative external effects. However, the horizontal expansion process witnessed in large cities reveals that the vertical urban approach cannot be sufficient alone and that different approaches that complement each other must be used together.

Keywords: Verticality, Vertical Growth, Sustainability, Sustainable Urban, Culture

1. INTRODUCTION

Cities, 19. with the industrial revolution in the 21st century, they have entered a rapid growth process. The growth of cities in terms of physical and population, it continues to grow in the 21st century. The rapid growth of cities causes increased use of motor vehicles, deterioration of environmental quality, population density, noise, degradation of life quality and social decomposition. The city began to merge with the rural areas located in the outer parts of the city and the housing and commercial areas have emerged. Horizontal urban growth, especially in the central locations of cities cause density. It also causes social and recreational areas to be designed outside the centers. In this way, it creates serious problems, especially in sustainability and transportation. It causes the city of the 21st century to have a physical expansive character. As a result, due to the spatial expansion in today's cities, their dependence on transportation vehicles is increasing.

Cities built within the scope of traditional planning generally have a low density and a low spread understanding of the place as much as possible. However, urban expansion has negative impacts on all kinds of areas, from the source and energy production-consumption chain to the ecological structure and transportation infrastructure. Urban planning decisions will be effective in the sustainable urban development process, as urban concentration, which can prevent spread, protects nature, and contributes to efficient and efficient use of infrastructure. Sustainable urban planning, land, energy, environmental, facilities, transportation, etc. it aims at a mixed understanding of usage which aims to use effectively in line with its objectives. In this context, in order to support mixed function use in urban areas as well as to ensure efficient use of urban land, the focus is not on horizontal structure but on a vertical structure.

One of the issues that focus on sustainable urbanization is the vertical growth approach and the extent to which this approach serves the target of sustainable urbanization. Within the scope of this study, the "vertical growth approach" will be analyzed within the framework of urban sustainability problem-based basic objective in a period in which sustainability becomes important in all aspects of life from the economy to politics and social structure. The analysis will discuss the extent to which vertical growth approaches serve sustainable urbanization targets. First of all, the principles and priorities of sustainable urbanization will be examined based on the problems of sustainability and its reflections

on the urban structure. In line with sustainable urbanization objectives, the contribution of a vertical growth approach to sustainability principle and the applicability of the approach will be discussed.

2.1 SUSTAINABILITY AND URBANIZATION

The concept of sustainability focuses on preventing environmental problems and protecting the ecosystem in parallel with economic and technological developments. The concept of sustainability, together with the concept of the city, is quite a new phenomenon. But environmental, economic, political, social, demographic, institutional and cultural objectives, which are elements of sustainable development, can be considered as a part of the phenomenon of sustainable urbanization [8].

While the emergence of sustainability is primarily related to the rapidly increasing environmental problems in the 20th century and threatening the world, the concept of sustainability refers to the economy, ecology, political and social structure and the relationships between these structures. "Sustainability recognizes that economic growth and human well-being depend on natural resources that are the basis of all systems" [9] . In other words, long before the concept of sustainability, which has the jurisdiction to regulate the use of resources in time and space, the use of resources, quality of life, etc. interest in such issues has come to the agenda. The fact that sustainability comes to the forefront on the global level and that it is important in all areas of life, especially in the 20th century. Since the second half of the century, it is parallel to the value given to the environment. The concept of sustainability focuses on preventing environmental problems and protecting the ecosystem in parallel with economic and technological developments.

Today, there is a LEED (Leadership in Energy and Environmental design) institution that controls and certifies sustainable buildings in architectural areas. It was founded in 2000 by the U.S. Green Building Council (USGBC) to assess design and construction practices to identify a green building in the United States. LEED consists of 7 categories of credits, including land selection, water efficiency, energy and atmosphere, materials and resources, interior environmental quality, regional priority and innovation in design. In these categories, a hundred points can be earned under mandatory preconditions such as minimum energy, water use reduction, recycling, and tobacco smoke control [10].

There are four levels of LEED certification: certificate, Silver, Gold, and platinum. Site visits are not required and the certificate may occur after the construction is completed. Each category includes specific strategies for sustainability, such as low-emission products, water consumption reduction, energy efficiency, access to public transport, recycled content, daylight, and renewable energy. Since its inception, LEED standards have become more stringent by changing and expanding different grading systems, such as new buildings, existing buildings, commercial interiors, core and Shell, Schools, Retail, Health, houses, and neighborhood development, addressing different building types [10].

The following points are important for sustainable land use [6] ;

• In order to minimize travel between living, working and leisure areas, the urban structure of urban functions, including housing, employment, and services, should be largely mixed land use and intensities.

• Priority should be given to urban renewal in urban areas and to high-intensity work, housing and other uses on main streets.

• In this context, public spaces, pedestrian networks, protection of historic buildings and attractive street perspectives should be created in order to raise the identity of the community.

• Expanding and developing transportation systems in order to maintain the competitiveness of public transportation; in this direction, it is necessary to maximize efficiency by providing conventional public transportation with regard to specialized services in specialized market/market segments, to ensure efficient use of energy and to develop alternative transportation approaches.

2.2 VERTICAL GROWTH AS A SUSTAINABLE URBAN PLANNING APPROACH

In order to contribute to sustainable development, vertical planning initiatives to intensify and create settlements without compromising quality have recently been supported. This attitude raises the concept of "urban intensification" or "vertical growth" [7]. Vertical growth approach can be defined as the so-called mixed-function usage scheme, where urban land use patterns are blended or intertwined and high-density construction decisions are taken and the land is used more efficiently [4]. With the approach of vertical growth, in the process from the Industrial Revolution to the present, it questions the limitless rights of man on nature and the right of nature on the artificial environment, which is human production [4]. The main components of urban compactness vertical growth are [2];

• Centralism: it is impossible for human settlements to spread homogeneously to geography. Certain functionality, such as the presence of common uses, brings a certain centralization and focus. As the degree of centralization increases, the presence of a compact form of settlement is also opened. As a matter of fact, other indicators of compactness are meaningless without centralization.

• Integrity; continuous urban concentration (density), structural elements (structures, uses, etc.) tight) and continuity to a friend that it depends on offers.

• Density; density of people and living spaces (work – housing, etc.) has a significant local in the form of vertical growth.

• Diversity: this phenomenon is expressed as 'use of mixed areas'.

In the 21st century, with the changes in communication, transportation technologies, time and space perception in the city were transformed and due to this transformation, the borders of the urban space were lost [5] . With developing road construction processes and developments in vehicle technology, there is no need to live in the city center. With the expansion of mass and personal transportation vehicles, different spaces and activities of the metropolis are integrated, separating internal fluctuations into a collapsible relationship of time and space. By contributing to urban expansion, the car has enabled the creation of large individual residential areas that span the entire region and their connection to various functional areas by means of rapid vehicle routes [2] . Thus, the urban – countryside divide loses its visibility and expands rapidly towards the natural areas around the city.

The advantages of vertical growth approach in the perspective of sustainability can be summarized as follows [3] ;

• Protection of Rural / natural areas is prevented from spreading to the rural/natural areas around the city through vertical growth.

• Reduction of Urban Infrastructure and service costs; as a principle, vertical growth form urban infrastructure lines (roads, sewerage, etc.) of shorter length, on average, according to common urban forms.) requires. The average cost of the infrastructure decreases as long as it does not push the coverage power and the user who benefits from the same line increases the intensity.

• Increasing urban mobility (in terms of pedestrians) and reducing automobile dependency; increasing urban concentration, and transforming the average urban mobility. Because a large number of urban functions are offered to the user within walking distance. Due to the urban activity in the same place, there is a decrease in arrivals and departures from the area. With the increases in focal density at the end of the journey, the public transport system is easier. Finally, the ownership of private vehicles in the intensive housing and central area becomes difficult.

• Reducing the use of personal and Urban Energy; the fact that the mobility between urban areas (living, working and leisure areas) is dependent on the vehicle reduces fuel consumption while reducing the energy used in buildings by means of structures built for compact living. Ensuring social sustainability can be prevented, even in part, by ensuring the coordination of different social groups, even with low-level spatial isolation based on income, status or ethnicity. Although the vertical approach to growth is defined as the ideal form for sustainable

urbanization, the applicability of this approach is an important issue in the literature. Criticism of the approach of vertical growth can be summarized as follows.

• The approach can be applied in small and medium-sized cities, as the population of the city increases, it is difficult to create a high-density compact form limiting spatial development. Creating a compact form in high-population cities requires high-quality infrastructure and very good management. This may not be possible at all levels of development.

• Another criticism of the vertical growth approach is that their journey will continue even if their travel distances are shortened and will result in heavy air pollution in one region rather than air pollution in the area.

• In the case of unqualified construction to be carried out uncontrolled in compact residential areas to be carried out through multi-story buildings, flood, earthquake, etc. in case of natural disasters, the loss of life and property can be increased.

• In the approach of vertical growth, it is aimed to plan the living and working spaces of people together and at close range and thus minimize the need for travel. With this approach, social processes that determine the choice of living and working areas of people are reduced to basic and many factors behind the demand to travel and to use private vehicles are not taken into consideration.

2.3 VERTICAL DEVELOPMENT AND CHANGING CULTURAL LIFE

Culture affects human life and interactions with each other the result is a concept they produce. Culture, communities from each other it is the unique life experience of every nation with its distinctive feature [11]. In other words, culture means not only the processing of nature by man, but also the development of man's moral, social, intellectual, technical abilities and abilities. Multiple definitions of culture take place in every aspect of the lives of human communities. The concept of culture explains why people are alike or not alike and why they change [12].

The form of settlement, which emerged as a result of the concentration of cities, has separated people from nature and has placed them in close and spiritually separate compartments in each other in the apartment flats side by side. Therefore, children's playing opportunities have been restricted, and their childhood years have started to affect their spiritual experiences. This structure also contributed to the formation of uniformity on Earth. Architectural diversity formed as a result of cultural reflection has become a similarity disease in almost every part of the world. The parks and gardens that can be used by the public were born as a necessity of industrial life. Because the park and garden measures and human-nature relationship, the human spirit, and the body is deprived of the peace wanted to ensure. The shape of the post-industrialization architecture has also determined the demands of the industry, which is dominant in life and is striving to shape everything in its own interests.

In industrial cities, the same speed of work at equal speed created a monotony of life and isolated man both in his work and in his social environment. In general, the working conditions in closed places from morning to evening and the industrial age that continues to live in the apartment floors of nature are filled with psychological accumulation and therefore they need a discharge.

The holy machine of the modern era eliminates an old branch of a profession which is the source of man's livelihood in every field he has taken. The vast majority of small handicrafts began to disappear after the machine seized their own fields, and even the occupations related to damage faced the loss of importance with the construction of new machines.

In particular, in order to reduce the negative impacts of living and environmental conditions on human life to a degree, the establishment of recreation and recreation areas in cities has been seen as the most important places in a city. In the city, people spent their leisure time, entertaining them, intertwined with nature, creating opportunities for free from the pressures brought by technology. In fact, this

situation is seen as one of the primary problems of today's cities. Both the need for recreation and the ease created for the elimination of this need are the results of industrialization and urbanization. Especially the various parks and zoos have gained importance in this regard.

3. CONCLUSION

There is a strong relationship between the ideal of sustainable urban development and urban approaches. Especially in the cities of the 21st century where the level of urbanization follows a rapid development, the approaches of urbanization that grow punctually and spread as far as possible in the space conflict with the understanding of sustainable development. The cities that constitute the goal of sustainable urbanization are the residential units where the environment is at least polluted, the resources are used effectively and efficiently, the land is not used horizontally but vertically, the urban mobility is minimized, the spatial designs are realized on a human scale and livable quality. In this context, the approach of vertical growth is emerging as the urbanization approach in which sustainable urban development will be ideally achieved.

Due to the population increase in large cities, the city space cannot carry the increasing population and it is entering into a spread around the city. The cities that are growing towards the periphery have a transformation from green to brown in urbanization by destroying the natural areas around them. The expansion in question is supported by automobile technology, and with the contribution of developing highway work, it is emerging into a sprawling urban growth. At this point, sustainable LEED criteria play an important role in urban and architectural design. These criteria are set to support the minimum and recycling of natural resources. Vertical growth and sustainability criteria are two approaches that complement each other. It is observed that these criteria are used in the existing vertical urban constructs. Especially in vertical-growing urban and architectural structures, projects that support sustainability as "self-sufficient" energy and recycling have gained importance.

In particular, the horizontal expansion process witnessed in large cities demonstrates that the vertical growth approach cannot be sufficient alone in achieving sustainable urban development, and that approaches such as the "self-sufficient city" that often complements each other should be used together. The sustainable city plan includes intensive and mixed land use, emphasis on public spaces in the public interest, integration of functions and human-based transportation systems, participatory process, protection of urban green structure, technical infrastructure, and coordination of social development. In line with all these elements, it is suggested that sustainable and sustainable vertical urban approaches should be developed by considering the socio-psychological elements that urban individuals take into consideration when selecting their living spaces.

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ARCHITECTURE WITHOUT ARCHITECTS - SUSTAINABLE DESIGN OF A VERNACULAR BOSNIAN STONE HOUSE

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Abstract

Ensuring sustainable architecture and safeguarding heritage which is exposed to destruction are problems that Bosnia is facing in the modern age. Case study examined in the research, Idbar, is a village located in northern Herzegovina. Its tradition has been developing during centuries and provided important historical, cultural, traditional and architectural values. Nowadays, architectural heritage is in poor condition, most of the vernacular houses are abandoned, and village is exposed to degradation through destruction, building new structures, and especially through falsifying cultural memory by different forms of ethno-villages. On the example of village Idbar, this research examined whether Bosnian vernacular rural architecture follows criteria of sustainability and was built on hypothesis that Bosnian vernacular rural architecture fulfills sustainability principles. It was addressed by analytical-historical method with auxiliary method of case study which incorporated recordings of site conditions. Sustainability classification of cluster dwelling units in Idbar was examined in accordance to the conventionally accepted sustainability principles: minimal start up environmental impact, contextualization, adaptability, water usage sustainability, energy efficiency, self-conserving, and biodegradability. Research established set of evaluation principles and criteria concerning sustainability of vernacular architecture that can be universally applicable in Bosnia.

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Introduction

This article explores sustainability principles of the vernacular houses in the village Idbar, located close to town Konjic. ICOMOS Charter says that vernacular architecture is the traditional and natural way by which communities house themselves and include constant changes as a response to the social and environmental conditions [1]. Bosnian vernacular architecture has been exposed to different types of pressures that result in oblivion and destruction of identity. Types of Bosnian vernacular architecture include first and foremost houses, then different kind of production buildings, such as mills, workshops, blacksmith's shops, animal shelters, milk processing buildings, defensive systems, water supply, irrigation systems, et cetera.

Vernacular architecture, by its nature, has been exposed to changes and adaptations that testify about the social, cultural and natural mutations. The isolated "islands" of remaining vernacular architecture ensembles in Bosnia have survived in the hardly approachable countryside areas that have remained out of the impact of the major development flows. Because of this, aside from tracing authentic Bosnian
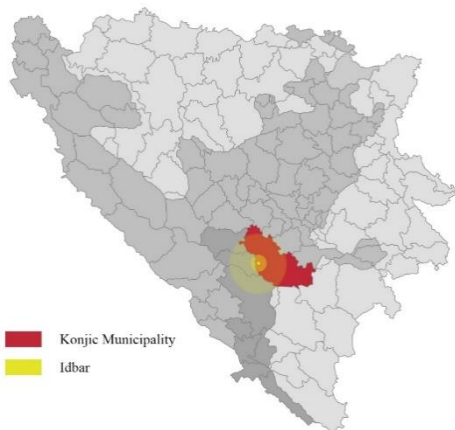
Fig. 1. Location of Idbar. Map of Bosnia and Herzegovina. Photo: Google images. Location of Idbar in Municipality marked by author

architectural expressions, this sort of isolated dwelling units - architecture without architects, is also convenient for exploration of the sustainability principles used by our ancestors.

Case examined in this article, Idbar, is a village located in the northern Herzegovina, 12 km away from town Konjic (Fig. 1). It was developed on the coasts of the river Baščica and first time mentioned in 1411 by Bosnian King Ostoja. During centuries, it had strategic importance due to its position and natural resources. Nowadays, terrain configuration of Idbar is reaching length between 7 and 8 kilometers, while the biggest width is 3 kilometers. Village consists of several smaller hamlets and its population is 238. Its tradition has been developing throughout centuries framing not only local customs, but building technology, religion, food, clothing, interpersonal relations, and legends. Thus, it provided important historical, cultural, traditional and architectural values. Nowadays, architectural heritage is in a poor condition, most of the vernacular houses are abandoned, and village is exposed to degradation.

Physical structure of the village Idbar

Village configuration

Idbar is longitudinally developed, reaching length between 7 and 8 kilometers with the widest regions of 3 kilometers. Village consists of several smaller hamlets that were named after surnames of the families living there: Bukvići, Bajramovići, Ćosići, Kasali, Nuhići, and Raići. Village area starts with the dam built in 1954 to prevent accumulation of materials into the Jablaničko Lake. Some of the earliest traces of the village are connected with its medieval history. The proud mark of long existence of the village are the remains of medieval citadels from the Ottoman period and ancient Roman roads. Another feature of the village is the closeness of the ethno-village *Raj u raju.* The majority of residential houses in this village belong to northern Herzegovina style categorized by Astrida Bugarski [2]. Buildings are constructed from the local materials, stone and wood. During centuries, as a response to social conditions and level of development, several different styles of building structures emerged. Mosque was built in 1967, on the foundations of the older masjid. During aggression on Bosnia, mosque in Idbar was damaged. Process of its reconstruction started in 2008. Idbar's school, after being part of private company since 1981, was recently adapted and returned to its current use. The largest land area in the village is used for agriculture [3]. Forest belts are longitudinally extended on the west and east side of the village. Large areas of fertile agriculture land influenced centuries of residents' engagement in agriculture, beekeeping, and cattle breeding.

Courtyard layout

Although the hamlets in the village are scattered, residential buildings in every hamlet are closely connected to each other. Due to the comfortable climate conditions, configuration of the terrain and relations between families, houses were built in cluster formations, creating intimate courtyards (Fig. 2). Courtyards, unlike those in southern parts of Bosnia (*e.g.* Mostar, Stolac, Trebinje, Počitelj), were not cobbled, and were enclosed with characteristic wooden fences locally called *lepirice,* while gardens were enclosed by fences locally called *plot*. Due to the terrain configuration, courtyards placed on the slope were designed like terraces, with dry stone supporting walls.
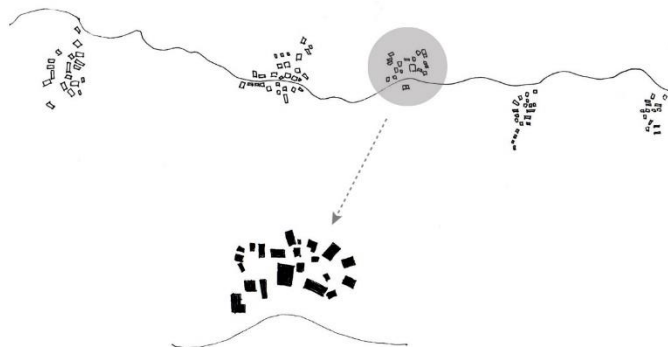

Fig. 2. Physical structure of the hamlet

Vernacular architecture sustainability principles

3. 1. Sustainability principles

Traditional building construction, materials or even techniques applied through the history plainly lead to a conclusion that the building settlements were, out of necessity, sustainable. In the contemporary world with advanced technology and usually misunderstood concept of sustainability as a novelty, yearning for vernacular architecture principles may seem outdated. According to Kazimee [3], going back to vernacular architecture may be a method for solving nowadays challenges such as global warming. In defining lectures from vernacular architecture addressing usage of locally available materials, Paul Oliver even underlined that almost 90% of the world's housing shortages can be solved using local sources and traditional technologies instead of contemporary high-tech methods [4]. Vernacular architecture in the region of Konjic can be followed from XVIII century although the information from this period are sparse and most of the buildings remaining are severely damaged while others are destroyed by weathering or new construction.

Sustainability principles that were out of necessity developed and integrated into building techniques of vernacular architecture in the Konjic region, particularly village Idbar, were examined and interpreted in the following chapters. Sustainability of vernacular houses was examined through test of sustainability following:

1) Start-up environmental impact; 2) Contextualization; 3) Adaptation to the circle of life; 4) Water supply sustainability; 5) Energy efficiency; 6) Self-conserving sustainability, and 7) Biodegradability.

Criteria one: Start-up environmental impact

Start-up environmental impact discusses sustainability principles that were integrated in the building design in Idbar. It is based on the examination of the: 1) Building materials and buildings technology; 2) Footprint and settings.

Building materials and building technology

Vernacular houses in Idbar were constructed out of several types of natural materials based on different constructive systems (Fig. 3). Houses were customized in accordance to residents' economic and financial situation, socio-political statuses, as well as ethnic and religious backgrounds. While basic residential and economic building units were constructed from the local material based on the common knowledge of the rural area's residents and usually constructed by the hands of house tenants and their neighbors, houses with more complex forms were developed by the specialized rural masters [2].

Building construction in Idbar strongly defined ecological footprint that can be interpreted as a measure for the sustainability. Furthermore, following the measure of integration of the sustainability principles in the building construction leads to defining that the footprint was low. Examination of the start-up environmental impact suggest that materials used in construction, stone and wood, are found locally and further processed by local masters implementing eco-efficient technologies, and have decreased impact of the transport, and consequently decreased pollution.

Fig. 3. Example of the house built from the stone and wood. Idbar.

Criteria two: Contextualization

Sustainability test for *Criteria two: Contextualization* integrates and discusses: 1) House and terrain; 2) Visual identity; 3) Symbiosis between man and nature; 4) Interior organization; 5) Interior furniture; 6) Courtyards, and 7) Materialization and the use of the fences.

House and terrain

Idbar is located in rugged terrain, and houses built there correspond to its natural configuration and typology. In order to perceive the best out of sunlight, houses were turned to the sun by their longer side. They were contextualized and integrated into slope (Fig. 4). In some cases, complete frontend wall was sunken. As a result, basement, called *magaza*, was sunken in the ground and approachable from the agriculture fields which made storage of the harvest easier, while rooms were entered from the street level.

Fig. 4. House contextualization and integration into slope, Idbar.

Visual identity

Other than backing onto the natural configuration of the terrain, contextualization of the houses in the village is readable through its visual identity. In this region, limestone has played a great role in developing cultural heritage. Since most of the houses were made of stone, or combination of stone and wood, it creates certain unity of design. Although stone houses of this region, particularly Idbar, had simple composition, purity of design style and simple design expression, varieties of building forms and different stages of development that enhanced regional characteristics of traditional house, suggest that this region offered richness of design expression.

Symbiosis between man and nature

One of the most treasured values of Idbar, and another form of contextualization, is symbiosis between nature and man, which has been developed centuries ago. Symbiosis is defined as an interaction between two different organisms living in close physical association, usually to the advantage of both. In two specific examples of contextualization, stone house was integrated into rock (Fig. 5, Fig. 6), forming perfect symbiosis of a man-made and natural environment. Values of the common sense used in building technology and relation between man and nature, or traditional wisdom, can be used in future, which will initiate green and sustainable design without mechanized services. Symbiosis between man and nature is important for preserving identity of the regional culture, and it is one more proof that architecture is not just an enclosed and self-oriented entity, but rather, it represents an important part in contribution to a better environment.

Fig. 6. Symbiosis between a nature and man-made creation: house with elevation in the rock, Idbar

Fig. 5. House on the rock, Idbar

Interior organization

Bosnian stone houses had rectangular plans, usually 7 to 11 meters long, and 4 to 6 meters wide, following the custom of 3 meters difference between width and length. Since they were built on sloppy terrain, they were positioned on the slope by their length. Below one part of ground floor level, there was an underground space, storeroom. Ground floor consisted of two spaces – called *kuća and soba*. It was heated by a fire in a clay oven, typical for the Bosnian houses. First floor had one room called *odžaklija*, which had open-fire place and a device for smoke collecting, *odžak* (Fig. 7). Second floor had a small space in which smoke was spread, and was used as a food storage as well. Fruits and vegetables were stored in underground space, *magaza*, simple and uniformed spatial structure characteristic for this region. Storing in this area during summer and winter would help creating optimal temperature for its preserving.

Fig. 7. House with 'odžak' on the first floor, Idbar.

Interior furniture

Interior organization of the stone houses was very similarly designed, but it was not uniformed [5]. Furthermore, similar organization of the space was present in Idbar's stone houses. Entrance was placed on the middle of the wall and it would lead into windshield, called *ganjak*, that was sometimes used as a kitchen. Another form of kitchen formed in these houses was called *huđera*, that contained *čivijaluk* or *čiviluk*, place for storing coats. Heart in Idbar's stone houses was mostly placed in the middle of the frontend wall, in the room called *majinska* soba. It was placed very low, built from stone and bordered with stone or wood, to keep material for heart, *vatrište*, from dropping off [6]. Heart was accompanied by two shelves in the wall, called *dolaf*. Sleeping room was called *halvat,* while beds were made from the wooden boards.

Houses of the Muslim population had small bathrooms integrated into interior space, usually placed in the corner of the rooms, called *đeriz*. Đeriz was built from single-row stone, 15 cm high, coated with the combination of the lime and fine sand, *sitni kum*. Each *đeriz* had piping for leading water outside the house. Pipes were wooden, made from the *zova*. This type of tree had hollow laburnum, *srčika*, easy to turn into pipes. Floor in Idbar's houses was made out of the wooden boards, made from the oak, sometimes covered with woolen carpets. If house had attic, it was approached from *dihvana*, wooden gallery, by the stairs or sometimes ladders. Attic was called *šiša*.

It is important to emphasize that the most important characteristics of the houses that were subject to research in the region of Konjic, including the names for the parts of the house, are common for all people, regardless of their different economic, class or religious expressions. In some cases, a discrete detail such as cross on the roofs of the Christian houses, gilded spike or crescent moon*, alem,* on the guest house, *musafirhana,* or a small overhang with the ablution area on the first floor of the Muslim houses, as well as the individual elements in the interior, served as an adaptation to the religious needs of tenants. But these never served for expressing different identity, although some studies tried to prove differently. These efforts, expressed in an unacademic way, can even be considered as a part of contemporary endeavor to stratification of the Bosnian identity.

Courtyards

Comfortable weather conditions contributed to creating courtyards. This resulted with a significant part of house functions transferred to these 'residential courtyards' [6]. Although the hamlets in the villages were scattered in configuration, houses inside of one hamlet were closely linked to each other, creating more intimate courtyards and private family atmosphere. Building houses more closely one to another was due to hilly terrain, which together with Islamic tradition influenced more noticeable compaction of houses, and creation of courtyards. Keeping up with the Islamic tradition in terms of separating the public and private

zones was respected in Idbar. Since courtyards among one hamlet were mostly used among one family, and there was a significant distance between hamlets themselves, there was no need for building special walls to protect privacy. As there was no water supply in the houses until 1970s, fountains, *česme*, were frequently built in the courtyards.

Criteria three: Adaptation to the family life circle – expandability and adaptability

When needed, stone houses provided a possibility for further adaptation in accordance to the needs of growing families. If the house was divided among two families, adaptation was done from the inside, by building a wall to divide interior space. This type of division secured continuation of habituated way of life. Due to the long-term durability, stone house itself provides a possibility of further longitudinal development when needed, where single space unit becomes a house with several rooms organized linearly. Due to the use of two roofs, stone houses were easily longitudinally developed by constructing new rooms next to the wall of *soba*, or *kuća*. Entrances to newly constructed rooms were added through existing rooms. If longitudinal developed was continued, then having the entrance from existing rooms was not possible anymore, but it was added from the outside. Sometimes, this new entrance was added from the new space, called *međuvraće,* built between existing and upgraded rooms, and served as a protection from the wind and snow [6]. Furthermore, this protection space was divided into *araluk* and *ćiler*. Development of the stone house was even regulated by construction of cross wings, built perpendicular to the main building.

Criteria four: Water use sustainability

Water is one of the biggest natural resources in Idbar with more than hundred springs of fresh water [7]. Mills for grinding grains that were constructed on Idbar's springs were sometimes built and used by individual, but more frequently by a group. Every hamlet, or in some cases every household, had its own mill, which means that water was discharged to the courtyards, but they did not have direct water supply into the houses. The abundance of water and its natural recycling has enabled the use of water for drinking, cleaning, washing, feeding, irrigation systems, cooling, fishing, production of flour, which is closely related to the energy efficiency of the settlements. Water was used in the way that its natural recycling was maintained.

Criteria five: Energy efficiency

Energy efficiency in the frame of sustainability test integrates and discusses building physics of vernacular architecture through the scope of: 1) Physical and thermal properties of the wood; 2) Physical and thermal properties of the limestone; 3) Calculation of the limestone thermal diffusivity and thermal inertia; 4) Comparison of thermal values of the limestone and some common building materials; 5) Use of energy from renewable sources for production and heating; 6) Building and organization of settlements and houses in relation to efficiency and energy losses.

Building Physics of vernacular architecture

Vernacular architecture is bordered with ecological, economic, and social factors, where vernacular buildings are, as Lawrence [8] states, human constructs produced because of these factors. Since they are made of locally available materials, employing local people, using renewable sources of energy, vernacular buildings are based on sustainable design principles, and are climate-responsive in many ways [9]. Furthermore, vernacular architecture has been developing continuously and depends on experience, surrounding conditions and local materials [9]. Energy efficiency and renewable energy are said to be the twin pillars of sustainable energy policy [10]. Since vernacular architecture evolved through trial and error methods, buildings and site planning depend on substantially experience, surrounding conditions, and local materials such as adobe, stone and timber. Specifically, vernacular architecture is taken attention in terms of its continuity. Thus, it can be seen as the essence of sustainability with its inherent characteristics. Moreover, vernacular settlements are often considered as the predecessors of sustainable built environments [9].

Wood properties

For thousands of years wood has been used as a building material. Although the chemical properties of wood are complex, human beings were capable to harness the unique characteristics of wood in order to build different varieties of structures. This versatile and adaptable material is used in building construction, shipbuilding, furniture and home décor industry. Being a natural resource is one of the strongest advantages of wood, making it available and economically feasible. It provides a good insulation from the cold, it is

machinable and can be fabricated into different sizes and shapes. Furthermore, wood is a sustainable material, biodegradable and renewable with lowest carbon footprint of any other building material.

Thermal properties of wood

Unlike many other materials, wood does not expand by the effect of heat. However, by the effect of heat, it dries out and gains strength. The coefficient of thermal conductivity of the wood is very low and for this reason wood is used for making matches, handles of hardware equipment, ceilings and wall coverings. In the case of fire, wood does not significantly change its mechanical properties, and this is a major advantage over competitive materials. There are two causes of this extraordinary feature of wood. The first is that the wood is a thermal insulator, which means that during fire, heat from the surface of the wood slowly moves towards the interior, that is, the inner layers of the wood remain unheated for a long time. This is at the same time the reason that wood burns heat 10 times slower than concrete in fire, and 250 times slower than steel. Another, more important cause is that, when burning, a carbonized layer is created on the wood surface. This layer has very low density, it is porous, which means that it is a good thermal insulator and practically protects the interior of the wood from further combustion. At the same time, slowing the oxygen supply into contact with the rest of the wood often stops fire. Specific heat of wood is high. Due to the low mass of the surface, wood is not good material for sound isolation, but this characteristic makes it the best choice for sound absorption; it prevents echo and noise by absorbing sound [11]. Among some disadvantages of wood are shrinkage, swelling, and deterioration. Deterioration of wood is caused by the biotic agents that include decay and mold fungi, bacteria and insects, and abiotic agents that include sun, wind, water, chemicals and fire.

Limestone properties

With more than 90% of calcium carbonate ($CaCO_3$), limestone represents a carbonate sedimentary rock [12], that forms from the accumulation of shell, coral, algal, and fecal debris. Limestone is a soft rock with a surface that can be easily scratched and fine-grained. It is mostly white, but iron oxide can make limestone red, brown or yellow, while carbon can make it gray, black or blue. It is absorbent and can become quickly stained. Due to its durability, consistency in texture, easy resizing and reshaping, it is widely used in building construction.

Thermal properties

Thermal conductivity (λ) or the thermal conductivity coefficient of a material defines its ability to transfer heat [13]. The amount of heat transferred through the wall (qA) is proportional to the area (A) and to ratio of the temperature difference (ΔT) to the wall thickness (Δl) [13]. This is known as Fourier's law of thermal diffusion and can be expressed by the formula:

$$q = -\lambda \frac{\Delta T}{\Delta l} \tag{1}$$

It is expressed with negative sign because the heat flows from higher to lower temperatures. Values of thermal conductivity for materials range widely, and are affected by temperature, composition, porosity, etc. Thermal conductivity coefficient of limestone is 2.5 $\frac{W}{mK}$ [14]. *Volumetric heat capacity* (c_v) is the ability of a material to absorb and store heat energy and slowly release it back into the environment, enabling passive heating. A higher value of the volumetric heat capacity means a longer time for the system to reach equilibrium. Volumetric heat capacity is calculated by the formula:

$$c_v = c_p \rho \quad [\frac{J}{m^3} K] \tag{2}$$

where, c_p is the specific heat, with unit $\frac{J}{kgK}$, and ρ is the density, with unit $\frac{kg}{m^3}$ [15].

In the same time, thermal mass is providing "thermal inertia" against temperature fluctuations. The ability to store heat varies from material to material and is known as the *specific heat capacity (c_p)*. The dimension of specific heat in the SI is J/kg K [14]. *Thermal capacity* ($c_p\rho$) is defined as the amount of energy

required to raise the temperature of a unit of the mass of a substance by $1\dot{\circ}\,C$ [13]. If the thermal capacity of a material is higher, the more heat it can store in a given volume per degree of temperature increase. Both the specific heat c_p and the thermal capacity ρc_p represent the heat storage capability of a material. But c_p expresses it per unit mass whereas ρc_p expresses it per unit volume. This difference is expressed in their units: J/kgK for specific heat (c_p) and J/m³ K for volumetric heat capacity (c_v) [15]. *Thermal diffusivity* (α) of a material represents how fast heat diffuses through the material [15]. Materials with a high thermal conductivity and low heat capacity will have a high thermal diffusivity, which results with faster diffusion of the heat through body. Low value of thermal diffusivity means that the heat is mainly absorbed by a material [15]. The coefficient of *thermal diffusivity* (α) is expressed by the formula:

$$\alpha = \frac{\lambda}{c_v} \quad [\frac{m^2}{s}] \tag{3}$$

where, λ is thermal conductivity, with unit $\frac{W}{mK}$, c_v is volumetric heat capacity, with unit $\frac{J}{m^3\,K}$ [15].

Thermal inertia (*I*) is a term commonly used for defining a bulk material property related to <u>thermal conductivity</u> and volumetric heat capacity. It is defined as a square root of the product of the material's bulk thermal conductivity and volumetric heat capacity, where the latter is the product of density and specific heat capacity. It is expressed by the formula:

$$I=\sqrt{\lambda\rho c} \quad [\frac{J}{Km^2 s_2^1}] \tag{4}$$

where, λ is thermal conductivity, with unit $(\frac{W}{mK})$, ρ is density, with unit $\frac{kg}{m^3}$, c_p is specific heat capacity, with unit $\frac{J}{kgK}$

Table 1. Thermal properties of limestone in comparison to other building materials

Material	Thermal conductivity, λ $(\frac{W}{mK})$	Material density, ρ $\frac{kg}{m^3}$	Specific heat cap., c_p $\frac{J}{kgK}$	Thermal diffusivity, α $(\frac{m^2}{s})$	Thermal inertia, *I* $\frac{J}{m^2\,K\,s_2^1}$
Limestone	2.5	2600	909	1.06 x 10⁻⁶	2430.741
Brick	0.6-1.0	1922	840	0.37 − 0.62 x 10⁻⁶	1023.845-1321.778
Concrete	1.0-1.8	140-150	880	8.12 − 13.6 x 10⁻⁶	356.7352-495.4089
Wood (Oak)	0.17	590 - 930	2380	0.0768 x 0.12 x 10⁻⁶	301.9482-379.0948

Values collected from [16], [14], [17] [18].

Thermal diffusivity represents how fast heat diffuses through the material [15], and determines a value of accumulation of the heat in the material. If the material has low diffusivity factor it means that the heat will slowly diffuse, absorb the heat and release it back to the environment. In the winter mode low diffusivity materials can contribute to a slower process of cooling the interior due to retardation of heat transfer. In comparison to brick and wood, limestone has slightly higher diffusivity coefficient, but is highly better absorbent of heat than concrete. In the summer mode, when outdoor temperatures are very high, limestone enables fast diffusion of the heat to the inside, keeping interiors cooler.

Thermal inertia is a measure of responsiveness of a material to variations in temperature. Higher thermal inertia means higher accumulation of the thermal energy and slower assimilation to surrounding temperatures. Together with low diffusivity, high thermal inertia contributes to energy efficiency of limestone which can be classified as a good absorbent of heat that will not rapidly change temperature, making it ideal building material for both summer and winter mode.

Interior organization of the houses was achieved in a manner to benefit the most from the heart. Sleeping rooms, placed one above the other, were heated by the heart. In the same time, this heat was used to drying fruits or meat. In this manner, stored harvest was protected from both high and low temperatures, as well as from other sorts of the harm. Storing harvest and other goods was in some cases extended from the basement to the hole in the ground, covered by wooden boards. Physical properties of the stone which was used as a building material prove that there was no need for placing additional insulation materials. Treatment of the wooden as well as the stone elements from their preparation and cutting in the special manner, to covering with lime plasters and limewash made a significant contribution to their safeguarding and conservation through the years.

Criteria six: Self-conserving sustainability

Self-conserving sustainability in the frame of sustainability test provides elaboration of the techniques applied in order to enhance self-conserving processes: 1) Limewashing stone; 2) Preparing roofing material; 3) Use of waste products generated by combustion of fuel wood for conservation; 4) Conservation through the benefits of the ecosystem and the natural food chain.

