

INTERIOR ARCHITECTURAL ISSUES

**DESIGN
HISTORY
EDUCATION**

Editor
Kağan Günçe



LIVRE DE LYON
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**Architectural
Sciences**

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Interior Architectural Issues - Design, History & Education

Editor • Prof. Dr. Kağan Günçe • Orcid: 0000-0003-1557-2987

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e-mail • livredelyon@gmail.com



PREFACE

‘INTERIOR ARCHITECTURAL ISSUES – Design, History & Education’

Interior architecture is a multidimensional field that focuses on the interior design of the built environment, as well as the space that has the potential to be defined. This area aims to offer ‘design’ by producing the most appropriate solutions according to functional, structural and aesthetic criteria in a space, as well as the ‘anthropometric’, ‘sensory’ and ‘perceptual-mental’ aspects of the user. Understanding the space, which is one of the most basic requirements for existence, has always been a curiosity and an endless subject of research, questioning and interpretation for designers. The space, which can be described as a piece of space whose boundaries are determined by the senses, is at the center of the discipline of interior architecture. In this context, the subject of space and the act of designing the space is the artistic fiction of the contact that human and artificial nature will establish with each other.

Interior architecture issues began to be institutionalized in the United States in the early 1900s in the field of industry and education. This formation, which contains fine arts in its essence, has become a multidimensional profession accepted in a significant part of the world in a short time. Although interior architecture as a profession was initially structured as a special field that developed with the focus of architecture, it currently maintains its unique professional structuring in a dynamic phenomenon. Interior Architecture profession has become a ‘basic science field’ that continues its development with expansions to ‘design’, ‘theory’, ‘philosophy’, ‘environmental psychology’, ‘conservation - renewal’, ‘history’, ‘material’, ‘structure’, ‘physical environment control’ and ‘education’.

Naturally, there is a shortage of written documentation and resources in the field of Interior Architecture, which can be considered new. In order to support the development of the field of interior architecture, it is inevitable to deal with and examine all its dimensions and to put forward concrete documentation by making future projections. With this awareness and responsibility, this issue was brought to the agenda by me in the Journal of Interior Design and Academy (INda), of which I am a stakeholder, and was supported by the editorial board of the journal. The name ‘INTERIOR ARCHITECTURAL ISSUES’, which I suggested for this book that will contribute to the field of Interior Architecture, was found very meaningful and inclusive by the editorial board. This journey continued and was completed with

an enjoyable, exciting, long, productive, meaningful, productive and intense effort.

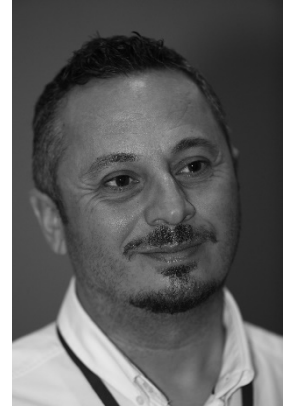
When the call was made with the aim of collecting the studies to be done on the above-mentioned subjects in a book, very positive and good reactions were received. These positive responses have once again clearly demonstrated that such a study has been needed for a very long time. In order to achieve the ‘first’ in this field in the best possible way, we have been very meticulous, selective and sensitive. In the call for the book titled ‘INTERIOR ARCHITECTURAL ISSUES’, 72 book chapter suggestions were received from very valuable academicians. As a result of the evaluations, 38 studies were selected and this journey started. Evaluation and classification of 38 studies, each more valuable than the other, were done meticulously. After this meticulous process, 20 valuable book chapters in the book named ‘INTERIOR ARCHITECTURAL ISSUES – Design, History & Education’; 18 valuable book chapter studies were also found suitable to be included in the book named ‘INTERIOR ARCHITECTURAL ISSUES -. Design, Theory & Philosophy’. Both of these valuable books will be published in the same time period.

‘INTERIOR ARCHITECTURAL ISSUES – Design, History & Education’, where the works of expert researchers in the relevant field, ‘Department of Interior Architecture’, ‘Department of Interior Architecture and Environmental Design’ and academicians who are academics in related departments are published. With this book named ‘INTERIOR ARCHITECTURE ISSUES – Design, History & Education’, it will create a new platform with new initiatives by shedding light on the field.

I would like to express my endless thanks not only to Livre de Lyon Publishing House, which opened its doors to us for its book project; to the editor and editorial board of the Journal of Interior Design and Academy (INda), who have supported this project from the very beginning; but to the doyen academics who have served in the field of Interior Architecture for many years, who have taken part in this book project as the author of the book chapter with their valuable work, and to the young academicians who have started to work enthusiastically on this path and give hope.

Prof. Dr. Kağan GÜNÇE
Editor

Kağan Günçe is Professor of Architecture at Eastern Mediterranean University (EMU) in North Cyprus. He is a full-time professor in the Faculty of Architecture, EMU. He also serves as Vice-Chair of the Institute of Graduate Studies and Research at EMU. He has a Bachelor degree in Architectural Program, a Master (of Science) degree in Architecture Program and Ph.D. in Architectural Theory from EMU, Department of Architecture. He was the director of HERA-C (Housing Education, Research and Advisory Centre) and he was the head of the Interior Architecture Department at EMU. He was a long-time University senator and is currently the elected professor representative senator. His research interests include interior architecture - architectural design, theory, environmental psychology and conservation. He has articles, papers in many national and international journals & conferences, and international research projects in the mentioned fields. His academic work has received many citations in 'web of science' platform.



Prof. Dr. Kağan Günçe
Editor

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CHAPTER I

A MODEL PROPOSAL FOR INTERNALIZING VALUE SYSTEMS BASED ON MORAL AUTONOMY IN DESIGN EDUCATION

Osman ARAYICI

Prof. - Mimar Sinan Fine Arts University

e-mail: osman.arayici@msgsu.edu.tr

ORCID: 0000-0002-1006-4740

1. Introduction

Many of today's personal and socially envied trends and the introduction and internalization of a sustainable vocational training to the society is basically a cultural problem. Therefore, creating and instilling an innovative educational transformation culture into societies and the inclusion of current practices in vocational education into the curriculum plays a very important role in the formation of social demands and understanding of quality. Educational institutions in developed societies; not only to achieve cognitive goals, but also has the understanding of being a structure in which all the universal values that make people human are given to students. Trying to meet the technological needs completely by getting rid of the most basic values for education or clinging to only traditional and conventional values will cause value confusion in individuals. Education is beyond just raising professionals; it should at least be seen as a set of efforts to create a good person, a good life and a healthy society. To raise individuals who have adopted basic human values; It is among the main duties of the family, society and school. It reveals that values education programs structured in accordance with universal values significantly increase the individual's social skills, social behavior, social problems that arise in daily life, acquisition of democratic values, self-confidence and self-esteem.

There are two global trends occurring simultaneously in education: vocational basic education and equipment to meet current market expectations. Trends in education and vocational maturity, implementations, economics, and technology are laying the foundation and constructing the bounds of design education. The majority of the education given around the world today consists of information created in the 90s, and this information is expected to become out of date dramatically. At the same time, due to increasing production possibilities and developing technology, practical vocational education has to be gray. The dynamics of education and education itself must act faster than ever and take risks. These concerns transcend the divide between developed and developing countries, as each country hopes to promote independent living and quality of life regardless of life expectancy. Education is a defining feature of quality of life. Within societies, there is increasing fragmentation and contestation over economic, cultural, and political issues. Decades of steady gains in prosperity and other aspects of human development have improved lives in every region and raised peoples' expectations for a better future. As these trends plateau and combine with rapid social and technological changes, large segments of the global population are becoming wary of institutions and governments that they see as unwilling or unable to address their needs. People are gravitating to familiar and like-minded groups for community and security, including ethnic, religious, and cultural identities as well as groupings around interests and causes, such as environmentalism. The combination of newly prominent and diverse identity allegiances and a more siloed information environment is exposing and aggravating fault lines within states, undermining civic nationalism, and increasing volatility.

According to Collins dictionary; education is the process of training and developing the knowledge, skill, mind, character, etc., esp. by formal schooling; teaching; training (URL 01).

Contrary to its encyclopaedic definition, education aims to assist one in acquiring the fundamental knowledge, abilities, and intelligence needed for socially adept people. To elaborate on this notion, design education aims to train students to be flexible thinkers who can perceive the world from a variety of perspectives. Similar to the way it is used and understood in colloquial language, education is used to prepare individuals to become specialized professionals who apply scientific procedures in adjudication processes and go beyond that to become intellectual members of society. Since different

approaches are used by different mental sets at different periods as a result of changes in both time and conditions, education has been characterized in a variety of ways. Despite the fact that almost all definitions essentially orient individuals via some specific course of activity and value of judgment, a broad variety of remarks are edified for the notion of education on the basis of the fundamental principles aforecited.

The goal of four-year-equivalent tertiary interior design courses is to give students the chance to acquire the information, abilities, and morals necessary to work as qualified interior designers. By doing so, the different universities acknowledge the standards and components of professionalism formally established by the International Federation of Interior Designers and Interior Architects (IFI). According the IFI charter: ‘The professional interior designer is a person, qualified by education, experience, and recognized skills, who – identifies, researches and creatively solves problems pertaining to the function and quality of interior environments; - performs services relative to interior spaces including programming, design analysis, space planning, aesthetics and inspection of work on site, using specialized knowledge of interior construction, building systems and components, building regulations, equipment, material and furnishings; and prepares drawings and documents relative to the design of interior spaces; in order to enhance the quality of life and protect the health, safety and welfare of the public’. At the last part of the statement, there is the very explicit expectation that emphasises the ethical aspect of professional practice by implying that members will conduct themselves honourably and honestly in their dealings with their clients, the community and their colleagues’ and that they will accept a professional obligation to further the value systems of the community. Inclusion of value systems in design education is crucial if the goal is to generate graduates who will work as socially conscious professionals. As aforecited, moral autonomy must be considered as a fundamental component of human behavior, including interior design practice and the related areas of design professionalism.