Limewashing stone

Limewash is the finishing material applied to vernacular houses. It is made from limestone which has been crushed and slaked into water, forming lime putty. After maturing for several months, it was mixed with water to create limewash [19]. It is naturally white and has a chalky matt finish, applied to limestone or lime mortars. Since the limestone is porous paint and absorbed easily, it hardens the medium, helps to consolidate the building. In combination with breathable lime mortars and limestone, it reduces the effects of condensation and allows the moisture in the walls to evaporate to the outside [19]. Limewash is anti-bacterial and insecticidal and improves surface physically and visually.

Preparing roofing material

Duration of the roofing depends on the mode of cutting and quality of the wood [6]. Selection, that was done by the village masters who had experience and knowledge on this, included coniferous trees, primarily spruce and pine. Spruce and fine were easily found on the high mountains surrounding Idbar, and are referred as long lasting and durable. Due to respect for nature and out desire not to damage the forest, firstly chosen trees were the ones that were already hatched, called *izvala*. Trees used for roofing could not be chosen from the areas that are exposed to strong winds. Preparation of wooden boards, *šimla*, was a process that included cutting with a tendency of providing as much roofing material as possible. To prevent material from deformations, roofing could not be instantiated before the process of drying was finished.

Smoke in the attic space

Apart from the quality of wood and type of cutting, duration of wooden roofing was impacted by the smoke. Vernacular houses in Idbar and region had open fire places, hearts, that allowed smoke to move towards the attic. Since the wood does not expand against heat, but it dries out and becomes strengthened with prolonged lifetime, this system in building is considered as self-conserving sustainability. Since the smoke consists of solid particles, they were kept in a wooden construction and reduced the level of harmful emissions into the air. Carbon and nitrogen compounds formed by burning wood are known and often used in the chemical conservancy industry of wood. In addition, the attic was allowed to accommodate bats. Given that bats consume small insects that destroy wood, this natural food chain allows the protection of wooden structures from bio-degradation. At the same time, the batches of bats abound with nitrogenous compounds important for the conservation and longevity of wooden structures.

Criteria seven: Biodegradability

In building technology of Idbar's houses, all used materials were sustainable, and found in local area. During time, wood as an organic and biodegradable material decays, while stone has a recyclable characteristic, and it can be re-used for other purposes. Furthermore, if used and properly maintained, stone

houses can have long durability, but if abandoned and forgotten, these houses can 'disappear and die'. Decaying of these houses does not leave an impact on ecological footprint.

Conclusion

Gradually evolved vernacular architecture integrates the concept of sustainability and meets environmental, socioeconomic, and sociocultural characteristic of a society [20]. Test on the sustainability examined sustainability principles that were followed during construction of the vernacular houses in the village Idbar. This test was based on: 1) Start-up environmental impact; 2) Contextualization; 3) Adaptation to the circle of life; 4) Water supply sustainability; 5) Energy efficiency; 6) Self-conserving sustainability, and 7) Biodegradability. Sustainability test elaborated above proves that vernacular stone houses in the Idbar were built following the principles of sustainability and gaining harmonization with the site and settings. The results of the analyzes carried out in Idbar that are presented in this article confirm the theses of many contemporary authors, who, like Kazimee [3] or Oliver [4], claim that returning to the beginnings of vernacular architecture can be a method of solving the biggest problems of today, including global warming, and that traditional methods of building and using local sources and materials can settle almost 90% of the world's housing shortages.

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CRITICISING (UN)SUSTAINABLE SKYSCRAPERS:THE CASE OF FOLKART TOWERS

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Abstract

In large cities of our age, skyscrapers are being constructed as a solution to the problem of land shortage and increasing population. Due to the similarity to the micro-scale cities, a number of skycrapers around the world have been designed in accordance with the sustainable architectural criteria in recent years. The aim of this study is to made recommendations in the Folkart Towers recently built in İzmir and after that to bring criticism to the non-sustainable skyscrapers by analyzing the data obtained from the analysis of the skyscraper samples constructed with the sustainable architecture. For this purpose, the skyscraper samples that are compatible with the criteria of sustainable architecture are determined. Then, the data obtained by analyzing these skyscrapers according to the sustainability criteria were given in table. Some of the criteria that are not profitable in the short term are the benefits of these seven skyscrapers which are primarily the architectural fame and sustainability in the long term. In this context, criticism and suggestions were brought to Izmir Folkart Towers, which were completed a few years ago but were not constructed in compatible with the sustainability criteria. As a result; the fact that these seven skyscrapers, which are used by many people, are designed in a way that is considerate the future should inspire the design of skyscrapers. By identifying all sustainability studies clearly with the positive and the negative aspect then sharing the information is the first stages of an information pool that will grow in the future. Therefore; In the design, construction and use of skyscrapers, such as all structures that need to strengthen context, climate and connection with people, the steps taken in earlier skyscrapers in compatible with sustainable architecture need to be used and developed.

Key words: Skyscrapers, Sustainability, Folkart Towers, Izmir

1. Introduction

Almost half of the energy produced in the world is used in the production and destruction of the buildings. According to the results of the studies done in the European Union (EU) countries, more than 40% of total energy use, 30% of CO_2 emissions and 40% of synthetic wastes originate from the construction sector. It has been determined that approximately 50% of the materials in the world are consumed by the building sector and they cause global destruction like the destruction of the forest areas, the deterioration of clean water resources, and the destruction of the ozone layer [1]. When approaching this issue in the case of multi-storey high-rise buildings where almost as many people as the number of people living in a town are living together for sheltering or working, the necessity to use very large energies arises. Because of multi-storey high-rise buildings require a lot of energy consumption, in the architectural community, skyscrapers were not included in the building group that comes to mind first when it comes to sustainability until the last years. However, it is possible to build energy efficient and intelligent buildings through the new technological and design approaches used in the recently build high buildings.

In this study, a literature search was conducted for the principles of sustainable architecture and followed by the sustainable ones of skyscrapers built around the world were selected as samples and then samples were analyzed for sustainability. In the light of the obtained information and by looking critically at the Folkart Towers located in the new skyscrapers area in Bayraklı District of Izmir Province, design suggestions for sustainability have been developed.

The aim of this study is to develop a critical approach to a skyscraper that does not meet the criteria for sustainability and to develop design offers for sustainable development. In this context, Folkart Towers in the skyscrapers region of İzmir were selected. Within the scope of the study, seven skyscrapers which are found around the world and which are compatible with the concept of sustainable architecture were determined. The method of the study can be listed as literature review, analysis of skyscraper samples found within the framework of sustainable architectural criteria and suggestions for design of an unsustainable skyscraper within the framework of criticism.

2. Sustainable Architecture

The needs of the majority of world communities for land, buildings, building materials, energy and other resources is increasing day by day. As a result of this, continuous changes between production and consumption rates increase the effects on the world ecosystem [2]. The real reason for environmental problems

are the high rate of human consumption of human resources in nature, waste them all and after that non-handling of wastes.
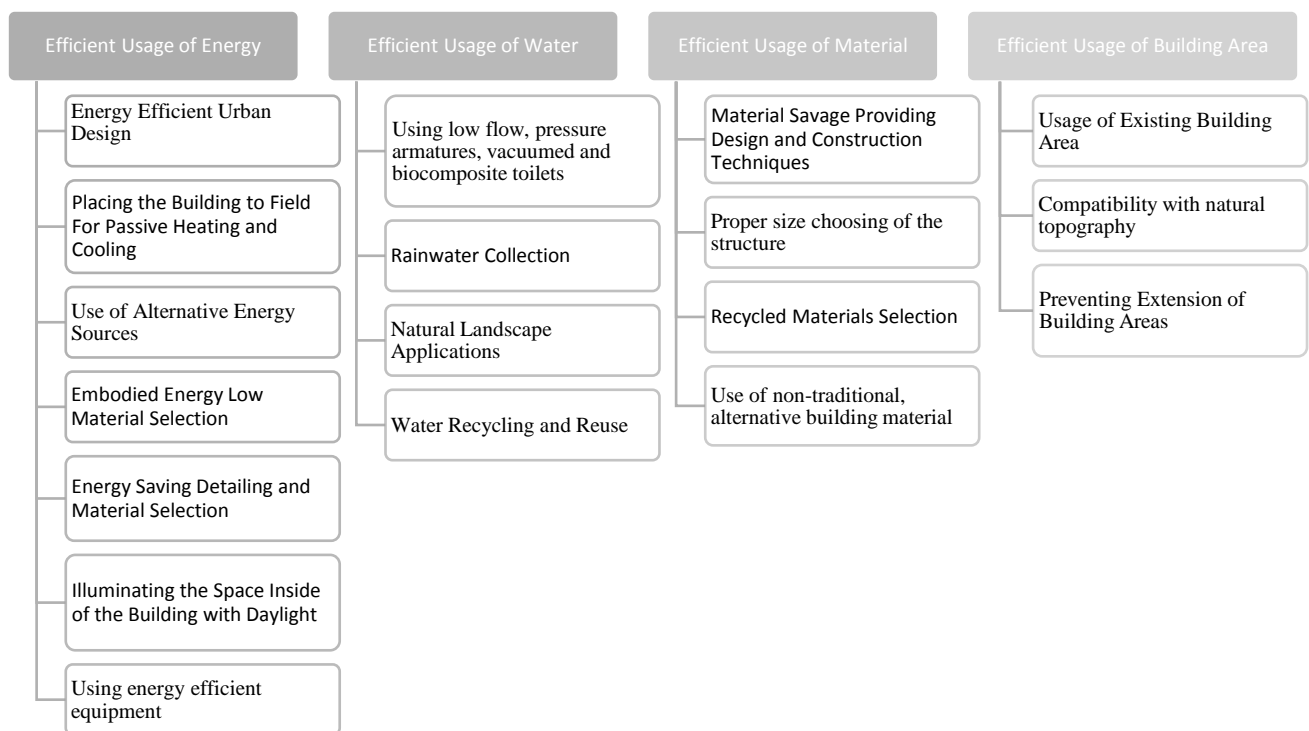
For the first time in 1987, "United Nations World Commission" published a report entitled "Our Common Future" and sustainability studies have been addressed worldwide. According to "Our Common Future Report"; sustainable construction is a development that meets today's needs without compromising the ability of future generations to meet their own needs[3].

Briefly "Sustainable architecture" can be defined as the whole of the activities which give priority to use of renewable energy resources, which are sensitive to the environment, uses the energy, water, materials and area effectively by taking into consideration the future generations in every period of the existence of the building, at the same time it can also be defined as the whole of the activities that provides buildings which ensure the continuity of people's health, safety, psychological and physical comfort and productivity[4]

The principles of sustainable architecture generally fall into three main headings.

1. Resource Management
2. Life Cycle Design
3. Design for Human

Resource Management aims to ensure the resource flow to be effective, starting from the production of the materials to be used in the construction of the building and reduce the consumption of non-renewable resources during generation-production, which will continue until the end of the construction period (Table 1). Life cycle design, aims at reducing resource consumption during construction and use of the building and considers the long-term impact of the construction on the environment. Design for human beings aims to ensure sustainability through human-centered design ideas [5].

Efficient Usage of Energy	Efficient Usage of Water	Efficient Usage of Material	Efficient Usage of Building Area
Energy Efficient Urban Design	Using low flow, pressure armatures, vacuumed and biocomposite toilets	Material Savage Providing Design and Construction Techniques	Usage of Existing Building Area
Placing the Building to Field For Passive Heating and Cooling	Rainwater Collection	Proper size choosing of the structure	Compatibility with natural topography
Use of Alternative Energy Sources	Natural Landscape Applications	Recycled Materials Selection	Preventing Extension of Building Areas
Embodied Energy Low Material Selection	Water Recycling and Reuse	Use of non-traditional, alternative building material	
Energy Saving Detailing and Material Selection			
Illuminating the Space Inside of the Building with Daylight			
Using energy efficient equipment			

Sustainable architecture is an architectural conceptualization that emerges in response to numerous concerns about the effects of human activity.This conceptualization defends the doctrines that are already seen in the educational life of architects. Design aims to meet the needs of people by balancing this with the carrying capacity of the natural environment, rather than fulfilling their desires. Reducing the environmental impacts, material and energy consumption and waste production is aimed [6]. Designs are continued in line with the maximum utilization of sun rays and positioning according to wind.

As a result, the decisions taken in the design and construction processes at the building and urban scale should be composed of elements that are compatible with the ecological balances, do not break the biological systems and do not restrict the needs of future generations. In this case, architecture should not be divided into

sustainable and unsustainable form and should not be privatized. Strategies found as sustainable architecture should be used as much as possible in all buildings.

3. Skyscraper

Le Corbusier, one of the pioneers of modern architecture, describes the skyscraper as "courage, assertiveness, dexterity and genius" [7] and another leading architect Frank Lloyd Wright describes as "the box on the box, the box next to the box" and also "the relentless enemy of the cities" [8]. Wright likens the skyscrapers to "the demon that threatens human life" and to "the rising gods of death to exploit the man on the street for commercial purposes" [9]. The reflections of the opposite definition of two famous architects who lived in the same period against skyscrapers continue today.

The skyscrapers contain many places where thousands of people live and work at the same time. For this reason, it causes traffic to increase and compression in the region. They change the silhouette of the city. In the area of historical buildings they crush low-rise historical structures with their height and reduce their value. It prevents the sun from other structures in its immediate vicinity, changing the direction of the airflow and thus causing the climate to change [10]. In case of being covered with reflective building elements such as curtain wall, skyscrapers increase the heat around them and cause the phenomenon which we call heat island. Thousands of people in the skyscraper use vertical circulation devices at the same time, and thus the vertical transportation becomes difficult. In the event of a disaster or crisis, going down of the people on the upper floors of the building become a problem. There is a problem of pumping water to the upper floors of the skyscrapers. There are swaying problems in the face of the earthquake and severe winds. Especially during the summer, they need a huge amount of electricity for indoor cooling activity. Due to reasons like these, it is not possible not to join Wrigth.

Considering the above mentioned problems, those who argue that horizontal architecture should be preferred to skyscrapers should not ignore the increase in land use when a large number of low-rise buildings are constructed and however, the fact that much less land area is needed in the skyscrapers obtained by overlapping these structures and that the unused land areas can be used as green areas. These applications reduce the heat island effect, which is frequently seen in skyscrapers, but also creates a user-friendly effect and psychologically reduces the detachment of people from nature using these structures. Thus, skyscrapers can take a step closer to being called a vertical miniature city.

It is very difficult to decide when the first skyscraper example was made, as there is no common discourse under which conditions a structure would be referred to as a skyscraper under what conditions. In the general rankings, "Home Insurance Building" in Chicago, where steel is used as the supporting building material, is first seen. In some rankings, "Equitable Building", which is made after the breakthrough developments such as the invention of the elevator and which is very high from the surrounding structures, is seen. According to some sources, "Woolworth Building" is considered to be the first product of recent developments in construction technology [11].

Tall buildings that achieve significant heights are classed in two additional sub-groups: A "supertall" is a tall building 300 meters (984 feet) or taller, and a "megatall" is a tall building 600 meters (1,968 feet) or taller. As of today, there are 115 supertalls and only three megatalls completed globally [12].

Although there have been significant developments in the technologies, efficiency and performance of skyscrapers over the last few decades, the design and urban expression of a typical skyscraper has been designed with glass-steel materials, which are also advocated by modernism. Despite the improved performance of the developing and diversified materials and the architectural details in the systems used, the linear, air-conditioned and glass-coated box form is still preferred as the main template in the design of the majority of skyscrapers. In the last decade, it is seen that the sculptural forms are applied in shaping the skyscrapers in addition to the inclined box shapes. However, the relationship between the skyscraper and its location in both the "box" and the "sculpture" approach is predominantly visual or commercial [13]. Therefore, skyscrapers are seen as a symbol of power show in the commercial area. Therefore, achieving height and geometric impossibilities has become the main goal.

According to the surveys conducted by the CTBUH (Council on Tall Buildings and Urban Habitat), 2018 was recorded as a year in which the records for skyscrapers were broken. According to these data; in 2018, all around the world the construction of 18 Super long skyscrapers over 300 meters and 143 skyscraper over 200 meters were completed. 76% of the skyscrapers completed in 2018 are located in the Asian continent. Only 88 skyscrapers have been completed in China. The highest skyscraper in 2018 is the Beijing City Tower with a height of 528 meters. However, no design criteria for sustainability have been found in any of these skyscrapers[14].

4. The Skyscrapers Designed with Sustainable Architecture

Seven skyscrapers designed in accordance with sustainability criteria and implemented in different countries were examined in the scope of study. These structures; Commerzbank Headquarters, The Bahrain World Trade

Center (BWTC) Tower, Bank of America Tower (One Bryant Park), Doha Tower, Pearl River Tower, Shanghai Tower and Oasia Hotel.

4.1. Commerzbank Tower

Table 2. Commerzbank Tower General Information

Location	Architect	Year	
Frankfurt, Germany	Norman Foster&Partners	1997	
Function	**The Reason Why a Mega Structure**	**Height**	
Office	First Ecological Office Skyscraper	300 meter	

The most distinctive feature of the Commerzbank building is the resolution of the core and circulation areas placed in the center of the plan in the three outer corners of the structure (table 2).Thus, at the center part there is an atrium with a height of 160 meters and a width of 17 meters. Two of the three wings on each floor of the triangular-planned building are available as office space of 16 meters deep and a third wing as a four-storey high winter garden. The gardens are four storeys high, and each of the four floors is placed on the other wing of the triangle. 9 winter garden with 480 sqm area and 15 meters height is located in different locations around the facade in order to provide illumination at different times of the day [15]. In this way, winter gardens, which are taken from the front to the inside, provide a characteristic form with full-empty relation instead of vertical elevation of the facade.

The task of the atrium that is in the middle of the building is to provide the best use of the sun in different angles in summer and winter months, in working spaces and common spaces with winter gardens and double facade system. Thus, the atrium also works as an artificial ventilation element. The natural ventilation of the gardens and the atrium is provided by the chimney effect of the atrium. To prevent excessive accumulation of hot air on the upper floors, the aeration of the atrium is discussed in four main groups. The atrium is split in every 12 floors, and it is also advantageous for smoke control in case of fire[5].

4.2. The Bahrain World Trade Center (BWTC)

Table 3. BWTC General Information

Location	Architect	Year	
Manama, Bahrain	WS. Atkins & Partners (Shaun Killa)	2008	
Function	**The Reason Why a Mega Structure**	**Height**	
Commercial	The First Skyscraper Using Integrated Wind Turbines	240 meter	

The Bahrain World Trade Center Tower (BWTC) is the first skyscraper in the world to use its huge wind turbines in an integrated design (table 3). The geometry of the building is designed to obtain maximum efficiency as a result of wind tests and computer modeling to ensure rapid air flow to the wings of giant wind turbines integrated into the building facade. The structure consists of two symmetrical towers in the form of sails and the towers are connected by bridges with three wind turbines of 29 meters in diameter (Figure1-2). 10-15% of the electrical energy of the building is expected to be covered by these turbines [16]. In the building designed as a sail in order to provide the wind to gain speed before passing through the turbines, the oval building form creates negative pressure and helps the wind flow towards the turbines[17].
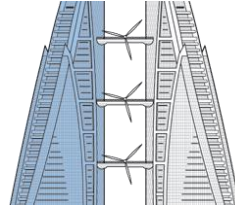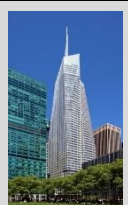
Figure 1. Wind turbines close up look [30]   *Figure 2. Wind Turbines location image*

The two towers are connected to each other by 31.5 meter, 70 ton, three bridges and each bridge carries a 11 ton wind turbine with a diameter of 29 meters (95ft), generating a total of 675 kW/h of wind energy. Wind turbines are located in the direction of air flow from north to Basra Gulf [5].

The double glazed and colored windows installed for the protection from the strong Bahrain heat reduce the heat to be included in the BDTM by 85%. Efficient ventilation systems also reduce the energy to be used to cool the building on hot days. High efficiency fluorescent lamps to be used on each floor further reduce energy consumption [17].

4.3. Bank of Amerika Tower (One Bryant Park)

Tablo 4. Bank of America Tower General Information

Location	Architect	Year	
New York, USA	Richard Cook	2009	
Function	**The Reason Why a Mega Structure**	**Height**	
Office	The First Skyscraper that earn LEED	365,8 meter	

The most striking feature of Bank of America is that from the beginning to the end it has been designed and built with the principles of sustainability (table 4). It was also the fifth tallest building in New York City in the year when it is built. Carrier system is steel carcass. During the design and construction of the building, the company consulted the companies who made the Commerzbank building and use their experiences. The materials used in the construction were chosen not to exceed the 800 km radius area and the construction site was brought to the forehead. Mostly recycled materials were used and subsequently recycled. After the construction of the steel elements, the slag that was produced as a waste was used for the first time by adding it to the concrete mixture. In this way, both the amount of waste is reduced and the damage to the environment is reduced and the concrete is made stronger by unexpectedly [18].

Three measures have been taken for energy and resource saving. The first of these measures is related to the ventilation system and it is located in the roof. It takes the air into and clean up then gives a part of the clean air inside the building while the other gives back to the city. It also serves as a huge air filter for New York. The second measure is that the glasses used in the fronts are selected from the special crystal material. With this material, the interior spaces are protected from overheating and radiation. The third measure is about collecting water for the effective use of water in the structure. In this context, there is a system that collects rain water. These waters are then used for cooling the building throughout the day. The terrace roof was decided to be a green roof for more efficient collection of rain water. Soil and plants reduce the severity and speed of the rain to ensure the most efficient collection. The green roof is also used to prevent overheating in the metropolitan areas called the heat island. The first skyscraper with a Leed Certificate, Bank of America skyscraper earned 50 points for supporting, public transportation and pedestrian transportation. The design of the structure makes it environmentally friendly by using floor-to-ceiling insulated glazing technologies and automatic daylight dimming system to include heat and maximize natural light [19].

4.4. Doha Tower

Table 5. Doha Tower General Information

Location	Architect	Year	
Doha, Qatar	Ateliers Jean Nouvel	2012	
Function	**The Reason Why a Mega Structure**	**Height**	
Office	CTBUH The Best Skyscraper Award 2012	231 meter	

45 meters in diameter, the first 41-floor offices, on the 42nd floor have a restaurant with panoramic views and a private residence (table 5). The top of the tower is in the form of a dome. This dome is made of stainless steel with Islamic-geometric and pointed patterns. The light and shadow interaction created by this geometric pattern created one of the most remarkable lofts in the history of tall buildings. The core carrier system seen in most skyscrapers was not preferred in this structure, instead diagonal facade was preferred. The giant X-shaped parts are connected to form the skeleton with which the floors of the building are supported. The cylindrical form of the tower has an aerodynamic feature that provides structural efficiency[20].

As an innovator, it points to a postmodern design, giving references to local culture and local architecture. The mashrabiya pattern, a kind of Arab-Islamic geometric pattern, was used in the outer shell of the tower. The pattern called mashrabiya has been used for many years on the facades of buildings constructed with traditional Islamic architecture for various purposes such as reducing sunlight and protecting against glare[21]. In the Doha Tower, the architect Nouvel has modernized mashrabiya and applied it in multiple densities with multiple layers that respond to the sun and weather. In the areas exposed to direct sunlight, more dense layers were used to cope with summer temperatures, usually above 50ºC. Mashrabiya, which is used with different densities on each facade, provides about 25% opacity on the north side, 40% on the south and 60% on the east and west. As a result, thanks to these facade preferences, 20% of the energy spent on cooling systems has been saved [20].

4.5. Pearl River Tower

Table 6. Pearl River Tower General Information

Location	Architect	Year	
Guangzhou, China	Skidmore, Owings&Merrill (SOM)	2013	
Function	**The Reason Why a Mega Structure**	**Height**	
Office	The First Skyscraper Designed for Zero Energy Consumption	309,4 meter	

The most striking feature of the Pearl River Tower is that it combines the latest technologies of the era in a structure to create a sustainable design (table 6). The building was designed as a high-performance skyscraper with a strong structure for the Chinese National Tobacco Company, which produces its own energy with passive ventilation and heating systems, in accordance with its environment, with the claim of being the first zero energy consuming tower in China[22]. In addition to the passive design best suited to hot and humid zone conditions and seasonally changing sun data, the building also benefits from the latest developed solar and wind technologies that can be used to collect energy from its natural environment.
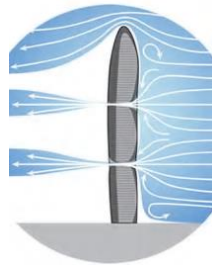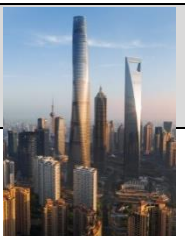

Figure 3. The Facade Design for   *Figure 4. Facade, wind turbines entery*

The wind, which captures the wind in the south, which is the dominant wind direction throughout the year, allows the wind to flow through the two wind tunnels in the building (Figure 3-4). The wind speeds up to 2.5 times in the tunnels, and the turbines provide energy to the building's lighting, heating, cooling, ventilation and air conditioning systems. Other integrated sustainable elements include solar panels, a double-walled curtain wall, a chilled ceiling system and floor ventilation, all contributing to the building's energy efficiency[22].

4.6. Shangai Kulesi

Table 7. Shanghai Tower General Information

Location	Architect	Year	
Shanghai, China	Tongji Architectural Design (Group) Co., Ltd.	2015	

İşlevi	The Reason Why a Mega Structure	Height	
Office/Hotel	The Tallest Green Skyscraper	632 meter	

The Shanghai Tower is the third tower in the super building trio, including the Shanghai World Financial Center in the heart of the Lujiazui Finance and Trade Zone, adjacent to the Jin Mao Tower and Shanghai's Huangpu River (table 7). Encouraged by China's economic reforms of the 1980s, the Lujiazui District in Shanghai was transformed from agricultural land into a skyscraper silhouette in only twenty years. As in many Chinese cities, rapid urbanization caused vertical density. A 23 million population, an almost 50% increase in the last decade, and 9 million migrant workers have seen growth in the vertical construction area in Shanghai City [23].

The Shanghai Tower represents a new paradigm of rethinking the sustainable vertical city. This skyscraper represents the city within the city. The building that is vertical stacked and has a structure like an independent city is divided into nine neighborhoods. In each neighborhood of the tower, there are sky gardens to awaken the regulated courtyards of Shanghai's historic houses. Sky gardens also provide energy saving and ventilation benefits. He takes the warm winter air from the outside and warms it, and heats the heated air upwards from the interior of the building. Spatially, sky gardens were formed in the space between two glass covers of the tower. The outer shell causes an impressive twist form around the inner shell, turning about one degree on each floor. In addition to the dual-layered facade (DSF), advanced lighting controls and other features, an efficient central facility in Shanghai Tower helps to use 21% less energy[24].

The iconic form of the tower is shaped to help resist the winds of the typhoon. The resulting form reduced the tower's lateral loads by 24%, resulting in a savings of approximately $ 58 million[23].

4.7. Oasia Hotel

Table 8. Oasia Hotel General Information

Location	Architect	Year	
Singapore, Singapore	WOHA Architects	2016	
Function	**The Reason Why a Mega Structure**	**Height**	
Hotel	CTBUH Best Skyscraper 2018 (Longest Vertical Plant Facade)	193,3 meter	

WOHA Architect's aim is creating a verdant tower of green in the heart of Singapore's dense Central Business District (CBD)[25]. Oasia Hotel is seen as a prototype of land use intensification for the skyscrapers. Unlike the bright and smooth skyscrapers this example offers a different approach to the image of skyscrapers (table 8).

The client's requirement is distinct offices, hotel and club rooms. To achieve these requirements the architects designed the skyscraper with lushly landscaped sky terraces, inserted in naturally ventilated breezeway atria between room blocks. As a result of these, guests can see a spectacular city view because of the height and dynamic internal views [26]. They called it "from vertical city to garden city"

The 191 meter tower rises from the tree-lined streets as a verdant tower of green and become an oasis in city's dense surroundings. The mix use designs always come with a circulation problem in skyscrapers. The solution to programmatic segregation issue is splitting the cores, sending the vertical circulation and service areas to the four corners and separating the three programs in L shaped blocks. This opens the center of each block as a breezeway atrium and makes room for sky terraces[26].

The red steel structure facade with twenty-one species green plants provides 10 times as much greenery to the plot as was originally on the undeveloped site.

4.8. Evaluation of Sustainable Skyscraper Examples

Skyscrapers are often an important symbol of the city where they are built. From the beginning, skyscrapers are pioneer of new material uses, new structural systems, technological developments in the sector of construction and innovative architectural ideas. These technological and industrial developments result in the consumption of resources.

The data obtained in the third section, which examines the structural design decisions and sustainability dimensions of the seven selected examples, have been examined with the advantages of the sustainable architectural concepts described in the second chapter.

Focused on resource management; the information about the examples viewed in the light of the effective use of energy, effective use of water, effective use of the material, and effective use of building areas are presented in Table 1.

As can be seen from the examined examples, the sustainability design decisions of the buildings are not only made by the construction and construction systems, but also by the façade design and usage decisions of the building. The simplicity, elegance and logic of the architecture, bonded with new discoveries and experiences, the skyscrapers of the coming years will likely form the basis of the new generation of sustainable high-rise buildings to be built.

This section of the study covered seven sustainable skyscraper examples. The results of all information gathered showed at Table 9. It revealed that, there isn't any effort in seven buildings to supporting the public transportation and pedestrian access except the Bank of America Tower. Nonetheless, designing the building orientation according natural lighting and ventilation is seen at all except Doha Tower. Three of the seven skyscrapers were designed to benefit from renewable energy sources such as solar and wind. Its designated that, only BWTC and Pearl River Tower integrate wind turbines and only Pearl River Tower used photovoltaic panels to produce energy. In seven examples, Bank of America was the only skyscraper to procure the materials from close to the construction. This evaluation brings out that four out of seven skyscrapers were designed in terms of the optimum form. Three of the seven skyscrapers created internal gardens to increasing air flow through the building. This table also showed that four out of seven skyscrapers utilized efficient ventilation systems. The Bahrain World Trade Center is the only skyscraper to use of high efficiency lighting equipment in the seven examples. To illuminating the space inside of the building with daylight, its designated that three of seven examples design atriums and four of seven examples build with curved glass facade. The use of special glasses for facade has been identified in three out of seven skyscrapers. It revealed that, two out of seven examples have rainwater collection system from building roof and terraces to use gray water in several places in the skyscraper. Only one of the examples was built with taking importance preservation of land soil water balance and make protection by natural landscape applications in the field. Again only one building used diagrid system on their facades to increase usage of material and made load bearing skeleton from recycled materials. This table also revealed that none of them is designed in accordance with topography.

Table 9. The Evaluation of Seven Selected Examples in Terms of Resource Management

Principles	Strategy	Special Strategy Used in Skyscraper	Examples						
			C.T.	B.W.T.C.	B.A.T.	D.T.	P.R.T.	S.T.	O.H.
Efficient Usage of Energy	Energy Efficient Urban Design	Supporting public transportation and pedestrian access			X				
	Placing the Building to Field for Passive Heating and Cooling	Designing the facade to benefit from renewable energy sources such as solar and wind	X	X			X		
		Designing the building orientation according to natural lighting and ventilation	X	X	X		X	X	X
	Use of Alternative Energy Sources	Integrated wind turbines		X			X		
		Integrated photovoltaic panels					X		
	Embodied Energy Low Material Selection	Procurement of materials from close to the construction			X				
	Energy Saving Detailing and Material Selection	Optimum form			X	X	X	X	
		Increasing air flow through internal gardens	X					X	X
		Utilized efficient ventilation systems		X	X		X	X	
	Using energy efficient equipment	Use of high efficiency lighting equipment		X					
	Illuminating the Space Inside of the Building with Daylight	Atrium	X			X		X	
		Curved glass facade		X	X	X	X		
		Usage of special glass		X	X		X		

Efficient Usage of Water									
	Rainwater Collection	Rainwater collection from building roof and terraces			X				X
	Natural Landscape Applications	Preservation of land soil water balance by natural landscape applications in the field							X
Efficient Usage of Material	Material Savage Providing Design and Construction Techniques	Diagrid system facade					X		
	Recycled Materials Selection	Load bearing skeleton made of recycled materials			X				
Efficient Usage of Building Area	Compatibility with natural topography	Designing in accordance with natural topography							

C.T.= Commerzbank Tower-1997-Frankfurt / Germany;
B.W.T.C.= The Bahrain World Trade Center 2008 - Manama / Bahrain;
B.A.T.= Bank of America Tower-2009-New York / USA;
D.T.= Doha Kulesi-2012-Doha / Qatar;
P.R.T. =Pearl River Tower 2013 - Guangzhou / China;
S.T. =Shanghai Tower 2015 - Shanghai / China;
O.H.= Oasia Hotel 2016 – Singapore /Singapore

5. Folkart Evaluation

Folkart Tower located in Izmir Bayraklı district is one of the first of the skyscrapers built near the sea in this region (Figure 5). Due to this structure that changed the silhouette of Bayraklı, skyscraper construction is concentrated in this region. 40 floored twin towers has total 150 000 sqm floor area which divisions are car park and shopping center on lower floors and mixed office and residential property on the upper floors. The towers, that are 197 meters high, are the fifth highest twin tower in Europe[27]. The floors have a height of 3.8 meters, comfortable air conditioning, fire and security measures, home to high technological standards and office areas [28].

Folkart Towers's construction stared 2011 and completed 2013 [28]. This skyscraper has not been built according to the principles of sustainability, just as the other skyscrapers that build nearly same years, mentioned in the previous chapter.

According to a research, because of Folkart Towers aesthetic architectural structure, being the first and innovative project and being visible from every point of the city skyline makes it a brand new value added to the city center and this approach is expressed in the context of the concept of twin towers gives a contemporary look.

According to one participant, Folkart Towers gives sense of belonging. Folkart Towers represents a spiritual value with not only for advertisements but also for the people of Izmir with its sponsorship agreements, financial support and social responsibility projects [29].

Due to created gap between the twin towers built parallel to the sea, it is suitable for some wind pass. The slight curvilinear facade is designed to provide resistance to wind forces. In order to protect from the sun's rays, high performance glass is used to minimize the effects of UV rays on the exterior facade of Folkart Towers. Automatic air conditioners are used to provide comfort conditions. In terms of materials, the amount of wood and metal based materials is considerably higher than the amount of plastic based materials. In terms of lighting, LED lighting is preferred for less energy use. Its structure is light steel skeletal system which is not a recyclable material [28].

Since electricity consumption is intense, only for Folkart Towers single electricity distribution unit has been established.

90% of the land between the towers is greened. According to A. C. Öner and B. Pasin's work on the Bayraklı region, this landscape arrangement of the gap created a road that could reach the sea for pedestrian lines whose communication with the sea was cut by the two towers [28].

Figure 5. Folkart Towers Looking from
the Sea, Photography by Aynur Gündüz

Figure 6. Folkart Towers Satallite Image from TKGM

After the facts stated above, some suggestions will be made.

Suggestion 1. The wide facades of the towers are located towards the west, facing the sea. However, the direction of the dominant wind in İzmir is in the southeast direction, and the Folkart Towers are placed like two hand palms to cut the wind (Figure 6). If the wide west facing west had been turned to the south west, the wind loads on the towers would be reduced and the climatic winds would have been opened to the city. The average wind speed in Bayraklı region is 5.5 m/s and is below the medium level and therefore wind turbine installation is not recommended.

Suggestion 2. Although photovoltaic panels are already considered during the design phase, they have not been implemented due to the short-term financial conditions but it is a feasible and long-term work. The annual sunshine intensity of the area where the towers are located is reported as 1601-1650 KWh/sqm -year and this value is quite high. For this reason, photovoltaic panel coating is recommended in the upper floor of the towers on an area of approximately 2.000 sqm.

As in other skyscrapers, the glass curtain wall was used in this skyscraper. So there is a need for shading tools to achieve solar control. Shading tools are often used on windows or on the facade of the building. If these shading tools are entegrated by photovoltaic modules, an element can be obtained which prevents unwanted sun rays and makes solar energy an energy source [30]. In line with this idea, the third suggestion is the use of photovoltaic panels integrated into the shading tools which can be a protective layer of the skyscaper's façade (Figure 7).

Suggestion 3. The Bayraklı region, where the Folkart Towers are located, is a region adjacent to the bay by the west and never closed. For this reason, the sun strikes the towers quite severely in the afternoon from 16:00 until the evening sun sets. Due to the application of the entire façade as a cladding glass facade, in-house temperatures reach disturbing levels, especially in summer. In addition, there is an increase in the use of in-room air conditioning due to unwanted evening sun. As a solution to this problem, it is recommended to increase the use of composite panels by reducing the glass facade usage in the western facade of the building.

Suggestion 4. According to the measurements taken from the official website of TKGM, the base area of the Folkart Towers was estimated to be approximately 10.900 sqm. From the General Directorate of Meteorology, the annual average rainfall in the province of İzmir is 697 mm, which corresponds to 697 kg/sqm, and the base area of the Folkart towers is 10,900 sqm. It is calculated that the annual water need of 350 people can be met by sustainable methods. Gray water collected throughout the building can also be used in toilet bowls. In the basement of the building, the use of a water cistern and water pumps is recommended.

Suggestion 5. It is recommended that approximately 8,000 sqm of area with hard floor application on the roof of the shopping center be converted into green roof application. Thus, a green environment is provided to the upper floors, and the green area taken from the city is restored to the city again (Figure 7).