2. Forms of Practice in Internalizing Value Systems

A perception of design is that design is a solution to communal, cultural, and personal problems and, consequently, as a catalyst for communal, cultural, and personal change. This includes, among other things, a respect for life as a source of wisdom, creativity, and invention; a commitment to enhancing human-

environment interactions; and a commitment to lifelong learning. It is also clear that social responsibility is an important and intricately integrated part. Given this, the educator is faced with a number of issues, including giving pupils the chance to develop their knowledge, skills, and values, including social responsibility, in a unified and meaningful way while allowing for the accentuation of certain abilities. Given that values cannot be taught and examined in the same way as a skill, determining whether students have accomplished the objectives presents another issue. It is vital to take other aspects of the teaching and learning situation into account when creating a curriculum and teaching strategy to solve the aforementioned difficulties. In the end, it must be planned to offer a basis for internalizing a value system based on moral autonomy and for inspiring the person to take charge of others' well-being. The ability to exercise choice and make independent decisions is the essence of autonomy. It takes having a set of values that you internalize and live by rather than just adopting them because they are dictated by someone else.

Other trends in design education are more uncertain—gains in human development and economic growth are likely to slow and may even reverse in some areas, although a mix of factors could change this trajectory. The convergence of these trends will offer opportunities for innovation but also will leave some institutions and echoes struggling to cope and adapt. Even apparent progress, such as new and advanced technologies, will be disruptive to many educational programmes and curriculum, by forcing adaptation.

In a world where electronic technology has clearly reduced the importance of educational space, the need and demand for a certain echo seems to be at the center of individual or collective satisfaction, in a seemingly paradoxical way. In other words; the educator and the educational methods in what is called “education” is not only at the center of the hopes of being satisfied due to its central position, but also due to the ownership of the achievements through speculative success indicators and their rejection of external stakeholder influences makes it the trigger of a tense conflict. For decades, almost every problem in vocational education seems to be related, at least in terms of context, to the disagreements between academia and industry about the professional person who is fit for today's market conditions, which they see as their origins and future. The solution possibilities corresponding to all these problems depend on the concept of “moral autonomy”. Not to mention multi-autonomous identities that were unimaginable a few decades ago, with no priority over the other, the identity of human existence and consciousness in

the modern age, which finds its most concise form in Descartes's "Cogito ergo sum" (I think, therefore I am), has created an ontological distance between the discourses and actions of man as a conscious being. Thus, educators become inner observers in design education in terms of their relationship to their discourses and actions, and these inner observers ascribe meaning to discourses and actions themselves, not seeing their knowledge as a content of moral autonomy. Therefore, a particular longing for a fundamental loss and a collective impression emerge as a prerequisite that shapes the concept of 'moral autonomy'. Recent shifts in contemporary culture have produced an increasing overlap of practices, methods and approaches from the worlds of education and design train.

Today both Academy and industry are mostly interested in exploring new forms of practice within this evolving terrain, particularly work that is situated physically and engages with contemporary social, cultural and political conditions. These structural forces, along with other factors, will intersect and interact at the levels of societies, and the professional systems, creating opportunities as well as challenges for, institutions, corporations, and vocational education systems.

There are several methods in educational process. Despite the multitude of methods each method is based on a structure that evaluates the success and outputs with the examination of given data. But none can dedect the moral outputs of the graduated individuals that shall serve for a better public. When considering value teaching methods that should be embedded in the curriculum of any discipline, it can be grouped into two basic models; direct teaching of values and value realization methods.

2.1. Direct Teaching of Values

- It is traditionally used extensively in schools and is highly teacher-centred.
- It includes methods such as lectures, demonstrations, practice – repetition, didactic reasoning
- The teacher is active and the student is passive thus; it has a deductive structure.
- The teacher asks students to accept certain values if not enables them to accept these values.
- As a teacher-centered method, it is criticized for ignoring students' individual differences and different life experiences.

2.2. Value Realization

- In this method, teachers attach importance to working in groups. Originating from humanistic psychology and humanist education movements, these approaches believe that valuation is a process of self-actualization.

- This method advises teachers, not to try to teach the values, instead encourages teachers to help the student build their own values.

- In value realization method, emphasis is placed on the way individuals acquire their values, rather than the characteristics of the individual's values.

While the reasons for loyalty to moral values at the primitive level are avoiding punishment and gaining benefits, at the traditional level; being approved by society and staying safe through the continuation of rules and order. However, the reason for loyalty to moral values in today's life should be only the social contract.

The main aim of this work is to propose a new model for internalizing value systems in design education. This model that is to be proposed can be considered as an unconventional approach to teaching methods in many other disciplines but professionals in design realm shall also be familiar with this method that leads to the development of new ideas and design strategies.

2.3. Mobilysed Syllabus.

The first learning outcome that needs to be added when creating new curricula is, "Internalizing Value Systems Based On Moral Autonomy". Instead of completely replacing significant elements of the conventional designing curricula, these other qualities can be promoted by altering the way that curriculum material is delivered. It starts by increasing students' understanding of demands and the social responsibility of designers. The awareness can be converted to action on the part of the designing practitioner by guiding principles. Without any hesitation it is a greater need to foster designers with these guiding principles that raise awareness, that help the practicing designer to design solutions that are more socially responsible.

Phenomenological experience of moral values before creating built environments with multi-layered meanings will make it easier for students to comprehend the direct relationship that exists between space and respectful life. Perceiving the field of design as a quantitative size in which programs are placed instead of a qualitative value that establishes relations with moral values is a way of thinking that has spread to some current practices. Designs that do not

interact with their environment through moral values, such as housing estates and shopping centers, are examples of the wrong practices of early modernism that have been carried to the present day. Designs that have gained identities as a result of their physical elements and vital internal dynamics contain values that will be interpreted differently by each designer. The absence of a mind focused on environmental values lies at the root of the materialistic utilitarianism. Due to the fact that designers are naturally oriented toward solving problems and offering new ways of living, global challenges that is faced today can serve as inspiration to design students who desire to make a difference in the world. In actuality, technology plays a significant role in a number of complex issues that we face today. Without a set of guiding principles, understanding these complex issues turns into a tedious burden. Students' global knowledge can be translated into socially responsible action with the help of guiding concepts.

- In mobilysed syllabus, it is seen that scientific research and thought processes such as students' definition of the problem, collecting information about the problem using various sources, and determining possible solutions are applied to the field of values.
 - This method encourages students to act with desire and their own moral values.
 - Mobilysed syllabus is a non-biased method.
 - There is a completely emotional but also rational, thinking about tasks.
 - It respects every thought during the application and reveal students' values without imposing values
 - Students gain the ability to develop solutions using concrete social-moral events, moral thinking and creative ways.
 - The subjects to be examined in mobilysed syllabus should be those that have the characteristics that can activate moral reasoning from the real world and that can be easily associated with moral principles.
 - It is an approach that takes a long time to apply, it is recommended to be applied in couples to use the time well.
 - The methodological process initializes with unconventional allegations and contentions. Paradoxical or oxymoron titles are given to the students and these titles are asked to be defended with various tasks.
 - Students gather information and evidence regarding the assignment
 - They identify possible solutions

- Rest of the class evaluate the possible consequences of identified remedies. The teacher initiates a discussion that covers all views. After the discussion, the teacher asks each student to write down positive reasons to support a view that he or she does not support. In this way, each student also thinks about alternatives other than his own.

- Whole class choose between alternative solutions
- Finally, each student is asked to rewrite the reasons supporting their view. Students are divided into different groups to share what they have written in the group and especially to discuss the reasons. They are asked to behave and act according to preferred behavior

In this method, the aim is to help students develop moral principles that will guide their behavior.

3. Necessity Of Moral Autonomy In Todays Environment

As seen in the authentic models of educational institutions that have created important values in history, the principles of self-control and self-questioning, which started to develop during the act of observing the success of education, inevitably realizes that a potential infinity of interpretation and experience can arise around each observation object; this in turn, leads to a moral autonomy with an excited emotion of freedom or independence.

Digging deeper, with the development of moral autonomy a profound epistemological change that can easily be identified as a response to the overcomplexity which arises from secondary observations of the outcomes of education.

In societies that do not experience moral autonomy revolutions and in some cases lack the forms of moral autonomy they propagate or assert, collective self-reference is forced to return to the past, to an order that cannot meet the needs of the age, instead of expanding in all directions they do only create their own ideal images by copying the authentic claims of other institutions.

Above all, looking to the past for an ideal model of education has turned the temporalizing impulse of the historical worldview into forms of “history” that are in conflict with the expanding progressive trends of today.

From the 1900s, clearer concepts, perspectives, and systems that explain the world became the central area of action for education. At the beginning of this development, there was an epistemological change and its existential effects.

Throughout history, there has been an internal debate as well as extra-field speculative debates about what a truly successful education is, what the criteria for success or evaluation are, and how to create a good education. Education ultimately has a mission and observable outputs. It is a successful education if it encourages the student to think about a subject. If it pushes the student into behavior with rote and stereotyped reactions - even if the educators' intentions are good - it is a failed education.

Therefore, pedagogy is derived from knowledge gained from human experience in an introspective analysis program of the human cognitive journey; it has to reckon with as an inevitable filter through which every perception of the world that wants to extract the unexperienced reality of the world must pass. Today, it is known that contrary to the original intention of pedagogy, even within its own discourses and debates, it has not found its way back to the definitive pragmatism in the world. With such an observation, two different practical functions have developed as the contexts of the different connotations and functions of the dimension of information within a universal and inclusive definition of education, and their social-ethical contents and outlines seem to have been clogged in a pause phase mainly during the 2000s (and still today).

The concept of "moral autonomy" in educational institutions, which should be considered utterly important, draws attention to the difference between "being able" and "doing" and whether one can legitimize the other.

If the views expressed about the need for moral autonomy in today's environment is to be grouped, two extremes of "very generalist" and "very specific" are to be the main groups. Generalists concentrate on "moral philosophy" as a branch of philosophy. According to them, there are no different ethics, namely "professional ethics" for professional fields, there is a general ethics. With this generality, ethics cannot be limited to a certain profession and people of profession, it covers all people. Those who develop a private view, on the other hand, examine the behaviors in a certain profession and gradually try to bring norms that will determine the rules of a professional ethics.

It can be said that there is a situation of "extreme and understatement" in straying to two extremes in ethics. However, the "generalist" and "private" approaches are not at all opposed to each other, it would be correct to consider moral issues and by the way professional ethics together with general moral philosophy (ethics) as a whole.

In response to the neoliberal policies that dominated the last quarter of the last century and continue to be effective today, and the postmodernist

approaches parallel to these policies, the issue of social responsibility in the profession gained weight again. New views have emerged in professional ethics emphasizing social responsibility. In addition to the initiatives created by a limited number of people in architectural education, there are initiatives in this direction in certain periods in international professional organizations such as UIA, ACE, and national sectors (for example, RIBA in England).

One of the international organizations working on social responsibility related to our profession is the organization “Architects, Designers, Planners for International Social Responsibility”, which was established in 1988, with its short name ARC PEACE. ARC PEACE, which has not received much attention in Turkey and works with a small number of volunteers, has national organizations in different countries (URL 2).

There is an important compilation titled “Architecture and Planning in Different Political Systems” published by ARC●PEACE last year. A part of this compilation, which consists of articles by fifteen authors from different countries, is titled “Professional and Personal Ethics” (URL 3).

In the struggle against nature in the process of building culture and modern life, nature undergoes change, is damaged, and surrounded by its culture and artifacts due to human activity, which started with the industrial revolution and gained momentum especially after 1950, which is also known as the “Anthropogen Age”. Today, this conflict points to climatic and environmental problems that we can no longer ignore. Even though this rude and wasteful attitude of man is rationalized as the search for security and the instinct to protect/maintain his own existence, the result of this irrational destruction and exploitation will be the extinction of the human species. While man is dependent on nature in terms of the resources that ensure his survival, on the other hand, he tries to gain superiority over nature with the culture he has created and to become autonomous from it. In this ambivalent relationship, the human being, both dependent and traumatized, is an ambiguous creature, but becomes more incomprehensible. Here, moral autonomy in education is precisely the human activity that feeds on such ambivalence. Being aware of this ambivalence that separates the educated person from the rest of the society and the whole of his relations with the world through his profession stem from the need to understand this uncanny situation and to develop an insight into this situation with a creative act of internalizing the value systems based on moral autonomy.

This endeavor can proceed along two stream lines. The first way is to construct moral values as a functional and systematic ideology against the

historical materialist science, which explains social phenomena with material processes, and to keep the intellectual continuity of these moral values with the theoretical premises on the agenda. The second way is; to explain that concepts such as culture, value and meaning, which are separated from their material realities and made the subject of metaphysics, can only present a superficial view of reality, through an ideologically supportive morality to capitalist social relations.

4. A Material Dialectic Criticism of Moral Autonomy

Ultimately; moral autonomy reminds us that the critique of this ideological mystification of social sciences is necessary in terms of theoretical and political (class) struggle in today's fascism era, where it is difficult to see the state as a form of social relation, away from capital and society. The proposal of this study is to get rid of the ontology, concept sets and methodological individualism of the given sociological design train paradigm that dominated the last century. In other words, it aims to reconstruct the materialist dialectical relationship between concept and reality. It has been widely decreed in this century that ideologies and history have come to an end, thus class-centered politics have come to an end, and liberalism has been institutionalized in all its forms. Therefore, it is very valuable to disclose the commonality between the discipline of design train and moral values, which have not been in close intellectual relationship with the hermeneutic tradition since its first emergence, and fictions such as discourse/imaginary constructions designed by today's dominant paradigms through this ancient hermeneuticism.

In everyday social life, the existential insecurity arising from the epistemological situation intensified, first of all, with the experience and consequences of wars: For example, a new technological intricacy produced for "material wars" in which individual courage and courage cannot achieve anything, as well as a result of the intertwining of traditional patterns and social behavior hierarchies. virtue education. We can understand what the history of philosophy defines as the beginning of phenomenology (especially in the thinking of Henri Bergson and Edmund Husserl) as the point at which, from the point of view of the history of knowledge, the belief in the subject's ability to describe his world adequately and in a generally understandable way is definitively lost. Pages of words are needed to justify or even prove the belief that we live in a post-ideological and post-historical era today. But equally it would take the same number of pages to

illustrate the consequences of the absence of coherent systems of ideas that stubbornly represent claims to integrity and moral autonomy that would resonate widely in today's world.

At the same time, the purely vocational or specialist education view remains the epistemological framework for which there is no alternative to ethics, and a (often unconsciously) promise of the new society (no innovation can do without the concept of "shaping the future"); but the future of our everyday lives seems fraught with dangers slowly and inevitably moving towards us, the past filling the present rather than being left behind (not just because of electronic storage options), and between blocked futures and this aggressive past, the 'immediate short' present of the old is a vast array of synchronicities. turns into the present. In other words: from the temporality of the historical worldview has passed into the slow time of a broad moral general which no longer flows from the past to the future, but remains in a frenzied inner restlessness.

Where does this craving for certainty as a matrix of contemporary moral autonomy come from? In principle, it can be explained as a reaction to drowning in the broad moral generality in which all conceivable behavioral possibilities exist and are therefore selectable. In another version of the analysis of moral autonomy, we can describe the emergence of the same situation as the evolution of everyday life as a field of contingencies to everyday life as a universe of contingencies. In early democratic societies, moral autonomy as a "field of contingency" was supposed to be the privacy and freedom of a way of life ("the contingent"), limited and surrounded by the "necessity" dimension and the "impossible" dimension. "Mandatory" in the sense of individual and social living conditions that are considered given and therefore unchangeable; "impossible" in the sense of the excess of human imagination in relation to real human possibilities of existence (things like "omnipotence", "omniscience" or "eternal life" could be thought of, whereas in the past such ideas were only associated with gods)

In many but not always cases, even the non-contingent context of the contingent as a state of individual choice and decision has today entered the process of dissolution, owing to the possibilities of action opened up by electronic technology. If the gender one was born with has previously been experienced as destiny (i.e. "forced"), transgender surgery has given hope that this difference may one day be an individual's orientation; on the other hand, even (physical) eternal life, previously a purely theological idea, has now become a subject of research for medicine.

The transition of our life situation from the realm of contingency to the universe of contingency has opened up enormous potential for new freedoms. But at the same time, today's crowds seem overwhelmed by the abundance of freedoms and opportunities available today, regardless of individual education level. It can be said that this reaction generally lies in the longing for life situations that give individuals a sense of direction and "holding in that direction", as well as a longing expressed by the tendencies towards "radicalist" strategies that are now ubiquitous. To this must also be added the desire for a spatial life situation, a mental structure with moral autonomy that proves our relationship with the physical world is correct and therefore livable.

In all levels of education, but especially in university-level studies with specialist training, the major provides individuals with a flexible degree specifically geared towards their career goals. Higher education should be a liberal arts-style degree plan that enables students to achieve a number of goals, including incorporating diverse interests into a university degree, transferring from community college with various credits, or completing a degree for employment that requires. The student's learning of new skills important in the workplace must combine science with other interests, such as business, psychology, humanities or social sciences. The interdisciplinary approach, which is the only method that can provide this, has become an important and challenging technique in the modern curriculum. The interdisciplinary approach synthesizes multiple disciplines and creates teams of teachers and students that enrich the general education experience.

Student education has suffered from the inadequate pedagogy of traditional methodologies, particularly focusing on a single discipline. A curriculum and education method based on moral autonomy provides many benefits that translate into lifelong learning skills so essential for the student's future learning.

From early childhood to graduate studies, studies on moral autonomy should be made more and more popular. Considering the natural and artificial disasters in which our world is rapidly drifting, the dimensions of the needs for moral autonomy is highly remarkable due to "the state of environmental education and the need to improve ecological literacy" in all disciplines. Moral autonomy is the key to success in all disciplines, and this is not just the domain of course materials or textbooks. Moral autonomy is not only important for a student to learn any discipline or to solve problems in a synthesized way, it also enriches the student's lifelong learning habits, academic skills and personal development.

5. The Main Premise Of Today's Education

The primary goals of a good education should be shocking and inspiring rather than engaging or alienating. Although education may seem like a continuous uphill marathon or even a triathlon, it is actually not as complex as humanitarian races. Eventhough semantically may they stand very close to each other, measuring the distance between these concepts and the decision of a timeless mode is not easy. The search for the right mode, oscillates between the selective understanding that an education program should be completely free of a more academic ideology (similar to “art is for art”) and the political determination that all knowledge given in the educational process is ultimately for making money (similar to “everything personal is political”). Even this dilemma has a very simple algorithm. The educational strategy is, in fact the definition of this dilemma. Accepting the impermanence of existing conditions that can be grasped according to cause-effect relationships, which are formed in practices as well as in theories (paradigms) that do not translate into action, in a sense means the endless execution of innovation.

Political desire is dark and destructive to society, while morality is a means of taming and healing this wild desire, in other words, an act that culturalizes the a priori and unpredictable impulses of our species. Such a qualitative analysis on the usefulness of professional knowledge can also be carried out in terms of content. As the separation of essence and existence (although not so speculative) will ground the strategy of education. The training and methods to be built on this basis will not be “technically” consumption, but the result of anything according to a certain model and the basis of what will repeat itself.

Although its inputs are infinite, its outputs are predictable and observable even though they cannot be measured. Of course, the education I am talking about must go beyond preaching to a congregation. If it is being addressed to people who already think or feel the same way, then it is not called education as it does not create the desired change in consciousness, even if it is humorous or technically impressive. What needs to be done is to do things that are poignant in a way...