Figure 7-Sea view- a Sketch to Show All Suggestions-Sketched by Öykü Serenay Doğan

6. Conclucion

Due to the lack of land in the cities of the future and the population growth, it will be inevitable that the heights of skyscrapers will rise and their numbers will increase. The sustainability of the skyscrapers as much as the people living in a small town will cause the cities to be sustainable. For this reason, sustainable architectural criteria will definitely be taken into consideration in the design of future skyscrapers. In the last decade, it is seen that some design factors for sustainability have been applied in skyscrapers as well as in many buildings designed and built all over the world. While energy production in some skyscrapers comes to the forefront, it is shown that the same benefit can be achieved by using less energy in some skyscrapers, while others use local materials in the foreground; the others consider the recovery of the green space taken from nature with green roofs. Briefly, it is possible to make improvements during the design or construction period through decisions taken for the more efficient use of energy.

It is clear that the designers of the future will face many difficulties in designing skyscrapers. However, the most important of these difficulties is the profit which is expected to be obtained as a result of feasibility studies. If the manufacturers starts to turn the cost that they have to bear for sustainability to profit in a way, then they will prefer to make the investment. In this direction, the future of skyscrapers will be shaped by the increasing demand for efficient use of energy and sustainability.

Other challenges include new questions, environmental impacts, regulations on property and land ownership, and marketability for real estate to build tall buildings in a sustainable way. In addition to this, it can become a necessity to take measures for sustainability in these buildings after the skyscrapers start to dominate the city as an architectural typology due to the increase in the requirements for energy efficiency and population growth. As a result, it is thought that these skyscrapers, which will be designed for embrace the local culture, environment, nature and the technology of the period, will be a road map for the sustainable cities of the future.

The seven examples discussed in this study were particularly preferred because of the sustainability concerns from start to finish or because it is highly symbolic and has been preferred for some energy efficient studies. As a result, it can be said that even the Pearl River Tower, which does not work as designed, gives good messages to those who see it and at least contributes to the continuity of sustainability technologies. Designing skyscrapers that have physical, environmental and cultural connections and that can produce new energy while using energy more effectively, is becoming a necessity to be made against today's depleting fossil resources.

7. Special Thanks

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7.1-Resimler Ve Diyagramların Kaynakçası

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SUSTAINABLE EDUCATIONAL BUILDINGS IN ACADEMIC STUDIES IN TURKEY

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Abstract

It has been revealed that most of the energy resources in the world are consumed during the construction and use of buildings. One of the buildings with high energy consumption, the need for education structure that, due to the rise of the young population in Turkey and in excess of families working in cities is increasing with each passing day.

In this context, academical studies which focused on sustainability and its relation with the educational buildings are examined in Turkey. The paper analyze the studies after the year of 2006 because of the subject starts to gain an intensive importance currently.As reasearch method, comprehensive literature review is completed. Academic studies which are thesis, articles and papers are reached from the website of YÖK (Higher Education System in Turkey), ResearchGate and Google Academic Research.

Keywords: Sustainability, educational buildings, Turkey, academic studies, sustainable approaches

1. Introduction

Human being increasingly concentrated destruction of nature during 20th century by technological developments, rise of energy consumption ecosystem imbalances started. The increase in the world population and the fact that the human need is unlimited lead to a rapid depletion of the limited natural resources. The concept of sustainable design is presented as a solution to the environmental problems caused by this depletion. Therefore, today, structures are designed as sustainable. However, designing buildings as sustainable is not a solution in itself. Sustainability needs to go beyond designing structures and to be internalized as a lifestyle. The fact that individuals are conscious of the future generations' being able to protect their living resources is accepted as a way to achieve sustainability studies. Educational buildings have a great importance for the younger generation to achieve this awareness. Therefore, educational structures have a major significance compared to other structures.

One of the most effective ways for introducing to children the importance of sustainability from early ages is evaluating the educational buildings as laboratories where the theoretical informations can be experienced. In this respect, designing the educational buildings as symbols that can raise the awareness of sustainability to society.

2. Studies on Sustainable Educational Buildings in Turkey

In the thesis which is titled as "Investigation of Sustainable Architecture in Elementary Education Buildings to be Built in Semi-Humid Marmara Climate and Proposed a Method" [1], Kayıhan had a comprehensive study about sustainable architecture which is examined on elementary school buildings. The main purpose of this work is creating a database about sustainable elementay school buildings which will be designed in the half humid Marmara region. Sustainable architecture in its essence is rejecting type projects in favor for different project for different areas that take climate, social and ecological situations in consideration in the lifecycle of the buildings. In the thesis five main areas are determined for sustainable elementary school building design which are selection of building site, architectural design, conscious and efficient usage of energy, selection of sustainable material and waste control, water preservation. Kayıhan had a literature review, prepared a design guide, prepared a control guide as research method. With the help of these guides,

existing designs can be evaluated to understand missing criterias transparently and provide an opportunity for determining what kind of improvements are needed for the buildings.

Demir focused on potential redevelopment of existing school buildings that have economic value in the thesis which is titled "A Study on Elementary School Buildings in terms of Sustainable Design Principles with the Object of Developing Intervention Opportunities" [2]. The purpose of this study is researching sustainable intervention opportunities to typified existing school buildings in terms of key elements of sustainable school design principles, such as sustainable site, water efficiency, energy and atmosphere, material and resources, indoor air quality. As investigation method, Demir, firstly handled in depth literature review in the conception of "sustainable design", "ecological design" and "energy efficient design". Then, sustainable intervention opportunities were proposed for "10025R-480 type" elementary school building by using daylight shadow values those were generated by the "Autodesk Ecotect Analysis" energy performance simulation software.

In the thesis as titled "Examining the Sustainable Design in the Instance of Preschool Building" [3], Tonguç worked on the criteria for sustainability in the design of pre-school education structures, examined their potentials and analyzed based on globally selected and called on "sustainable preschool education building". The main purpose of this thesis is examining the potentials of sustainability on elementary building, investigating how the sustainability criterias are considered in terms of the design of these buildings and with the help of literature review, revealing the prominent sustainable factors of sustaineble components.

Evran determined that construct educational buildings proper to sustainability understanding, decreasing the damage they have given to the environment, using energy and sources economically and to increase students' learning performances in the thesis which is named as"A Research on Sustainable Construction and Educational Buildings" [4]. As research method, related samples were examined by inspecting the sources like articles, books, thesis work, internet sources which are related with the subjects constituting the content of the thesis. In conclusion, form design criterias which can be used in order that buildings can be constructed in quality of sustainability by manufacturing educational buildings.

The thesis that is titled "Investigation of Education Buildings over Sustainable Architecture and Sample Applications" [5] has an examination about the relationship between sustainability and its architecture. Baykal mentions the importance about the development of students' intellectual, physical, and moral value one of the focal points of the community that education buildings for sustainable architecture criteria development. In this thesis, the quality of education buildings in terms of the philosophical, social and historical development of the internal environment and the effects on student performance is one of the main principles of sustainable architecture, land conservation, resource conservation (energy-water-materials), and internal environment examined three major subsystem. The research methods of this work that aims the improvement of educational buildings.

Küçük aims that improving of existing buildings in sustainable property and be able to creating awareness about being sensitive to the environment to users of these buildings in the thesis which is titled "Analysis of sustainable education buildings and green retrofitting for an existing high school building in İskenderun" [6]. In this context, in the World and Turkey sustainable education building criteria is in use or designed taking into consideration sustainable is not the owner of the certificate field or in facilities certified by accommodating the building has, according to the examination of these buildings, integrated into the education building located in Iskenderun characteristics that can be determined is made sustainable improvements related to these properties. In consideration of these datas, the gains achieved by power generation systems through solar panels and wind turbines, the collection of rainwater, use of gray water; the cost of installation, the determination pay off and the heating-cooling loads for existing building were calculated and some suggestions were given.

In the work of that is named as "A New Environmental Education Perspective: "Education For Sustainable Development" [7], Özdemir urge upon that the predominant approaches in environmental education and the content of this subject area comprehensively. Main purpose of this work is indicating the content, principles and strategies of environmental education that is accepted as the educational means of balanced and sustainable development on the earth and to suggest alternatives that enable us to realize such an environmental education.

Kayıhan and Tönük, in the work which is named as "Examination of Site Selection and Analyze Subject in Sustainable Elementary School Building Design"[8] focused on site selection and analysis of sustainable elementary school building design. Beginning of environmental problems and evolving of ecological common sense resulting in sustainable development and reflections of that to the architecture is discussed. After

discussing the concepts related to subject, fundamental principles of sustainable elementary buildings are described. As concluion section containes criteria that directs site selection and analysis.

In the work which is titled "Analyzing Primary School Curriculum in Terms of Sustainable Environmental Education" [9] Tanrıverdi aims that to analyze Primary Education Curriculum of Turkey in terms of sustainable environmental education. In this study, firstly, the national education system is examined with a holistic approach and it is investigated whether environmental education is included in the general objectives of primary education programs and whether it is given as a separate course or as intertwined with some courses. In other words, the findings of the study revealed how the model of environmental education in primary schools. It has been concluded that the learning outcomes in the curriculum are based on knowledge and understanding of the past and are not presented in a specialist manner in developing skills, values and perspectives.

The subject area of the study which is titled "Elementary School Buildings with the Direction of Sustainability Awareness Construction" [10] constitutes the social design criteria in the elementary education buildings to be designed in the light of the concept of sustainable design. Kayıhan and Tönük discussed social design criterias for elementary schools within the scope of these topics; social integration through design, being sustainable education too for the users and society, reflection of the social values through design and improving educational performance through design. Sub-criteria of the each main heading is classified and in this context, the schematic presentation of the "sustainable design support model for elementary school buildings" is attempted to be created.

In the work which titled "A Glance at Examples of Sustainable Schools" [11], Gökmen mentioned about the importance of being aware of that the design inputs for children and young people in the educational process should be transformed into a learning tool and included in the training programs. Within the scope, some examples of a sustainable school structure that demonstrates the impact of people on the world and encourages them to step towards a more sustainable life are examined. Kingsmead Elementary School, St Francis of Assisi Regional Catholic Primary School, American International School, Anglo American School, Benjamin Franklin Elementary School, Trias VMBO School are the sustainable school examples that are investigated within the study. In this regard, with the help of evaluating the examples in the work, it can be seen some subjects are emerged in many schools such as designing and material selection which minimizes energy need, using of natural and local building materials, producing spatial solutions suitable for the climate zone, offering places that improve the quality of life of children by their qualifications, minimization of energy consumption by means of integrated active systems (solar collectors, photovoltaic systems) and integrated passive systems (solar energy, greenhouses, roof windows), using of traditional architectural elements (courtyards, water elements) in design, establishing and working with stakeholders and experts, using the building as a learning tool and associating it with the curriculum.

Within the scope of the study that is titled "Providing Sustainability Criteria in Existing Primary Schools" [12], Tokuç and Güller focused on providing sustainable criteria of existing school buildings. LEED, which is one of the certification systems which develops the view in accordance with certain criteria, and the existing schools evaluated within the framework of the Green Ribbon system which rewards structure improvements were examined. North Shore Country Elementary School, Woodrow Wilson School, Folger McKinsey Elementary School, Rosa Parks Elementary School has been discussed in terms of restructuring of an existing school to meet the sustainability criteria. As a conclusion, the result of the structures examined, technical systems such as lighting, acoustics, and solutions that blend the old and the new with design have played an effective role in creating both healthy and inviting and exciting spaces.

Within the scope of this study that is titled "Architecture As Tangible Material in Sustainable Education" [13], school buildings designed according to sustainability criteria that are examined based on the idea that the sustainable environmental phenomenon should be discussed through tangible examples and learning will give more efficient results. Taşçı deals with the concept of sustainability together with the built environment and the natural environment, and architectural products are used as a concrete learning material in environmental education. In this context, Kingsmead School, Green School in Bali, Benjamin Franklin Elementary School are disscussed in this work. As a consequence, the philosophy of sustainability has been tried to be explained in relation to the environmental context and architecture.

Oktay and Küçükyağcı, in the study that is titled "Examination of Sustainable Design Process in University

Campuses" [14], focused on the role of universities in the scope of sustainable development. UNEP and ISCN-GULF reports, which provide guidance on the design of university campuses, have been examined and sustainable campus design goals have been specified. In line with these goals, primary targets were determined by using AHP (Analytic Hierarchy Process) method for GTÜ campus and future results were discussed. The literature review, which constitutes the first stage of the pilot study, which aims to evaluate the Çayırova Campus within the scope of sustainable development, provides a great contribution to sustainable development not only at the local level but also at the global level.

In this study that is titled "Sustainability in Playground Designs" [15], Küçükyağcı, Atasayan and Oktay examined the applications in children's playgrounds within the scope of sustainability, and priority and important criteria were listed and a framework was formed. The examples that Rainwater collecting children playgrounds, Kilburn Grange Adventure Park Play, Wikoda Children Park Play, Orchard Playground, Skinners Playground are discussed.

Şahin and Dostoğlu, within the scope of the study that is titled "Sustainability in School Building Design" [16], after emphasizing the importance of sustainable design as a learning tool, subjects that are important in sustainable school design have been investigated in terms of natural light utilization, heating, cooling and ventilation methods, wind energy, water conservation and material selection. In this study, the principles that should be taken into consideration in the context of sustainable construction for school buildings were investigated. There are some solutions for issues of importance in terms of sustainable design are specified. Also, an example of Piri Reis University is discussed in this study.

In this research that is titled "Sustainability in Education Buildings" [17] Kocabaş and Bademcioğlu aims that to emphasize the importance and the relation between sustainability and education. In this context, design criterias which are important for sustainability; natural lighting, heating and cooling methods, indoor air quality, wind energy, water saving and material selection and the effects of these criterias on success, performance and student-teacher health were discussed in the scope of this study. As conclusion, some inferences which are the results of analyzing the situation in Turkey about sustainability in educational buildings are come out.

Toran, in the study that is titled "Sustainable Preschools: An Evaluation of Early Childhood Education Institutions" [18] aims to evaluate the sustainable development perspective of preschool education institutions. An investigation-based descriptive method was used as resarch method. The study was carried out in 33 pre-primary education institutions in the Turkish Republic of Northern Cyprus. Environmental Rating Scale for Sustainable Development in Early Childhood was used as data collection tool. As a result of the analyzes, it was found that the pre-school education institutions that were evaluated were at minimum level in the environmental, economic and social-cultural sub-dimensions. As a result, it can be said that pre-school education institutions that are evaluated do not have a sustainable development perspective.

In the work that is named as "Analysis Of Sustainable Preschool Education Buildings in Terms Of Social and Cultural Sustainability" [19] Tonguç and Özbayraktar mentioned social and cultural sustainability component of sustainability as context. The aim of this study is to examine and evaluate the effects of this component and the factors it contains on the design, the society and the environment of the successful "sustainable pre-school education buildings" selected from the world architectural literature. In this respect, Bernts Have Daycare Center, Freispiel Preschool, El Porvenir Preschool, Green School in Bali, Fuji Preschool, Heidenau Preschool, Children's House Dragen, Oliver Preschool are examined.

Karadayı, Yüksek and Tunçbiz, in the work that is named as "Ecological Improvement of Primary School Buildings: The Sample of Tuzla Tapduk Emre Primary School, İstanbul" [20], a typical school structure was selected and analyzed in Istanbul and recommendations were made for ecological improvement. In this context, it is important to create environments in schools that will enable children in education to learn sustainability and environmental awareness. The aim of this study is to show that it is possible to make the existing primary school structures more ecological and reduce their environmental damage.

In the work that is titled "Examining The Concept of Sustainable Architecture Through The Sampling Area of Bahriye Üçok Kindergarten" [21], Kaya and Kaya mention that Bahriye Üçok Kindergarten is the first nature conscious sustainable design concept written in the first exemplary embodiment of the pre-school in Turkey. The evaluation of the findings obtained from the interviews and observations with the educators in the kindergarten constitutes the working method. It is thought that the kindergarten designed in a sustainable

understanding will provide students with a sense of protecting the environment and provide a better learning environment and will increase the working performance of the students.

3. Conclusion

Educational buildings are an important part of the society as they reflect the values of the society they are involved in. For this reason, prioritization of local and general social values can be suggested as a consideration of the design of school buildings. The development of educational performance through design is one of the important common subjects of educators and architects. The main objectives of the building design are to improve the educational performance of the students.

Each social and cultural sustainability factor used in education structures is also a part of education for students, teachers and society:
- Social and cultural sustainability in harmony with the environment in which the structure is located: compliance with the environment, protection of natural resources, use of natural materials a can be given to the children and the preschoolers by providing indirect trainings, making them a learning environment with all the places of the school.
- Contribute to the promotion of the city: Providing the cultural continuity of the region.
- Social and cultural sustainability through the protection of cultural heritage: giving indirect education about the educational structure and the cultural heritage of the region, making it a learning environment with all the spaces of the school.
- Informing people about conservation of natural resources and transfer to future generations: Consciousness in preschool education about sustainability and resource conservation, sustainability of knowledge.
- Ensuring the active participation of societies in the process of creating their own living environment.
- Revitalization with user mobility in the immediate surroundings: The potential of the educational structure in community as "education center for the society", the sustainability of the environment and education.

With the help of the examining 6 thesis and 15 articles which are focused on sustainable education building, it is emphasized in these studies that the structures shaped by the principles of sustainability can be used as a learning resource especially from schools. In this context, in terms of providing a public consciousness in our country, the design of educational structures should be given importance. Thus, it will be possible to introduce sustainability awareness to future designers and engineers at various ages through various channels such as creating guidelines for sustainable school design and developing sample projects for schools. It is obvious that the adoption of this objective will make significant contributions to the development of the field.

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A CRITICAL DESIGN METHOD TO RECONSTRUCT THE HISTORICAL CENTER OF ALEPPO

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Abstract

War conflicts usually generate empirical zones out of the cities where various design methodologies are debated in order to make decisions for their future. Focusing on the rebuilding process of Aleppo, whose architectural heritage is highly damaged after Syrian Civil War (2011), this research paper introduces a critical approach to reconstruct the historical centers of postwar cities. Based on the historical and urban analyses, the accurate damage report of Aleppo and the study of different reconstruction strategies, this paper tries to describe a creative process which emerges from the recognition of the typological and symbolical aspects of Islamic and local architecture. In order to be strongly connected to the current urban context, the further phase requests a research of appropriate architectural references to provide a proper comprehension of the meaning of each architectural space and the rules of the relationships that combine them. This step is followed by the identification and the concrete representation of a precise theme with the logical synthesis of various architectural elements, that are detected from relevant references. Considering the emergent neccesity for the recovery of the architectural heritage, this paper aims to identify a methodology for redrawing the principle ideas of Aleppian space in order to generate a single architectural complex in the deconstructed historical center. Some pilot ideas are developed in different scales and provide informations about not only the urbanistic and typological structure but also about the figurative approach and materials. The goal of this work is therefore not the improvement of a project which would only give a shape to Aleppo but the development of a rethinking process which encourages to define some criterias about the reconstruction theme. Procedure of this study is based on the enhancement of the future urban policies, after which the exploration of the unique architectural characteristics of this system and finally the proposal of a particular strategy which closely integrates with the tradition and culture of the prewar architecture.

Key Words: Reconstruction strategies, Islamic architecture, deconstructed historical center

Introduction

War conflicts not only impede the continuity of the history and culture of the habitants in particular contexts but also rise a critical question about the methodology which will help to transform the devastating consequences of the war into a new form life.The Syrian Civil War not only caused more than 400,000 deads and millions of refugees but also the destruction of buildings and infrastructure including the historic monuments and the cultural heritage.Focusing on the current condition of Aleppo, innumerable historical buildings such as the Great Umayyad Mosque, the Citadel, religious architecture, commercial structures, madrassas and hammams are seriously damaged during the war conflict in order to interrupt the memory of the population and provoke the loss of identity through architectural heritage[1]. With consideration of the rebuilding process of Aleppo, this research paper introduces a critical approach to reconstruct the historical centers of postwar cities which are deprived of urban infrastructure, public services and accessibility throughout the different zones.

The metholody of postwar reconstruction is very critical to position the city in the contunity of the time and urban context. It is evident that war conflicts transform the destructed contexts into the experiemental areas where distinctive design procedures are testified. Nevertheless, it is difficult to provide a certain theoratical framework to identify a procedure to rebuild the urban fabric *'in continuity'* with the past and with the traditional structure of the Old City, even the examination of various postwar reconstruction strategies define some guidelines[2].After tracing the reconstruction strategies adopted for different postwar cities such as Beirut, Warsaw, Berlin and Mostar, this research paper tries to improve a project which would not only give a physical form to Aleppo but would motivate the development of a rethinking process which encourages to recognize the typological and figurative characteristics of the city.

The goal of this article therefore is to identify a methodology for redrawing the principle ideas of Aleppian space in order to generate a single architectural complex in the deconstructed historical center. The

guidelines of this procedure evolved from the purpose *'to reconstruct in dialogue with the existing with and with the cultural heritage.'* [3]

More speficially, the study aimed to achieve these following specific research objectives:

-The emergent neccesity for the recovery of the architectural heritage through the development of a critical methodology which is consolidated by the investigation of different reconstruction strategies.
- To enhance particular urban policies that strongly connected to the original structure of the city.
-To determine the urbanistic and typological structure of the project but also improve the figurative aspects and materials which closely integrates with the tradition and culture of the prewar architecture.

The rest of the article is structured as follows: First, the historical and urban analyses, explaining the effect of war condition on the different context are represented. Subsequent to the study of damage analysis of Aleppo, the different reconstruction strategies are investigated. Next, the procedures for the recognition of the typological and symbolical aspects of Islamic and local architecture are examined in order to embody the theme.The findings of the research are then presented. The article concludes with a summary of study's research contributions and directions for the future plannning.

Understanding the historical urban context

'The city (especially a historic centre) contains the spirit of a culture because it acts as a collective memory for its own society and it shows the attitudes and common patterns of life, hence becoming the source of identity.' [4]

  The development of a rethinking process which encourages to define some criterias about the reconstruction theme in the particular case of Aleppo, requires the proper comprehension of *the spirit of culture.* This is possible with the study of urbanistic and architectural features of the city through different historical periods. Therefore, an extensive research was conducted in different themes including the investagion of cartographic maps and bibliographic metarials. This investigation also demonstrates the influence of traditions and religion on the architectural characteristics of the city. Furthermore, while the precise drawings of monumental architectures assisted to image the prewar urban context, the accurate damage report displayed the level of the destruction in the urban fabric. This report was also utilized to focus on the possible fields of intervention in order to define a critical reconstruction methodology. The discussion of the different postwar reconstruction procedures such as the cases of Beirut, Warsaw and Berlin provided some strategies to clarify this method. Moreover, the function analysis of the existing structure comforted a possible functional program even if it was not the main actor that leaded the spatial composition throughout the process. The consideration of these series of analyses interrogated the most critic fields in the destructed historical center.

Why the reconstruction of the historical center is emergent?

The architectural damage analysis portrays that the crucial portion of the historical center of Aleppo which includes mostly the monumental and public architecture is severly damaged. The destruction of the architectural heritage also resulted in the loss of complexity of architectural spaces such as khans, madrassas, mosques, souks and hammams. Able to movitate the female-male interaction in this Islamic context and the local-foreigner commucation thanks to its strategic position in trading, the mutilated Aleppo souk was an important example of this complexity. Following these observations, the initial theories about future urban settlement are revealed. While the traces of previous settlement guided the proposal for the souk structure, a critical approach is utilized in order to develop an architectural reconstruction project in the demolished area between Great Umayyad Mosque and the Citadel.
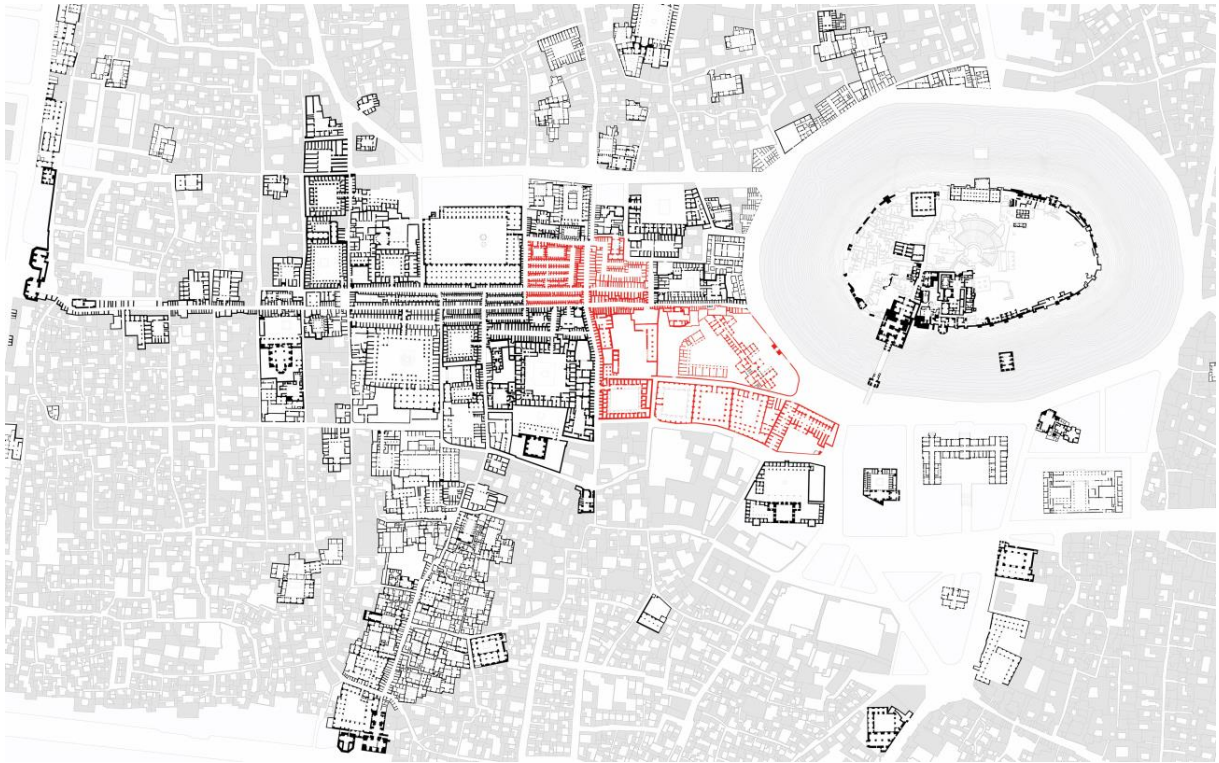
Fig. 1: Severely damaged area in Aleppo

on the problems in the same context which already existed before the war events: Starting from the lately articulated architecture in historic center, their closed boundaries interrupted the permeable connections of the city, also causing an adulteration of the typical features of the courtyard architecture. Furthermore, the main vehicle roads which encircle the Citadel of Aleppo, constrain the wholeness of the public space and distort the compact urban scale fabric. These distortions created an obstruction for also the accesibility through the souk which '*are lived, maintained and arranged as a daily space*'. [4] While the reconstruction criteria aims to recover these obstructions in the remaining settlement, it also highlights the importance of the studying of references in order to produce logical outcomes which harmonize with the traditional architectural typologies in Aleppo.

Initial process to understand the existing typologies in Aleppo

'Therefore, understanding and following the 'typical behaviours' of the building fabric means proposing a gradual design of shelters for the Old City's inhabitants inside their own houses; by giving them methodological tools to progressively re-build their own houses, the emergency could be the first step of the reconstruction process.' [5]
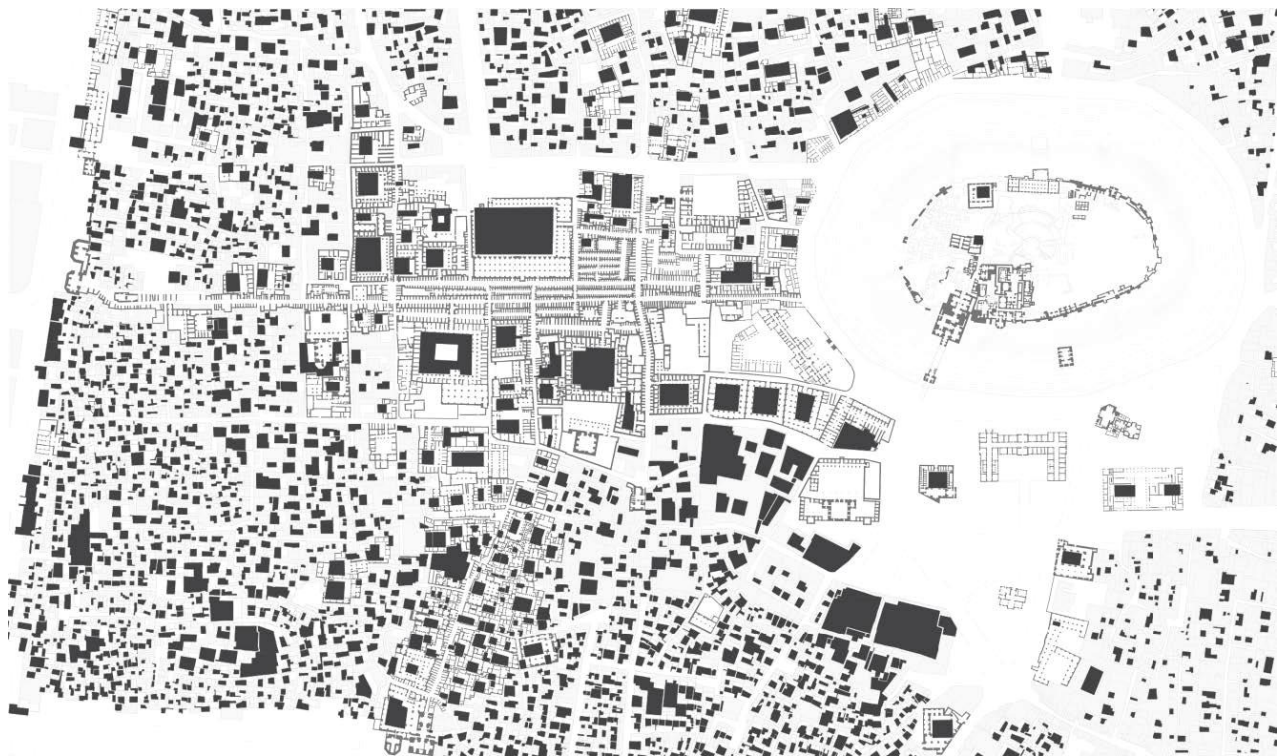
Fig. 2: Analysis of courtyards in Aleppo

Starting from the identification of the typical features of the urban structure, it is possible to recognize the various behaviours of the historical axes which connect the different architectural typologies. Maximizing the accesibility with its complex network, the main historical axes of Aleppo define a close relationship between the public architectures. In contrast to this permeability, the cul-de-sac system serves residential structures in the interior of deep urban blocks, providing *'the complete introversion of the building fabric around its structure.'* [6] According to the analyses, it is almost impossible to find the cul-de-sac system in the historical center of Aleppo where the openness of the architectural space was fundamental. Another essential element of the urban identity is investigated with the courtyard typology research. The presence of the courtyard plan in Aleppo, enables a '*solid, logical configuration that maximizes the built-up area in the urban context.*' [7] This typology not only redefines the street patterns as informal and liveable spaces which protect the inner spaces, but also provides open courtyards which allow freedom inside private contexts. Aleppians therefore emphasize the importance of the courtyards by calling them, *life*. Additionally, the

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courtyard system plays a key role in the sustainability of the spaces, refreshing the external ambient in extreme hot climate. These understandings help to identify the courtyard typology as the indispensable component of Aleppo. In other words, the courtyard typology must be integrated in the future settlement of the city in order to correspond with the requirements of the traditional life.

Although the courtyard system is identified as one of the most important characteristics of Aleppian architectural spaces, the vertical architectural elements such as the minarets and the wind towers, are also very critical in defining the skyline of Aleppo. The various typologies of these elements are investigated not only in terms of physical form. The minarets both serve to religious purposes and help to display the monumental urban axes, revealing complex details of Islamic architecture. On the other hand, the wind towers create oppurtunities to solve the technical problems related to the ventilation need which is '*considered as a major priority for both urban fabric and occupants.*' [8] Particularly in Aleppo, the north side of every traditional building had these elements in different forms in order to capture the cool air. Helping the occupants also to orientate in the city, these elements are potentially considered as the guidelines of a monumental axis proposal.

Further urban analyses also demonstrate that the usage of the gate elements differs in typological and figurative aspects. The historical entrance gates of Aleppo, exhibit a complex composition in order to protect the inner spaces against the conflicts. However, the gates of the public architecture help to attract people to experience the inner space with their perceptible characteristics such as metarial and height, which generally differ from the rest of the structure. Ornamented with geometric figures and colorful ceramics, these elements usually provide a direct connection to the courtyards of the buildings. Able to highlight the axes due to their detectable features, the gate typologies offer sophisticated forms to define a special relationship between the inner spaces and street pattern.

What is our method to reconstruct the historical center of Aleppo?

The initial phase of the project comprised some analytical operations to reveal the principles of the urban settlement and architectural elements correlated to the traditions and cultural context. For the critical reading of the pre-war urban setting, it was also neccessary to investigate the key roles of religion, social-economic needs and history in the characterization of the architectural spaces. Following these analyses, the procedure should continue with the identification of a reconstruction process which would focus on the comprehension of the principles of the architectural forms and shapes. At this point, the research of the appropriate urbanistic and architectural references contributes to the correct understanding of *'the sense of space which is restored following precise rules and orders.'* [9] The final phase describes the procedure of the recognition of a new architectural structure which is compatible with the remaining urban settlement and *the ideology of the space* [10] through an interpretative approach. The goal of this interpretation system is to determine the principle of the project around a precise theme, identifying its characteristics which should strongly reflect the traditions of the previous settlement and the changeable elements that follow the proper requirements of the current time. The logical synthesis of these elements allowed the concrete representation of the intervention which is tested through the series of logical operations. During these operations, the components from the relevant references are composed together in order to generate a single architectural complex which doesn't cause a drastical change in the features of the original urban structure. To exemplify this methodology, the development of the demolished historical center of Aleppo is described through an architectural reconsctruction project.

Starting from the large-scale strategy, the fundamental structural aspects of a mega-urban structure, The Venice Hospital hypothesis by Le Corbusier, are examined to understand the process which helps to combine the different urban features to reveal the spirit of the city. Le Corbusier references Venice itself and brings together the city's canal network, the dense urban fabric with courtyards and the typical public squares (campo) to propose an intervention which would be an unbreakable part of the city. Following the rules of this example, the complex network system, which maximize the accessibility with strong and frequent connections, is identified as a typical feature of the urban settlement in Aleppo. In other words, the permeability of the axes is established as constant element which should be strongly linked to the previous urban context. Another immutable component of the project must be the courtyard typology which promotes the privacy in residential buildings and aggregation in public structures, also controling the hot climate. The

study of the references such as Alhambra Palace (Spain), Complex of Qualawun (Egypt) and Ghazni Palace (Afghanistan), allows the critical comprehension of the organization and diversity of the architectural spaces around courtyards and also the rules of the different relationships that connect courtyards. According to these investigations, the complete fluidity between the courtyard spaces is intented with various formulations, following the characteristics of the former intertwined structures. Specifically, one of the main targets of this project is to connect the whole historical center through courtyards.
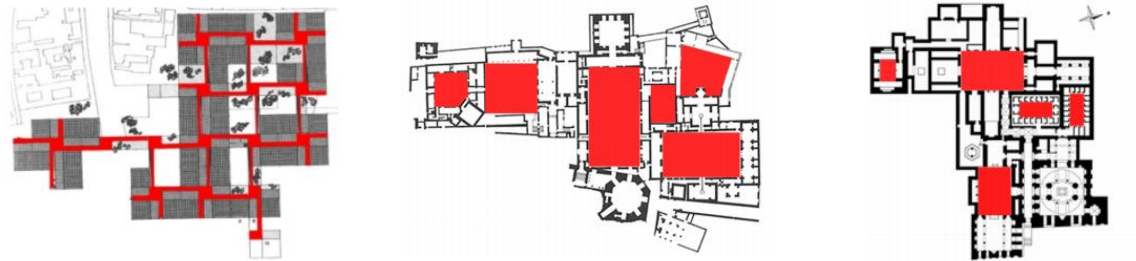
Fig 3. (a) Venice Hospital Hypothesis, Le Corbusier
(b) Alhambra Palace, Spain
(c) Complex of Qualawun (Egypt)
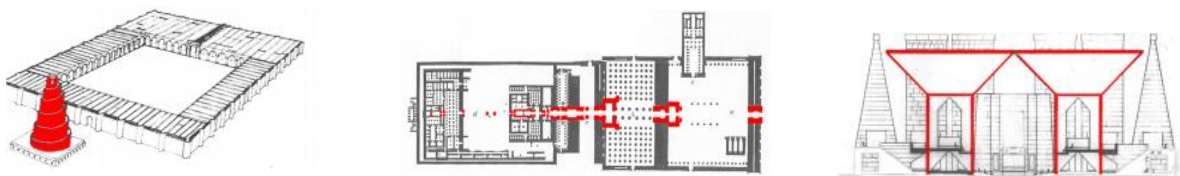
(d) Samarra Tower, Iraq
(e) Karnak Temple, Cairo
(f) Hurva Synagogue Hypothesis

Focusing on the architectural forms, the gate system and the vertical elements are detected to express the traditional Aleppian spaces. The monumentality of the entrance axis is emphasized with the sequental coloumns and relatively high gate elements, in Karnak Temple (Egypt). The structural methodology that develops this monumental sense, is utilized in order to highlight the proposed monumental axes. More than the consecutive composition of the gate structures, the vertical elements are also the subject to consolidation of these axes. While Samarra minaret tower (Iraq) represents an alternative figurative aspect in religious contexts, the wind towers in Iran defines technical features of the ventilation. On the other hand, the requirement of a public space is defined as an absolute component of the project which may demostrate differantiation in the physcial form. Based on the neccesity to constitute a protected space that reveals strong and complex relationship with its surrounding, Hurva Synagogue by Lous Kahn is analysed. In spite of the fact that this reference serves to the traditions of a different culture, the monumental aspect of the space and the principles of the architectural elements are utilized in order to propose a center of aggregation in Aleppo through an interpretative approach.