6. Conclusion

The main premise of today's education should be to explain with moral autonomy the combined conditions that make both advanced technological systems and traditions a part of contemporary life. This will be a crucial step

towards reducing the use of today's overly resource-intensive technologies and materials.

Moral autonomy simply needs to be visible and conversely to encourage the voids of actual educational systems, all needed to be done is to ignore the negativity of the present and keep doing it... Although it is not clear that the change generated by Internalizing Value Systems Based On Moral Autonomy will result in socially responsible action, it will represent a discernible shift in the direction of designers' awareness of their social obligations. Socially conscious behavior is fundamental to the design industry. In conceptualizing an methodological approach to an educational process, there is always the challenge of the hierarchical structure of themes, topics, and subjects to be covered. However, in order to support the internalization of value systems, design curriculum must go beyond a technical skill-only approach; it is undeniable that socially responsible action also calls for awareness of the requirements and a commitment to meet those needs. The aforementioned essential qualities can be encouraged as an organic component of the curriculum. The world's problems inspire socially responsible action, but awareness of the problems must be accompanied by guiding principles for action.

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CHAPTER II

A DESIGN STUDIO EXPERIENCE: DESIGNING COMBINED COLIVING AND COWORKING SPACES FOR DIGITAL NOMADS

Özge CORDAN¹& Sıla Burcu BAŞARIR²

¹Prof. Dr. - Istanbul Technical University

e-mail: cordan@itu.edu.tr

ORCID: 0000-0002-9347-1746

²Res. Assit., Istanbul Technical University

e-mail: silabasarir@gmail.com

ORCID: 0000-0001-7905-5853

1. Introduction

The concepts of digitalization and remote work have become increasingly common with the help of technology such as laptops, social, and digital media, and mobile phones all over the world. The desire of modern people to explore the world and leisure time for themselves while working changes traveling, living, and working dynamics. Accordingly, the notion of migration also changes and gains new meaning. Today, the notion of neo-nomad (Naz, 2016) or new global nomad (Richards, 2015) describes a distinctive way of life. The notion of a “digital nomad” (Makimoto and Manners, 1997), which has become widespread in the 21st century, is most often used to describe people living and traveling abroad for at least part of the year while working remotely. Steven K. Roberts is regarded as the first digital nomad (Clark, 2021) who traveled with a modified and digitized high-tech recumbent bike called “Winnebiko” (Figure 1) between 1983 and 1985 and wrote about his adventures of technomadic lifestyle in his book “Computing Across America: The Bicycle Odyssey of a High-Tech Nomad” (Roberts, 1988).

Digital nomads also identify themselves as tourists (Hall et al. 2019). The freedom to choose where to live, leisure, and work is part of the benefit of being a digital nomad. Digital nomads tend to be young professionals (Reichenberger, 2017) and can be found working in most industries, such as marketing, design, information, and communication technologies, writing, media, coaching, and developers. Following the first wave of digital nomads in 2007, remote working became normal, and a second wave of nomadism took place in 2014. Thus, it became a mainstream sociocultural movement (Nomadlist, 2022). It is possible to say that with the COVID 19 pandemic, which emerged in Wuhan, China, and affected the whole, remote working will become more widespread, and new forms of nomadism will be seen as a third wave of nomadism (Nomadlis, 2022). In this sense, “digital nomadism” encourages digital nomads who are “location independent travelers” (WYSE 2018) or “location independent remote workers” (Nomadlist 2022). Therefore, the number of digital nomads in the world is increasing day by day due to the increase in remote working and digitalization technologies. The WYSE travel confederation (2018) declared that there would be more than 1 billion digital nomads in the world by 2035.



Figure 1. Steven K. Roberts riding the Winnebiko.
Photo by John Delzell in Palatka, Florida.

Traveling digital nomads have attracted the attention of the world, both in terms of tourism and a new developing market. In this sense, it is inevitable to identify destinations that attract digital nomads around the world and to provide/introduce new destinations to the global market. According to the Nomadlist, Istanbul is one of the top 20 destinations for digital nomads (Nomadlist, 2022). Kocaman (2021) stated that countries including Turkey have taken steps toward

the rapidly increasing number of digital nomads in the world and declared the opportunities they offer, such as “fast internet, digital nomad visa, advanced infrastructure, global connectivity, virtual work programs, multiculturalism and hospitality, historical and cultural attractions, social activities, safety, and security” (804). For digital nomads who like to work and leisure together, collective practices for work and leisure are a fairly new issue and need to be addressed. Collectivity provides a sense of community between digital nomads and affects their well-being in relocation. In this sense, short-term living (i.e., a few days, weeks, or months) and office rentals worldwide have also made coliving and coworking common among digital nomads.

Thus, the study focuses on digital nomads for defining their personal and collective needs for designing collective and integrated environments, i.e., combined coworking and coliving environments (Chevtaeva, 2021), from the viewpoint of the interior design/architecture discipline. This study addresses the following research questions: What are the personal and collective needs of digital nomads? How can design improve combined coliving and coworking environments for digital nomads’ well-being? The Kuzguncuk neighborhood in the Üsküdar district on the Asian part of the city of Istanbul in Turkey was chosen as the location for this studio due to its pulling factors, such as adequate facilities, social activities, multiculturalism, and distinctive cultural and natural attractions. Besides a detailed literature review on the notion of digital nomads, digital nomadism, coworking, and coliving, and the personal and collective spatial needs of digital nomads, the studio results were analyzed for acquiring holistic information for designing appropriate to digital nomad’s needs. Accordingly, the purpose of the study is to share information and knowledge of the studio experience for designing combined and collective environments to meet the personal and communal needs of digital nomads. Thus, the study will provide theoretical and practical contributions to the design field for defining digital nomads’ needs to achieve supportive, collective, and attractive combined coliving and coworking environments. Whereas studies on digital nomads are generally from tourism, business, marketing, and sociology fields, this study deals with the digital nomad’s needs from the design field, specifically the interior architecture design discipline.

2. The Notions of The Digital Nomad, Digital Nomadism, and Coliving, -Housing, -Working

Before digital nomadism, which is a technology-based nomadism, there were pioneers of this movement, mostly in media and technology. The term

“digital nomad” was first coined in 1997 by Tsugio Makimoto and David Manners in their book, *The Digital Nomad* (Makimoto and Manners, 1997). This book predicted the rise of portable internet-connected devices that would allow people to travel and work wherever they want (Nomadlist, 2022).

Digital nomads can be described as professionals, representing a group of people who work remotely and with flexible hours against mainstream business models and live according to their needs, preferences, desires, and priorities. As Orel (2019, 215) stated, they “merge itself with the selected geographic area or environment for a brief period of time, and by that utilising its logistic and digital infrastructure to maintain an individualised lifestyle.” In this sense, digital nomadism, which uses the advantages of technology to work remotely, is a new nomadic and mobile lifestyle based on work, entertainment, and travel (Akın, 2021). In other words, digital nomads prioritize their leisure time, giving less importance to mainstream businesses (Thompson, 2019).

These people get to know different countries, cities, and cultures and move constantly all over the world. Due to their constant movement every 3–6 months, digital nomads prefer coworking spaces and cafes instead of permanent office environments. As Lee et al. (2019) stated, digital nomads prefer temporary working and living spaces to owning a property for a longer period of time. Therefore, the growth of the digital nomad community has also diversified its accommodation needs. As stated in the Nomadlist (2021), “Besides coworking spaces, coliving spaces, i.e. shared housing with other remote workers, also started around the world.” In other words, coliving and coworking can help digital nomads eliminate their fears, such as “social isolation, distance from loved ones, and loneliness” (Thompson 2019, 2), by incorporating them into the local physical and cultural environment to live, work, and leisure in collective and communal communities.

Stewart (2016) stated that “co-living is the housing equivalent of co-working, aimed at solvent, yet asset poor, young professionals.” It is also different from co-housing, which has a spatial character comprising several independent homes in combination with shared spaces and facilities both for supporting a collaborative lifestyle and for balancing privacy and communality (Beck, 2019). Thus, communal living environments enable people to live in shared spaces and transform the home culture from being private to a common life. It also defines a nonhierarchical social structure that aims to live together by removing obstacles to communication and interaction between all parties, adopting a collaborative

lifestyle. Besides coliving, coworking spaces support social interaction and idea and knowledge exchange for digital nomads. Coworking spaces comprise the sharing of office and social space (Bouncken and Reuschl, 2018). In this sense, new generation coliving and coworking spaces that combine working and living activities (Orel, 2020) provide digital nomads with opportunities to meet their needs regarding autonomy, community spirit, communality, interaction, sense of social belonging, and affordance.

2.1. Digital Nomads' Needs for Combined Coworking and Coliving Spaces

Digital nomads are willing to meet other digital nomads through various platforms (Valenduc and Vendramin, 2016) and share knowledge and experience with each other. The important factors for digital nomads in the location/destination choice are accommodation opportunities, working spaces, high speed and widespread internet connection, hospitality, affordance, security, and so on. They also search for safe places that provide social and cultural opportunities (Kocaman, 2011). Due to their lifestyle, digital nomads prefer short-term living and working environments to avoid living expenses such as bills. They also prefer places that offer both home and hotel comfort and the opportunity to work remotely (Aşkın, 2019). Digital nomads also prefer coliving and coworking areas for both socializing and being more productive in their work (Kocaman, 2021).

Digital nomads need a balance between meeting private and communal needs in social and physical environments. Communal and combined working and living environments enable digital nomads to work, live, and leisure in shared spaces. A more recent trend is in work-travel coliving spaces as part of coworking (Chevtaeva, 2021). Combined working and living spaces can improve relationships and provide a community and a sense of belonging to users (Chevtaeva, 2021). In this sense, it is important to increase the comfort of coworking and coliving spaces (Von Zumbusch and Lalicic, 2020).

Kocaman (2021) emphasized the need to allocate and encourage adequate spaces for exercise, work, socialization, and rest in coliving spaces. Although coliving spaces can be different types (Von Zumbusch and Lalicic, 2020), “a hotel with Wi-fi and a full-service hotel or a quiet place and an entertainment venue” (Chevtaeva 2021, 205), these accommodations offer users furnished rooms with communal spaces serving different activities (Aşkın, 2019) such as working, socializing, and leisure. Likewise, coworking spaces offer

multiple users individual or collective working opportunities in different types and “offer informal facilities/spaces such as coffee corners, a kitchen, meeting rooms, 24/7 access, internet access, printer and copying facilities, lounge space, and other informal spaces.” (Weijs-Perrée et al. 2019, 536). Accordingly, the attractive atmosphere, interior aesthetic, and flexible space organization are important characteristics of coworking spaces (Chevtaeva, 2021). In this sense, besides physical and spatial qualities, combined working and living spaces also provide a pleasant environment to users for their well-being, pleasure, and productivity.

In brief, coliving, and coworking spaces for digital nomads becomes a convenient option to reduce isolation, providing an inspiring and attractive atmosphere, supporting communal culture and community spirit, sharing knowledge and experiences, enabling mobility and remote working, and spending leisure time to live and work in a place for a certain period. Although they offer several types and facilities, these spaces aim to enrich the communing practices of users/guests. Accordingly, combined coworking and coliving spaces can be improved through atmospheric, physical, and spatial qualities to provide a sense of social belonging and well-being to their guests/users.

3. The Design Studio

The design studio is the heart of the design disciplines, such as interior design/architecture through in-person, online, or on a hybrid platform (Cordan et al., 2022), with informal/formal and collective/group studies, seminars, site visits, pin-ups, juries, and charrettes. The design studio creates a dynamic medium (Gürel, 2016) and an interactive environment between students and instructors to perceive, investigate, analyze, and interpret human, space, object (product), and environmental relationships, both interior and exterior and visible and invisible dimensions. In this context, the study focused on the main design studio project, which was held in the spring semester of the 2021–2022 academic year by two academics from the Istanbul Technical University Interior Architecture Department. Over a period of 10 weeks, the group composed of 23 second- and third-year undergraduate students proposed design scenarios and proposals for combined coliving and coworking spaces for digital nomads in Kuzguncuk in İstanbul. Researching the communal lifestyle, along with the meaning of being a digital nomad, students were expected to define the digital nomad’s needs, analyze the project site, and create an atmospheric interior.

3.1. Methodology

A literature review for theoretical knowledge and a situation analysis for design were used as a method of this study. First, the literature review was done through research articles, papers, websites, and forums, such as “Nomadist,” “Reddit,” “Digitalnomad,” and “Digital Nomads Around the World,” to understand the notion of digital nomads, nomadism, and their needs for coliving and coworking environments. Second, the situation analysis, which includes initial data from interviews, observations, survey analysis, environmental walkthroughs, etc. (Cordan and Teixeira Fialho, 2014; Attiwill, 2011), was done for design research. The situation analysis was represented through drawings, a conceptual study, mapping, diagrams, and physical/digital models to understand the relationships between people, space, and environment.

3.1.1. Project location and site

Digital nomads select their location based on leisure considerations rather than employment (Müller, 2016). According to the Nomadlist (2022), the general criteria for choosing a destination for digital nomads are as follows: cost, internet, fun, temperature, humidity, air quality (now and annual), safety, lack of crime, lack of racism, education level, income level, liked by members, English speaking, walkability, peace (no pol. Conflict), traffic safety, healthcare, happiness, nightlife, free WiFi in city, places to work from, A/C or heating, friendly to foreigners, freedom of speech, female-friendly, LGBTQ+ friendly, and startup scores. It is also important to have collective working and living spaces in destination selection (Akin, 2021; Chevtaeva, 2021; Kocaman, 2021). As the project location, the multilayered and multicultural structure of Kuzguncuk directly overlaps with the essence of combined coliving and coworking. Kuzguncuk is a neighborhood, located near in the Bosphorus in the district of Üsküdar in Istanbul, Turkey (Figure 2). Bektaş (2011) stated that Kuzguncuk is an interesting settlement with its community life in today’s Istanbul. People of different belief systems (such as Muslims, Christians, and Jews) and ethnic groups (such as Armenians, Greeks, Turks, and Jews) have lived in harmony for centuries in Kuzguncuk.

The project site, an old passage, has on the İcadiye Street of the Kuzguncuk neighborhood and has a four-story apartment building (Figure 3a) having an architectural office and a furniture showroom on the ground and mezzanine floor (Figure 3b), residences on the upper two floors, and an attic floor on top. Thus,

this building attached to other buildings on the street was chosen to propose a combined coworking and coliving place for digital nomads in Kuzguncuk. There is a semi-open courtyard before the entrance and a garden, which also has a single-story building attached to the old building in the back on the ground floor (Figure 3c). Besides direct access from the ground floor, the garden can reach both an outdoor and indoor staircase from the mezzanine floor. The residence floors are also accessed by separate stairs located in the semi-open courtyard at the entrance.

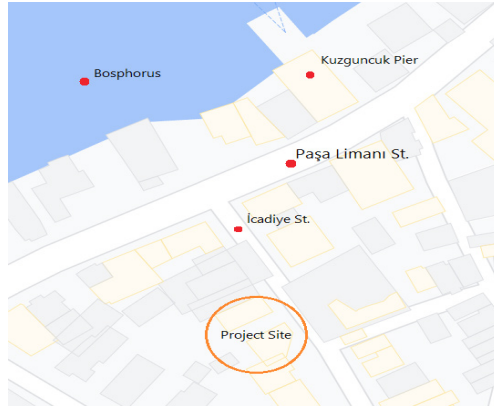


Figure 2. Project site on the Kuzguncuk map (student study)



Figure 3a. Current view of the project site from İcadiye Street (photo credit: Ece Ayvaz)

Figure 3b. Current interior view of the project site (photo credit: Ece Ayvaz)

Figure 3c. Garden of the project site (photo credit: Author)

3.1.2. Design process

The design studio, which was held in person, was held in five stages (Table 1).

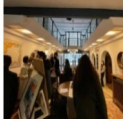












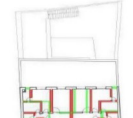

<p>S t e p 1</p> <p>Site visit Situation analysis Literature survey</p>	 <p>Site visit</p>	 <p>Kuzguncuk map with images</p>	 <p>Research</p>
<p>S t e p 2</p> <p>User's & Spatial needs Relationship between people, space, and environment</p>	 <p>User specification and spatial usages</p>	 <p>Defining spatial needs for digital nomad user profile.</p>	 <p>Imagining user activities related with Kuzguncuk and project site.</p>
<p>S t e p 3</p> <p>Visualization: Literature survey & Situation analysis</p>	 <p>Digital nomad definition</p>	 <p>Accessibility and natural/artificial lighting analyses</p>	 <p>Kuzguncuk sound analysis</p>
<p>S t e p 4</p> <p>Design scenario Initial ideas Conceptualization</p>	 <p>Defining user profile and scenario</p>	 <p>Developing the design concept</p>	 <p>Developing scenario and the usage of spaces around different times.</p>
<p>S t e p 5</p> <p>Space organization Spatial interventions Visualization</p>	 <p>Studying spatial organization with diagrams</p>	 <p>Spatial interventions: Removals in red and additions in green</p>	 <p>3D visualization of interior space</p>

Table 1. Design steps of the design process (images belonging to the students)

In the first step, the site was visited to collect data through situation analysis. In the second step, the design problem was questioned, and multiple perspectives were investigated to understand the relationship between people, space, and environment. In the third step, the students, as a group of two, represented their findings in the pin-up based on the situation analysis and the literature survey. In the fourth step, each student developed his/her design scenario and initial design ideas according to their research and personal preferences. In the fifth step, the students finalized the design proposals and visualized them with 2D and 3D visualizations. The evaluations were made with the jury system in the design studio environment, which was also enriched with seminars on interior atmosphere, furniture, and lighting design.

3.1.3. Design proposals

The students determined the public and private spaces with zoning decisions, taking into account the needs of digital nomads while developing their design proposals. In this sense, the ground floor connecting the semi-open courtyard at the entrance and the garden at the back was reserved for public use. The mezzanine floor was organized in a way that served public, private, or individual uses. While the first and second floors were reserved for accommodation needs with private bathrooms according to different users and usage scenarios, the attic was generally used for laundry, storage, or leisure activities. In the use of the bay windows of the first floor facing the street and the terrace in front of the rooms at the back of the same floor, the students made their planning decisions and space organization according to their own points of view. While allowing students to change/remove partitions, walls, and stairs inside or outside the building, it was requested that an elevator be added to the building. Thus, 23 design proposals used interior strategies and techniques for developing combined coworking and coliving spaces for digital nomads. To exemplify the design proposals, the work of three students, two from the first year and one from the second year, was presented with concept/idea development, zoning decisions, space organization, and interior atmosphere in this study.

Example 1 (Ece Ayvaz, second-year student)

She named the project “Coe-Home” and developed the design scenario for creating a common space for 20–35 years of digital nomads in Kuzguncuk with its colorful, cosmopolitan, and lively atmosphere. In this place, which reflects the retro style of the 60s and 70s, integrated with the historical and cultural identity of Kuzguncuk, private areas for accommodation and public spaces for eating, working, resting, and leisure activities were designed to meet the individual and common needs of digital nomads. Moreover, the ground floor and mezzanine floor were designed for public use, such as working, eating, and leisure activities; the first and second floors were designed for private use, such as accommodation; and the attic was used for common uses, such as laundry and leisure activities. This combined working and living space offered different lengths of stay, such as 3–6–9 months, and rooms of different sizes and standards for single or multiple uses. Retro colors were used in the identification, orientation, and furnishing of the rooms, which were also organized to meet the working, resting, and sleeping activities of individual or collective uses. While

privacy was provided for multiple users, an open cabinet system for different needs was designed to use the space effectively. Curtains were used to provide separation and privacy for different users in the shared rooms. Whereas the kitchen, dining, resting, and playing areas were located on the mezzanine floor to increase the communal practices of the digital nomads, the café and bar on the ground floor were integrated with the garden at the back and the semi-open courtyard at the entrance (Figure 4).