How the composition of the different typologies formed our project?

The further phase comprised a definition of an architectural reconstruction project which has been tested through the series of consecutive attempts. Since the absolute characteristics and the changeable elements of the proposal are defined through the previous analyses, the main principles of the detected references are seperated in order to start the design operation. Later on, the references are physically brought together according to their coherent themes, following some rational regulations. This union revealed some guidelines which are experiemented by the great architecture and it reveals the basic rules of the spatial organization. In spite of the fact that some components of the references went through an interpretative action such as rotation, repetition, removal or change, the consolidation of the courtyard typology was

always the main purpose. In order to do so, the spatial characteristics of the generated composition are criticized and compared with the existing structure. For example, the objective of the first attempt which is originated from the combination of Complex of Qualawun and Alhambra Palace, was the comprehension of the different methods to bring the different types of courtyards together. The comparison between the dimensions of the composition and the urban fabric, required an improvement in the process in order to reach the appropriate configuration of the spaces. The numerous operations based on the courtyard typology, helped to generate an architectural complex which is in dialogue with the traditional characteristics of the city. Similarly, this procedure is implemented again for different themes in order to define the features of the new constituents of the project. To exemplify this step, the development of the aggregation center is described. Although the predominant structure of the Complex of Qualawun which is emphasized with thick walls and spacious inner volume, was used as a mosque in the original structure, it is converted to an open public space in the composition because ideology of this space was ideal to gather people. These base ideas and interpretated elements generated the physical form of the project. In spite of the fact that the selected references leaded the process to demonstrate concretely the theme, the urban analytic and architectural studies played a fundamental role to provoke this creating procedure.

Fig.4. (a) First Composition   (b) Further Composition   (c) Final Composition

Results
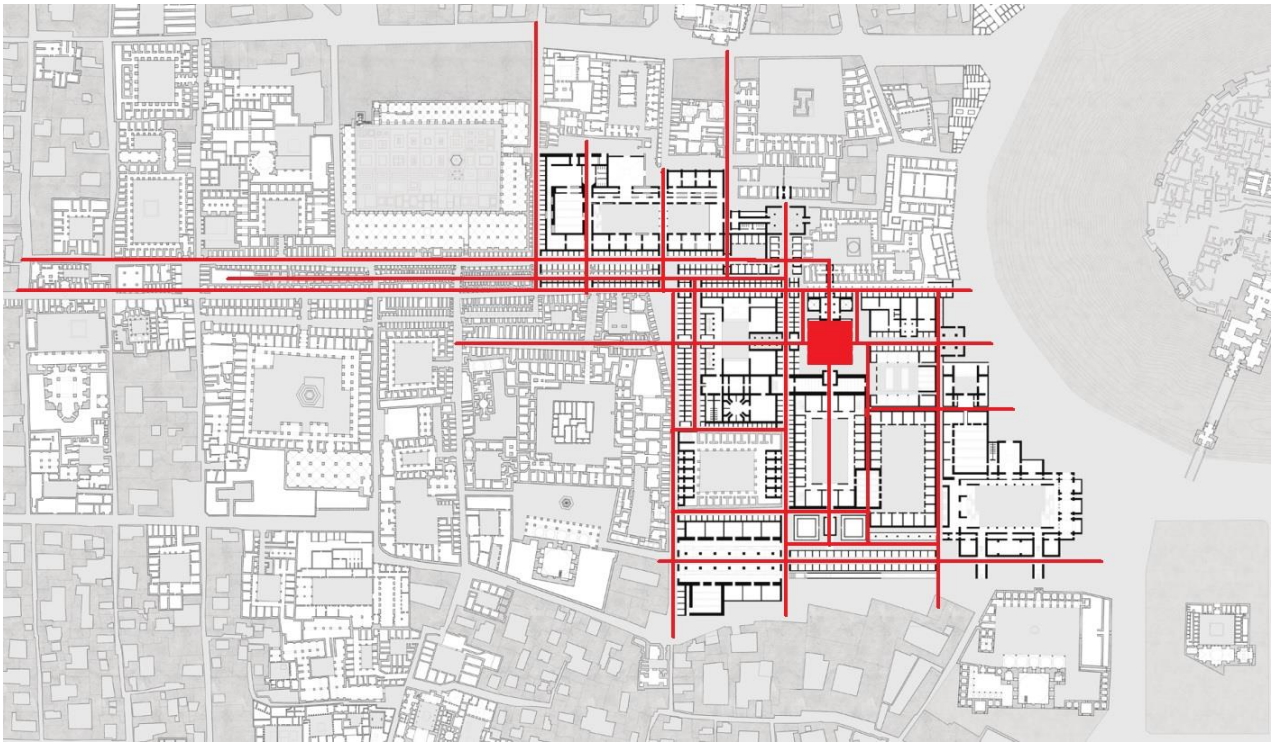
Fig.5. Courtyard and Network System of Project

Through this interpretative study, the architectural reconstruction project is defined, expressing conceptual ideas about not only the urbanistic and typological structure but also about the figurative approach and materials. The urbanistic pattern of the project emerges from the grid system of the historical axes in order to provide continuity between the remaining historical buildings and new structure. These axes frequently intersect with the courtyard system which constitutes the basis of the proposal. In order to develop a connection through liveable spaces, each public architecture is composed around a courtyard which may differ in theme and the organization of the space such as museum, educational buildings, trading structures and hammam. The courtyard system also characterized the openness of the underground street network, by offering maximum movement between the levels. The center of aggregation which is mentioned before, plays a significant role in the sustainability of the underground system with the two wind towers attached and controls the flow of public movement with its distinctive links. Moreover, this center helps to define a monumental axis in which one can experience the complex spatial features of the traditional context, through a sequence of gate system and vertical elements.

As a result, the research work proposed on the particular case of Aleppo, illustrates that its remarkable characteristics should activate the procedure of a critical reconstruction according to an interrogative design methodology. This design methodology synthesizes solutions for different problems including the interrupted urban context, the crucial integration of the remaining structure to new settlement and the probable loss of cultural significance, in order to give rise to an architectural proposal that reflects the *sense of wholeness* [4] in Aleppo.

The hypothesis to reconstruct the historical center does not refer to a simple procedure that involves only the realization of the physical features. This critical operation requests a careful investigation of the typological aspects of the architectural spaces and the potentials of their diversity. However, the development of the postwar reconstruction theme is possible when its proposals activates the main actors of the city by provoking the economic and social dynamics, highlighting the unified composition of the urban settlement.
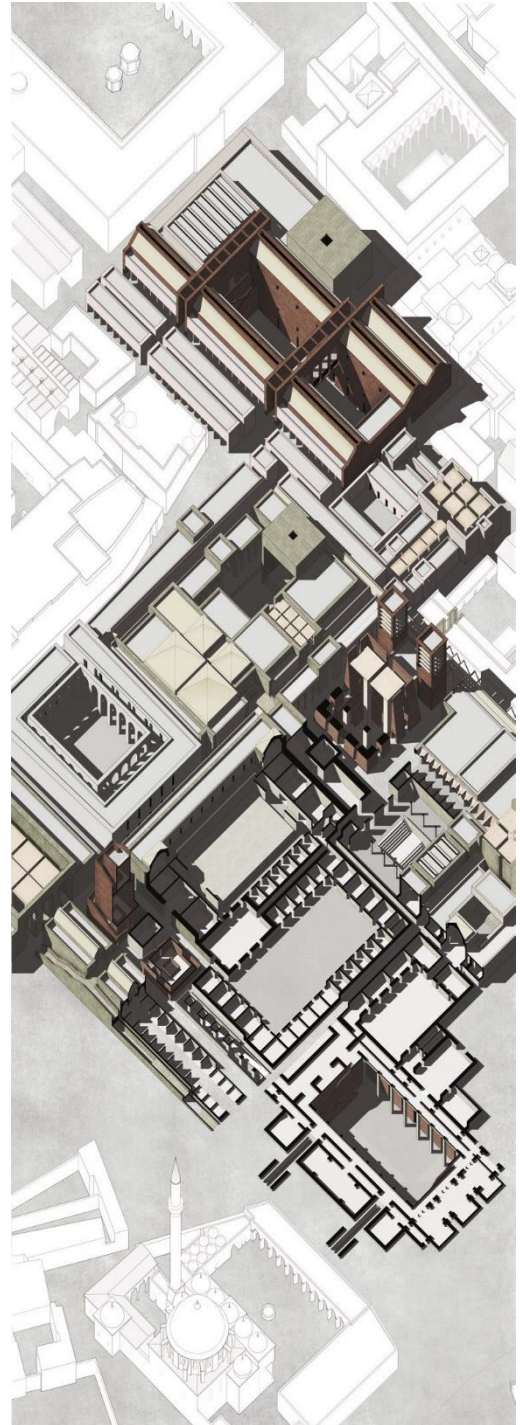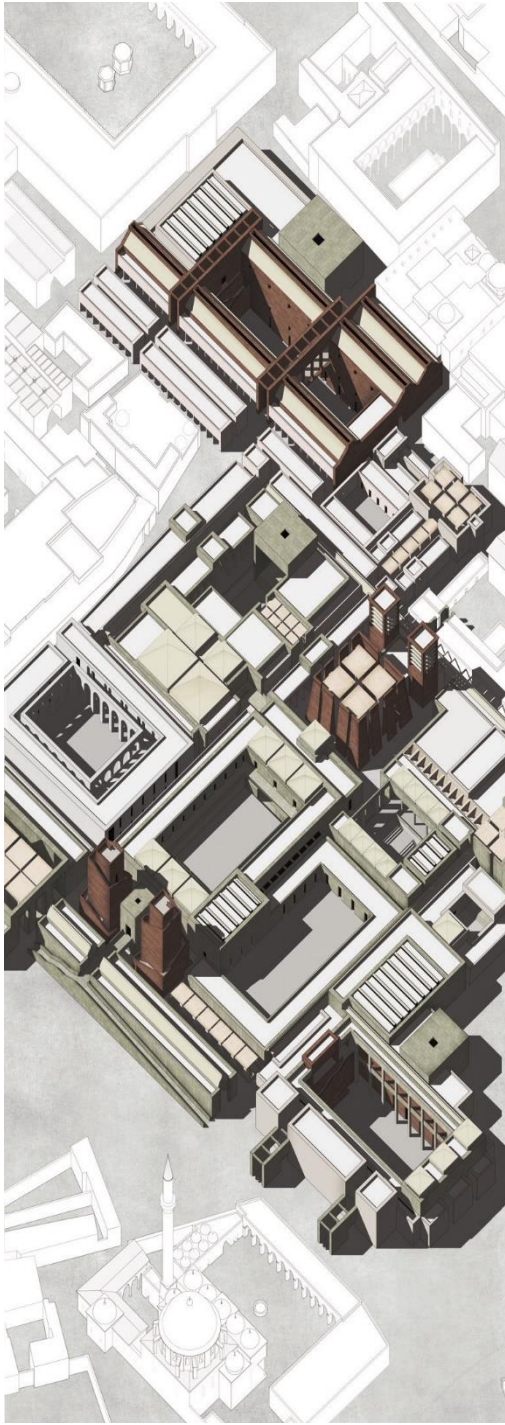
Fig.6. 3D Graphics of the project

Discussions

This research introduced a critical project which encourages to define some procedures about the reconstruction theme, particularly in the case of Aleppo. It is a participatory study that enables the researchers from academic and related disciplines to make a comparison between different methodologies and improve further solutions in these contexts. Taking into account the previous postwar cases and solutions, the findings indicates that the recognition of the typological and symbolical aspects of the architecture in a particular case, should provide appropriate solutions to retain the importance of architectural heritage and traditional characteristics.

While the current research was limited to several aspects related to design approach, the future studies should incorporate the constructive and administrative aspects. Moreover, the findings of this study could be strengthened with secure access to destructed historical center of Aleppo for more precise and detailed documentation of the current situation. In particular, public discussions should be motivated in the interrupted contexts to develop a bottom-up reconstruction methodology which makes it possible to check the results of the studies with different disciplines.

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MEMORY AND ART READİNG ON 'FINDIKLI PARK'

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Abstract

Uncontrolled destruction and damage to the environment during the construction of the projects of the metro and transfer center (Martı Project) in the Fındıklı-Kabatas line are the most important problem that initiated this study. Demolition and construction processes also cause harm to the social memory along with the physical changes. The construction area has been covered with panels and the panels has been covered with the Devrim Erbil's paintings which depict the İstanbul's view. Art has been used as a means of memory destruction. This study focuses on the social memory of Fındıklı Park through art within the framework of the changes experienced in the districts of Kabatas-Fındıklı. When the history of the park is examined, it is read that public memory is shaped through art. Art creates the traces of memory on one side and it is the means to erase these traces on the other side. In this contradictory situation firstly, the relationship between art and memory has been questioned. Then the memory traces and the art value of Fındıklı Park as an urban space have been revealed.

*Keywords: Fındıklı Park; memory; art; art value;*

1. Introduction

Fındıklı Park, which is used extensively by neighbor community with its old trees, playgrounds and statues, is the only public green area of the Karaköy-Dolmabahçe coastline. Kabatas Pier is the transit point of people, and one of the most important maritime transport networks in Istanbul. Kabatas-Fındıklı coastline, which is declared as "urban archaelogical site" with the decision no. 4270 on 7 July 1993 by Istanbul No.1 cultural and natural heritage conservation committee, has been construction area since 2016. Kabatas transportation services have been stopped on 11 August 2016 and enclosed with panel due to the construction of 'Martı Project[2]'. Fındıklı Park has been surrounded with iron railing on 3 October 2015 and completely hidden panels on 7 January 2016 due to the construction of the "Kabatas-Besiktas- Mahmutbey Metro Line".

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[2] *"Martı Project",designed by Hakan Kıran in 2005, was acquired by the Metropolitan Municipality in 2009 and approved by the 2 numbered cultural and natural heritage conservation council. ÇED report of the project was approved in 2011. The metro line Project was included in the 'Martı Project' in 2016. In May 2016, Istanbul Metropolitan Municipality approved 5000 and 1000 zoning plans.*
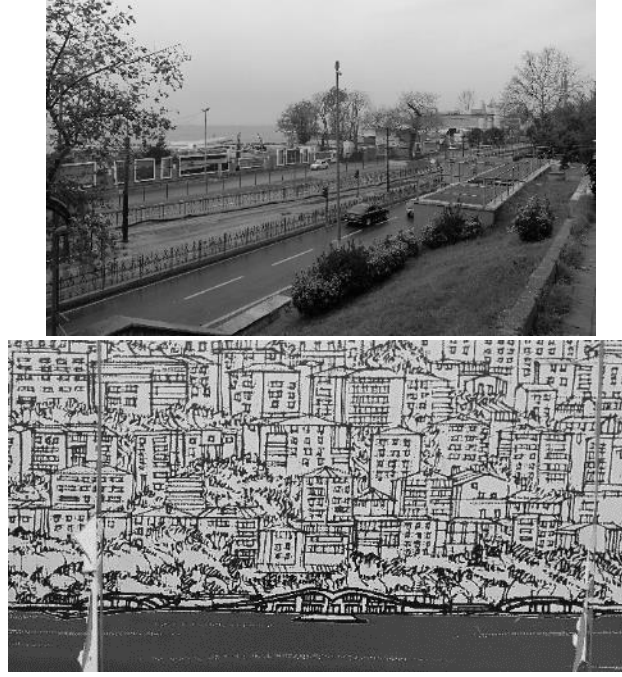
Figure 1. View of Kabatas and Fındıklı from Setustu, Devrim Erbil's painting and "Martı Project"

The panels, which extend up from Kabatas to the Hekimoglu Ali Pasa Fountain[3] and are means of concealment, have been equipped with Devrim Erbil's[4] Istanbul paintings with geometric language. About 20 paintings are exhibited in this area. Devrim Erbil generally looks at Istanbul from a distance and makes a landscape of the city. These paintings are linear representations of Istanbul. Erbil's paintings which include the panorama of Kabatas and Fındıklı have been revised to include visuals of new projects and "Martı Project" has taken its place in the paint, see Fig 1. The task of concealment destruction and construction, and exoneration power and capital has been given to art. Images from Google Earth as a disclosure tool against concealment reveal the destruction. 2010 and 2018 aerial photos shows change in construction field, see Fig 2. The coastline between Kabatas and Fındıklı has been concreted and the shoreline has been changed. Approximately 12.000 m2 of the sea has been made to the sea in the construction of Martı Project. And, trees in Fındıklı Park has been logged and the area has been delivered to the construction company.

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[3] It was built by Hekimoglu Ali Pasha for water needs of the people in the 18th century on Setüstü. It was moved to the North corner of the Fındıklı Park as a result of road widening in the 1950's.
[4] He, was born in 1937, is a Turkish painter.

Figure 2. 2010 and 2018 aerial photos

Fındıklı Park which is about 600 meters long is located north of Mimar Sinan Fine Arts University (MSGSU) and between Karaköy and Kabatas. The park which is a vista point has served neighbor community for years. Park, exhibits art objects as spatial, is also exhibited through art objects as representation. It has been the stage of MSGSU[5] artists for many years. But nowadays half of the the park is the construction site for metro station. About 40 trees in north of the park have been cut and moved to another place. The boundaries of the park has changed and accessing of the public has limited due to the cutting of trees and covering the area panels. This intervention is thought to cause breaks in social memory besides decreasing the limit of public space usage. After the boards are removed (as a result of people who were excluded from the process) confrontation with diseappearing will create deeper traces on society.

Public spaces are one of the most important places where the identity of society is shaped. Collective memory is produced in these areas as social encounter spaces. The disappearance of these areas harms the memory. Fındıklı Park as a collective memory space has shaped its memory through publicity and art. They contain the traces of the past. But Devrim Erbil's paintings delete the traces and depict the future. On the one hand; the park which has permanent memory thanks to art, on the other hand; art as a mediating memory destruction with perception operations. This contradictory situation is the main source of study. First of all, the study aims to explore relationship between art and memory that accommodates remembering and forgetting. Secondly, the memory traces of the Fındıklı Park will be explored through art. The study contributes to the literature that emphasizes importance of the green spaces serving the society for many years by revealing the positive impact of real art on public spaces and social memory.

1.1. Relationship between art and memory

Memory can be expressed as the power storage learned or experienced situations in the mind. We live or learn many events throughout our lives, but we only remember a small part of them. That's why memory contains remembering and forgetting. Remembering is to reveal the images, sounds and emotions that are sleeping in our memory while reconsidering the past. Origin of the word which means remembering and is known as "erinnerung" in German has meanings of internalization, consciousness and focus on the soul [1]. It must have experienced the perception process for remembering. The more perceived condition links contexts the more it becomes so permanent in memory. It is remembered by recalling the mind through stimulating factors. These factors are named as "memory figures" by Jan Assmann. He specifies its features as "reference to time and space, reference to the group, reconstructivism [2]." The memory figures connect to time, space and society are constantly reorganize within the framework of the changing relations of the present time, see Fig 3.
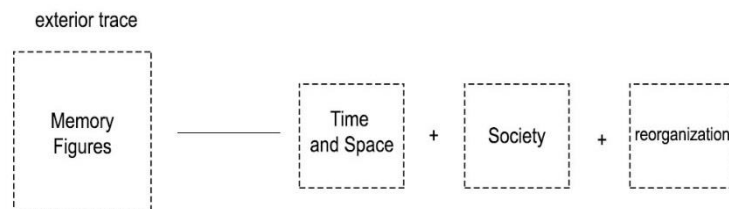

Figure 3. Assmann's "memory figures"

Memory is alive and in constant communication with environment. If the frame in which it is communicating changes or disappears, 'forgetting' becomes. Paul Ricoeur associates 'forgetting' with problematic reliability of memory due to "an attack, a weakness, a lacuna [3]." He introduces the concept of

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[5] *The school was founded in 1882 by the name of Sanayi-i Nefise Mektebi. In 1928 it was renamed the Academy of Fine Arts. Since 1982, it has been known as Mimar Sinan Fine Arts University.*

'trace'. The concept described as 'trace' is the remains left behind the transition. Ricoeur are divided the 'traces' into three as documentary (written), psychical and cerebral (cortical) [4]. Documentary and cerebral trace is known to us from outside through scientific knowledge. Psychical trace is the recognition experience of individual, also the image. Emotional signs of the first encounter remain in our memory and are not erased. Memory figures are needed to read the 'trace'. if the image in the mind does not match the situation inside (mind) and outside (environment), the traces will be blurred. Since 'the trace' cannot be read, ıt can not be transferred to society and cause forgetting, see Fig 4.
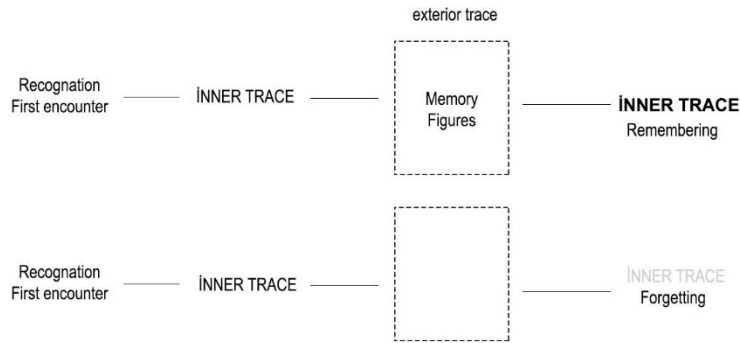
Figure 4. Remembering (strengthening) and Forgetting (blurring)

Images as psychical traces include thought and emotion. In every image there is a way of seeing. According to Ponty to see is associated with remember [5]. Art objects as tools of visual representation store memories and turn into memory figures. Remembering in mythology is considered as the source and foundation of all arts. What occurs in the artist's mind is the expression of the image. Uwe Fleckner[6] sees art as not only the memory of the painters and sculptors, but also the collective memory filtered from the image worlds [6]. Art has a memory power to help you remember, and artist is also seen as "seismograph which assign to perceive waves that help to remember [7]." It is necessary to take into account the traces in our common memory in order to achieve the power of art. These traces are artistic heritage of our ancestors and image treasure we all share. Aby Warburg[7] sees art objects as "the product and carrier of overcoming fear in the social memory [8]." Because art works turn into permanent memory traces against extinction. Each art branch stores memory traces in its own way. The art of painting creates memory with layers of line, pattern and coloring. Ponty says that paintings show how the genuine object looks in life when the genuine object is destroyed [9]. This situation emphasizes the fact that paintings aiming at objective observation carry the past to the future.

Public spaces remain longer in memory than closed spaces. All kinds of activities in these areas have a unifying and strengthening effect on memory. One of these activities is public art work. Traditionally public art expresses the origin, history, location and social purpose of the object. Public art combines social groups and shapes memory. However, the public and state concept in Turkey are used as synonyms. Everything that belongs to the public is perceived as the property of the state. Public art has also lost its meaning as public spaces collapse. Art has become a state patronage and commodified. Theodor Adorno says that all kinds of commodification is a forgetting [10]. Since the 1980s, art has become dependent on sponsors. Business circles have begun to produce and purchase art. The use of art as an advertising or consumption element commodifies the art. Artistic productions are reminder tools, but commodified artistic productions are forgetting tools.

2. Reading of lost traces on art: Fındıklı Park

Antoine Galland refers to a garden in "Fındıklı"[8] in 1673 [11]. Cengiz Orhonlu states that there are houses with gardens on the Fındıklı coast in 17th century and name of district comes from a garden called 'Fındıklı'[12]. In 18th century, Fındıklı was a popular place for bureaucratic segment because of its proximity to the city center and the beauty of the weather. Mosques were built and around these structures were established neighborhoods. And ultimately the district has expanded. In the 18th century, as the houses increase, the gardens disappear. 'Has' gardens (private garden of the sultan) were transformed into public squares and traces of the gardens were erased in 18th century like current destruction. An example of this situation; It was the disappearance of Karabali Garden[9]. It was known that the garden was located where the Hekimoglu Ali Pasa Fountain was located through the records of the empire. This garden which was one of the rare examples of its kind was lost due to the construction of the fountain and become square.

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[6] He was born in 1961, German historian.
[7] (1866-1929) German art historian
[8] 19 April "Ambassador went to a garden overlooking the see of Fındıklı.... This garden is on the mountain's back, so it's full of terraces. There are many fountains in the garden, a very nice fountain for the country, a lot of orange trees, and a very considerate flower garden." Galland, İstanbul, 39.
[9] This garden is known as "çehar-bağ" and it is known as the only Ottoman garden which is influenced by Iranian gardens where the garden area is divided into four parts with two axes.
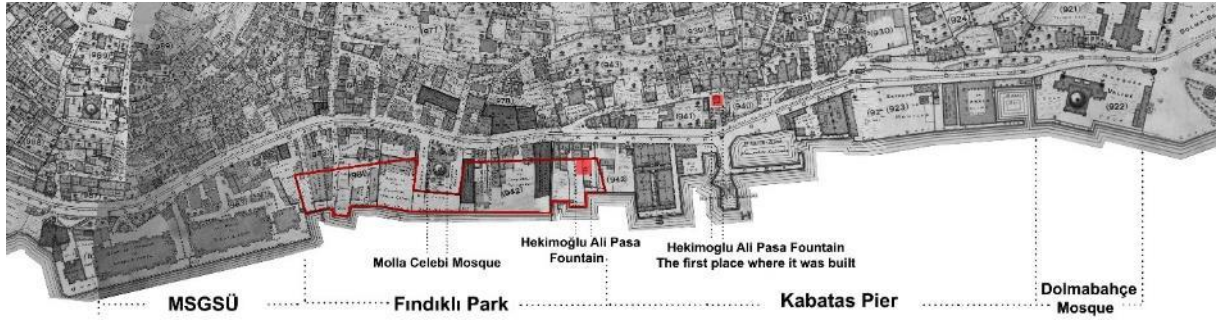
Figure 5. Fındıklı on Pervititch Map (1922-1945)
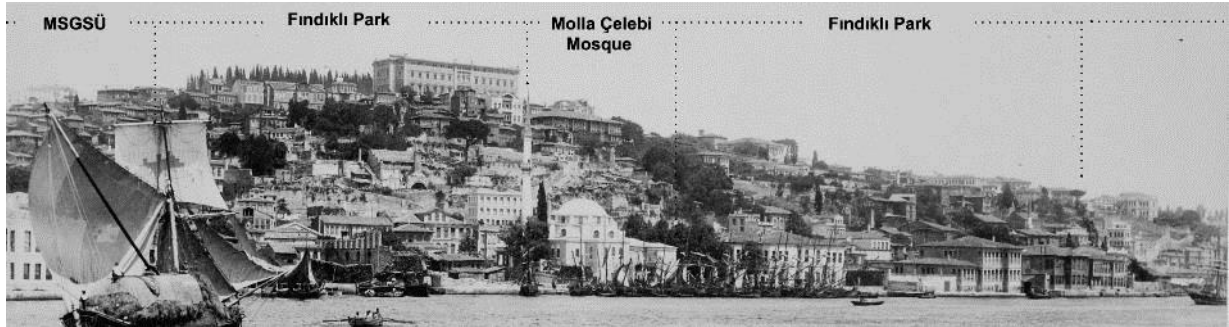

Figure 6. 1880-1893 Fındıklı [13]

Fındıklı coast, which was filled with mansions and boathouse at the end of 18th century, had a great fire in 1770. According to Orhonlu the coast became an empty land [14]. Commercial buildings were replaced by the mansions that were destroyed in the 19th century due to the increase in transportation (Hovagimyan Factory, Altinoglu, Fotiadi, Gallinicos fuel depots, oriental hangars, building of the electricity company), see Fig 5 and 6. Towards the middle of the 20th century, Fındıklı has re-experienced tranformation due to a new development movement. Reconstruction which was implemented by he Prime Minister Adnan Menderes in 1957 led to irreversible destruction in the Besiktas-Karaköy line. Parts of warehouses and shops on the coast of Fındıklı and the bath of Molla Celebi Mosque built by Mimar Sinan was destroyed. It was demolished along the coast between Dolmabahce and Fındıklı. The report dated 25 February 1958 states that the construction of the road between Fındıklı and Kabatas will be completed by the end of the year and 21 meters of the road which is 30 meters is allocated for vehicle [15]. It is stated that the sea side will be afforested and turned into a park according to the news. The afforestation area is 'Fındıklı Park'.

The boundaries, roads, structures of the Fındıklı district have changed constantly and the green areas have dramatically decreased. The only public green area of district which was known for its abundance of gardens in the past is Fındıklı Park. As the trees in the park grow, the park began to create spaces without borders. In 1973, 20 sculptures prepared for the 50th anniversary of the Republic were located in various parts of Istanbul and one of them was Fındıklı Park. The 50th year statues of Zühtü Müridoğlu[10] and Füsun Onur[11] were placed here, see Fig 8a. But Füsun Onur's 'Abstract Composition' in Fındıklı Park has been removed during the renovation[12] of the park in 1985. The statue of Zühtü Müridoğlu is still located in the park, see Fig 8b. The park is also home to temporary art activities. Mehmet Güleryüz and Gürel Yontan's "2. Yeni eğilimler" exhibition, which was performed at Fındıklı Park for the Academy Art Festival in 1979, is performance activity. Mehmet Güleryüz who inspired by tents at the fairgrounds established a tent and named it 'Museum of Weirds', see Fig 8c and 8d.

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[10] *Zühtü Müridoğlu (1906-1962) is sculptor graduated from Sanayi-i Nefise School.*
[11] *Born in 1938, graduated from the State Fine Arts University.*
[12] *In Milliyet Dated 19.04.1985 newspaper archives is written that Municipal Industrial Development Bank of Turkey spent 100 million pounds for regeneration of the park.*

Figure 8. (a) Füsun Onur's statue [16] ; (b) Zühtü Müridoğlu's statue; (c,d)'Museum of Weirds' Academy Art Festival, 1979 [17]

A news about the establishment of the Fine Arts Park between Fındıklı and Dolmabahçe was published in a newspaper article dated June 12, 1979 [18]. Although the project could not be implemented, MSGSU students have actively benefited from the park for their activities. The event known as "Fındıklı parking exhibitions" was started in 1984 by MSGSU Sculpture Department students. The aim of the exhibitions is to give the parks a meaning beyond the green and to combine the parks with art. 30 statues in the park were destroyed by a number of people in the first exhibition in 1984. The following year, students made their sculptures from more solid materials. The art activities continued until 1989.

Figure 9. İbrahim Çallı' painting[13] 1914 dated "from Cihangir" and Hikmet Onat's paintings[14] 1927 dated "Caiques from Kabatas" [19]

Another situation that combines the park with art is "Fındıklı" paintings made by important painters of the period. The artists have made 'descriptions of Fındıklı' which is enough to allow visualization in front of our eyes. The paintings taken in various periods reveal the change of Fındıklı and Kabatas coast. İbrahim Çallı, Hikmet Onat, Şefik Bursalı, Cevat Erkul, İbrahim Safi, Hamit Görele, İbrahim Safi, Nedret Sekban… The fact that Fındıklı Park is at the end of the Academy of Fine Arts is one of the most important reasons for this paintings.

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[13] Calli (1882-1960); After graduating from Paris Fine Arts School, he returned to the academy in 1914 as a teacher. He is one of the most important painters of Turkish art of painting.
[14] Hikmet Onat (1882-1977) empresyonist bir ressamdır. 1904 yılında Sanayi-i Nefise Mektebine girmiştir. Sanatçı resimlerinde genellikle İstanbul'u empresyonist üsluple betimlemiştir.

Figure 10. Şefik Bursalı's[15] paintings 1937 dated "From Fındıklı" and "From Dolmabahçe" [19]

Figure 11. Cevat Erkul's[16] paintings, 1975 dated "Fındıklı Molla Çelebi Mosque" and "from Fındıklı", Hamit Görele's painting[17] "From Cihangir [19]

Çallı painted Molla Çelebi Mosque and structures around it in his painting which is named "from Cihangir" and dated 1914, see Fig 10b. Strong relationship between land and sea is read through the paintings of Onat, see Fig 11. If it is thought that the mosque which appears at the back of the painting is Molla Çelebi, depicted is the old view of the location of Fındıklı Park. Paintings of Bursalı reveal what has been destroyed due to reconstruction in 1957, see Fig 12. Paintings of Erkul and Görele show treeless Fındıklı Park created after reconstruction, see Fig 13 and 14. Clarifying the position of paintings by looking for a trace today demonstrates the importance of permanence. We need objects which maintain continuity in order to strengthen the traces of memory.

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[15] *Şefik Bursalı (1903-1990) graduated from Istanbul Fine Arts Academy.*
[16] *Cevat Erkul (1897-1981) He was born in Salonika and attended the lectures of Sanayi-i Nefise Mektebi. He received no training in the field of painting*
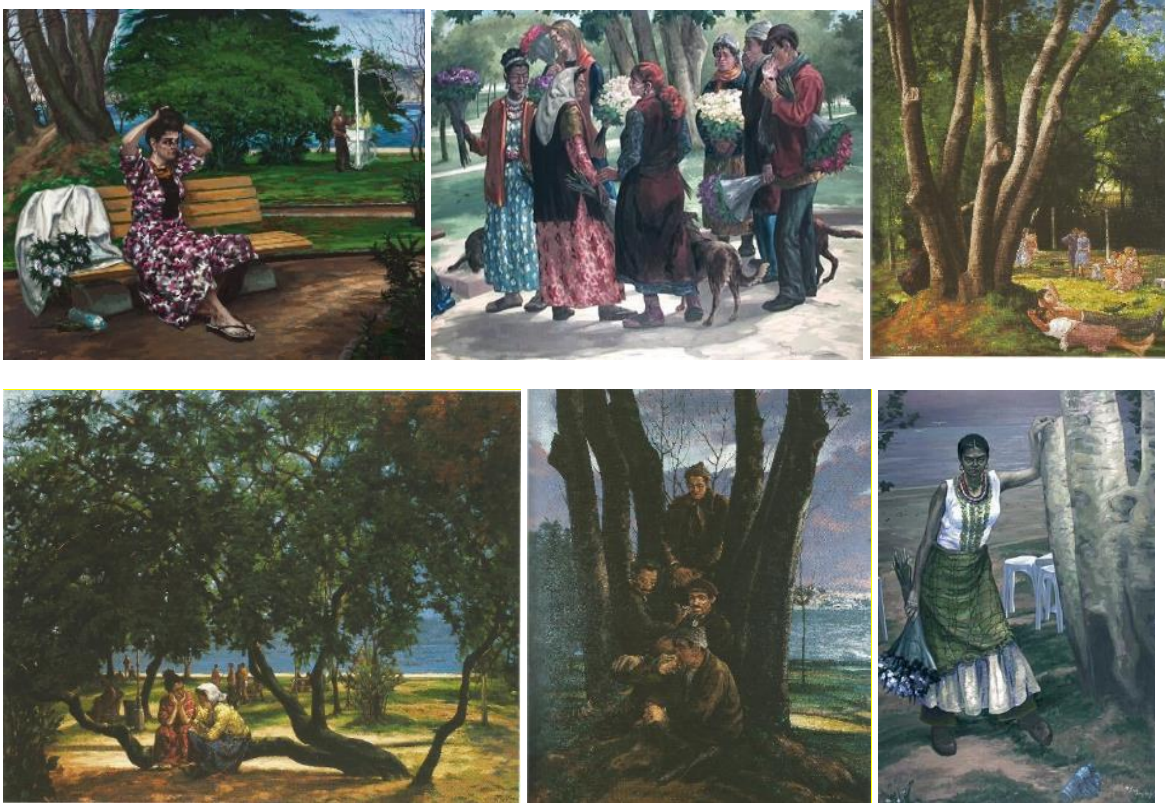[17] *Hikmet Görele (1900-1980) is a painter graduated from the Academy of Fine Arts.*

Figure 12. Nedret Sekban's Paintings "Yer- Sahne Fındıklı Parkı" [20]

Another painter who created the traces of permanent memory of park is Nedret Sekban[18]. The painter prepared the exhibition 'Yer-Sahne Fındıklı Park' in 2002. The artist tried to reveal quailification of being a refuge of nature by indicating that the park is a place for gypsies who are thought that they don't belong anywhere by Sekban. Sekban; said that he saw the park not only as the lungs of the cities, but also as the area of freedom [21]. The tree with six bodies is a very important point in Sekban's paintings. Sekban express story of a tree with 6 bodies as follows;

> "There was a taxi driver from Rize across the park. He planted a poplar tree which i painted in the middle of Fındıklı park in the 50s or 60s. Six trees were coming from the root of this poplar tree. Ground of the tree was a soft-weight area. He was talking about my trees. I put four workers in front of this tree in my painting. I painted 4 feudal people seated in front of the tree, see Fig 15. Then these trees were cut. I made a painting after being cut, See Fig 15. I know the trees in the park. what does it look like behind the tree? Does Üsküdar appear? Where do I see Haydarpaşa? Memory is such a thing. Now, if I paint the Fındıklı Park, I apply to my memories. I draw tree thanks to my memory (Nedret Sekban, personal interview, 11 December)."

In Sekban's paintings, we can read the social life of the park and the nature of the trees at that time. The painter helps to remind by showing the distant and the remembrance in the closest way and by repeating it with the art references in our memory [20]. His paintings contain traces of the past to read the historical and social change of the park. These paintings are strong memory figures for Fındıklı park. He said that local residents used to spend a lot of time in the park, but nowadays people don't spend time in the park [20]. Park become a place to go to only drink tea by people passing by ferry from Kabatas to Kadikoy or going to Besiktas match. Park lost its social environment. Korhan Gümüş justified the reason that Fındıklı Park was chosen as the metro exit station due to the lack of the owner of the park [22]. Although the park has a public space, there is no owner of public space. This is the beginning of the change for the park.

3. Conclusion

When the history of the neighborhood is examined, it is read that the green tissue is concentrated. Rapid expropriation of green areas and then concreteization is a fact that has been experienced for centuries. The landscapes are cultural sites show how the society is related to nature and and how society shapes the nature. The fact that Fındıklı Park is the only public green area in the neighborhood is an indication of how the relationship with nature is established. Recently, the northern half of the park was destroyed under the name of "public service". The park has been undergoing physical changes for a long time. Small sized tea shop has

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[18] Born in 1952, he graduated from Mimar Sinan Fine Arts University. The painter generally shapes his paintings through the method of realism.

been enlarged, soil roads has been concrete, the coastline has been filled and the relationship with water has decreased… The relationship between the shore and the land, and walkway and green field have been weakened. And hence, the relationship of people with land and sea has also decreased. The public no longer spend time here, the ruin of the park is opened. Our continuity is not our conserved state memory but our endless struggle with green.

When the history of the park is examined, it is read that art is an important point for park. Park; both exhibit the object of art within its boundaries and is exhibited figurative within the object of art. This situation strengthens social memories as both spatial and image. Park as a public art space; brought together the society with various exhibitions for many years. Art here; strengthened the spatial memory of the park. Another aspect of the park related to art is the representations created by art. The examined paintings contain important clues about the formal and social change of the park. In this case, the paintings are both an information store and a recall figure. In the days when forms cannot be preserved, art works strengthen the memory traces and carry them to the future.

As the art value of the space increases, the space memory becomes stronger. Art, the artists and the public move away from the area, and the park has lost its original owners. Changing landscape areas are an important indicator of the change of our thought structure. Devrim Erbil's paintings near the park reverse the relationship between art and park. Commodification pictures are not memory figures but become forgetting figures. Paintings normalize the destruction by playing with the perception of the people. The art that reflects this change is either a reminder or forgetting task. Who is the owner of the art is an important question. Public?, State?

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READING CULTURAL CODES IN MULTIPLE LAYERED PLACES: PERGAMON

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Abstract

Images that have the same or similar meanings as individuals in the same cultural environment form cultural codes. The cultural acceptation of a society can be read in the local architecture of that society. Therefore, it is necessary to know the social and cultural codes of the society to evaluate the codes of historical and cultural structures correctly. Modernization movements started with the settling of societies, In Anatolia, many different civilizations have reflected their cultural acceptation to the cities they built. In this study, Pergamon, which is an important settlement area since antiquity, has been determined as a research area to examine the cultural landscape codes in architecture. The aim of this study is to examine the effects of the cultural codes of historical settlements on the architecture through the multi-layered cultural landscape of Pergamon. Pergamon is a settlement with traces of prehistoric, ancient, Byzantine, Seljuk, Ottoman and Republican periods. In the Byzantine period, the structures in the city were transformed with new religious beliefs and gained a different cultural identity. Although the cultural understanding of this period rejected the antiquity, it was found that there was a cultural link between the antiquity and the period. In the Seljuk and Ottoman period, the city developed in the skirts of the hill where it was founded in antiquity, and the city's multi-layering feature became more evident. Pergamon is a city center that still lives today and preserves its cultural value. In 2014, Pergamon entered the World Heritage List as a Multilayered Cultural Landscape Site. Within the scope of the study, the location of the city and the functions of the buildings are examined to analyze the cultural codes related to Rome and Greek Civilization. The historical structures such as temples, theater, gymnasium and the aesthetic concerns of these buildings are determined to understand the cultural codes of antiquity. In addition, the cultural transitions between all periods of Pergamon are studied and their similarities and differences are determined.

Key Words: multi-layering, cultural code, cultural landscape, Pergamon

1. Introduction

Culture is the system of beliefs and customs adopted by the society for understanding, organizing and structuring of social life. According to Güvenç, culture is maintained through communication and interaction in societies. Culture is the process of adapting and changing the environment which is the reason of existence as a result of the integration of the lifestyles and world views of the individuals in the society [1]. Tural defined the culture as a rich synthesis that consists of the experience and requirements in the historical period. [2]. According to Finke, culture depends not only on religion, morality and scientific constituents but also on common memory and lifestyles. At the same time, common language is an important element of culture [3]. Cultures have no effect without thought, communication and social factors [4]. Images that have the same or similar meanings as individuals in the same cultural environment form cultural codes. Cultural codes affect the common assumptions of individuals in a society. Based on this definition, we can mention that there is a relationship between the social structures and cultures of societies. Antony Giddens stated that without culture, society cannot exist and culture cannot exist without society [5]. The cultural assumptions of a society shape the local architecture of that society. The local architecture contains the cultural and abstract values that are specific to the culture. When the societies settled to residential life, many different civilizations began to live in the cities they built with their own cultural acceptance. The cultural codes of a society are elements that ensure the sustainability of settlement from past to present. The definition of a settlement from a social, cultural, economic and ecological point of view and the continuation of its cultural heritage are the topics of the concept of sustainability. The provision of socio-cultural sustainability requires the preservation of the texture and architectural elements that make up the historical environment as a whole and the transfer to future generations. The transfer of cultural heritage and socio-cultural values to future generations is a social tasks. According to these approach, the socio-cultural sustainability is made possible by the inclusion of cultural codes in urban planning processes. The continuity of a settlement shape the cultural assumptions of the communities in that settlement. The physical evidence of this hypothesis is the existence of structures that reflect the cultures of societies. Based on this hypothesis, the city of Pergamon was chosen. Pergamon is a multilayer Anatolian city, including historical stratification of Hellenistic, Roman, Byzantine, Ottoman and Republic of Turkey periods [6].The physical and cultural reflections of the different periods in the historical continuity of Pergamon in the urban space exist in the city as differentiating layers. The relations with the previous periods in the city affected the texture of the city. The aim of this research is to examine the impact of the cultural codes of an historical settlement on the architectural structure of Pergamon, which is a multi-layered cultural landscape.

The continuity of Pergamon ensure with the reflection of the cultural acceptances of every community settled in the city. For example, temples, worship buildings of antiquity, was repent to pagan religion and was devoted to the gods. The mosque and churces replaced the tamples as time passed. As can be understood from the example, the exchange of cultural conventions ensures the continuity of the city as long as it is reflected in the architecture. It is possible to establish a similar relationship in historical environment. Aphrodisias, discovered by Ara Güler, is another important example for understanding the cultural codes. Aphrodisias, a village of Aydın, is a rural settlement today. The ancient ruins of the village are still used by the people of the village in various functions. Ara Güler said that for Aphrodisias "History and today lives in together. I have never seen such a wonderful place in my life. Ruins which you say is ruins. But this is not so, this is quite different. This is a city that lives in history". Marcellus Theater, which is located in the city of Rome, is used as a residence while it is a theater building dating back to ancient times. This example is another proof of the influence of the changing social structure of society on architecture. Istanbul, which is the capital of both the Ottoman Empire and East Byzantine, is another important city that can be examined in this context.

Pergamon's multi-layered structure, cultural landscape value and the interactions between different cultures that have been sheltered in the geography and the reflection of this interaction on urban formation entered into the World Heritage List.

2. Problem and Methodolgy

The relations between different cultures in the same historical environment are the main subject of this study. In this context, the effects of these cultures on architecture and their conflicts and agreement have been questioned. Within the scope of the study, it is mentioned that cultural code is a concept that provides sustainability of cities. We see that the influence of different cultures in the formation of the present places structure in historical environments. For example, the main axes of public buildings represented the power of the state in ancient times are today the axes of the modern city. The relationship between the cultural codes and the cultural reflections of the different periods in the historical continuity and their relevance to the modern city is another question. The effect of cultural codes on the sustainability of cities was examined through the city of Pergamon.

Two methods was determined in the study. The first one is to explore explanations, discussions and definitions about cultural and cultural codes. In this context, literature has been scanned and academic studies on the subject have been used as a source. As a result of the collection of information, documents and images related to the city and the study area, relevant researches have been made. In the second method used in the study, Pergamon is determined as the study area. Monumental buildings, commercial buildings, housing texture etc. functions were analyzed as a respectively. The periodical analysis of these respectively functions was determined as the product of the culture and the relations of different cultures with each other was examined. As a result of these methods, the effects of cultural codes on urban sustainability are discussed.

3. Geographical Features of Pergamon

Pergamon District of Izmir Province is 103 km away from the city center and is in the north of the city. Its altitude is 68m. There are Madra Mountains in the north of Pergamon, Geyikli Mountain in the north west and Yaylacık Mountain in the south. In the valley of Bakırçay, chained hills extend to Karadağ. The city is in Gökova, at the foot of Castle Hill, 330 meters high. Selinos River passes between Castle Hill and Gökova (fig.1). Bakırçay, which has a length of 120 km that feeds the whole plain, is poured into the Aegean Sea in Çandarlı Bay. The region has a Mediterranean climate and Mediterranean plants.
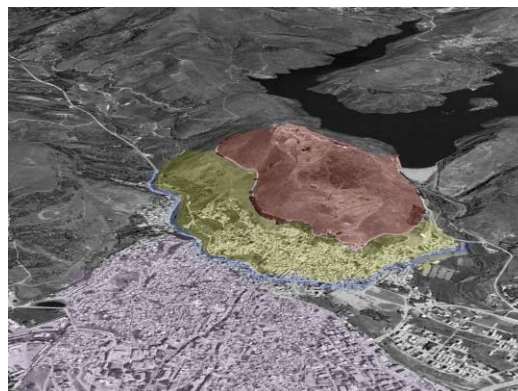

Fig. 1. Pergamon (http://www.googlemaps.com)

4. Historical Development of Pergamon

Pergamon is a collective product of culture, engineering and nature. The numerous monumental artifacts such as temples, water systems, theaters that from ancient time and khans, mosques, commercial houses, arastas and traditional dwellings that from Ottoman period constitute the multi-layered cultural landscape of

the city. The city has been home to the Hellenistic, Roman, Byzantine and Ottoman periods in the course of more than two thousand years. The layers formed by the cultural accumulation of all these cultures raise the Pergamon to be one of the leading cities of civilization.

It is not known exactly when the city was established. However, prehistoric findings were found in archaeological excavations. The city walls were built in the Acropolis in B.C.VII century and it is understood that urbanization started in these years. [7]. At the center of the roads connecting Asia and Europe, it started to rise as a cultural, scientific and political center in the Aegean Region where the Middle East, Asian, Greek and Macedonian cultures were integrated. Pergamon and Anatolia became the ruler of Macedonia when Alexander the Great defeat the Persian in B.C. 334. After a while the Kingdom of Pergamon under the Attalos Dynasty (BC 280- BC 133) has had a voice in the entire Bakırçay Plain. Pergamon has established good relations with the cities of the Aegean and became the political, cultural and scientific capital of the ancient world [8]. In this period, the city was shaped by terracing around Castle city (akrapol). Attolos was inherited by the Roman lands. In this period, the city continued to be the capital of the Asian states with its cultural and political structure. In this period, the urban settlement grew with a growing population from Castle Hill to the Bakırçay Plain.

From the 4th century AD the economic and political situation has been disturbed, the struggle with Christians and the religious transformation in society have caused a painful transformation in the cultural sense.

In addition, the construction of walls around the city in this period show that the city is under threat in military terms. The late Roman wall remains in the Pergamon show that the construction was carried out under the pressure of time and money, proving the negative economic and political situation.

It is thought that the emergency cause of the construction of this wall was Goth attacks in the third century [9].

Byzantine sovereignty began to vanish in 1302 when Karesiogullari Principality took over the administration, and after 1347 Pergamon was taken by the Ottomans. Pergamon was discovered by Carl Human in 1878 with its archaeological value. The archaeological value of the city has left the urban texture which is qualified in the Turkish period but has no archaeological value.

The city, which was occupied by the Greeks on 19 June 1919, was saved from the occupation on 14 September 1922. In this context, it is one of the rare settlements that has been inhabited over 2500 years. Along with the Republic, many urban planning activities were carried out in the city and were taken into consideration in the context of city protection decisions.

5. Cultural Development of Pergamon

The most characteristic organization of the old Greek social and political life is the city-states called polis [10]. Aristoles, defined the polis which the independent city surrounded by an agricultural field, as the only natural way to live, and this path is the only form of social order that allows people to realize the potential inside [11]. Alexander the Great who is Aristotle's student, defeated the Persians and established a great empire, including Anatolia. In this geography, he builds many new cities which the center of the Greek culture and life are. Pergamon has an important position among these cities. For this reason, with the dominance of the Romans in the Pergamon in 133, they added new neighborhoods and baths, aqueducts and Roman style buildings to the Greek cities, which are established as in most eastern cities. Ancient Greek architecture is a mass architecture with emphasis on the structural elements of the building [12].Roman architecture focuses on the function of the building. Roman architecture is related to the balance between aesthetics and usefulness.

Vitruvius's personal view could be combined with the function and aesthetics as a clearly and believed that the buildings should be built with the eyes of robustness, utility and beauty [14]. Roman empire baths are examples of this approach. Imperial baths consist of planned rooms. These baths are architectural building that not only provide hygiene, but also several collective, cultural, and sportive activities. A Roman city has a temples, commercial buildings, administrative buildings and entertainment buildings. Forms and streets are not only the spaces between these structures, but also the urban elements especially designed for urban interaction. These forms form the center of the social structure. The stoa and columned courtyards around these forms in Greek cities are an element of these areas. But the Roman basilica is the focal point of these forms [15]. The importance of the Greeks to simplicity, proportionality, perspective and harmony also influenced the Roman architects. Greek temples have a great influence on the Roman temple. Both of them have rectangular planned and gable roofed. However, the Roman temples are located on a high platform and are entered from the front only, and unlike the Greek temples, they do not have columns surrounding them. The biggest reason for these differences is the Romans have been greatly influenced by religious issues in the Etrusks.

Another important building types in Greek and Roman architecture are theater and amphitheater. Theater and literature are important in ancient Greek culture. In addition, Vitruvius stated that the gladiatorial tradition which connection with the Romans was a sense of entertainment from the Greek world [16]. The world's steepest slope theater is in Pergamon and is dated to the Greek period. As in most of the eastern cities, when

the Romans conquered the Pergamon, they organized the existing building according to their culture. Most of the theater in Western Anatolia therefore carries the traces of both Greek and Roman architecture. Theater structures in Greek cities are shaped entirely by the elements of nature, while this dependence on advanced technology has decreased in Rome. Greek and Roman culture form the basis of western culture. These two important civilizations have built the best and unique buildings of the Ancient World. Some of these buildings, including temples, theaters and stadiums, have been the main symbols of the towns and cities after the ancient period.

Western Rome ended in the 5th century, A.D. but the Eastern Roman persisted until the 1453 when conquest of Constantinople. The culture of the Roman Empire changed considerably as of the 4th century and Christianity was accepted as the official religion. The Eastern Roman, Byzantine, continued to exist despite wars and invasions. The architectural and urban understanding of cities changed in this period.

The most important element that shaping the Byzantine cities is defense. City wall and city doors was kept under maintenance and the city was taken to safer areas in the Byzantine period. Roman forms continued to exist as market places in many cities in this period. The singular buildings are either retained their original function or preserved as they are adapted to a new use. The most common example of this adaptation is the conversion to Christian churches. With the weakening of Byzantium, Turkmen raids started in the 12th century. After the collapse of the Anatolian Seljuks, Pergamon participated the Ottoman Empire in 1357. In this period, as in all Anatolia, the Turkish-Islamic culture was dominant in Pergamon.

The monumental temples that dated back to the ancient period destroyed and modest mosques, which are connected to the Islamic faith have been built. Turkish Islamic culture doesn't have urban elements such as market square. Therefore, commercial buildings such as han, arasta and bedesten were built for commercial activities. In Turkish Islamic culture, baths are introverted buildings that are used only to provide hygiene. Therefore, it is quite different from the Roman baths. With the Turkishization of the region, the housing texture has become quite different. With the importance given to the traditional Turkish family structure and the phenomenon of privacy, a residential texture has been formed. These houses are designed for function and shaped by the influence of Islamic culture.

6. The Relationship between Architecture and Cultural Codes in Pergamon

6.1. Religious Building

In the ancient period, which included the Greek cult and the Roman cult which was its successor, the belief in the polytheistic religion was dominant. In ancient time, religion was an elective structure that was constantly changing and contained many beliefs and cultures. It is seen that society was divided into classes in antiquity. In ancient times, folk worshiped in the open air. In the name of the gods, they built temples. These temples were usually made on a podium, and the symbols of god were placed in them. In these temples, the gods were offered sacrifices and gifts. Religious ceremonies outside the temple were usually made on the eastern terrace [17]. With the construction of the Athena Temple in Pergamum in the beginning of the IV. century, the Acropolis of Pergamon has been home to very large urbanization, construction and cultural values throughout history [18]. Zeus Altar is another important temple that built in the Greek period (fig.2(a)). In the Roman period the temples were still used and new temples were built in the Acropolis. The synthesis of the Greek cult with the cult of Demeter influenced the cultural and religious system in the Pergamon where influenced by the religions of Anatolia, Thrace and Greece. During the Roman period, Serapion Temple was dedicated to the Egyptian god Serapis.

After Christianity was the official religion of the Byzantine period, many temples were destroyed. However, the ancient Serapion Temple, known as the Red Courtyard, was converted into the Church of Saint John. Today the ruins of this church can be seen in the Red Courtyard (fig.2(b)). This church is thought to be one of the first seven churches in Western Anatolia, the most recent booklet of the Bible. The acceptance of Christianity has radically changed the social structure and culture of Pergamon. From society's past has not changed and the Temple of Serepion has been converted into a church.

Fig. 2. (a) Zeus Temple (b) Red Courtyard (http://www.milliyetsanat.com http://www.izmirkulturturizm.gov.tr)

With the city was captured by the Turks, churches were destroyed or converted into a mosque. During this period, many mosques were built in the city. The Seljuk Minaret, which was built in the 13th. and 14th.

centuries, and the Ulu Camii was built by Yıldırım Beyazıt in 1399, are the most familiar of the Turkish-Islamic works in Pergamon.

6.2. Commercial and Public Buildings

In ancient times, social life took place between public spaces. The theater, which take form on the slope, and the theater terrace, which is the most popular sightseeing place of the city, is the most important public buildings of the Greek period (fig.3). The stoa, positioned at the lower elevation of the theater terrace, was the place where the antique period's commercial life passed. The construction of the Upper Agora, the construction of the Lower Agora, the library structure and the gymnasium was among the important public buildings of the period. Gymnasium was one of the most important educational institutions among the cities of Helen and it was designed in accordance with three terraces topography. In addition to these public buildings in the Roman period, squares, a new amphitheater and stadion were built.

Fig. 3. Theater and terrace (http://www.izmirkulturturizm.gov.tr)

The diversity and density of commercial buildings in the Turkish period is remarkable in Pergamon. This situation shows that the city has an intense trade. This is an element that shapes the cultural and architectural structure of the city. The city has been enriched with khans, caravanserais, bazaars, imarets and baths, which have commercial structures due to the location of the city and the new cultural change.

In this period, we see that the public buildings of Turkish period are effective in city planning. Bedestens, arastas and inns are socio-cultural places that shape the city's cultural structure and social life. The social life of these buildings from the Ottoman period in Pergamon continues today. Çukurhan and Taşhan are the most known examples of commercial building in Pergamon. Mostly commercial building located in this city but Kulüphamam and Tabaklar Hamamı are the example of public building (fig.4).
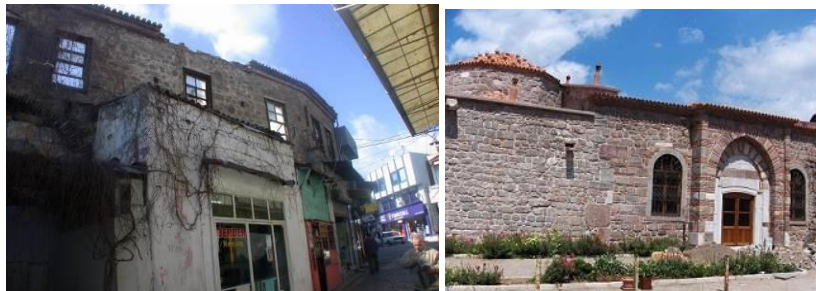

Fig. 4. (a) Çukurhan (b) Kulüphamam (http://www.izmirkulturturizm.gov.tr)

6.3. Residential Texture

The residential area of the historical environment that we are seeing today was shaped by the influence of Islam in the Ottoman period in the Pergamon. In the Ottoman period, the city was divided into neighborhoods as Muslims and non-Muslims. In this period, the urban area was shaped by dead end streets (fig.5). These streets were shaped by the Islamic culture dominating the city, and met the privacy and security needs of the inhabitants of the city. This structure, which dominates especially the residential area of the city, is being used today as well.

Fig. 5. View of Pergamon traditional street (http://www.visitizmir.org)

6.4. Roads and Axis

The city was first formed around the Castle Hill. Castle Hill has a high and sheltered position with its 330 m height and the valleys of the rivers passing by. It is seen that the connection roads of the castle hill have been used almost unchanged since antiquity when it is thought that the region is shaped by rivers. It is located in the old maps of Pergamon, which have been used until the Republican period and which is located in the south of the city (fig.6). This axis, which provides access to the fertile plains in the Bağlar region, was pushed back into the Pergamon-Çanakkale route made during the Republic period. According to the old maps and the narrative of the travelers, the transportation to Pergamon from the ancient to the Republican period was provided by three main centers. The first one is the Southeast-Northwest axis, the second is the Southwest - Northeast Axis connected with the port, and the third is the highway reached through the Kozak Forests from the North. However, in the Republican period, new roads have been opened with the development works and urban planning movements. These roads which have been used since antiquity have lost their function and have been forgotten. This shows the destructive effect of urban planning movements on the historical and cultural codes of the city.
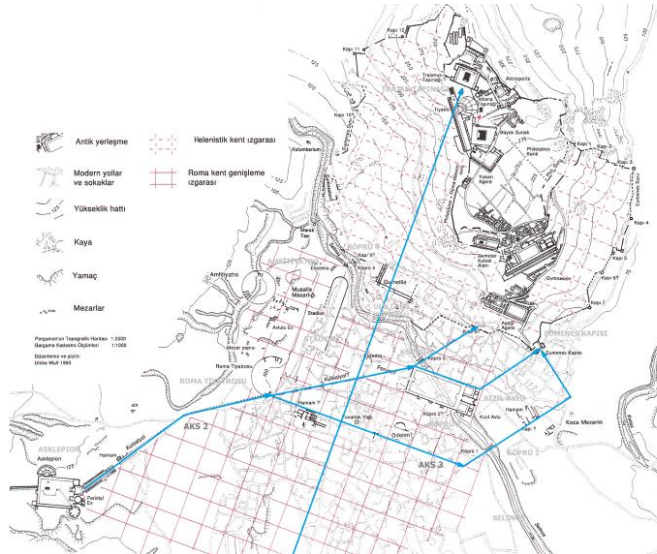

Fig. 6. Axles of Pergamon (Baç, S* W. Radt,"Pergamon Antik bir Kentin Tarihi ve Yapıtları", s. 56 maps used)

6.5. Bridges and Waterway

Another important function that reflects the cultural codes of Pergamon from antiquity to today is the bridges on Selinos River. Access to the neighborhoods in the southern part of the city was provided by bridges built on Selinos River. These bridges were repaired and used in the Byzantine, Ottoman and Republican periods (fig.7 (b)). These bridges are important because they witness different cultural periods. It is evidence that the geography of the region has an influence on architecture and culture, and that if these geographical features are present, architecture is an intercultural field of use. Despite the religious beliefs and cultures in the city, it is important for the cultural codes to use the same structure in the same way with the geographical characteristics.

The paths of water show the superior architecture and engineering technology of the Roman period in Pergamon. These structures, which were built to transport water to the city in the Roman period, are now used as a cultural route (fig.7.(a)).

Fig. 7. (a) waterway from Roma Period (b) Bridges from Selçuklu (http://dagakactim.blogspot.com http://www.izmirkulturturizm.gov.tr)

7. The Effects of Republican Period Conservation and Planning Principles on Cultural Code

Pergamon was discovered by Carl Human in 1878 with its archaeological value. The archaeological value of the city has left the urban texture, which is qualified in the Turkish period but has no archaeological value. In the first development report of 1943, the historical growth of the city, archaeological sites, public and monumental structures are identified, but there is no mention of traditional housing and the texture formed by it.

The City Plan of the City Plan Report in 1968 emphasized the archaeological characteristics of the city, together with the Asklepion and the Acropolis, the archaeological sites in the city center were mentioned. It was decided that the urban texture on the archaeological site should be preserved in its present form in order to allow for archaeological excavations in the future. In fact, even though this planning was a step towards preserving ancient structures, it provided indirect protection for the qualified buildings on it. For this reason, it is important to examine the cultural relations between overlapping urban layers and to match these relations.

In 1976, the Pergamon archaeological sites was registered by the High Council of Real Estate and Monuments (GEEAYK). In 1983, the historical urban center of Pergamon, due to the urban texture formed around and on the ruins of the ancient city of Pergamon, was defined as urban archaeological site [19]. According to this decision, the cultural heritage of the city was taken as a whole, and the urban layers had equal importance. In this way, the fact that all the cultures that lived in the city of Pergamon were differentiated and overlapped was evaluated. However, in spite of the decision of many districts which were declared as urban sites in 1984, they were opened for construction. In order to expand the streets within the traditional texture, the traditional structures were demolished, and the street lines were retreated, and new buildings and wide streets were found to be incompatible with the zoning legislation and with the traditional texture characteristics. With these developments, the cultural codes of the city could be lost. In 2001, the city was declared an Urban Archaeological Site by the 2nd.Regional Board for the Protection of Cultural Heritage of Izmir. As a result of the decision taken in 2004 by 2nd. Regional Board for the Protection of Cultural Assets of Izmir, the definition of Pergamon Urban Archaeological Site was changed to Urban + Third Degree Archeological Site (fig.8) [20].
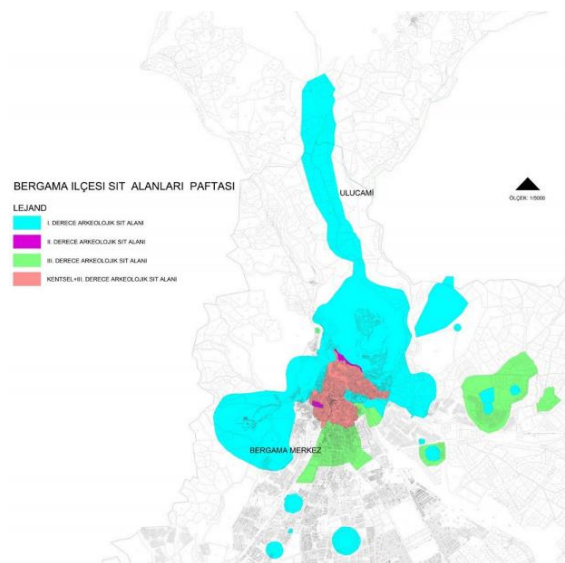

Fig. 8. Pergamon sit area (Pergamon Belediyesi,2016)

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8. Result

Pergamon is a multi-layered settlement on the same geography with traces of the Hellenistic, Roman, Byzantine, Seljuk, Ottoman and Republican periods. These different cultures in the same geography sometimes interfere with each other when they overlap. This partnership and differentiation between different cultures is reflected in architecture.

Images that have the same or similar meanings as individuals in the same cultural environment form cultural codes. The subject of this study is to examine the relationship between the codes of different cultures in the city of Pergamon.

In Pergamon, we see that geography effects on cultures. For this reason, the transportation axes in the city and the bridges that provide the crossing of Selinos River are used for the same purpose. Religious belief is the most important element shaping a culture. With the transition to Christianity in Pergamon, the ancient temples were destroyed and erased from social memory. This is a kind of evidence that show us the effect of politics on cultural codes. However, with the transition to Christianity, the conversion of the Temple of Serapion into a church shows that the concept of sacred space, which has taken place in the memory of society, has not changed. With the Turkish domination in the region, the acceptance of the Islamic belief and the policies of resettlement have given the city a new cultural identity. The use of trade structures built in this period as still socio-cultural areas also reveals the effect of architecture on cultural codes. With the proclamation of the Republic, the city's 2000-year transportation axes have been changed. This situation has damaged the social memory. The importance of considering the cultural codes in the urban development is once again understood through the example of Pergamon.

The roads, squares, monumental buildings and commercial buildings and residences that remain in the Ottoman period in Pergamon are still actively used in the same function. Public buildings and residential textures were added to this traditional texture during the Republican period. This traditional texture, which has been used in the same function for almost 700 years, shows that cultural codes occur intensively when cultural change does not occur.

However, Pergamon is considered in the Republican Era in terms of the development of the rich cultural heritage and the existence of people who are conscious in the area of protection. With the zoning movements that started in the 1940s, the city was able to maintain its multi-layered texture and cultural diversity.

According to these findings, architectural uses which are transferred from culture to culture in Pergamon. 2000-year production axes and bridges are examples of these uses. The cultural differences that are created by the differentiation of religious beliefs are reflected to the architecture positively. This conflict that occurring between the cultures ensure the sustainability of the city In Pergamon, temples, churches and mosques coexist with the sustainability of the city. With the transition to Turkish-Islamic culture, the transformation of buildings such as the stoa to khan and bedesten forms another example. The requirements of a society such as religious belief, commercial relations and administration have been reshaped according to changing cultures and continued to be in the city. The buildings that reflect this continuity to architecture contribute to urban sustainability. Another interaction examined within the scope of urban sustainability is the use of building which lost their first function due to changing culture. The waterways from Roman are using cultural route today can give as an example of this interaction (Table 1).

Table 1. Cultural code and architecture in Pergamon

CULTURAL PERIOD	CULTURAL CODE	EFFECT ON ARCHITECTURE AND URBAN PLAN
Religious Belief		
HELEN, ROME	Paganizm	Temple building
BYZANTIUM	Christianity	Temple was demolished, church was built. Kızılavlu was changed to church.
OTTOMAN	Islam	Cruch was changed to mosque, New mosque was build
Trade and Economy		
HELEN, ROME	Economy capital of Anatolia	Stoa, harbor
BYZANTIUM	Economic collapse	

OTTOMAN	trade routes and the revival of the economy	Han, kervansaray, bedesten, çarşı, arasta
Social Life		
HELEN, ROME	A cultural, scientific and political center in the Aegean Region	theater, terrace, gymnasium, stadium,
OTTOMAN	Islamic Belief	the city is divided into neighborhoods as Muslims and non-Muslims
Housing area		
OTTOMAN	Islamic Belief and privacy	dead end street
Bridges and waterway		
ALL PERIOD	transportation	bridges were built and used in all periods as a same function
ROME AND REPUBLIC	accessible	Waterway that built for access to water form culture routes today
	axis	
HELEN ROME BZYNTIUM OTTOMAN	Ways were formed by urban geography	Three road axis was used nearly 2000 years
REPUBLIC	Urban planning	New road was developed

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CONSIDERATIONS ON THE UNFINISHED AS THE OUTCOME OF ARCHITECTURAL RESTORATION PROJECTS

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Abstract

The importance of keeping the visible traces of the previous life of a building when it is converted so as to host a new activity and/or new users constitutes an attitude that is being increasingly applied in the contemporary panorama of modern architecture. In accordance with this theme, new layers in the restoration project are added to the pre-existing ones, all of which clearly exhibited to constitute a new architectural assembly. The building is considered to be a combination of traces in which new and old elements of finishing, floors, windows, and plaster work deserve the same attention. The present contribution provides several examples of this theme in building restoration, a theme that aims to keep the memory of the architectural space alive by rejecting radical formulas for a new appearance and the pervasiveness of new finishings. This paper aims to verify the extraordinary integration of project and history on both the internal architectural scale and that of the city. The unfinished and the imperfect fundamentally correspond to the condition of our existence.

Key Words: Unfinished; Untreated Materials; Legible Restoration Techniques; Conservation of Historical Memory

1. Introduction

The particular meaning of not erasing the material manifestations of traces of the previous life of a building is now realised by many project planners, especially artists who work in Swiss or British domains. This argument is summarised in a sentence first published by the French playwright Alfred Jarry in his 1900 play entitled *Ubu encsaîné*: "We have not destroyed unless we have also destroyed the ruins" [1]. This sentence can be adapted to express the pressing need in restorations, when the memory of the past is considered a fundamental value, to preserve the residual elements and fragments of the previous life of a building reduced to ruins.

The two architects Biba Dow and Alun Jones with a practice in London have expressed this orientation with singular effectiveness. In restoring the top two floors of a Victorian factory building, a former clog factory located in Lant Street in the district of Southwark, (Figg. 1, 2a), the Dow Jones Architects converted the spaces to a residential function by being careful not to compromise the original industrial character of the environments. The principle of minimal invasiveness guided this transformation project. Conservation of the perimeter walls made of exposed bare bricks, the keeping of the same position of scale, only partially restored, and especially the choice of not inserting new walls inside the perimeter of the two floors has meant that the original purpose for which the factory was built has not been distorted. The modest original materials remain in their exposed raw condition, confirming the appearance of the factory.

Dow Jones Architects activated the idea of housing without abandoning the brick walls, the wood and steel attics, and the windows which are only on the shorter sides of the building. The environments originally characterised by the anonymous raw industrial matrix were adapted to the new use without imposing anything of any kind. In particular, the ample spaces have not been divided by inserting new internal walls. Furthermore, the systems of stairways connecting the floors and the openings were left in the positions that they once occupied. The change in building use has not altered the identity of the factory thanks to the will of the architects not to be excessive in the transformations but only to make those transformations useful to the new life planned.
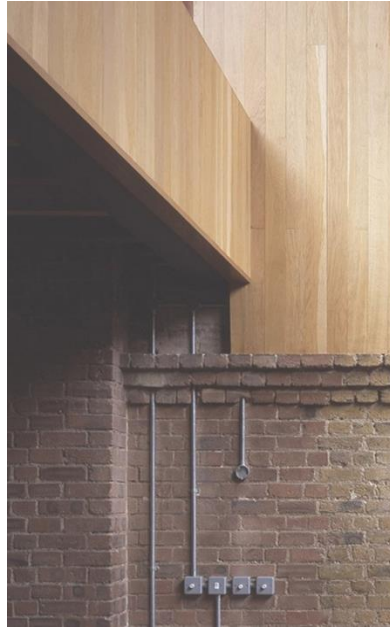
Fig. 1. Dow Jones Architects conversion to residential function of the two top floors of a building located in Lant Street, Southwark, London (2008). Photographs by David Grandorge. (a) View of the undivided environment on the lower floor. (b) Non-invasive plan for the masonry of the old warehouse. (c) View of the masonry kept in view and not compensated in the discontinuity which tells of events that occurred in recent and distant past.

This is why the expression "sustainable renewal" has been coined to describe the working method of Dow Jones Architects about restoration of buildings gradually abandoned, unoccupied and lacking their meaningful existence. The path chosen to convert the warehouse in Southwark does not consist of exhibition of luxury proposed through austere settings, but is limited to searching for new potential in environments in disuse. Leaving their own signature do not interest these architects, nor do stamping their own marks of recognition, that is, their own individual interpretation of style. For them the main aim is to avoid the oppression of what the building naturally communicates as a result of its history. The connection of the restored building with the context is based on the evidence of the past life of architectural components.

Two other English architects, Alan Caruso and Peter St John, have explicitly recognised that the methodical approach to restoration work based on extreme attention to the original materials and technologies and respecting them is a debt owed to the neobrutalist poetic and the work of the Smithsons in particular. "The modernist pursuit of the ideal and the new for its own sake seems to us hopeless and irrelevant. We prefer characterful ugliness to calculated perfection", Caruso and St John affirm [2]. How they wrote, "When the appearance, the acoustic, the smell of a building recalls a past experience or memory, one can be overtaken by a rush of emotions. Our way of working refuses an abstract architecture".

In commenting on his own work, Peter Zumthor, the leader of the school of architecture in the Grigioni area of Switzerland, also emphasises the importance of the past life when considering acting on a built organism with a view to converting it to a new life. "Looking back – Zumthor says – I see that my work and my specific approach to architecture has developed over a long period of time since I received my first modernistic training at the Kunstgewerbeschule Basel, modelled on Bauhaus ideas. Then, design was all about being innovative, about finding new solutions to mostly old problems, about fighting history, even overcoming history. Since then, my approach to design and history has changed a lot. Looking at the world around me new makes me realize: Everything I see is history. Almost everything that surrounds us, our landscapes, villages, and cities, down to our houses and the rooms where we live, is full of history; we just have to see it. Everything has been made by someone, by people I don't know, people I have never met, and most of them long dead. Increasingly, that is a reassuring feeling, it makes me feel part of the world" [3].

Fig. 2. (a) Dow Jones Architects conversion to residential function of the two top floors of a building located in Lant Street, Southwark, London (2008). View of the restored building, at the centre in the picture. Photography by David Grandorge. (b) John Pawson, Monastery of Our Lady of Novy Dvur, Touzim, Bohemia, Czech Republic (2004). View of the monk's baths obtained by bringing the structure of the roof into open view.

2. Aspects of the theme

Interest in valuing the physical quality of the existing materials in a building subject to transformation is also met in the works of another English architect, John Pawson. In designing the monastery of Our Lady of Novy Dvur in Bohemia in 2004, Pawson inserted the new functional parts inside a pre-existing architecture in a neutral way. Among others, he designed the cabins of the monk's baths between the space that he valued for its material characteristics, actually making the complex wooden structure of the covering participate in the functioning of the spaces in the old rural settlement (Fig. 2b). "My work has little to do with the current stylistic preoccupations of architectural discourse", Pawson states, focusing on the building that constitutes the main reason for the design choices [4]. Because Pawson is oriented towards minimalism in modern architecture, his attention to the intrinsic nature of the materials is particularly significant.

In restoring a rural eighteenth-century settlement between 1994 and 1995 in the county of Essex in Great Britain, even the most modest parts of the complex of building were kept by Pawson because they were important for the purposes of the project. Current and past restorations were kept exposed to express the history of this albeit minor architecture (Fig. 3). So the insertion of the new in the rural annexes of Tilty Barn is activated without changing the nature of the old components in terms of their material and appearance. "From the outset the aim of the intervention was to preserve the innate quality of the innate architecture, working with rather than against the grain of this simple, vernacular building type. (…) The refinement of the newly inserted elements contrasts with the simple directness of the original structure. Where new and old coincide, the dense intricacy of the beams forms a rich context for the pristine geometry of contemporary insertions, as architecture without architecture" [5].