Figure 4. Student's design proposal

Example 2 (Aziz Arda Şenkal, second-year student)

He developed his design idea, recalling the previous function of the building as a passage. The place offered 3–6 months stays in the single or shared bedrooms for 20–35 years old digital nomads from all ethnicities. Emphasizing the straight relationship of İcadiye street, on which the building is located, with the sea and land, and the straight relationship between the street and the garden on the ground and mezzanine floors of the building, the building was organized to strengthen this relationship in the plan layout with a contemporary interior atmosphere. While the ground floor was organized as a public space to support the urban spirit and the relationship for communal living between digital nomads and locals, the mezzanine and upper two floors were organized specifically for the digital nomad's private and public needs. The attic floor was also organized as storage belonging to the enterprise. The ground floor had a reception and store in the semi-open courtyard at the entrance; a pub at the back in the garden; and a kitchen, library, and café in the center. The mezzanine floor

had a single bedroom; individual and collective meeting rooms; and common working, living, resting, and eating areas. The four bedrooms, which had two rooms with a projected balcony in front and two rooms with a separate terrace at the back for singular and multiple users, were designed for working, resting, and sleeping activities. An open cabinet system was designed for wardrobes, tables, storage, and/or shoe racks. The partition walls in the bedrooms were designed with the glass upper part to provide light to the inner spaces, such as the bathroom. The accommodation floors also had common areas, such as a kitchen and hall for all (Figure 5).



Figure 5. Student's design proposal

Example 3 (Gökçe Murtezaoğlu, second-year student)

She named the project “Lens” and designed a place that “lived as if in a filmstrip.” The place offered 5 months stays in the single or shared bedrooms for 20–35 years old digital nomads whose common interest was photography both for local and all nations. While the ground and mezzanine floors were organized as public needs of digital nomads, the upper floors were organized for mainly private needs of digital nomads in this combined working and living space. The ground floor had a reception and store in the semi-open courtyard at the entrance; a movie room at the back in the garden; and a manager room, kitchen, and resting area in the center. The mezzanine floor had individual and communal working spaces, and communal spaces for leisure time activities in the center and a terrace at the back garden. Besides the six bedrooms, which had three double rooms in front and three single rooms at the back, were designed for working, resting, and sleeping activities, the common spaces were designed for working and leisure activities in the lobby and at the back terrace. While the color was used for creating a distinctive character in the modernly furnished

bedrooms, the photographs were used for identifying each room and iconic furniture replicas for creating an individual experience (Figure 6).

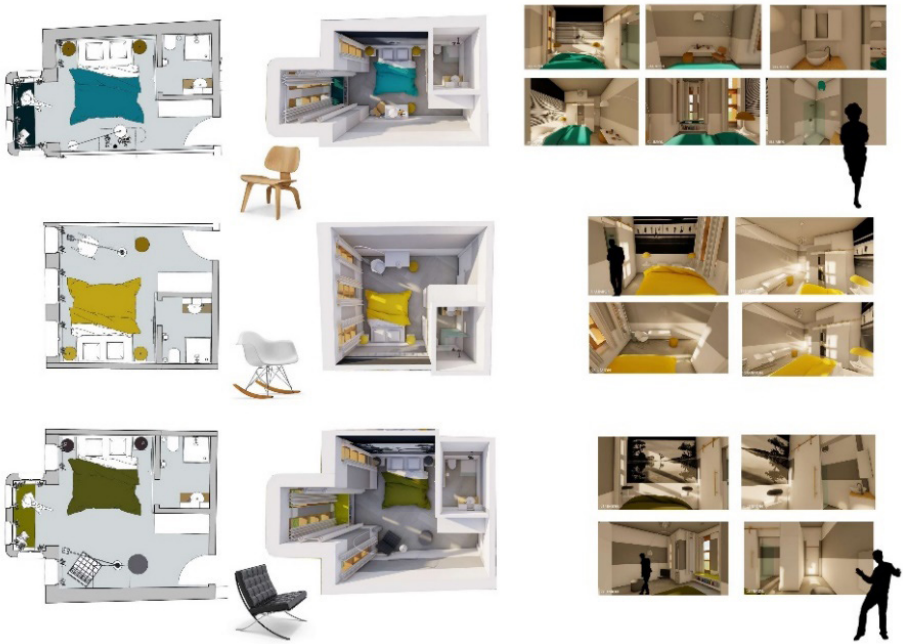


Figure 6. Student's design proposal

Example 4 (Aleyna Çağla Yıldırım, second-year student)

The place welcomes digital nomads from all nations, genders, and ages who love nature for three months. She named the project “Cosey” and designed a communal working and living space that creates cozy, calm, and retro looking indoors with natural materials. The ground floor was designed for the public needs of digital nomads such as reception and café in front, lobby, dining, and kitchen in the center, and winter garden and garden at the back courtyard. On the closed spaces of the mezzanine floor, a manager room, gym, working spaces, common kitchenette and living room and open-air sitting area in the terrace was designed. The upper two floors were used for accommodation with double and single bedroom options (Figure 7). A gallery space was created between the accommodations floors, allowing to interact with each other and to receive natural light from the roof. The bedrooms are designed different retro colours to create a warm and friendly atmosphere.



Figure 7. Student's design proposal

Example 5 (Gizem Kübra Ercedoğan, third-year student)

She named the project “Comfy Home” due to the scope of her first-semester project based on corporate identity. The place offers 20–45 year old digital nomads a cozy, comfortable, and serene atmosphere for supporting their individual and communal needs in a homey atmosphere for 3–8 months stays. The ground floor was designed for the public needs of digital nomads, such as reception, lobby, kitchen/bar, yoga/pilates room, and different types of eating and seating areas at the entrance, in the garden and in the center. On the mezzanine floor, two bedrooms for different user profiles, such as single or couple, a manager room, coworking area, common kitchen, social area, and different sitting areas for relaxing, sitting, chatting, and also working, were organized. The upper two levels were used for accommodation with different room configurations and user's profiles and for communal spaces providing collective uses such as kitchenette, hall, laundry, and terrace (Figure 8). A suit for accommodation was also organized on the attic floor. The interiors were designed with warm colors, wooden sticks for separation and decoration, and decorative objects to create a familiar atmosphere, like home. While a unit was designed for bedrooms for different needs, such as storage, kitchenettes, and working, the unit was designed for communal spaces for leisure activities in the lobby, hall, and terraces.



Figure 8. Student's design proposal

4. Discussion and Conclusion

According to the literature, new types of combined coworking and coliving spaces help digital nomads' social, physical, and psychological well-being (Von Zumbusch and Lalicic, 2020) and facilitate their mobility. While their types vary (Von Zumbusch and Lalicic, 2020), the coworking and coliving spaces aim to provide a pleasant environment (Kocaman, 2021) and comfort (Von Zumbusch and Lalicic, 2020) both for the individual and collective needs of digital nomads. While the importance and influence of the space atmosphere for cocreation and coproduction in collective spaces for digital nomads is highly emphasized (Chevtaeva, 2021), the importance given to the serenity of private spaces is also remarkable.

During the design process, the students focused on various daily life activities and used interior-making strategies and techniques to produce flexible interiors with atmospheric qualities (Chevtaeva, 2021) for digital nomad's personal and collective needs, well-being, and comfort. These also fit the main goal of the interior design/architecture discipline, which deals with transforming the existing spaces into the user's needs (Brooker and Stone, 2010). In this sense, the outcomes of the design studio produced new experimental and scholarly design knowledge addressing the digital nomad's personal and collective needs and resulted in several design scenarios regarding combined coliving and coworking for different age ranges (mostly for young professionals), different

lengths of stay (3–9 months), and different types of users (single or multiple users). Thus, digital nomads are enabled to work remotely and spend leisure time in inspiring places (i.e., local, and cultural environments). In this sense, the students' proposals can be considered examples of rethinking communal working and living, giving the former a collective character and giving the latter a private character.

In the design studio, students developed the skills of conducting situation analysis, self-learning/inquiry, identifying and interpreting user needs, describing the activities and behaviors of users in public and private spaces, and presenting and visualizing. This study has constraints/limitations regarding defining digital nomad's needs based on secondary data, such as published studies and internet sources, without taking digital nomads' opinions personally through surveys or interviews (i.e., primary data). Further studies can allow designers, educators, and students to develop design proposals in collaboration with digital nomad populations. Furthermore, this study will help educators, researchers, and students define the design criteria of combined coliving and coworking spaces and rethink new relations regarding digital nomad's preferences and needs for further studies. Accordingly, as a rising/increasing tourism sector/development in Turkey, the study results also provide a base for facilitators/developers, and politicians for designing/improving combined living and working environments for digital nomads.