The masonry shows the scars of past modifications, imperfections that make the wall fabric come alive as a witness to events that once happened in that place. The perfection of a perfect fabric cancelling the results of the changes made through time is not sought, the originality of an ideal state is not re-proposed, but instead the overview of the changes is now proposed, albeit that they are not coherent with each other, illustrating the document in its true nature.

...plex called Tilty Barn, Essex, (1994-1995). View of work completed on one of minor building volumes.

...and Peter Smithson has strongly impacted modern architecture ...o architects were the main exponents of the trend called Neo-...t as an extension to Lord Kennet's nineteenth-century residence in Bayswater, London (1959–62), is considered. This pavilion that takes the name of Wayland Young Pavilion from the owner, was designed at the same time as the more celebrated work of the two architects of the Upper Lawn Pavilion at Fonthill Abbey in the county of Wiltshire. The Smithsons flanked the new construction in Bayswater to an existing wall in the property, keeping the volume of the pavilion different as this served to originate the disengagement of the new environments. The corridor consequently obtained (Fig. 4a) presents three specific aspects: it is covered in glass along its entire exasperated length, it widens in correspondence to a tree which the owners wanted to keep near the pre-existing wall, and fully exposes the unplastered masonry of the same old wall as a historical and non-mediated direct presence – definitely a Neo-brutalist factor– inside the living space.

Fig. 4. Alison e Peter Smithson, Wayland Young Pavilion i... obtained through the pre-existing wall of the property (on the... front of the pavilion, worked so as t...

Regarding the tree, it can be observed that the detail of the vegetation kept inside the architecture returns in 1959 in the planning of another project that is associated by many with the same family of Neo-brutalism, the Nordic Countries Pavilion at the Venice Biannual designed by the Norwegian architect Sverre Fehn and completed in 1962. The tree of the Wayland Young Pavilion, "literally crossing the narrow corridor illuminated from above, (…) contaminates the architecture, almost to the point of interrupting its perfection and completion. Everything is essential, simple, elementary; everything is as stated by the Smithsons, *As Found*" [6]. This reference from Anna Rita Emili underlines how this project is included in that radical attitude of noting things, of knowing how to generate art from the everyday which in the 1950s was called *as found* and whose essence can be summarised in the words of designer Jasper Morrison: "It always seemed to me absurd to imagine that inspiration can be found without the influence of things seen, I like the idea that creativity is in fact the art of reprocessing what already exists and not, after all, anything divine or mysterious" [7].

The stone flooring around the fountain outside the pavilion laid with large displacements contributes to increasing the sense of materiality that pervades the garden, here irregularly expressed in the framework of a contrast with the rigorous geometry expressed by the façade of the pavilion. The architecture proposed by the Smithsons, it has been observed, "exemplified a strenuous attention to the realities of the world, whether that was, how a building stood up, what il was made of, how liquids passed through it or how the human body mounted stairs" [8].

3. Recent Experience

Among recent experiences, particularly in the British and Swiss spheres it is possible to recognize examples of architecture imposed on the culture of valorisation nowadays of the materials and the construction procedures as modified through time. Among these is the case of the volume of the exhibition gallery and shop of the Banqueting Hall at the Whitby Abbey complex in the county of North Yorkshire in England where the English architects Alan Stanton and Paul Williams were appointed by English Heritage in 1998 (Fig. 5). The ruined masonry of the old Banqueting Hall had been kept in a condition of ruin, meaning that it could be used directly in the definition of the new internal space for services and visitors to this place of archaeological interest.

Fig. 5. Alan Stanton, Paul Williams, exhibition gallery and shop created within the semi-ruined seventeenth-century Banqueting Hall in the Whitby Abbey Headland, Yorkshire (1998-2002). (a) Non-reintegrated ruin of the perimeter masonry. (b) Inside, with remains of the original structure.

Fig. 6. (a) Valerio Olgiati, Gelbe Haus, Flims, Switzerland (1995-1999). Detail of the façade. Photography Archive Olgiati. (b) (c) Naumann.Architektur, Showroom in Ramsen, Germany (2006). Detail of the entrance and relationship between an opening of the cell inserted within the old perimeter wall and the corresponding window. Photography by Zooey Brown.

Inside, the bare and non-compensated walls play their role in the definition of the environments. "New screens, showcases and forniture contrast with the exposed brick and stone of the historic building, creating a welcoming setting for archaeological displays and site interpretation" [9]. (Luzern, 2009).

In Switzerland, a significant testimony can be found in the so-called Gelbe Haus in Flims, the result of the transformation carried out on a 1995 project by architect Valerio Olgiati of a building made in the local tradition in a cultural space available to the community (Fig. 6a). The perimeter stone walls were brought to the facade in their entirety and the few variations in the openings produced with concrete additions also left visible, without coatings. The public space of the small inhabited centre is thus enriched with a building that shows its constituent material and the ways in which the work was done for its restructuring. It should however be noted, that in this case the complete white painting of the architecture appears to be contradictory, an operation that tends to attribute a value of abstraction opposed to the exhibition of its materiality. Olgiati writes: "The final coat of white (...) forms the outermost skin of the building. It conceals anything left unfinished. At the same time, it points to a certain contradiction. The white lime-wash seems to turn the childlike archaism and animal substance of the structure into an abstract thought" [10].

The experiment attempted by the Naumann. Architektur studio, based in Stuttgart, which has set up a showroom inside an old building without altering the physical characteristics, deeply marked by time, belongs to the German panorama. The intervention, implemented in the town of Ramsen in 2006, focuses on an architecture of the late 18th century damaged during the Second World War. Within the historical perimeter walls, which keep intact the material and chromatic characteristics generated over time, a new living cell made of wood is positioned from above and installed in place without there being any contact between the two enclosures (Figg. 6b, 6c). The openings correspond, even if with a certain, desired, imprecision. A new cover, also physically detached from the ruin brought to new life, comes to protect the architectural body thus obtained. "While browsing through the showroom, visitors may look into the sizable gap between the wood and stone walls, enjoying a firsthand experience of the ruin and its history" [11]. Respect for the signs, though traumatic, that history has left on the body of the building, is made compatible by the designers with the possibility of giving back utility to an artefact that would have otherwise been destined to disappear.

There are also some recent cases in Italy of architectural restoration with references to this orientation. Traditionally inclined to elegant finishing, including in the markedly material-based and neo-realistic examples, a considerable part of Italian architecture has rediscovered since the mid-1990s the authenticity of the material and the desire to read the history of the buildings crystallised in the moment of maximum decline close to destruction. Once again, this expressive tendency comes from a classical sensitivity exercised through the practice of conservative restoration and recovery of the urban spaces. The "Turin School", in an environment culturally and geographically apart compared with national trends, is distinguished by the marked formal independence of taste, proving to have an experimental attitude at the limits of brutalism [12].

Concerning this discovery and bringing to light of almost anatomic "layers" of architecture met in the moment preceding destruction, there is also the restoration work and re-assignment of meaning by Agostino Magnaghi regarding the ex Cinema Astra in Turin (Fig. 7). The building was to be an experimental theatre and dates back to the early 1930s. It was reduced to almost being a ruin after decades of being abandoned and aggressive "self-construction" carried out by squatters. The result of the restoration project (2005) - surprising and at the limits of provocation – enables to simultaneously read the refined marble surfaces in the foyer and the reinterpretation of the theatre hall, preserved and consolidated using stratigraphic archaeological methods. The condition of being a fascinating "ruin" offers a counter melody to the new functional spaces – hygiene services, dressing rooms, test spaces, annexes, and lofts – and an opportunity for unheard of Neo-brutalist staging [13].

It seems that the very recent re-covering (2018) of the grandiose, even though discontinued, production complex of the OGR – Officine Grandi Riparazioni (Great Repair Workshop) in Turin, corresponds to the same wavelength and tunes (Fig. 8). This architecture was transformed into the new Innovation and Creativity District, a meeting point for exhibitions, shows, concerts, theatrical events, dance, laboratories, start ups, and innovative companies [14]. The initial phase of the recovery of the workshop, built in the early 20th century to maintain railway equipment, was carried out (2011) by the architects Caviola, Femia, and Peluffo (already 5+1AA), then by the practices of Boffa and Petrone, For Engineering Architecture and Gruppo Building (2015-18). The project was deliberately completed in a "light" way respectful of the pre-existing, and keeping the severe character of the brick and stone construction framework, limiting the work to indispensable consolidation, meeting safety standards, and adaptation and adjustment of static structures and equipment. The overall effect, although partial (the recovery was being carried out at the time of writing), is going to be a type of changeable stage for stylish but ironic performances, characterised by impermanence and immateriality.

Fig. 7. Agostino Magnaghi, restoration of the Teatro [...] new [...] Sottile) a[...]

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5. Conclusions

The valorisation of unfinished, hardly processed materials and the decision to expose the construction methods in the building readable corresponds to a choice of an architecture based on authenticity and transparency, characterized by the full visibility of the materials and the construction techniques, on the valuation of the unfinished and the imperfect way building components used in the past appear now. The principle of the unfinished represents an opportunity for the space to assume different connotations with the passage of time thereby rejecting rigid a priori rules. Nothing can be and is ever finished once and for all. There is no perfection able to turn the thoughts of a person away from reality.

The principle that matters is that the detail is transparent, that the method used to join the construction elements together is legible, the building is understandable showing its history and the present aspect. This aptitude will favour a new way of reading and interpreting the ordinary of daily life, far from abstract ideological installations.

Considered to be of strategic importance in terms of the wider theme of sustainability, this argument has already been considered at the "IV International Convention on the documentation, conservation, and restoration of architectural heritage and landscape protection" held in 2016 in Pavia, Italy [15].

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MASS CUSTOMIZATION IN INTERIOR DESIGN VIA INTERACTIVE DIGITAL INTERFACES

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Abstract

Information and communication technologies are probably the most important instruments of our era. These technologies became indispensable instruments that are used not only for the specialists but for a big part of all societies in the world. Development of the interactive systems started at the period began with the rapid developments in these technologies in the second half of the '70s and beginning of the '80s especially. The concept of interactivity started to be constituted by interfaces making them adaptable to the relishes, habits, and needs of the users. Virtual interface designers who use the opportunities provided by newly developed technological substructures creatively regarding the needs and expectations of the users developed and put into service the virtual interfaces which can automatically recognize the users and can automatically be customized in an interactive way. In today's competitive environment, producers who realized the demand for these virtual interfaces, compete with each other in order to use the concept of interactive customization to use not only in virtual interfaces but in other products, as well. We face with the interactive customization approach in various products from the phones we use, televisions we watch to the cars we drive. The understanding of space design has also gained a new dimension by the usage of advanced intelligent building systems. With the usage of standardized construction elements and components could cover the expectations of the users to some degree but cannot totally match the flexibility expected from the space in the short-run. The expansion of the interactively customized product design and development of the intelligent building systems supported the usage of interactivity concept in space design. Just like it is in industrially produced but interactively customized products by using interactive interfaces, spaces can be designed in an interactive customized way.

1. Introduction

The technological developments since the beginning of the '80s, manifested itself in space designing as well as every other field of human life. As a result of the rapid improvements in information technologies, by the coalescence of short and long-distance communication technologies -especially internet and intranet- with the computer infrastructures and control other systems, enable the usage of the systems, which perceive external data and make decisions and react upon, in buildings. Intelligent building systems are the complicated systems that are controlled by an automation center which synchronizes several sub-systems integrated.

Especially after the industrial revolution, in the periods when industrial production gradually increased, standardized products became widespread in order to produce goods with a certain quality and standard and while providing this, as a necessity of mass production to be fast, easy, cheap and therefore with the purpose of being able to reproduce. To that end, some institutions are established to determine worldwide domestic and international standards [1].

Standardization entered space designing by various stages and with various reasons. With the beginning of the Industrial Revolution, in England, there had been a demand boom for the residences close to the factories and instruction of such buildings intensively made in that period. The peak reflections of standardization to space designing was perceived in Europe which had great devastation at the end of The World War II. European countries, whose economic power declined substantially, made benefit of the standardization principles to re-construct their devastated cities and with the serial, fast and cheap production guideline, it had been possible to construct the residences, factories, transportation buildings, and other service buildings. The emergence of the modernist movement and Bauhaus school became under the effect of these conceptions recently.

Construction of the skyscrapers -especially emerged in the USA and afterward became widespread all over the world- made for various purposes but office function primarily, with the principles of standardization in order to make the production easier, fast and economical. Standard construction elements, building components are used and designs are made due to the type of floor plans and produced.

Just like it is in all the products produced nowadays, standardization in buildings is essential in front of the designers. Now, not only to facilitate the production in large scale buildings' design and construction, in any kind

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of construction types from the smallest residence to the biggest skyscrapers, it is taken the advantage of this conception.

Individuals' differentiation and embracing the space they live in by making it in his/her own, is crucially depending on the customization of the space. Throughout history, we may seem that while people are building their residences, they want them to be different from the others. We may see that people reflected this desire to the spaces even in the collective housings build in the most intensive periods of standardization. Despite all the standardization, with its color, door, curtains or furniture, individuals wanted to make different the space they live in.

Generally, individuals' embellishes the spaces they live with artworks with this expectation, a person makes the space his/her own with the artworks he/she chose. In general, individuals want to customize any product, space or accessory they use in order to feel it their own and on one hand to feel unique in the community while, on the other hand, they are protecting themselves from the feeling of loneliness as a part of the society [2]. Sometimes, besides these reasons desire of customization may derive from personal tastes and needs.

An individual who is handicapped about usage may need to make the space suitable for him/her. Functionally make it fit his/her measures or needs is an example of customization. It may be necessary for individuals to customize functionally or ergonomically the spaces or products they use. With all these reasons, in our days the products which are able to be customized are the matters to be preferred among all standard products.

Standardization made itself apparent in all products and spaces produced after the industrial revolution. In the period where the competition understanding is very effective, the expectation of the production is fast, practical and economic led all the products produced to be standardized. The reproductive approach of mass production may seem correct from the production feasibility point of view. However, in practice, the outcomes of this approach, when each user is considered to be a different individual who has diverse needs, expectations and tastes, causes various boredom, usage difficulties or reactions and even may go further enough to lead psychological disorders on the users [3, 4]. While similar burdens are faced in the usage of all standardized products, especially in spaces where individuals live or work when standardization is enormous, because it directly affects the users physically or psychologically, the boredom that the individuals have may lead to being a basis for some bigger scale burdens.

These problems which are created by standardization derives from the dilemma that the individuals are faced when their incentive to customize the products and spaces they use is not constituting a difference from the products and spaces what other individuals use because of the standardization. Standardization approach is contradicting with individuals' incentive of customization. After the recognition of this problem, producers and designers began to seek for a solution.

2. Customization Approach With The Standard Modular Elements

Because of the hitches which users confront in many aspects as a result of the standard space phenomenon which is brought by industrial production understanding, producers and designer seek to find a solution. As the competitive understanding is very effective in the present market economy, standardization and serial production are not considered as a dispensable element and solution seeking is preferred to be within these standards.

The solution approach within the standards has been personal interior space design by using standard construction elements and components. Standardization in space design has been very effective and in personal space design seeking it is not preferred to abandon these standards. Instead of this a module system is developed suitable to these standards. It has been diversification in different shapes with standard construction elements and components in a certain modulation. This diversification has been made either with colors, patterns, and materials or with the production of a modular element in different styles and band together.

With this understanding, some construction elements and components are produced of different materials with different colors and patterns. A product range is constituted suitable to the standard that is to be used. With these product ranges created for each piece, various alternatives are acquired while constituting the space. By using these construction elements and components, designers could do personal spaces and producers could be benefited from the advantages of standardization and could present the users personally designed spaces.

Because the production of these products relies on a certain modulation and standard, they can be produced fast, easy, economic and reproductively proper to the nature of mass production. This is suitable for producers' understanding of feasible production. On the other hand, it brings great opportunities in terms of customization of the spaces with its endless combinations of the alternatives presented to the users. From the users' point of view, they can cover the expectations to some degree and be preferred [5, 6].

Today the modular kitchen furniture we use in our kitchens, modular sanitary ware we use in our bathrooms, tiles, and furniture types and even many of the modular furniture, the construction elements we use in floor and ceiling coverings are some of the products that are emerged as a result of this solution approach.

The kitchen furniture modules we use today have basically the same or very similar spatial constructions which are composed of the pieces sized regarding various standards and in terms of size and module are identical. By gathering the cupboards and covers that are coated with various coating materials and white appliance alternatives that are produced fitting to the modules, various combinations acquired and in the end space is perceived as it is different from another [5, 6].

Similarly, modular ceramic coating materials that are used in bathrooms frequently and sanitary ware which is produced and designed due to the standards and various modular bathroom cupboards are standard construction elements and components which are diversified with this understanding. Very different spatial effects may be constituted in a standardized space within a certain modulation understanding by using these items to be produced in different colors, patterns, materials, and styles. Thereby, customized spaces' production and design, which are suitable for the individuals' relishes, habits and functional necessities, had been possible.

The constitution elements and components which are used in interior design and diversified with the purpose of customization of a space are not limited to these. Many of the construction components such as carpets, parquets, tiles and so forth, and suspended ceiling elements or standardized modular doors are produced in standard sizes but with different colors and patterns and enables such a diversification. As a result of the industry's development, today's space designers and producers can access to a wide range of products which are enabling the customization of the space but produced within a modulation understanding suitable to the modules and use them [5, 6].

A customized interior design solution in a modular structure by using standard construction elements and components, although provides individuals an opportunity to live in more personal spaces within the standards; it cannot present endless flexibility in its real sense. Although the space designers and producers make space special to person due to the users' expectations, tastes and functional necessities in the stage of space designing with this method, these spaces cannot show extreme flexibility against the changes in the needs of the users. These changes made in the spaces are static and mostly permanent. Space's showing alteration with the needs emerged in time is only possible with great interventions and handled once more by the designers and partial and total reconstruction [5, 6].

Moreover, the struggle of customization in a space which is designed in a common area and used by more than one user could only cover a particular part of the users' general relishes and expectations. Although it can meet the expectations of the users better than a totally standardized space, it is impossible to be perfectly suitable to the needs and relish of each user. Customization is long-termed and is not flexible enough to fit the instant changes [5, 6].

3. Virtual Interfaces and Interactivity

Information and communication technologies are probably the most important instruments of our era. These technologies became indispensable instruments that are used not only for the specialists but for a big part of all societies in the world. Today, from the most complicated computer network to the simplest telephone, it is tried to be benefited from the advantages of these technologies [5, 6].

Over time, this developments in the substructures of information and communication technologies provided opportunities to develop interfaces which derive easy and widespread usage of this technological substructure to the users and various virtual interfaces emerged. The interfaces developed, with either the user demands or with the creativities of the designers, provided the flexibility to be changed enabling the users to use the design which is personal for them. Interactivity concept started to be constituted by interfaces make them adaptable to the relishes, habits, and needs of the users. Virtual interface designers who use the opportunities provided by newly developed technological substructures creatively regarding the needs and expectations of the users developed and put into service the virtual interfaces which can automatically recognize the users and be customized in an interactive way [5, 6].

In today's competitive environment, producers who realized the demand for these virtual interfaces, compete with each other in order to use the concept of interactive customization to use not only in virtual interfaces but in other products, as well. We face with the interactive customization approach in various products from the phones we use, televisions we watch to the cars we drive. Space users' customization expectations on the short and the long run about the spaces they use or work for various reasons, will be confronted by the designers inevitably in the present day just like it used to be in the past. As an outcome of the industrial production's expansion space design and production like in other sectors, standardization created a dilemma with these expectations. Designers and producers seek to find a solution to this dilemma [5, 6].

A customized interior design solution in a modular structure by using standardized construction elements and components is the most widely used among the solutions brought by those seeking and it is still in use today. In this understanding, some construction elements and components which are the same sized and suitable to the modulation, are produced in different colors and patterns. A product range is constituted suitable to the standard to be used within this modulation. Various combinations can be acquired with each piece used creating the interior

space. By using this method, designers can make their customized interior designs by using standard products, producer both benefit from the advantages of standardization and present users customized spaces [5, 6].

4. Mass Customized Interior Design via Digital Interfaces

The understanding of space design gained a new dimension by the usage of advanced intelligent building systems. With the use of standardized construction elements and components could cover the expectations of the users to some degree but cannot totally match the flexibility expected from the space in the short-run. Solutions are static, approaches matching the average relish and needs of the users due to the general expectations of the long-term.

The expansion of the interactively customized product design and development of the intelligent building systems supported the usage of interactivity concept in space design. Just like it is in industrially produced but interactively customized products by using interactive interfaces, spaces can be designed in an interactive customized way [5, 6, 7].

In the solution of mass customized interior design, it is constituted some features like being suitable to the standard production but be flexible enough matching the periodical needs and expectations of the users by using intelligent building systems, designing the system components by integrating them to each other or to the space to be designed. Although this flexibility could be for a single user, this diversification can be increased by creating scripting and database for multiple users due to the substructure and opportunities of the system in use.

Just like it is in the first solution seeking, in this solution seeking the use of standard construction components and elements can be used according to the user group's general relishes, needs and expectations and space can be customized due to the usage of this group of people. The building emerged is coated as to support the same understanding with intelligent building systems and make them more flexible. All components of the intelligent building systems should be integrated with each other to space due to the customization features expected from the space.

Building automation systems and building management functions as a brain in this solution. By virtue, a manually constituted database within the scope of the system's capacity in use and data uploaded to the system, the changes in space are organized and synchronized [8].

Security and user recognition systems constitute the most important perception organ which enables the space being interactive and provides a database to provide security in the usage process of the building at the same time. With these systems, the user or users of the automation center could automatically be recognized [9].

Lighting and lighting automation are the components which can provide very basic visual interaction. They organize artificial lighting tools due to the users' relishes and needs. They consist the substructure which can control not just parts of the artificial lighting but also parts of the natural lightning affecting the space either due to the data in the scripting systems or to the instant expectations of the users in an automatized way. They enable any kind of lightning to be customized.

Air-conditioning and air-conditioning automation systems are conducting the duty of atmospherical customization of the devices working for artificial and natural ventilating, heating and cooling to cover the instant or long-termed demands of the users in an interactive way. These systems also control the quality of the air and bring an economy to the building management by optimizing the system's work [7].

The space designed with this solution leads the maximization of the customization by the virtue of contemporary media devices. The usage of sound and audio systems enables visual and audible changes done in a flexible way in the space. The substructure in use is able to be updated on time constantly and endless combination and flexibility can be constituted by the virtue of various [10].

The usage of information and communication systems enables the space and the users to communicate and telecommunicate with the outer from the highest level and provides the opportunity to be benefited from the latest information transfer systems. Besides this, remote usage of the space could be possible. With the integration of these systems to the visual and audible systems, the space equipment with new interfaces could be possible [11].

The understanding of customized space design by using intelligent building systems is a structure which performs a more flexible diversification that uses visual and audible media substantially in space's decoration than the solution of customized space design by using standardized construction elements and components. With this interface, space can be customized in an interactive way. By the virtue of information and communication systems in use, this interface can constantly be updated, and be diversified rapidly due to the user group and expectations.

With this new solution approach, the concept of interactive customization which is used in industrial products design can be used in space design, as well. A new space concept called 'interactively customized space' emerges. This new space concept brings out a new approach to space design, as well. The interactively customized interior spaces, future interior spaces can be designed with a new approach.

The space designed with intellectual building systems is a dynamic structure rather than being static. Space can show off interface diversification with its users in an interactive way. These changes can be acquired automatically

and with various components from all aspects. The diversification in the interface of the space can be permanent, short-termed or instant related to the change in users. The space can provide the opportunity of user recognition, storage of the relishes, habits and functional expectations of the users in its database and decide to use them if necessary.

5. Conclusion

This new understanding of interactive customization interior space design's most significant difference from the traditional interior space understanding is having the design process in two main parts despite the former for once design before the usage of the space. With this new understanding process of design, one stage is before the usage of the space and the other is in the process of usage in a constantly sustainable way. According to this model, before space's usage, the design process consists of the stages preliminary survey, design and application just like it used to be in traditional space designing stages. In these stages, determination of the functional purposes and margins of the space, determination of small and big sized scripts as an outcome of specifying the user profile by identifying the user group, are done. Which intelligent building system substructure is going to be used in order to manage the scripts determined with this fixation comes out, as well. The most important peculiarity in the process of design is the dynamic structure of the space rather than being static. In order to be benefited from the advantages of this peculiarity, it is crucially important to make a design suitable for this dynamic structure. After the designed space is prepared by using standard construction elements and components, the intelligent building systems are integrated according to the scripts to over this basis [5, 6].

The most important difference of the interactively customized space design process model is the necessity to continue the process in the stage of the usage. Updates and changes are done in the space whose scripts are determined and which is designed and equipped with intelligent building systems. By storing the usage data of the user profile in the database, a creation of the new scripts can be done to some degree due to the relishes, needs, and demands of the users. Besides this, by examining the data in the database, designers can make interface and script designers and upload them themselves [5, 6].

According to the interactively customized interior space design model by using intelligent building systems, design process continues after the usage of the space has begun. While planning the process, it must be considered that pre-use design stage could be for once just like it was in traditional space design process but the design process in the stage of usage should be in a sustainable way which is repeating itself as a cycle.

As an outcome of the peculiarities that the spaces gained such as interactive customization with the intelligent building system integrations and being able to be decorated with various interfaces, in the future the users will bring the customization feature to the spaces just like they do it to the interactive devices like computers or mobile phones today. By the virtue of these systems, the users will be able to choose and upload to their spaces, whose substructure is designed by the designers and equipped with intelligent building systems, the interfaces which are also designed and presented by designers and most suitable to their tastes, needs, and demands.

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MESSAGES OF VENUE HEIGHTS AND NATURAL LIGHT USE TO THE USER- A REVIEW OF ANCIENT EGYPTIAN TEMPLES

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Abstract

The structure of architecture continues to evolve with the desire of man to keep a stone of his height upright, to build the stones with masonry them in a row, and to build a higher structure in every new period. Each time, it is used as a tool to show the administrative, religious, military and similar powers and representations of architecture as well as to increase the need for closed spaces to be used by societies by the desire of higher structure or greater openness.

From past to present, the desire to create the effects of space design on the user, such as pressure, power, will, representation, has revealed the condition that those who need to create architectural works with this desire and continuously use the architect as a tool. It is observed that structures serving these purposes were constructed not only as a solution of performance areas for different reasons with different periods. Today, the same situation is observed in many structures that serve different actions.

The ancient Egyptian period includes the architectural structure and portable/immovable works that have taken place in the history of civilizations and whose archaeological excavations and mysteries are still being investigated. No ancient culture in the world has built as many temples as an Egyptian civilization. Thanks to the temples that survived hundreds of temples throughout Egyptian history, we have been given a unique opportunity to see the lives and insights of the ancient Egyptians [1].

For the study field of this assertion, the ancient Egyptian temples, which were examined on the messages given to the user by the use of venue heights and natural light, are the most special structures of the period in the history of architecture. In the space design of these temples built on behalf of the Kings and gods of ancient Egypt, it was studied how religious beliefs and culture influenced architecture, how architecture creates pressure on its user, and how it directed the physical and mental state and behavior

In addition to the literature survey, the study was carried out in the temples selected as the study area by the examination and photographing.

Key Words: *Ancient Egypt, temple, natural light, venue height*

Introduction

Architectural works have been built not only with the need for closed spaces, but also with the aim of the proclamation of power and will among societies throughout history, or establishing dominance over society. Every structure made more massive than the human scale was the base of the higher structure. Throughout history, the structures forming bases were built as masonry work constructions before the ages. With the industrial revolution, new materials have been introduced, new structure and construction systems have been added to the stack structure system which has been maintained for millennia with the advancement of science and technology. The ability to rise and openness in buildings that were tardive before the industrial revolution has dramatically increased its momentum after the Industrial Revolution. Although the industrial revolution in 1851 led to the further construction of buildings and openings, the reasons for the desire to high construction of the spaces have remained the same for millennia. While designing a space, the ergonomics of the user, depending on this the activity areas and heights are studied. The evaluation of the decisions taken during the design of the venue is essential for the comfort of the venue. The effect of the agreed heights and venue areas on the user during design, "how does the user perceive a space?" it brings the question to mind. Psychologists and philosophers call the coding and organization of the data acquired through sensory organs in the brain as "perception." For living beings, perception is the first stage of learning, so the first condition for the living space to be defined will be perception [2]. In general, human beings are "eye-centered" creatures. We receive 80% of the knowledge about the outside world with our eyes, 18% with our ears and 1% with our nose [3].

The proportional relationships of the data transmitted to our brain during the visual perception reveal our first judgments about a venue, such as size, depth, and height. Our perception is judged venues by ratios. The ratio refers to the harmonic relationship of a part with the other parts and with the whole. This relationship can be not only a relationship of magnitude but also a relationship of quantity or degree. The ratio and size of elements forming venue is a visual determinant of the size and scale of the venue [4]. The ratio or measure means that it is in harmony with the person who will use the place. In order to provide a positive moral environment, the ratio of the venue should be based on the human scale, depending on the requirements of its function. A narrow corridor, a low ceiling, an immense hall, with its dimensions, evoke adverse effects on the psychological structure of an

individual. Therefore, the size of the structure according to a human being, the architectural impact is considered to be one of the crucial features that make it ideal [5].

Although the massive structures in the history of architecture have the proportions defined in their compositions, the proportions began to move away from the human scale as construction techniques progressed. As mentioned before, this situation can be observed when looking at the first examples of the architectural structures, both from the need for closed venues and from the administrative, military, religious and similar power and representation markers. Karnak - Khonsu and Hatshepsut temples, which have survived from the ancient Egyptian civilization, have been chosen as their work area regarding their location and their characteristics. In order to understand the notifications and meanings of the temple venues and elements to the users, the formative principles of the temples were first examined.

2. Ancient Egyptian Temples and Their Formation Principles

Ancient Egyptian civilization consists of periods called respectively; Archaic Period (B.C. 3100-2686), The Old Empire (B.C. 2686 - 2181), First Intermediate Circuit (B.C. 2181-2133), Central Empire (B.C. 2133 - 1786), Second Circuit (B.C. 1786-1650), New Empire (B.C. 1650-1085) and Late Period (B.C. 1085-322). Before these periods, the prehistoric (B.C. from 4000 to the Stone Age) period comes [6]. The most significant role in shaping the structure of Egyptian civilization is the belief that religion, especially Pharaoh, was God on Earth from the beginning [7]. For this reason, in Ancient Egyptian Civilization, where the local architecture was made of clay, there was no example of the present day, religion sat at the core of everyday life and shaped all life rules.

Temples have been considered as the house of the Gods. For this reason, the Pharaohs paid attention to these structures by building many temples or adding to existing temples in order to serve the gods ' assent. Besides, they aimed to build a tomb temple and protect their mummies and private belongings to guarantee their survival after the death they believed existed. To symbolize immortality, they also used a "stone" of building material that has an infinite lifespan. The "Sun" and "Nile" are the two most essential elements for the lives of the Egyptians, this situation reflected in their temples. Giving life to Egypt, the Nile played a vital role in the development of culture and architecture. It is believed that the holy water of the Nile came from the sky or that it reached Egypt in mysterious ways under the ground, and the Nile was almost sanctified. The Nile River is an "aqua vitae." The sun is also indispensable for people and agriculture, so the sun symbol has been engraved on all ancient works[8]. The temple architecture linked to the Nile River has a unique structure in Egypt. Most of the temples are connected to the river with a channel system, even those far from the Nile. Wharfage placed in front of the temple is thought to have provided the evacuation of the supplies brought to the temple and the God's ceremonial procession to travel with water[9]. In the mind of the Egyptian, it is thought that the journey to the other world through water, flowing smoothly like water and going to the next world is also supported by the Nile River[10]. The Egyptians believed they would be resurrected after death. They would assimilate to it to the winter and spring of nature, as an example of death and rebirth, they thought how god Osiris has come to life again, so human life must resemble him[11]. They put their thoughts into practice, leaving immortal works.

The temples are located to the East and West of the Nile River. The sun god "Ra" comes at the top of many gods believed in Egyptian civilization, which cannot be counted. The judgment to take the sunlight to the temples and not to take it was used as a design decision for how the user perceives the place. Also, the sun's setting and its rising are important regarding symbolism, so it played a significant role in the positioning of temples. The fact that the tomb temples are on the west side of the Nile River, where death is symbolized, and the temples of God are on the east side where birth is symbolized is a sign of faith. Within the scope of the declaration, Karnak - Khonsu temples to the east of the Nile River and Hatshepsut Temple to the west of the Nile were studied in Upper Egypt (South Egypt). As Karnak Temples are the most massive temple complex in Egypt; Hatshepsut temples are considered to be one of the best examples of building techniques, the use of natural light and tomb temples that have survived to our day. Therefore they selected for this study.

2.1. *Temples Of God*

The Temple of God, which represents the divine power, is located in the east of the Nile River. Karnak temples within the scope of the study are the rarest works of the time. Karnak Temple, between 1391-1351 BC during the reign of III. Amenhotep and sovereignty of the city in the middle of the 18th century and it was built by during the reign of Pharaoh III. Tuthmosis. Then Tutankhamun and Horemheb made additions to the temple, and II Ramses completed the temple. Thirty Pharaoh added to the temple to do better than that which was before him and to leave his mark.

The Karnak temple consists of three major temple sections; the Amun temple area in the center, the Mut temple area in the South, and the Montu (Medamud) temple area in the North. The largest temple in the Karnak Temple complex is the Amun temple. The Amun temple section was built on a domain of approximately 550mx480m. In this study, the Khonsu temple in the Amun temple area is chosen as a God temple unit because it best illustrates the main parts of the new royal temple of God. Khonsu is the son of God Amun and Goddess Mut. He was depicted as a young God with the head of the falcon and the crescent or the full moon on his head. Khonsu represented the

moonlight and was seen as a God in communication with the underworld. His father, Amun, represented the sunlight as Amun-Ra in the form of the Sun. When the sun went down, he was helping, his father, Amun's travels into the underworld in the evenings. The third Ramses built the temple of Khonsu in the Amun Temple area and later additions were made by the kings[12].
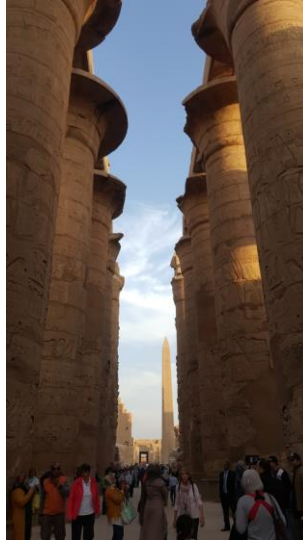

Fig.1. The Hypostyle Hall of the Amun Temple

The purpose of the building of temples in Egyptian Civilization, which established the life order on religion, is to reflect the divine power by giving the splendor and sense of occultism of religion [13]. The adoption of the Pharaohs as Gods on Earth and they are taking their representation from the symbols like sunlight and sun made the use of natural light in the design of the temples significant. Although the spatial scrutinizing was made through the Khonsu temple, temples built in the name of the Gods are generally composed of six main parts.

1) Entrance path: Sometimes Sphinx, sometimes the sun symbolizes the statues or only obelisks are lined with a full path. They represent still but careful beings, the physical ones, with their posture, that are the way to the original temple.

2) Pylon or pythons: They are high-columned entrances that unite humans world with the divine world and distinguish it from it. The broad surfaces of sunlight are the entrance door to the holy place with their long pennants that fluctuate on top of the poles based on the outer walls and describe the life and constant movement. The heights and surfaces used to make the user feel divine power and the incapacity of the servants. In the figures drawn on the walls of the open courtyard and the upper sections of the pylons, issues related to the world life were considered. As we move towards the inner parts of the temple, the subjects depicted have changed from secular subjects to religious subjects. The rise of darkness, the rise of the ground, and the gradual change of the drawn figures as they approach the sacred room are the reason for the mystery of the temples of God, creating a sense of majesty and occultism over the users[14].

3) Open courtyard surrounded by columns: The columns are decorated with colorful reliefs that show venue users the various experiences, victories, and defeats in life.

4) Hypostyle hall: Light and shadow plays are often created in the small columned Hall, which represent the double role of a bridge between the outer world and the inner world. The next part of the venue is closed with a relatively narrow door. Beyond that, there is a mysterious world. In venue design, this mystery, light - shadow games are felt with closed doors that give the user the height of venue.

5) Sacred Room: In the next hall there is a ceremonial vessel held inside a pedestal made of polished stones. This vessel is a necessary tool for spiritual change, and according to belief, there are no heavy and voluminous dimensions in life that appear after death. The vessel, decorated with God figures, is worth watching on the Blue Nile in The Starry Sky. Most of the time, semi-transparent curtains are behind, and in order to give the feeling that they are watched in steamy waters full of magic and mystery, in the censure around them, incense and other fragrant resins are burned. These odors were able to directly affect the user of the sacred room, whose ceiling height was lower than the entrances.

6) The next area we can call a prayer room is like an underground room that was washed in the sunlight hidden behind the temple - this is called the sacred venue where the secret sacraments are performed. As corresponding elements, small places of worship built on the bottom and sides of the place are used in various ceremonies, the consecration of sacred items, and the mission of God. Here, the soul of man is designed to guide the feelings of venue, even though it is trapped inside a body because it is intended to reach the heights as free and powerful within all conscious immortality.

The holes in the ceiling are usually in the form of a funnel, and they pass the Sun's rays by focusing on them at certain times. In their position, they have the possibility of lighting the depictions of various Gods or certain points on the ground. Just like the stained glass in Gothic cathedrals, thousands of years later, illuminating some of the hidden signs on the floor, it was ensured to remind the user of some of the symbols.

Various places of worship and ritual could complement this central scheme. Pharaoh and his high-ranking reverend did not use the pylon door to enter the temple, but they were able to enter the hall or courtyard directly from the entrance to the left and witness the feelings of love and devotion of the people who were waiting in respectful silence. There were some places of worship on the terraces in the back as well as underground rooms in the temple [15].

1.
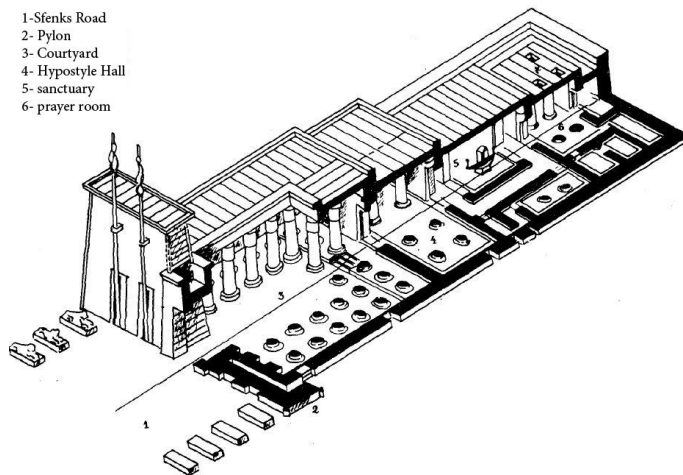
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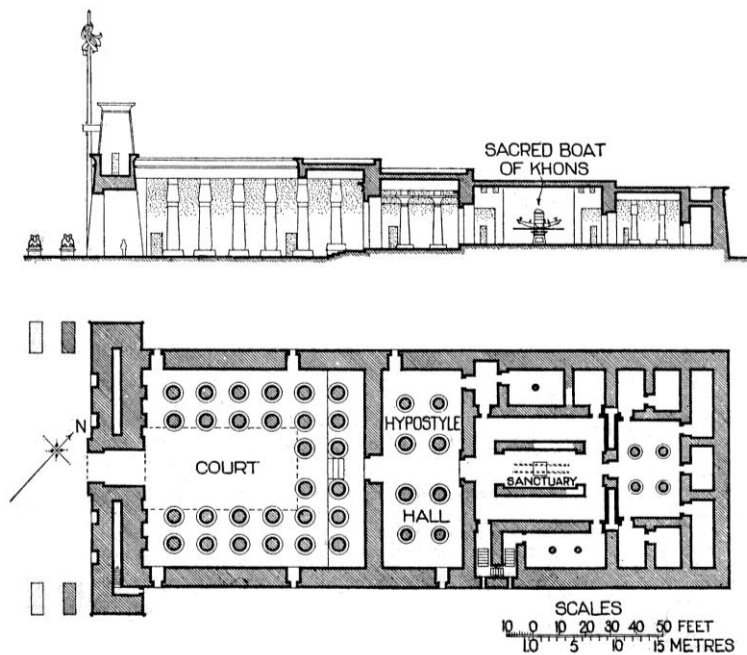
3.

Fig.2 Plan-section and perspective of the Khonsu temple [16] [17]

4.

In overall planning of the Temple, moving from natural light to dark places was achieved by decreasing the height of the places. Starting with the high pylons, both the wall height and the ground elevation, the ceiling height decreases as user approach the sacred room. In this way, a pyramid or triangle was formed. This was an essential symbolism for the ancient Egyptians. Because, the end of the pyramid, the horizon, representing eternity. In the same way, it represented the "Ancient Hill" in the world's creation myth. This is the reason why the pyramids were built in this way, in the early royal period. After passing through the high walls surrounding the temple and the big door, it was felt that those who came to worship had entered the region where the gods were found and lived, and they were close to the world of the gods. The statues of the gods were placed in the chest and placed in the mihrab in the sacred room, with a dark, spooky and mysterious atmosphere at the bottom of the temple. The statue placed on a vessel was carried and presented to the public only on special days and holidays by the monks[18]. The doors

were placed at the entrance of the place, and the place was made to be even darker and bleak to ensure the isolation and privacy of the sacred room[19]. In ancient Egypt, worship and magic are intertwined with each other. Magic is one of the most critical activities of the clergy[20]. The spiritual atmosphere created by the dark and low ceiling venues designed on humans was used to increase the influence of magic on society.

5.

Fig.3. Pylons of the Khonsu Temple and the Open Courtyard (visuals belong to the second author)

6.

2.2 Tomb Temples(Mortuary Temples)

   Another type of temple in Egypt is the "Tomb temples" built on behalf of Kings who will be deified after their death. Egypt's King tombs are examples of individual graves in other civilizations. The belief that the Kings will live eternally is fundamental for Egypt to live in harmony. Therefore, a tomb temple was built in front of the graves where the Pharaohs were buried. The statues of Pharaoh were placed here just like the statues of God, food was left to the altar every day, and an artificial door made of it allowed the dead to come to the living world and feed. [21]

   Tombs belonging to individuals and tombs belonging to Kings were initially built according to different ideas from one another. Because, according to religious beliefs, the tombs to be made for them are considered to be divinity after the Kings died[22].

   The tombs of the Kings were built as pyramids, but because of the burglaries, the tombs were carved into the mountains during the intermediate and new royal periods and placed in the grave chambers. The tomb temples in ancient times were composed of a small structure on the eastern side of the pyramids, and in the new royal period, they became more extensive and more splendid structures. The intermediate royal tomb temples influenced the new royal tomb temples, but in terms of size and complexity, they passed the intermediate royal temples. Every king has made these tomb sanctuaries especially for himself. These types of sanctuaries are far from the tombs, but they are carved into rocks in the same mountainous area. They replace the sanctuaries of the dead, whose plans were made at the beginning of the old traditions, with other forms and smaller proportions. Both the plans and the location and the size of these sanctuaries separate from the tombs are essential for the ancient Egyptian history [23].

   Within the scope of the declaration, the temple built in the name of Hatshepsut, one of the female rulers of Ancient Egypt, which lasted 15 years to be built, was taken. The temple consists of three open courtyards, each of which is a separate height. Hatshepsut noted that she built this temple as a "garden for my father Amun"[24]. The temple built by the ruler of this woman is anchored by columns placed on the slopes of the hill at the foot of a mountain and rising upwards in the form of terraces. On the top terrace there is the actual sanctuary, and behind it, there are many places of worship carved into the rocks. On the walls of this temple, scenes of the Queen's origin and her government work were depicted as a relief.

   The temples built during the ancient and intermediate royal period were very modest compared to the new royal period, both in volume and with its possessions. Both types of temples built during the new royal period were mainly composed of four main parts; Pylon, halls, courtyards and sacred venues, these similarities are common characteristics of the two temple types.

1- Pylon (one of the main parts): It is the entrance gate to the temple area. It was a wall surrounding the temple, and it was entered through Pylon, but it did not reach today.
2- Entry path: To reach the Hatshepsut temple, people will go through the Sphinx path.
3- Courtyard (one of the main parts): It is the area that comes after the pylons. Thanks to the terraces carried by three different heights and columns, the main temple section carved into the mountain are reached.
4- Hypostyle Hall (one of the main parts): Surrounded by the columns we call the terrace or the upper courtyard, it is a brighter place than the hypostyle in the temples of God. This part changes in other temples.

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5- Small votive and Temple Chambers for different Gods[25]
6- Sacred room (one of the main parts): It is in the darkroom, just like the temple of God. This room is dedicated to God Amun in the Temple Hatshepsut, and it is located at the bottom corner of the temple. In some temples, on the axis of the sacred room and the bottom wall, the statue of the king and the statue of God were placed next to it, and on certain special occasions, sunlight illuminated these statues. We see this feature in the Temple of Hatshepsut - this symbolized the resurrection.

The signs and symbolic meanings of natural light in the Hatshepsut temple are as follows: as we saw on the terraces, the columns created a rhythmic optical image by creating light and shadow plays. On 6 January and 9 December, the sun illuminates the statue in the sacred room on the day of the festival celebrations in the temples. One of these two days is for celebrating the feast of the God of music, happiness, marriage and birth, Hathor and the other of Horus, the God of Sky. The lack of the ceiling of the sun temple, located on the right side of the third terrace, adds to the feeling of eternal venue. The sacred room is entirely dark, adding to the symbolic meanings of light and shadow.
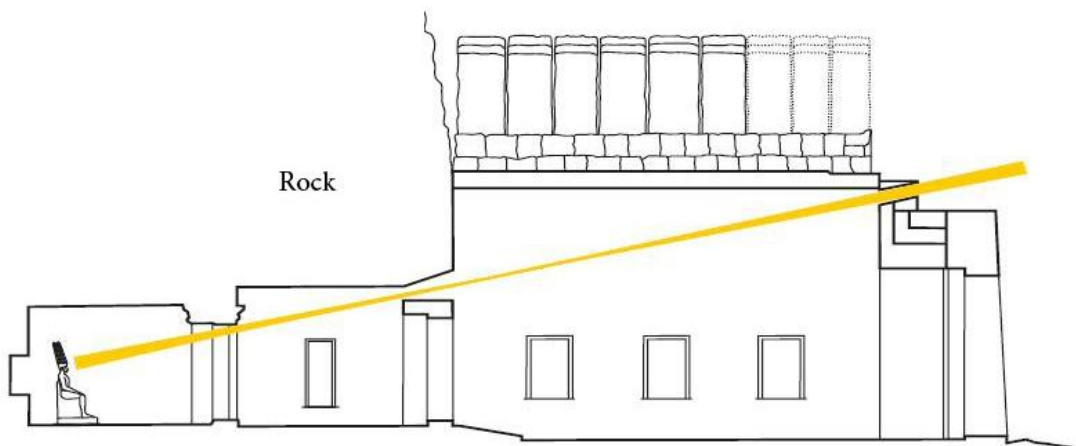
Fig.4. In the sacred room dedicated to Amun –Ra, the sun illuminates the statue placed at the bottom of the sacred room on certain days, and also shows the rise of the floor and the fall of the ceiling[26]

Amen sanctuary

Southern chapel of Amen   Northern chapel of Amen

Chapel of Hatshepsut
Chapel of Thutmose I
Hathor chapel

Sun court and altar
Upper chapel of Anubis
Vestibule before the Sun Altar
Osirian statues of Hatshepsut
Lower chapel of Anubis

Upper court

Upper
colonnade

Portico before
Hathor chapel

Scenes of the Punt expedition   Scenes of the divine birth of Hatshepsut

Ramp

Northern colonnade

Second court

meters

South colonnade   North colonnade

Scenes of Hatshepsut's temple
building, including obelisk construction

Scenes of Hatshepsut destroying
enemies, hunting, and in *sed* festival

Ramp

First court   First court

Entrance

7.

central core   ambulatorium   upper hall

lower hall

Fig. 5. Map of Hatshepsut's funeral temple, Deir el Bahari, Thebes(Luxor Today), Drawing by Deborah Shieh [27] [28]

3. Conclusion:

Architecture has not only met the spatial needs of people throughout history, but it has been realized that space design can create effects such as pressure, power, resolution, representation on the user and that those who need this condition are constantly exposed to the situation of using an architect as a tool. Since religious belief in ancient Egypt is the focal point of everyday life, and because the homeland manager also lives with the rules that this belief is found in the body of the world, temples are still in the field of studying science and art in terms of their content and varieties. Temples were built to convey the subjects of their beliefs, such as the ancient hill, the Nile River, the birth of the East and the death of the West, the association of the most revered gods with the Sun and Sky, as a message to the venue users. In these temples, natural light and venue heights were used as tools to keep religious beliefs and domination. When a quick look is made in the historical process, all the structures in the

history of religions after the beliefs were built to provide the specific spatial needs, as well as the rules of the religion in which it belongs, the messages it wants to give or the pressure it is trying to establish. The palaces built by the rulers who care about the mortal world as well as the world after death are another example of these buildings.

In the thousands of years, this situation has made us so much aware that visitors in the ancient church, where Edoardo Tresoldi gives life again in Puglia, Italy, have been observed to be controlling their voices and behave as if they were wandering in real religious space [29].

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USING THE "CONCEPTUAL DESIGN CODES" IN DESIGN EDUCATION: ARCHITECTURAL DESIGN STUDIO EXAMPLES

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Abstract

The architectural design is to interpret, determine and document the conceptual, functional, formal and structural characteristics of the whole structure, which will perform the functions determined the requirements [1]. Architectural design problems are complex problems. The first steps of designing process begins with concepts which the designer design the defined spaces that he experienced and concrete forms which create in the mind of designer. The first idea put forward for the realization of a design process requires concepts for the mind to embody the design. Concepts can be thought of as the design's spiral DNA chains. The unique product that will emerge comes side by side with the random combinations of these conceptual DNA chains in the designer's mind. Each designer draws his own unique DNA chain by approaching the design with different experiences of mind. This metaphoric chain will be described as CONCEPTUAL DESIGN CODES in this study. In line with these unique codes, the designer develops his own unique method and strategy and completes the design process in which he started. The extent to which these CONCEPTUAL DESIGN CODES are reflected in the product of the result of the mental experiences of the designer is what distinguishes each designer from one another. It is important in this step that a learning and development is carried out by questioning through concepts; it is necessary to implement a Conceptual Design Code that transforms the objectives in the form of abstract and conceptual definitions into design concepts. The possible solution for a design problem must provide a set of demands and the interactions between these demands. However, the amount of information related to the solution of the design problem is very high and is usually related to many disciplines [2]. Architectural design is an interdisciplinary team work in the context of architecture's own knowledge area and many different fields of knowledge. Nowadays, it needs knowledge of experts from different disciplines to design complex functional structures. The design process of architecture has changed with the expertise of architects and different disciplines. Traditional design methods are become now questioning in the field of architecture. This shows that the sharp limits of architectural design methods cannot be drawn. This state of boundlessness in architecture has become an important stage of architectural education. The questionability of the field of architecture and education leads to the formation of different educational processes in architectural education. In this context, the aim of this study is to examine how the concept production phase, which has an effective place in the architectural design process, in other words the Conceptual design codes production by designer can be used in architectural design education. This study, which examines concept production in architecture education, has been carried out with 9 students within the scope of 2014-2015 Fall Term 3rd Class Architectural Design Studio Course 5 and 10 students within the scope of 2014-2015 Fall Semester 2nd Class Architectural design studio Course 3 in Architecture Department of KTU. The design subject of Second grade students was "memory house" and the design concept of design was "Turkish Republicans of Republic Period Literature". The design subject of third grade students were "museum" and the concept of design was "ideological –isms". The second-year students designed a memory house by creating Conceptual Design Codes for a literary chosen by Turkish Literature writers. The Third-Grade students have designed and designed a CONCEPTUAL DESIGN CODES for a topic they would choose from among ideological -isms. The main objective of the project is to teach students how to design concrete spaces through the concept in architectural design process.

1. Introduction

Architecture is a part of the social structure, a reflection of the economic and political order, as a projection of the scientific and technical world, as part of a much larger universe in the sense of the products that the production process requires. It takes its causes and resources from this great universe. It also makes its products available to this universe. Therefore, the relationship of architecture with other structures constituting this universe is

inevitable. This inevitable relationship is dominant in the production process, and architecture reflects each different data it collects from different elements of the universe and reaches a synthesis and reflects it to its product [3]. Tanyeli states that architecture borrows information from other disciplines that concepts belonging to other disciplines shift to architecture and that architecture is a giant sponge that absorbs all kinds of information [4].

Although architects exhibit the action of spatializing more visually, they also use words to share their thoughts. However, it cannot be said that these words have too much part in creating space. Because architecture has its own linguistic registry. These words are texts that use architecture terminology and have meaning for their profession. On the other hand, all kinds of words produced for the space outside the words of architects play an important role in strengthening its existence [5].

Tümer states that the relations between architecture and language have a certain history and that in fact, similarities or distinctions between architecture and language have been explored by various philosophers, and since then architects have actually used the language. Tümer supports the relationship between language and architecture with the following references from different sources [6]. Quatremere de Quincy, for example, builds a similarity between architecture and language in a book on Egyptian Architecture in that it is an invention of all humanity, not a single person [7]. According to Tümer, there are many situations in which language is actually used in architecture. For example, before the design of an architectural work, some of the information that needs to be gathered is carried out on a linguistic level.

The transformation of the paradigm world in today's design world requires a rethinking of architectural education. The concepts, values, and techniques involved in disciplines other than architecture can be used to describe the architectural design paradoxes and their solutions, which will provide the basic information flow for architectural education. Students must be aware of the changing balance of architectural paradoxes that require a more holistic view to develop creative thinking and transform the flow of information [8].

Nowadays, how the design activities are done mostly, the stages in the mind and the concepts and which are the most important are not even clearly understood by the designer and therefore cannot be transferred to the audience. On the other hand, every design has a conceptual background; however, neither most designers are aware of this conceptual system, nor do they give sufficient attention to this stage. The thoughts in the mind of the designer cause many valuable concepts and ideas to lose their value over time and become pale [9].

The aim of the study is to show the possibility of different methods and perspectives towards the beginning of the designing action in design education. With these different perspectives, it is thought that the concept of definition and concept of CONCEPTUAL DESIGN CODES in the minds of architecture students and the process will be a solid foundation in terms of design action. In this context, first of all, the analysis of the concept and concept production in the architectural design process will put the study on solid theoretical basis.

2. Concept and Concept Production in Architectural Design Process

2.20. Concept

The concept is a idea bearing in mind, a first thought about a project or a series of first general idea. It can be very simple or very detailed, and sometimes it can be a coincidental thought. In other words, it is a generalization that can be seen as a whole, without being divided into specific parts [9].

Archer; has defined the concept in its simplest form as the naming given to a number of things with any partnership [10].

According to Gagne (1996), the definition of the concept can be done in many ways, but from a cognitive point of view, it is concluded that the concept is the result of a mental process in all definitions. Concept; it requires the recognizing or identification of objects, events or processes. Learning of concept involves implicating an object, an event or process in a class [11].

"Although concepts are expressed by words, they are not words; the concept is the meaning of the word. Several synonymous words can contain a concept, a very meaningful word can contain many concepts" [12]. The concept is defined as a general object through which the objective impressions of the senses are grasped by the abstraction function of thought [12].

Akarsu (1979), explains the concept which involves the common design of objects or events and collects a common name under the common design; defined as the combination of a single object (individual concept) or a class of objects (the general concept), a combination of interrelated attributes or special signs (attributes) in a word [11].

Ozankaya explains the concept as "giving the real meaning to the words and thinking through them, comprehending the essence of the events and processes and providing the generalities about the basic aspects and features, the reflection of the objective environment in human thought" [13].

Erkman stated that concepts have different relations with each other [14]. Each concept is valued to the extent that it is separated from others and resembled others and emerged as unit. What consists a concept is presence of other concepts.

The concept is, according to Morgan, a symbolic construction representing some common and general characteristics or attributes of objects; abstracts, a property that is common in several different states [15].

3. Concept in Architectural Design Process

The act of designing is thinking about how a non-existent thing will be made real and shaping it in the mind. [16]. In other words, it is a kind of art that makes concepts, attributed to objects, visible. The designing person, namely the designer, shapes the needs of everyday life from the smallest to the largest, in a way that people are not used to. The actor of architecture reflects the spaces in his art for the purpose of aesthetics by using the concepts while shaping the objects.

The concepts are precise, clear and provable in the scientific language. In contrast, in design language, it is open to change and interpretation. The object that the designer confines to his / her own concept, which he / she has transformed in a concrete form which can be interpreted in many different ways due to the differences of age, geography and socio-cultural factors of the experienced people.

However, as concepts are developed, objects will begin to carry more specific characteristics, and people will be more likely to find a common denominator in memory. The designer perceives the concepts with the personality of the designer in addition to his / her own personal perception, and during the design act, he / she has to look for ways to explain and shape the concept in design language. As the concept is developed through the design action, the object will have more precise and clear meanings to itself [9].

In architecture, the architect creates his own concepts and draws the frame to use with the effect of social acquisitions while trying to gain a place in the society, to keep up with his age, to transfer his designs to the generations after him; [17]. In other words, the concept is used both by the architect as a tool and as the architect's intellectual reference [18].

In architectural design, the concept can be seen as the starting point for the design of the object / space or the keystone, the first decision shaping the idea or design. In other words, it is the idea of design [19]. The concept may arise from a problem that the architect has to solve in terms of functional or aesthetic, as well as from the concern of forming. According to Uraz [19], the concept of architectural design, starting from the beginning of the design results in the emergence of the product. Generally, the concept is related to the mass of the architectural outcome. However, depending on the problem, the architectural outcomes such as space and surface may be related to other approaches. The concept develops with the form in the design process while directing the production of the first form. In summary, the concept that explains why and how the form is formed also covers the whole process guided by the designer in the design process [18].

Bilir examined the studies of Kant "Kritik der reinen Vernunft" (1781), "Kritik der praktichen Vernunft" (1788) and "Kritik der Urteilskarft" (1790) as mental categories in the context of spatial design [9]. In this context, concepts, relationality /meaning - causality / function - segregation / form categories have been formed and corresponded to all three concepts that have design functionality. One of them is meaning, what type of installation is known from what is known. The second is the function, why it originated and for what purpose. The third and last is the way that the whole is divided and how it is divided.

3.20. Architectural Project III Course

Project Topic: "Memory House"

Concept: "Turkish Literature Writers of the Republican Era"

This study, which is carried out within the scope of Architectural Project III course, is a workshop that lasts 8 hours a week for 16 weeks. The study consists of 4 stages.

- Theoretical information and choice of literature writers
- Analysis of literature writers and creating conceptual design codes
- Project analysis for the defined space of the Project
- Designing a defined space with conceptual design codes produced.

In the first phase of the study, 2-week seminars on literary fiction, literature knowledge and literature writers were given to students. After, the study is limited by the Turkish Story Literature in the Republican Period. Students were asked to choose a different literature writer within this framework. In this context, each student selected different literary writers. The selected writers are listed as follows: Rifat Ilgaz, Aziz Nesin, Halit Ziya Usakligil, Refik Halit Karay, Ömer Seyfettin, Sait Faik Abasiyanik, Orhan Kemal, Cevat Sakir Kabaagacli/Halikarnas Balikcisi, Sabahattin Ali.
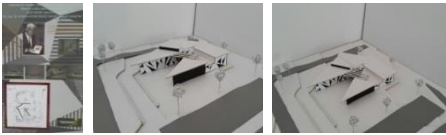
In the second phase of the study, each student started a detailed analysis of the chosen literature writers. CONCEPTUAL DESIGN CODES have been produced about the chosen literary writer according to his / her personality, social ties, products and similar data.
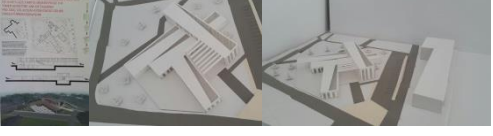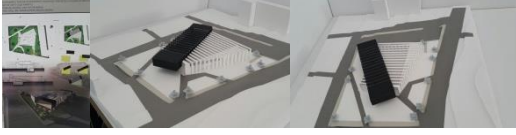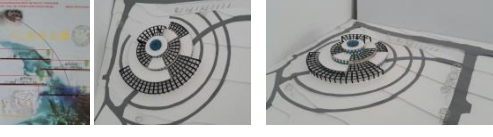
In the third phase of the study, the formal, semantic and functional analyses of the projects related to "the memory house" were made.

In the fourth phase, which is the last phase of the study, space design was started by overlapping conceptual design codes and spatial data.

The following table describes these steps for each student.

Table 1. "The memory houses" designed by the students

Name of Student	Selected Writer	Design Concepts	Design
Ugur Yesilyurt	Rifat Ilgaz	3. Person Bothering Abstraction	
	Explanation of Design	The start point of design, reflection of the third person on the place with high walls, the necessity for the person to be behind the walls to make the building detected were associated with the literary style of the writer.	
Name of Student	Selected Writer	Design Concepts	Design
Çağatay Algül	Aziz Nesin	Faults Change Social Responsibility	
	Explanation of Design	The concepts such as faults and changes, the indicators of the writer's literary style, were abstracted with pointed surfaces and facade spaces. Triangle form was used to emphasize this sharpness.	
Name of Student	Selected Writer	Design Concepts	Design
Furkan Ince	Halit Ziya Usakligil	Heavy Language Love Duality	
	Explanation of Design	In the project, a deconstructivist unifying form, which reflects two main masses and reciprocal language depicting "love" and "duality" situations, were used.	
Name of Student	Selected Writer	Design Concepts	Design

Döndü Erdem	Refik Halit Karay	Hard, Clear, Detailer, Complex,	
	Explanation of Design	Matching two clear triangle forms. The spatial space created was matched with a complex structural system.	
Name of Student	*Selected Writer*	*Design Concepts*	*Design*
Furkan Günaydın	Omer Seyfettin	Simplicity Layout Association	
	Explanation of Design	In the design, rectangular form, as the most basic form, was used and the forms were associated with a structural system.	
Name of Student	*Selected Writer*	*Design Concepts*	*Design*
Buket Tabu	Sait Faik Abasiyanik	The good and the bad Subconscious reading Social distinction (rich and poor)	
	Explanation of Design	In the design, the individual and the situation under him were expressed with a separate cover structure on a single cube form.	
Name of Student	*Selected Writer*	*Design Concepts*	*Design*
Berat Kumcu	Orhan Kemal	Realism, Linearity, Simplicity	
	Explanation of Design	In the design, the most basic and clear rectangular forms were matched and they were associated with extremely hard linear structure system.	
Name of Student	*Selected Writer*	*Design Concepts*	*Design*
Arife Kara	Cevat Sakir Kabaagacli	Fishing nets Waves	
	Explanation of Design	In the design, the place where the writer lives and the sea stories were focused and overlapping stages reflected the sea, while the structure covering spatial spaces reflected the fishing nets.	
Name of Student	*Selected Writer*	*Design Concepts*	*Design*
Şeyma Türk	Sabahattin Ali	Time, Social distinction, Literate-Peasant Relationship	
	Explanation of Design	In the design, two different clear forms are associated with a structural system reflecting the time. These two forms also mention literate-peasant duality.	

3.21. Architectural Project V Course

Project Topic: "Museum"

Concept: "Ideological currents"

This project, which is conducted within the scope of Architectural Project V, is a workshop that lasts 8 weeks and 16 hours a week. The study consists of 4 stages.

- Theoretical information and choice of ideological current
- Current analysis and creating conceptual design codes
- Project analysis for the defined space of the project
- Designing a defined space with conceptual design codes produced.
  In the first phase of the study, 2-week seminars, on the relationship between ideology, ideological movements and architecture ideology, were given to the students. Later, each student chose a different ideological movement among the ideological movements. The selected movements are listed as follows: Anarchism, communism, capitalism, liberalism, fascism, imperialism, corporatism, feminism, terrorism and Kemalism.

In the second phase of the study, each student has made a detailed analysis about the movement. CONCEPTUAL DESIGN CODES have been produced about the selected current according to the historicality of the movement, the social events in which the movement is affected and influenced, the geography and other similar data.

In the third phase of the study, the formal, semantic and functional analyses of the projects related to the "museum" were made.
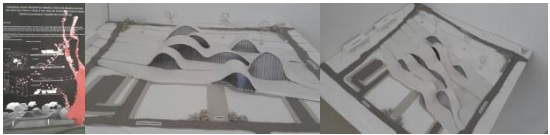
In the fourth phase, which is the last phase of the study, space design was started by overlapping conceptual design codes and spatial data.

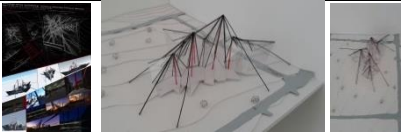The following table describes these steps for each student.

Table 2. "Museums" designed by the students

Name of Student	Selected Ideology	Design Concepts	Design
Berat Öztürk	Anarchism	Disrupt the existing order Creating a new order	
	Explanation of Design	In this context, the student described an alternative form for the square form by separating the square form with a concept. The concept is supported with inconsistent and non-defined scratches on the side	
Name of Student	*Selected Ideology*	*Design Concepts*	*Design*
Işın İrem Taşçı	Communism	Standardization Dominance Design on humanscale Strict equality	
	Explanation of Design	In this context, the student firstly created a form with strict symmetry with the concepts created. The designed structure is much higher than the human scale and the scale overwhelming the user was used in the interior place. The design was made to be on a dominant position in higher scales.	
Name of Student	*Selected Ideology*	*Design Concepts*	*Design*

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Name of Student	Selected Ideology	Design Concepts	Design
Merve Yadigaroğlu	Capitalism	Rivalry Competition Standing out Benefiting over each other	
	Explanation of Design	The student differentiates the created concepts with rectangular forms and small angles and he created a competing and non-defined design trying to stand out and benefit over each other.	

Name of Student	*Selected Ideology*	*Design Concepts*	*Design*
Emre Umut Bahçeci	Liberalism	Balance Liberty Pluralistic	
	Explanation of Design	The student especially thought of the liberty concept, but he associated the rectangular forms with a vertical axis without standing out.	

Name of Student	*Selected Ideology*	*Design Concepts*	*Design*
Muhammed Akbulut	Fascism	Violence Single dominion Union Dominant Pressure	
	Explanation of Design	The student started with the idea of single dominion and he tried to express the whole design under a single cover. He especially tried to define strict and pressuring concepts with a linear rectangular conflict.	

Name of Student	*Selected Ideology*	*Design Concepts*	*Design*
İrem Ezme	Imperialism	Occupancy Dominion Government Pressure Diffusionism Utilization	
	Explanation of Design	The student designed the project under the ground layer by firstly considering diffusionism and occupancy concepts. The mass was kept under the ground from outside and light was given only from the windows.	

Name of Student	*Selected Ideology*	*Design Concepts*	*Design*
Merve Çakıroğlu	Corporatism	Layout Justice Diversity as a whole Stratification	

	Explanation of Design	The student tried to establish a singular order over the order of different sections in themselves and he overlapped a singular square form with different angles.	
Name of Student	Selected Ideology	Design Concepts	Design
Sinem Demir	Feminism	Equality	
	Explanation of Design	The student started only with the concept of equality and the equality of two different genders as masculine and feminine was reflected on the forms. The feminine one was expressed with a curvilinear form and the masculine one was expressed with a rectangular form.There are equal scales in both forms as superimposed and square meters.	
Name of Student	Selected Ideology	Design Concepts	Design
Feyza Altintas	Terrorism	Violence Pressure	
	Explanation of Design	The student especially focused on the violence concept.A single square plasma was separated with non-defined lights on many axis. The internal places were created with extremely solid triangles and the connection of outer and internal places was cut.	
Name of Student	Selected Ideology	Design Concepts	Design
Onder Er	Kemalism	Change Progress Conversion	
	Explanation of Design	The student started with the concept of change and he converted a main rectangular form in itself by dividing it into four non-defined parts. However, this conversion did not ruin the singular integrity.	

Assessment and Result

Lawson argues that studies to find the method that scientifically qualifies the design never prove that the designer actually follows these schemes. But in addition, they explain how the investigator has seen the design. He points out that the best designers only design, instead of writing design methodologies. Lawson think that a clear description cannot be given for design [20, 21].

Bilir states that each designer's design and design development process is different. According to him, a clear definition of how these processes should take place cannot be given. He argues that it is not entirely possible to analyze how designers experience this process in their minds. He states that this mental process, which sets the stage for starting the design act, takes place by means of sometimes an externally unobservable and sometimes transparent expression [9].

It is impossible to produce a formulation for the relationship between designer and design. Because each design has its own CONCEPTUAL DESIGN CODES, it is unique. Creating a formula about how the designer can design this chain requires the knowledge of all the biological and social codes of the designer. This situation is impossible. However, it is possible to learn the way the designer produces this chain, instead of guessing which of the CONCEPTUAL DESIGN CODES is adjoining in the designer's mind. In particular, at the beginning of the design education, if the ability to develop concepts for design is given to the designer candidate, the continuation of the education of the individual can be more easily established. The designer candidate will be enlightened about how he can design, and will develop his/her perspective on design. And most importantly, he/she will be able to solve the design problems by creating his/her own CONCEPTUAL DESIGN CODES.

Zelanski argues that when the act of design is considered as a situation in the world of images, many of these images are nonphysical concepts. It also states that memory usually exists at the level of abstraction during the design period [22]. According to Turan [23], the visual thinker tries to depict the imagination in his mind with a concept in the research stage. It develops the image that is not clearly defined and prepares the demonstration. What is mentioned here is the development of a concept that can be considered very primitive at the stage of development and it is brought to a level that can be processed and presented. How wrong to dividing the content

of an object into objects and symbols, it is so unhealthy to think about design separately from the concept. Design and concept are elements of an integral whole which are fused to each other.

In two workshops, CONCEPTUAL DESIGN CODE production can be considered as a method that allows students to integrate mentally faster into the design phase in architectural design education. Students' use of the CONCEPTUAL DESIGN CODE method to create a base for the identified project topics enriches the architectural design process mentally. Students can develop their designs semantically with each code they create. As Turan states, design and concept are fused together [23].

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THE USE OF AUGMENTED REALITY (AR) IN SPATIAL DESIGN EDUCATION

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Abstract

Augmented reality is technological innovation that allows simultaneous virtual objects on the physical environment. In the 21st century, the benefits of this technology, which has become widespread in different areas in our daily life, have become visible under the education framework. However, the use and potential of the specialization in the field spatial design education at the undergraduate level has not been realized sufficiently. The aim of this study is to evaluate the use of augmented reality technologies in spatial design education and to examine the potential contributions of AR as an efficient training method, to the students.

Although there are AR systems that benefit as commercial or professional occupational assistants within the scope of spatial design, the applications of AR developed for the training process of the profession are very limited. For this reason, in the study, the AR application samples which are used in the professional field and which will make the subject understandable are considered together with the aims of the training. In the process of design education, the effective role of AR applications was evaluated during the stages of collaboration, access to information, field trips, design process and representation techniques. The restrictions of the AR technology were determined and the developments in accordance with design education were recommended.

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Key Words: _Augmented Reality, Spatial Design, Education._

Introduction

New methods need to be developed in addition to the traditional methods for an efficient spatial design training model. It is possible to say that when AR's efficiency in different areas is evaluated, it is possible for the executives and students to use AR technologies as a new and effective method in space design education. The aim of this study is to evaluate the use of augmented reality technologies in space design education; The aim of this research is to examine the potential contributions of AR to design students.

AR has widespread applications developed as professional assistants for professions. However, this profession has limited access to the use of AR in the education process. For this reason, this study is important in terms of the specificity of the subject, considering the AR as an educational assistant except for the method of presentation in terms of space design education. In addition to this, it is aimed to create new literature that will be developed in this context.

The Use of AR in Spatial Design Education

There are dozens of AR applications developed for different sectors. However, it would be correct to say that the majority of these practices are used as commercial or professional occupational assistants. AR has not yet found a place in spatial design education widely. The traditional paper-based design process supported by the digital environment has become the standard acceptance [1]. In addition to the widely used virtual reality (VR), traditional methods have been adopted as the education system and equipment of space design. However, as stated by [2], it is a successful result that professional education institutions establish their education programs with the understanding that different disciplines support each other.