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CHAPTER III

EVALUATION OF THE EFFECT OF BASIC DESIGN EDUCATION ON CREATIVITY IN THE COVID-19 PROCESS FROM STUDENT OPINIONS*

Ipek OZPINAR¹ & Zuhalelinc KAYNAKCI ELINC² & Irem BEKAR³ & Sebnem ERTAS BESIR⁴

¹*MSc Interior Architect - Akdeniz University*
e-mail: ipekmimari@gmail.com
ORCID: 0000-0001-5863-2367

²*Prof. Dr. - Akdeniz University*
e-mail: zuhalelinc@akdeniz.edu.tr
ORCID: 0000-0002-6997-7296

³*Res. Asst. - Karadeniz Technical University*
e-mail: irembekar@ktu.edu.tr
ORCID: 0000-0002-6371-9958

⁴*Assoc. Prof. Dr. - Akdeniz University*
e-mail: sertasbesir@akdeniz.edu.tr
ORCID: 0000-0002-0568-6529

1. Introduction

The COVID-19 epidemic, which spread all over the world in 2019, has been an important proof that living conditions can change. With this epidemic process, the concepts of “social distance”, “personal isolation”,

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“quarantine”, “disinfection” have become central to our daily lives and have radically affected the flow of social life (Ensarioglu, 2020). This process has affected the existing education systems in the world and in Turkey and has caused the physical separation of the teacher and learner relationship (Bozkurt, 2020).

‘Remote learning’ is the oldest term used to describe learning that is provided to students who are geographically remote (Moore et al., 2011). The main purpose of virtual learning is to create learning and research communities independent of time and place by using information and communication technologies. Virtual learning is defined as the synchronous and asynchronous communication of electronic tools aimed at verifying and structuring knowledge in a formal sense (Garrison, 2014).

Remote education, in which learning takes place, where all kinds of interaction between the learner and the instructor come together, is separated from the formal education within the scope of the teaching process. In this case, it can be seen that the factors affecting learning also vary. In general, factors such as low motivation, sudden loss of sense of community, increased cognitive load and anxiety levels were effective in the remote education process (Enfiyeci and Buyukalan Filiz, 2019).

Along with the COVID-19 process, new approaches in design education have started to be seen; sometimes being necessary. As in other design disciplines, they managed the process with different approaches in the field of interior architecture.

Design education is structured around the studio courses that form the backbone of the program and consists of courses that will strengthen design knowledge, artistic skills and technical infrastructure (Demirbas and Demirkan, 2003). One of the most important of these is the basic design courses, where students are introduced to design and the design process for the first time.

Basic design course is among the compulsory courses of basic design education for art and design-oriented disciplines in general. In basic design, 2 and 3 dimensional compositions are prepared to develop students’ creative intelligence and to re-evaluate their environment with abstraction and conceptualization. It is taught in a studio course that aims to create organizations by combining concepts such as shape, form, color, texture, material, proportion and space (Sarioglu Erdogdu, 2016).

Before the pandemic, Basic Design education, which was given in the first year of Architecture Faculties in Turkey, took place face-to-face in the physical

studio environment of the students. Due to the ongoing pandemic process, it was made online for the first time in the fall semester of 2020-2021. This course, which is taught with different methods in many universities during the normal education process; further diversified in terms of narration techniques in the online education process. In many schools, even in different departments within schools, the process is managed by using different methods from each other. In light of these developments, while the discussions about the adaptation of Basic Design education to the digital environment continue, the online teaching of the course during the pandemic process has made it necessary to bring new approaches to the course content and method.

This study aims to evaluate the feedback of the students who continue their basic design education in the 2020-2021 academic year within the Akdeniz University interior architecture department in Turkey due to the interruption of face-to-face education during the COVID-19 period, and it is aimed to evaluate the feedback about this education process in terms of the process and the environment. It is aimed to evaluate the effect of basic design education on students' creativity and learning outcomes.

2. Basic Design Education and Creativity

Basic design education is expressed as a system in which all methods and techniques of observing and perceiving are passed through the individual's own mental filter and transferred to the individual through the process. The aim of the course is to enable the student to recognize and comprehend the visual language, and to use this language to create products with artistic value by approaching with an aesthetic concern. Basic design education can be interpreted as a theoretical and applied education process in which the principles and elements aiming to reach the best of the student while designing are taught (Yildirim, 2018).

Creativity is important in the development and best learning of the basic design course. This is because the course, which consists mainly of theory and applications, supports the development of students' perceptions. Creative thinking, on the other hand, basically includes the skills of creating products with an original and aesthetic concern by using the logical and intuitive aspects of thinking (Seferoglu Akbiyik, 2006). Creative thinking, understanding problems and generating original, unique ideas; seeing the relationship between these ideas develops the components in the mental process, to obtain new combinations, and finally to reveal ideas for solving them with a design and foresight approach (Aktamıs Ergin, 2006).

In this study, the 4P model of Wallas (1926) was emphasized and focused on 4 basic factors affecting creativity. These are the person, product, process and environment (place). The change in any or more of the person, environment, product and process components that affect creativity will affect creativity and the creative thinking process. Henry (1991) associated and expressed the individual, process and product with the concept of creativity. He described a creative individual as their ability; the process as a mental activity, the environment, on the other hand, as an atmosphere that creates an infrastructure for creativity or, under other circumstances, a hinderance when necessary. He also stated that the product can be perceived as an outward reflection of creativity. In addition to this information, he states that personality affects progress; the process has reflections on the product and that they can be evaluated together (Baltaci, 2021). Based on this information, the concept of creativity in basic design education; when the creative environment is evaluated as creative process, creative individual and creative product: the remote education with the changing environment and educational conditions due to the pandemic has greatly affected the creative environment, creative process and creative product. In this study, however, 1st year students with the same qualifications were included in the course process.

3. Basic Design Training with Remote Learning in the COVID-19 Process

The Basic Design course, which started to be given online for the first time in the faculties of architecture in Turkey in the fall semester of 2020-2021, was taking place face-to-face in the studio environment before the pandemic. This course, which is taught with different methods in many universities during the normal education process has become more diversified in terms of narration techniques and the coursework has been determined by using different methods in many universities and even in different departments within universities during the online education process. In the light of these developments, while the discussions about the adaptation of Basic Design education to the digital environment continue, the online teaching of the course during the pandemic process has made it necessary to bring new approaches to the course content and method. In the basic design courses, the process progressing in the studio environment in formal education was moved to remote education, and the students continued their work at home during the pandemic process and

presented them through visual materials such as photographs and videos in the computer environment.

While basic design education takes place in a creative and productive environment, the transfer of this environment to the online environment has caused students to be deprived of some elements. Due to this situation, the relationship between the students' creative environment, creative process and creative product has changed to a great extent and thus has greatly affected their creativity processes. Students experienced adaptation problems and low motivation, and their interest in the lesson was affected by this situation.

There is no problem in transferring the theoretical knowledge of the course in remote online education. In the part of the course that includes the workshop, it is not possible for the trainer to give feedback to the drawing or model with physical interventions during remote education. Instead, different techniques are being tried in online education adaptation. These techniques differ depending on universities and even course instructors. This can cause confusion. Due to these complexities and the difficulty of the course adaptation, the difficulties for students in preparing homework were inevitable.

Since very few students in Turkey could access the internet in a healthy way, the obligation to attend classes was suspended in line with the principle of equality in education. On the other hand, the fact that the lessons are recorded and can be watched later can be seen as a positive process for the students who are interested in the lesson. Due to the restrictions applied because of the pandemic measures, the students had difficulty in accessing some of the course materials required in the basic design courses, and the inability to provide the necessary material was an important factor affecting the outcomes of the course.

4. Material and Method

4.1. Material

The study will be applied to a total of 70 interior architecture students, 48 women and 22 men, consisting of first year students of Akdeniz University interior architecture department, according to the 2020- Turkish Government data, who took the basic design course of the Akdeniz University interior architecture department in the fall and spring term of 2020-2021; however, students who could not attend the class at all due to the COVID-19 period or who dropped out of the class due to loss of motivation will not be evaluated in the survey (Table 1).

Table 1. Demographic Information

Birth Year	Number of Students by Age Distribution
1981	1
1983	1
1999	4
2000	13
2001	23
2002	27
2003	1
Total	70

According to Table 1 data, the number of people born in 2002 is 27, making up the majority of the class. Then there are the people born in 2001 with 23 people, those born in 2000 with 13 people, and students born in 1999 with 4 people. The number of people born in 1981, 1983 and 2003 is 1 person per year, and these are the years with the least number of people. As a result of the survey conducted in 2021, the majority of the class consisted of 19-year-old students. The “new compulsory” design workshops of Akdeniz University interior architecture students, who were introduced to distance education, were moved to the screen presentations via Microsoft teams (Figure 1).

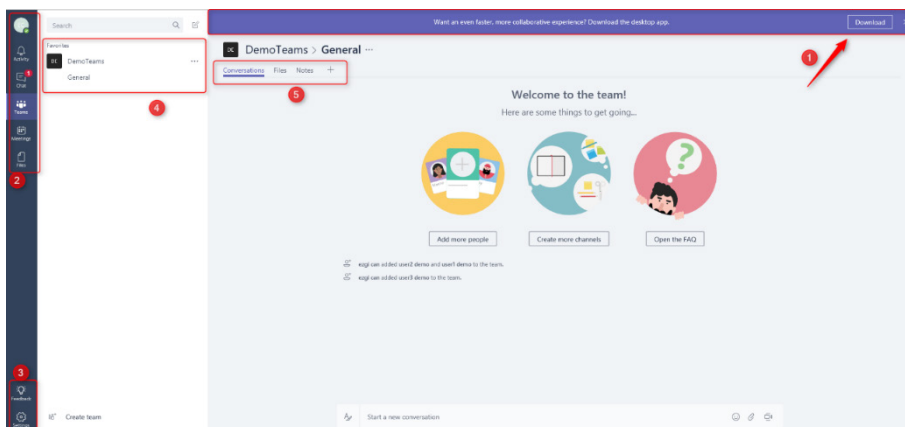


Figure 1. “New compulsory” design workshops (Microsoft teams) of students who are introduced to distance education (Microsoft teams, 2021).