An important part of spatial design education is the design studio, which refers to the cooperation of students and coordinators beyond the physical space. In the design studios where collaborative and group activities are carried out, theoretical knowledge is provided within the master-apprentice relationship. For this reason, the formation of a common language between the coordinators and the students is important for the efficiency of education. Interaction, communication, and cooperation between the students and the coordinators are part of the training. In this context, there are some AR systems that will respond to 'learning by doing' its activity of the student. One example of this is University of Tasmania Architecture and Design, leading the way in education by using digital technology efficiently beyond VR. HMD (Head Mounted Display) headers and AR technologies are used effectively for the activities of the coordinators and students. With HMD equipment, they carry out activities that interact with each other, materials and tools. With the headphones they have, the students and the participants communicate within themselves. They talk about design suggestions or work in parallel to create complex structures from visual virtual instructions. In this way, team coordination and workflow are ensured. In the 'design

workshop' that takes place in this university with the collaboration of 'Architecture and Design-UTAS,' the students and the coordinators have developed completely novel techniques by using AR technologies instead of drawings, labels or templates. Within the workshop, they have constructed structural models in the study by using materials such as bricks and wood. In this implementation, students have used methods such as labeling and positioning CNC-cut pieces with the help of visualizing physical simulations over HoloLens

Fig. 1. Tasmania University Department of Architecture and Design Workshop Phases [8]

Fig. 2. Hololens View During Workshop [9]

Spatial design education aims at combining theoretical knowledge and creativity. Desired products are revealed when the student is able to internalize the theoretical knowledge and present it in their design. In this context, it is important to reach the theoretical knowledge in the problem-solving stage, read and do research. The student will be able to recall the knowledge gathered in the knowledge base during the design work with the free association in the mental process and transfer them to their implementations. For the richness of creativity, it is important that the student is fed with knowledge. In the spatial design textbooks that can be printed by adding 'markers', it is possible to read the 3-dimentional (3D) visuals of the products and structures of famous designers from all angles by AR devices. Students can be directed to that building or the related websites of the product and can learn the related graphics or texts visually. With narrations that are enriched by AR in the booklets of technical courses, they may reach detailed solutions and easily make a connection among the implemented examples about the topics. In relation to this subject; A study with the title of 'The Effects of Augmented Reality Technologies on Learning Techniques in the Future Education' was conducted by Sorin Voicu in the Department of Computer Graphics and Multimedia Design at Sapienza University in the 2007-2008 academic year. In this study, in the near future, unlike the tablets, the idea of digital glasses that work in adaptation with books to allow more practical usage was developed. With the help of glasses, a visual in the book can turn into a moving video, an architectural structure can be seen in 3D or the selected visual can be zoomed in. In the year 2018, similar functions have been reached by pieces of hardware like Google Glass or Microsoft HoloLens. The potential to realize such a function exists with various AR applications; however, this potential is not used effectively enough in today's spatial design studio, and it is limited to a certain audience.
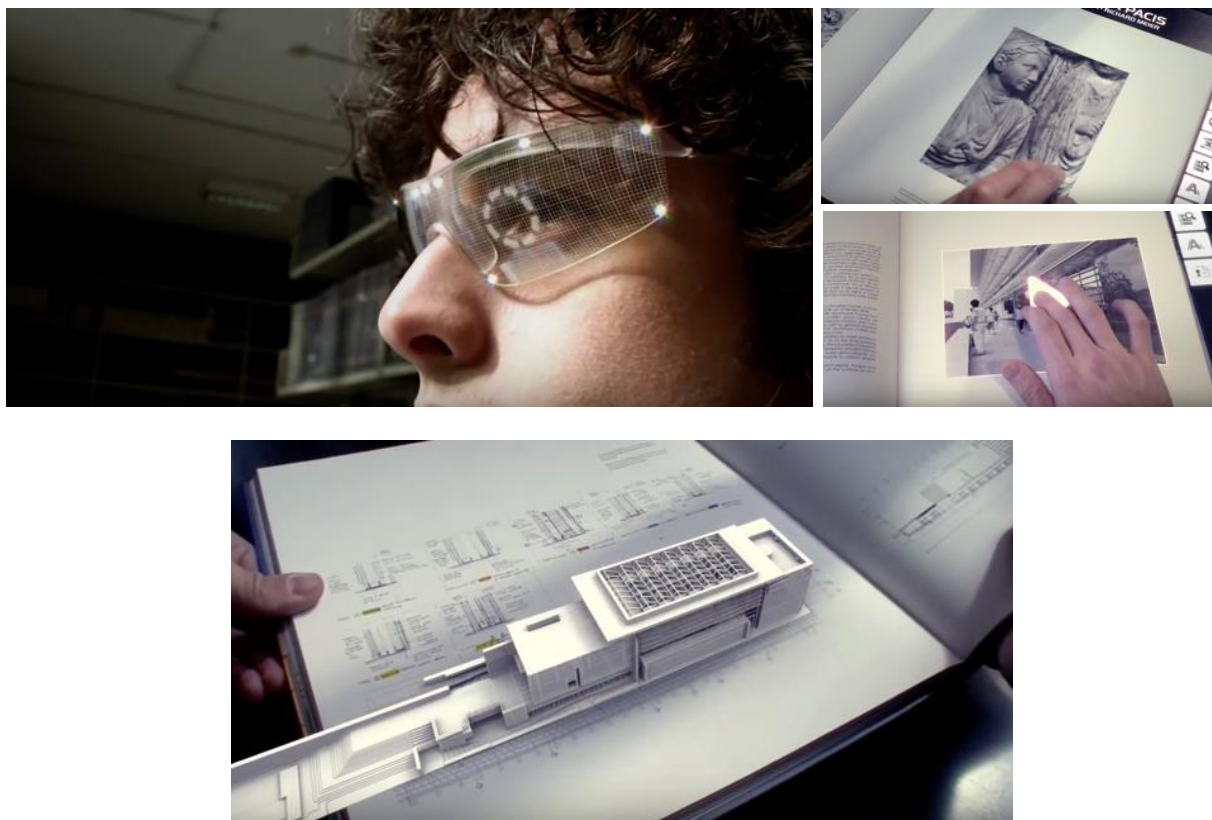

Fig. 3. Project Developed by Sorin Voicu [10]

Nowadays, it is possible to play a video with a tablet or smartphone by using the visual marker from printed materials and to obtain a 3D model image. 'Layar' is one of these examples. The company named 'ARwork' also provides services in the field of spatial design with various AR applications it designs. The modeled architectural elements provide the option of 3D visualization and the possibility to take a cross-section through these images at a desired angle. It shows a real-time light-shadow effect on models [3].

Fig. 4. ARwork Application Example [11]

In addition to enriching the printed materials, we can see that AR applications can contribute to the space spatial design education in terms of materials. Contrary to traditional methods, it is seen that this representation method provides the representation of materials such as 'water' which are difficult to use in the model. This means carrying the design model to any environment where the tablet can be carried.

In a design problem, the student makes a decision. It is important for them to predict the outcomes of their decision. The most effective way to anticipate and overlook the details is to pour the design into the physical environment. This is achieved by models or various computer software provided by virtual reality. AR applications are novel and effective helpers in this issue. With its property of integrating virtual objects into a physical environment, AR reaches the outcomes that may be born out of the design problem/project/design object created by the student with more realistic visuals and in the real environment. As opposed to virtual reality, the student sees who the design would be in the scale and ratios in the physical environment. In contrast to software like 3Dmax, SketchUp, etc. that completely involve virtual reality, AR applications facilitate the presentation of products in real spaces. For example; The AR application developed over the historical building 'Casa Batllo' carries the furniture and accessories of the period to the present. Casa Batllo, which was built in the borders of Spain in 1904 by the famous architect Antoni Gaudi, is one of the most important historical buildings in the area. An AR application was developed for the building that is seen by thousands of visitors each year, receives field trips by students of design/architecture/interior architecture and attracts individual visitors. This application provides the visitors with information on the space in the museum and the objects that were inspired by while creating the architectural design through animations, visual images and sounds. With the AR application that works in compliance with the tablets in their hands, the visitors are able to witness the visuals that represent the old state of the structure, the accessories that were used in the period where the Batllo family lived and the visuals of the furniture in that period while walking through the space. If we focus on the limitations of the system that we may consider to be useful, the officials stated the they were not free in terms of the markers that were required for the system to work. A reason for this was aesthetical concerns. Markers that are placed onto the historical structure affect visuality negatively. Another negative element is that it is difficult to establish a connection between the camera of the tablet and the marker in the structure that has high circulation of people, and the system experiences interruptions.

Alternative development in spatial design education is an important stage. The student is not expected to reach the correct result at one attempt. They are wanted to brainstorm and think about all possibilities that may occur within a broad perspective. Providing the student with skills of analytical and creative thinking is the main objective. The act of idea-creation is taught by detail-oriented and rational methods. This is why it is an important process in education to design and express different alternatives to the design problem under different conditions. In traditional methods, changing the completed alternative requires time and cost. In digital methods, changing the color of the dye or the form of the design takes a few keyboard touches. A large investment firm in India designed an AR application called 'Spire World/Flexi Homes' by collaborating with 'Experiential Design Lab'. The sketch that is drawn on a circular surface by a pencil is turned into a 3-dimensional and furnished form by marker cards that are placed onto the residential plan. When the card that is placed in the center is changed, the furniture and materials also get different choices. As the circular surface moves, the angle of looking at the model also differs. It can be foreseen that this application developed for commercial purposes will be used to solve the problem-solving process in sketch/design development/problem-solving stage in spatial design education.

Fig. 5. AR Example from Casa Batllo [12]

Regarding this topic, Erdem Köymen developed a proposed AR model named 'SketchAR' [3]. With this proposition, students are able to transfer the sketches in the planning stage that they draw on papers with marker pens onto an AR environment in 3D. The contributions of such work on design education when it is used in the sketching stage of design have been demonstrated by surveys.
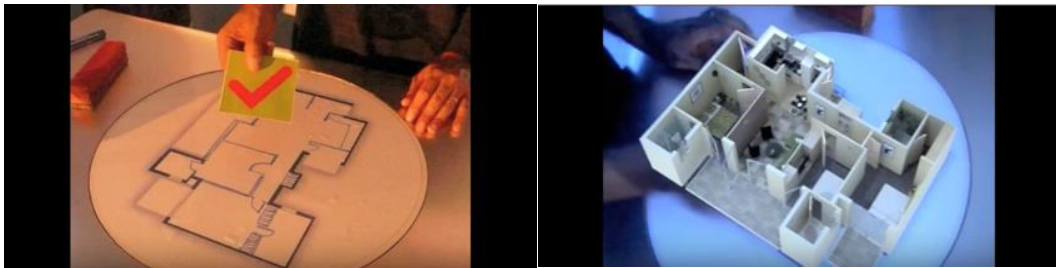

Fig. 6. Spire World/Flexi Homes AR Application [13]

Presentation methods are the stage where the point reached by the design in a design studio is materially described in a language that can be understood by the audience. The student gets positive and negative turns by sharing the design ideas with the presentation techniques in the studio environment. This provides an opportunity to improve the design. The more clearly they express their thoughts to the others, the more useful the feedback to be discussed will be. It is also important that the student learns the professional language as well as their knowledge of design. The student should design the presentation language as well as the design object. At this stage, as stated by [4, 5, 6], computers contribute to the design education presentations. However, it can be said that the use of virtual reality, which is one of digital methods, as representation techniques in spatial design education is becoming more common in addition to traditional methods such as drawing, painting and model are used mainly in the education system. It is important that an effective presentation technique has the following qualifications;
  . Photorealism,
  . Necessity of expressing the idea in a way that is comprehensible from all angles,
  . Ability to see the design object from detailed angles,
  . Effective and catchy language of expression,
  . Easy transferability and adaptability of the presentation to the studio environment.

Traditional methods fall short in achieving these requirements. AR technologies provide positive contributions that will make the presentation techniques of students in design studio more effective. Today, there are dozens of AR applications that are used for spatial visualizations. While the usage of these applications differs, they serve the main idea of visualization-presentation. One of these is the AR application 'ARki'. The application, which can operate over any iOS or Android device, places 3-dimensional models on an existing 2-dimensional floor plan. While performing these operations, the application may detect another mobile device as a marker. This way, the presentation may be made without needing any printed paper, QR code, etc. It allows receiving photorealistic visuals by interactive features such as light-shadow and material options. The resulting visuals may be recorded and shared via e-mail from within the system.
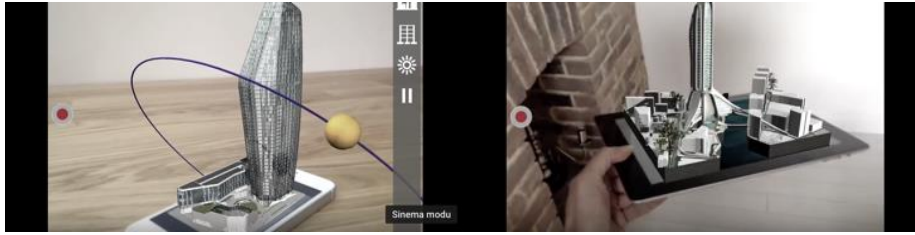
Fig. 7. ARki AR Application [14]

In the design of space design studio, the design object does not have the same characteristics as the physical environment. It is an open-ended environment in which studio experience processes are used in different ways. The student's ideas will be unlimited and will help him produce creative ideas. For this reason, students can produce visuals or models that they cannot produce in the physical environment with the help of AR applications and see adaptation in the physical environment.

New methods need to be developed in addition to the traditional methods for an efficient space design training model. It is possible to say that when AR's efficiency in different areas is evaluated, it is possible for the coordinators and students to use AR technologies as a new and effective method in space design education.

AR has applications developed as professional assistants for spatial design. However, this profession has limited access to the use of AR in the education process. For this reason, this study is important in terms of the specificity of the subject, considering the AR as an educational assistant except for the method of presentation in terms of spatial design education. In addition to this, it is aimed to create new literature that will be developed in this context.

Restrictions of AR in Today's Space Design Education

Although the current operation principle of AR has many advantages in terms of the system, there are some qualities that decrease the performance of the system. The first one is the fact that the tablet or smartphones which require continuous holding are less resistant to external factors such as breakage, impact, water, and hardness of their transportation in long term use. The adaptation of these equipment and devices produced from hard materials to space is also at the lower limit. Another negative feature of these features is the limited visibility of AG screens. Due to its inflexible structure, the dimensions of the screens are limited to a certain size. This means that the viewpoints that enrich the real environment can only be monitored from a small frame.

It can be foreseen that the efficiency of the system will be increased by the AR applications which can be compatible with the flexible, foldable, desired size screens to be developed. With a frameless and lightweight display, the angle of view can be increased, and the perception of reality can be enhanced. The flexible and foldable material is made easy to adapt to any surface, while its lightness and shape will make it easy to carry.
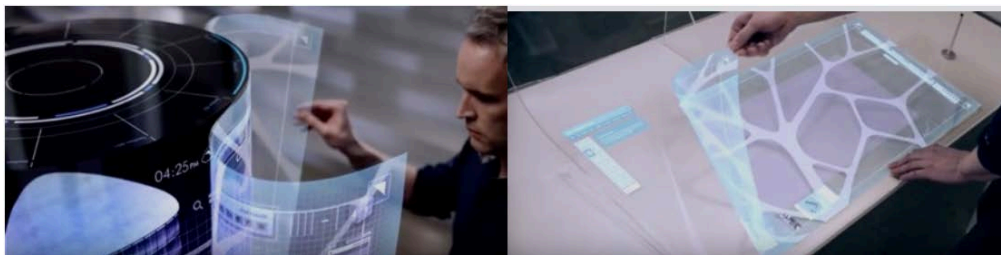

Fig. 8. Flexible Thin Screen Example [15]

Another disadvantage of today's AR system in the use of spatial design education is that each of the components in spatial design requires different marker identification for marker-based working AR applications. This may cause the system to slow down. The slowness of the system reduces the ease of use in AR technologies, where continuous operation of the connection between the marker-camera-processor is important. Additionally, the limitations of the capturing distance of the camera that sees the marker also pose a problem for the system. A solution may be developed by developing recognition technologies without markers, that is, introducing the components of the space to the system easily. Replacing the commonly used applications of today with a tracking

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system that recognizes the characteristic features of the space with the help of markers will make usage in complex areas easier. It is foreseen that the adaptation of the systems working with image-based systems without markers or tracking the existing objects in the environment will increase the usage rate in space design education. Kılıç [7] makes a suggestion as follows:

"If a technology capable of defining the geometric shape according to the characteristic of the object or the interior can be developed, the interior of the AR will have a much more flexible use. In other words, the designer can easily identify an empty space to the system and match the virtual objects with the required surfaces. On the one hand, this will increase the accuracy of the location of the virtual objects, and on the other hand, it will allow many objects to be adapted to space [7]."

Another issue is the limited availability of 3D models in the in 'ready-made model library'. This is another of the limitations that students face in the process of designing in AR applications. New methods to support the use of a virtual object that is not available in the pool, the user will be able to crawl any object that they see in 3D by putting it in the application pool and making changes on it, will provide the basis for the richness of the designs. In this context, today's 3-dimensional scanners appear to be able to address this need. The mobile scanner named 'Structure Sensor' can scan any 3-dimensional object. However, it may be expected that solving the problem of scanning within the AR application without needing 3-dimensional scanners will increase the speed of the process.
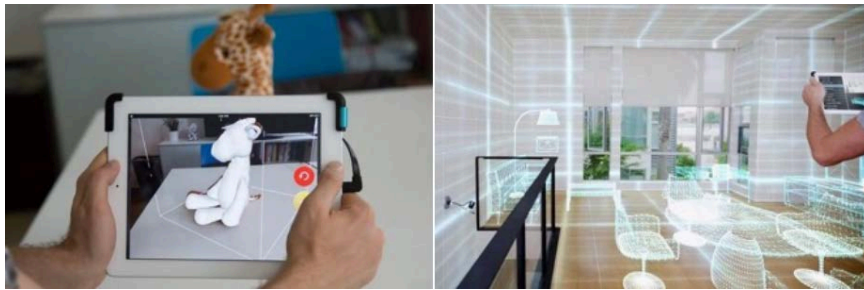

Fig. 9. Structure Sensor Scanner Example [16]

Conclusion

As a result, it is possible to say that the use of AR as a method within the scope of the cooperation in space design, access to information, field trip, design process, and representation techniques will contribute to the efficiency of education as follows:

1- It is concluded that AR is an innovation that supports group work during the space design education process, facilitates communication among individuals, supports learning by doing and provides guidance during physical applications.

2- With AR, a method of use can be obtained that enriches theoretical knowledge, increases knowledge in printed materials, personalizes learning, directs it to the relevant website, provides easy and effective access to information and helps to establish a link between concepts.

3 - Unlike 3D modeling software used in VR, AR applications can be used to represent products in real spaces. With the applications of AR to be developed, it is concluded that the students will have access to enriched information during field trips and they will contribute to a part of the space design education with the systems they can see the on-site design.

4- AR has the potential to use in the sketch and problem-solving stage as a method that helps the student to develop an alternative during the process of developing ideas. In contrast to traditional methods, the space designer can see the 3D organization by experimenting with different possibilities at the planning stage, changing the markers and saving time and material.

5- Any printed paper etc. It is clear that AR has the potential to use as a method of representation in space design education, allowing real-time photo-taking with various interactive features such as real-time light-shade and material options.

It is judged that AR has the potential to be used in space design education. But; The use of existing applications for space design education is insufficient and limited, and there is a need for AR applications to be developed specifically for site design education. In this respect, the importance of developing comprehensive, qualified and effective AR applications for students and trainers in space design education is emerging.

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TRANSITION OF CONTEMPORARY CAFES TO SOCIAL VENUES: "HUQQABAZ CAFE"

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Abstract

In modern day, cafés exceed the perception as the main centers serving foods or beverages only. In last few decades, cafes became social venues by combining various cultural activities. Furthermore, the cafes operating under franchising system brought specific requirements for design purposes, which shall be followed by relevant proprietor. The main reason behind such requirements is to maintain venue quality under a certain brand for all consumers. This study hereby intends to determine the frequently used parts inside cafes depending on socio-cultural ambience. Accordingly, the visitors of 'Yale Atakoy HuQQabaz' café were observed together with the frequently used areas in this cafe. During observation, overcrowded population has been detected within certain hours. Thus, the venue set-up shall be further reviewed. Consequently, it is anticipated that brand owners would have an idea on the layout of prospective venues.

Key Words: Franchising System, Space Design, Café Plannings, New trends

Introduction

The "global market" concept has been first raised during 1980s, which also triggered a significant transition in terms of consumer preferences and competitive conditions. As a result of the technological developments in recent years, the enterprises operating worldwide are involved in the market with an increasing competition [1]. Cafes were also affected by rapidly changing conditions and divided into specific brands initiated through individual enterprises. In this process, many entrepreneurs have preferred to bring a certain brand for the consumers without bearing marketing risks. However, the consumers intend to purchase reliable products with same quality. For this reason, the franchise (or franchising) systems were developed. In this system, franchisor holds all rights and privileges regarding commercial relations. The franchisor refers to a natural or legal entity franchising the entire brand or a specific product. This mechanism is known as the franchise transmitter. Franchisor is also the owner of the operating system, brand or trade name of the owner or owner of the production prescription. In the USA, as the birthplace of franchising system, the majority of retail sales is conducted by entrepreneurs who obtained franchising rights previously [2]. Turkey has made a rapid transition through the decisions taken in 24th January 1980 and involved in the franchising system in order to interact with foreign investments [1].

This system allows the franchisors to purchase royalty rights of a certain brand including management and organization models for the enterprise and a long-term business relation to be developed in the course of time, conditions and limits [url-1].

The franchising system also effects retail spaces rather than financial issues. The headquarters call such concepts in various architectural concepts with changing costs. Such concepts will then be applicable to the affiliates in accordance with following conditions:

• The size of relevant space

• The location of relevant space

• Whether the space includes a garden or a terrace

• The audience (visitors)

• Vehicle and pedestrian circulation etc. [3].

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In the cafes operating under this franchising system, the design scheme consists of certain rules which should comply with the business owner. The stated rules are standardized worldwide whereas it is intended to bring same brand quality to all consumers.

This study hereby intends to determine the frequently used parts inside cafes depending on socio-cultural ambience. Accordingly, the visitors of 'Yale Atakoy HuQQabaz' café were observed together with the frequently used areas in this cafe. Therefore, it is anticipated that brand owners would have an idea on the layout of prospective venues.

2. "Huqqabaz Cafe" Instance

Q Gıda (Q Food & Beverage) intending to introduce Turkish cuisine to the entire world and to become a globally renowned brand in this field, is a group company that continues to grow via new investments under following affiliates: HuQQa, HuQQabaz, The Market and Qurabiye. As an affiliate of Q Food Group, HuQQabaz provides Turkish cuisine with affordable prices and modern presentations. The brand opened its first restaurant by March 2017 in Ataşehir Watergarden. Subsequently, the second branch was opened in 25 August 2017 within Istanbul Yalı Ataköy project. Finally, the third HuQQabaz branch was opened within Istanbul-Istanbul project [url-2]. In addition to stated investments, the brand continues to grow through certain projects including Iconova Shopping Mall in Gaziantep, Sur Yapı Marka AVM in Bursa, Hilltown Shopping Mall in Istanbul and Iraq (Erbil Province) by February 2019 (see Figure 1).

Fig. 1. Huqqabaz Cafe Interior From All Over The World, Erbil 2019 [4]

HuQQabaz offers traditional cuisine by means of fast consumed products as well as contemporary trends. The brand welcomes visitors with traditional Turkish flavors blended with innovative and modern presentations. By new applications, the quality of service is increasing day by day. IPad (tablet) menus that allow guests to order easily without leaving the table are designed to select the desired products in detail. The menus are ergonomically positioned on the tables. In addition, HuQQabaz is the first restaurant chain implementing this application.

For the project, investors are working together. Accordingly, an investor can apply with his own private property and demand to open up his property on HuQQabaz. The proposed location can be either a shopping mall or a detached building. It is important that the property is located at a suitable location. Then the project is prepared according to the previously prepared concept and the project is presented to the owner. In particular, there are certain criteria for the decoration and interior design of the space. Accordingly, the investor makes the investment of the space to follow the concept project and gives it to the scissor in order to make it fit and operate. This new model is not used in the world. In order to open HuQQabaz at a location, a minimum area of 500-600 square meters is required. At least 50% of this should have an open space. There is an investment cost between 3,500 and 4,300

TL per square meter for the concept project of the relevant location. Thus, an investment of 2 million TL is required for an area of 500 square meters [url-2].

2.1. ˙Huqqabaz ˙Determining Factors For The Interior Perception Of The Café

Interior designers design their designs to meet the psychological and physiological needs of the user. In addition to the effects such as color, texture, scale and form in the user's perception of the space, the details such as light, sound, odor are also effective in the perception of space. The venue combines its unique character with the social norms as reflected in the ambient with branch layout, sound and odor. Furthermore, visual elements support the visitors' approach to the ambient.

The locations establish relationships with the visitors in 3 different aspects [5]. Physical space characteristic gives an idea about the general construction of the space. It enables us to have an idea about planning and main usage areas. Social area characteristic contains specific elements in the venue that allow us to communicate with other visitors. For example; common furniture elements such as general layout or session layout help us to interact with other visitors. Ambience character brings all details regarding visual perception of the venue. For example, the details on lighting, material preference, color, texture, acoustic and ceiling design constitute the ambience character of this venue. In this perception process between the visitor and the space, the material selection process is quite effective. The details such as the dimensions of the material used, the differences on the surface and the shape of floor affect the visitors' views on the space. Design elements that make up all the ambience character are valuable preferences in terms of branding.

HuQQabaz, in the case of units that determine the character of the space; eating and drinking areas; wet spaces (wc-kitchen-masjid and warehouse), office spaces. With general expression; It has a space organization consisting of a floor and a mezzanine floor. There are units on the mezzanine floor. The locations of these units on the plan are highlighted in color below. Ground floor; the four-person table layout and the pink-colored areas represent 6 chambers. Yellow color WC; blue color kitchen and storage; the green color forms the wet areas containing the masjid area. On the mezzanine floor, there is an office space which is functioned as a dining and personal need meeting area of the employees and is shown in green color (Figure 2).
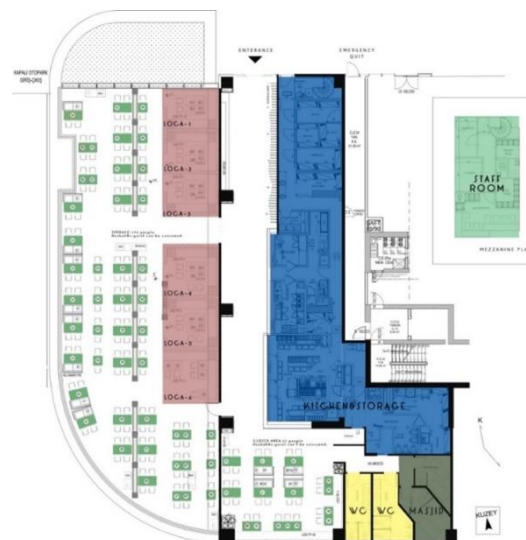

Fig. 2. Plan Analysis Colorization

In this respect, the following features can be listed when the formal relationship of HuQQabaz with its users is examined.

• *Physical Space Character*

The physical space character determines the fiction of the space entirely. Yalı Ataköy HuQQabaz, the placement of the wet volumes when the plan settlement is examined, the formation of the physical space character of the space, where some special sections of the need are located without breaking the main fence. The hospitality, which starts with meeting the guest at the entrance, continues until the guest leaves the space. The area of use consists of two main sections; Hookah can be used in the section of 6 private lounges and other session areas are designed to accommodate a total of 190 people. The section where the hookah is not available can accommodate 52 guests. There are men and women masjid in the private section. In addition, there is a special area for dining and other needs of the staff (Figure 3,4).

Fig. 3. Yale Ataköy HuQQabaz Enterance

Fig. 4. Yale Ataköy HuQQabaz Service Area and Restrooms

• *Social Space Character*

The social character is designed to facilitate interaction between visitors. Considering the communication between the visitors of Yale Ataköy HuQQabaz, there are 6 private lodges with a capacity ranging from 8 to 10 people. This layout is designed as a common area and it is in a position for effective interactions. However, the library section is designed at the entrance of the space, which would be considered as a common area for effective communication (see Figure 5).
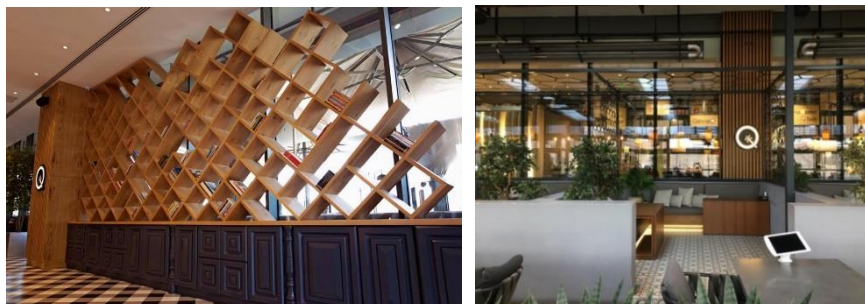

Fig. 5. Yale Ataköy Huqqabaz: Library in The Entrance And Lodge

• *Ambience Character*

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The ambience character of the place is related to the visual perception and is directly related to the brand value of the place. HuQQabaz café is a hookah café that addresses the student portfolio with young dynamic and accessible prices. For this reason, animated, humorous and cartoon-like graphic works take place in the space with artistic expressions. The use of graphic design and visual elements are important elements that determine the identity of the space and add brand value to the place (Figure 6). Apart from these, another element that is used in the space and which affects the visual perception is the lighting and related color designs. The colors and patterns used throughout the space created a common language for this ambiance. In addition, the lighting elements that are used in places have changed the characteristics of the living areas and the variety of perception (Figure 6).

Fig. 6. Graphic Design of Yale Ataköy HuQQabaz and its Use in Sitting Area

2. Method

The study is carried out with franchising and in many cities of the world with similar features of a café to observe the behavior of people depending on the behavior is to observe. Thus, the sample layout is discussed for a rapidly increasing number of similar enterprises. Food and beverage areas, which are the most important organization of the settlement plan, were first grouped for a café space.

2.1. Yale Ataköy HUQQABAZ Cafe User Density Status Determination

In this study Yale Ataköy HuQQabaz Ataköy is divided into 4 main regions. The 4th area is the only non-smoking area with a capacity of 52 people. The area of 1-2-3 is hookah smoking area and has a total area of 190 people (Figure 7). Also a part of the 3rd area is reserved for users to play okey. Okey tables are fixed game tables and are not used for another function. Within this order, there is a fictional session within the space. This configuration is most effectively designed by space designers. The next step is to observe the preference of user perception in the choice of session location. According to this, it is thought that there may be an idea about the preferences of the user in the café.

The cafe area is dedicated to various visitor groups for women, men, women/men and children. It was observed that mostly young user group (aged between 16 and 40) prefers this venue.
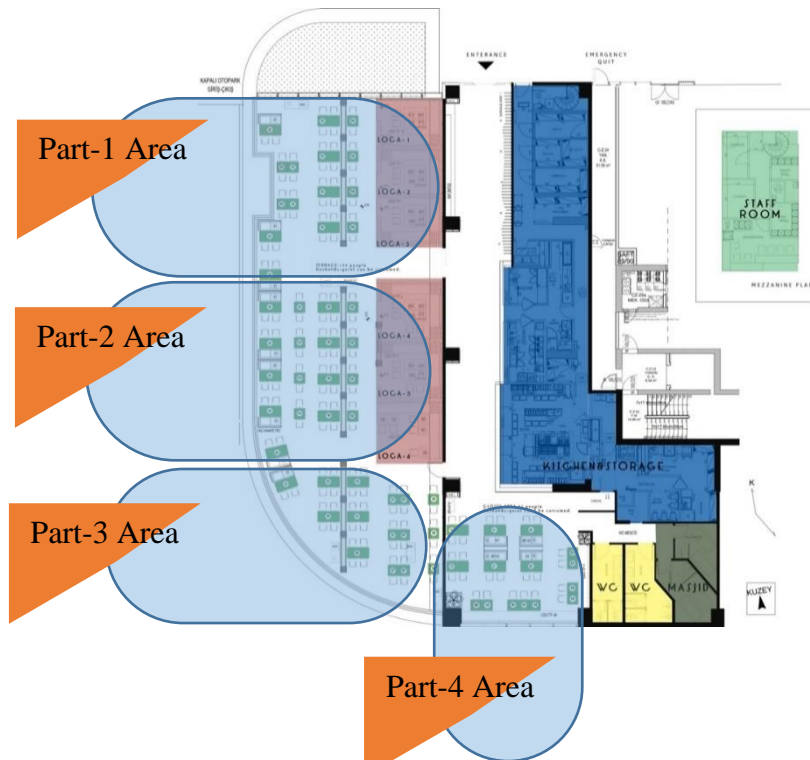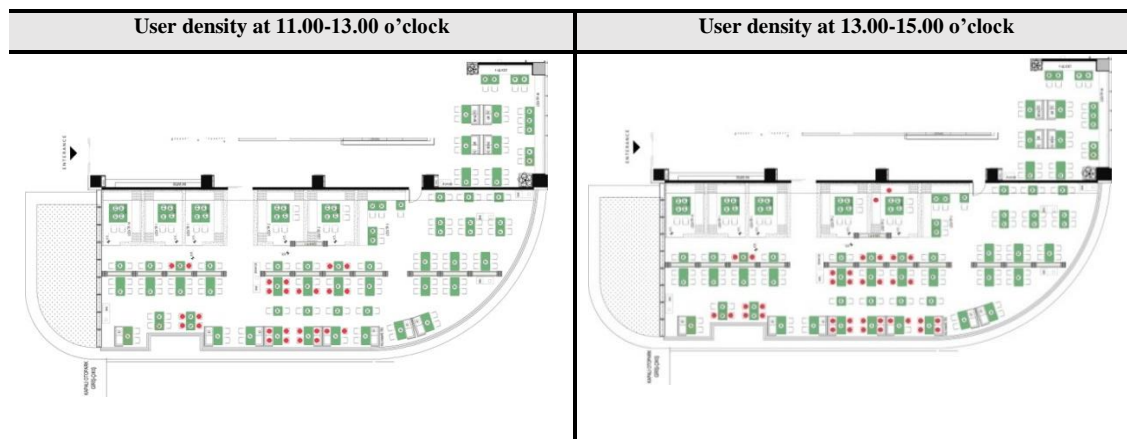
Fig. 7. Sitting Plan Parts

The use intensities of these areas were photographed by observing every two hours on 06.02.2019; user densities are planed. As a result, it has been tried to determine which region the users have a tendency to sit in (Figure 8).

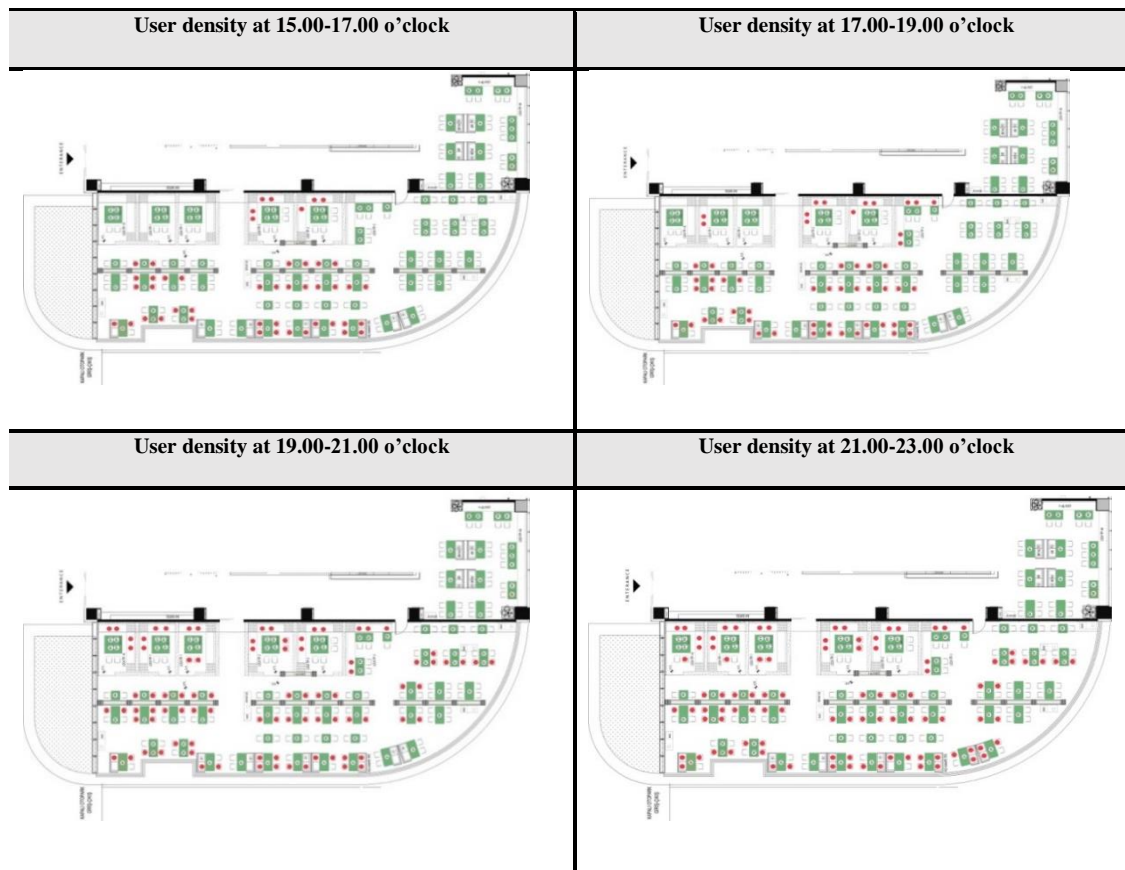

Fig. 8. Photos Taken From Area 1-2-3 and 4 at 13.00 pm.

Table 1. User density status at Yale Ataköy HuQQabaz on 06.02.2019

User density at 11.00-13.00 o'clock	User density at 13.00-15.00 o'clock

User density at 15.00-17.00 o'clock	User density at 17.00-19.00 o'clock
User density at 19.00-21.00 o'clock	**User density at 21.00-23.00 o'clock**

*Table 1 shows the user densities in the following hours. Red dots refer to users.

In this direction, the findings of user density cases are listed below.

• Guests with children generally use the 4th non-smoking area. It has been observed that this use is particularly intense between the hours of 13.00-16.00pm.

• The lodges were used more often in the evening. The density of the lodge usage increases from the right side of the entrance to the space.

• Female visitors prefer glass venues generally.

• Tables placed in the middle area are not preferred generally.

• Okey playground starts to fill in after 19.00 pm in the evening. This area is only available for users with reservations.

• Male users usually prefer the section with large screens. According to the soccer game broadcast days, the intensity is increasing in this area.

• To comparing with others, four seating groups are more preferred .

2. Results

Places that serve as cafes today are not perceived only as places where food is served. After the 19th century, cafes gathered various cultural activities and became a social sharing place in the process of spreading in Europe. After Turkey experienced a similar process in 1980, and socio-cultural perspectives become popular venues, it has come forward with chain businesses. In this context, since 2016, HuQQabaz has been serving as a culinary café; Yale Ataköy branch has been examined and its spatial layout has been handled by user density. The HUqqabaz Ataköy Cafe design establish relationships with the visitors in 3 different aspects; Physical Space Characteristic, Social Area Characteristic and Ambiance Character. Physical space characteristic gives an idea about the general construction of the space. Social area characteristic contains specific elements in the venue that allow us to

communicate with other visitors. Ambience character brings all details regarding visual perception of the venue. The plan layout and settlements were examined according to all the design features of the space. Depending on the findings; It was seen that the space had different session areas; preferences have also changed in this direction. it was observed that people in general had an intense demand for glass tables or seats in the morning. Therefore, it can be said that daylight is important in daytime areas. Although there is no sight on all facades of the café, this demand is proof that daylight has a great impact on human psychology. In addition, it is another observation that the operation of the hookah activity, which is another service of the enterprise, increases its intensity in the evening hours.

As a result of this study; Yale Ataköy HuQQabaz, operating in the Francise system, may go through some changes to the spatial organization of the Ataköy branch, taking into account the day and evening session area and user densities. In particular, the session pattern should be applied with optimal forms so as not to interrupt the day beam, and it was determined that observations in the middle parts were not appropriate. Even in the evening hours, people can sit more comfortably with special seats with the feeling that people are at home in the house in different ways can be designed by cutting the sight distance. The intensity of use of cigarette and water pipe smoking area is so low. Therefore, these areas can be developed in new proposals for the use of families with children with different activities. Thus, an incease in visitor diversity would be anticipated.

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