4.2. Method

4.2.1. Data Collection

In this project, qualitative data will be collected to answer the research questions. Therefore, this research is in a qualitative design. In this context, different methods and techniques will be used for the steps in the analysis and evaluation process of the project, and feedback will be received for online learning environments (Dekhinet, 2008, Olpak and Kılıc Cakmak, 2014). It can be said that feedback emerges through mutual interaction and will be possible in many different environments where interaction is possible. Research has been done on feedback in many different fields (Ayan, 2007, Kotan, 2012, Genc, 2013, Gunduz, 2013, Yildiz, 2013, Verim, 2014, Isik, 2015). Thus, in the study, it is aimed to get feedback from the students' opinions about the process through a survey with the 4P model (person, environment, product, process) for the process of the basic design education of the Akdeniz University interior architecture department during the COVID-19 period.

Within the scope of the research, which is shaped by the determination of the status of basic design education and the problems related to creative thinking skills, which must be given remotely during the COVID-19 process; for the data collection technique to be carried out, a survey form, which is a qualitative data collection technique, will be applied to the students.

4.2.2. Data Analysis

A survey was made to 70 interior architecture students who took the basic design course of Akdeniz University interior architecture department in the fall and spring term of 2020 – 2021. It was developed by the researchers and expert opinion was taken. The effect of the person, environment, product and process on creativity, affected by the pandemic together with the basic design education, by using the demographic characteristics of the students (name-surname, age, gender) and Wallas's (1926) 4P model (person, environment, product, process) were evaluated based on the answers of the students who took the basic design course with remote education.

In the survey questions prepared for the students who took the remote basic design course during the COVID-19 period; environment, process and product titles are discussed as variables. However, the person factor from the 4P model was not addressed in the survey study. The reason for this is that there was a student group with the same profile in the basic design courses in the past,

who came to the interior architecture department for the first time as a person in the study.

14 survey questions were about the environment, 13 were about the process, and 13 were about the product, with a total of 40 items and a 9-point Likert scale (Strongly Disagree:1, Partially Disagree:3, Undecided:5, Partially Agree: 7, Totally Agree: 9) items were applied to the students.

The data related to the questionnaire items that the students in the study group will answer online in a period of approximately 15 minutes were subjected to frequency-percentage analysis at each item level. When the questionnaires were completed, the environmental, process and product titles were handled separately and the sum of the effect values of each substance was divided by the sum of all effect values and the importance values were found. Apart from these, the percentage values of the items titled environment, process and product were also calculated.

5. Results

The research was titled “Evaluation of Akdeniz University Interior Architecture Basic Design Education Through Feedback” in the COVID-19 Period, students who experienced the basic design education of Akdeniz University interior architecture department with remote education during the COVID-19 period, within the scope of the 4P model. Separate questions were asked about the environment, process and product and students’ opinions were taken.

When the results were evaluated, according to the students’ answers, “I actively participated in the basic design lesson with remote education (0.0962)” in the environmental factor, “Course recordings helped me to watch the lesson later on” in the process factor, and “Digital application in distance education” in the product factor. I learned new programs because of their experiments (0.1015)” clauses have the highest importance value.

As a result of the evaluation of the students, the clauses “I had difficulty in communicating with my instructor in the Basic Design course in remote education (0.0525)” in the environment factor, “I had no difficulties in distance education at the university (0.0541)”, and “I got help from my environment while modeling (0.0502)” in the product factor were the lowest importance. (Table 2). From these items, it can be inferred that the students actively participate in the basic design lesson despite participating in remote education and do not have much problems in communicating with their instructors.

Table 2. Criteria by which the Environmental Factor is Considered in the Scope of the 4P Model

Main Factor	Question No.	Evaluation Criteria	Effect Value Total (Max:630)	Importance Value %	%	Avg. %
ENVIRONMENT	1	I actively participated in the basic design course through remote education.	568	<u>0.0962</u>	90	%67
	2	In the basic design course with remote education, I was able to express my thoughts effectively and comfortably to my classmates and instructors.	466	0.0789	74	
	3	I was able to establish a regular and healthy communication with my friends during the remote education process.	328	0.0555	52	
	4	I had difficulty communicating with my instructor in the Basic Design course in remote education.	310	<u>0.0525</u>	49	
	5	Remote education had a negative impact on the development of my face-to-face presentation skills.	414	0.0701	66	
	6	I had a hard time understanding the basic design course with your remote education.	370	0.0626	59	
	7	With the rapid transition to online system applications after COVID-19, I had a hard time adapting to the Basic Design course.	374	0.0633	59	
	8	I could not learn to think abstractly through remote education efficiently.	392	0.0664	62	
	9	I gained the ability to independently conduct a study through remote education.	480	0.0813	76	
	10	I was able to convey my ideas about my work through sketches.	474	0.0803	75	

11	I would like to learn the Basic Design course in physical conditions in the studio instead of remote education.	532	0.0901	84	
12	I couldn't provide a discipline while doing homework because the course process took place outside the school environment.	376	0.0637	60	
13	With remote education, the course flow in the online environment was provided in a practical way.	436	0.0738	69	
14	I think the remote education process was productive for the Basic Design course.	386	0.0653	61	
	TOTAL	5.906	1.0000		

Considering the clauses of the online questionnaire applied to the students in line with this study, the question with the highest importance for the criteria in which the process factor is handled within the scope of the 4P model in the online questionnaire clauses applied to the students is “Course recordings helped me to watch the lesson afterwards (0.1056)”. while the question with the lowest significance value was “I had no difficulties in distance education at the university (0.0541)” (Table 3). The result for the process factor from these items is that no records can be taken in the basic design course taught in the workshop environment, but when the remote education began, the recording of each course can be taken and watched again, which has a positive effect on the students. When the question with the lowest importance value was evaluated, it was stated that the students had difficulties in the remote education system of the university that they had experienced for the first time.

Table 3. Criteria for Process Factor in the Scope of the 4P Model

Main Factor	Question No.	Evaluation Criteria	Effect Value Total (Max:630)	Importance Value %	%	Avg. %
PROCESS	1	I had power outages, connection and internet problems.	486	0.0882	77	%67
	2	Remote education supported my personal development during the basic design course.	418	0.0758	66	
	3	My instructor running the course was able to check my homework online in a short time technically.	502	0.0911	80	
	4	I was able to easily follow the work of my other friends online.	536	0.0972	85	
	5	My instructor had difficulties checking my homework online.	354	0.0642	56	
	6	I had a hard time uploading homework to the system.	354	0.0642	56	
	7	In the Basic Design course, I thought I would fail in remote education.	350	0.0635	55	
	8	I learned three-dimensional design with remote education in the Basic Design course.	436	0.0791	70	
	9	In the Basic Design course, I developed my own understanding of design in remote education.	438	0.0795	70	
	10	During the course, my design ideas were sometimes the same as my friends' design ideas.	382	0.0693	61	
	11	I did not have any difficulties in remote education at the university.	298	<u>0.0541</u>	46	
	12	The course recordings helped me to watch the course later.	582	<u>0.1056</u>	92	
	13	While trying to understand the subject from a remote in the Basic Design course during the course in distance education, I thought I was wasting time.	376	0.0682	60	
		TOTAL	5.512	1.0000		

Considering the clauses of the online questionnaire applied to the students in line with this study, the question with the highest importance for the criteria in which the product factor is handled within the scope of the 4P model in the online questionnaire clauses applied to the students was on the clause “I learned new programs due to digital application trials in remote education (0.1015)”. The question with a low importance value was “I got help from my environment while modeling (0.0502)” (Table 4). The result for the product factor from these items was that remote education taught students new programs about digital applications when the question with the highest importance value was taken, on the other hand, when the question with the lowest importance value was evaluated, the students made their models individually and did not receive any help from the environment.

Table 4. 4P Criteria for Product Factor in the Scope of the 4P Model

Main Factor	Question No.	Evaluation Criteria	Effect Value Total (Max:630)	Importance Value %	%	Avg. %
PRODUCT	1	I experienced low motivation due to the COVID-19 process, and I reflected this on my resulting mock-up.	384	0.0747	61	%63
	2	I could not achieve the desired output in my sketches.	422	0.0821	67	
	3	It was difficult for me to make models in remote education in the Basic Design course	396	0.0770	63	
	4	I was able to easily reflect my design ideas on my model and sketch works in remote education.	376	0.0731	60	
	5	I could not get enough efficiency in three-dimensional studies in remote education.	386	0.0751	61	
	6	In the online environment, my instructor could not adequately make the necessary interventions while criticizing my three-dimensional works.	306	0.0595	49	
	7	During the COVID-19 process, I had a hard time finding materials for the model in the Basic Design class.	382	0.0743	61	
	8	The lack of materials limited my creativity.	360	0.0700	57	
	9	I got help from my environment while modeling.	258	0.0502	41	
	10	I did not hesitate to use different materials in my model.	500	0.0972	79	
	11	I saved paper as I prepared my visa and final deliveries digitally and delivered them digitally.	432	0.0840	69	
	12	While presenting my works by photographing, I had problems with the ratio.	418	0.0813	66	
	13	I learned new programs due to digital application trials in remote education.	522	0.1015	83	
	TOTAL		5.142	1.0000		

As a result, while the feedbacks of the basic design education of the Akdeniz University interior architecture department have had positive and negative effects on the students during the COVID-19 period, the remote education system added different experiences to the student from the workshop environment, but it was still found to be challenging its members in terms of the basic design course being taught when the course was conducted with remote education.

6. Conclusion

For the basic design course, the positive or negative effects of the changing environment, process and product with distance education for the students of the basic design course of the Akdeniz University interior architecture department in the 2020-2021 fall and spring semester were examined. In the study, Wallas's (1926) 4P model (person, environment, product, process) was used and the effect of the affected person, environment, product, process on creativity in basic design education with the pandemic was investigated. Since the student, that is, the person factor, did not change, the research was examined by considering the other three elements.

It has been observed that the negative effects experienced in the changing environment and the product are more than the positive effects, and the positive effects experienced in the changing process are more than the negative effects. In this context, as a result of the literature review on the environment, process and product, workshop environment, online environment, student-instructor interaction, student-student interaction; and in the process factor, online process, homework tracking and criticism, course flow in the product factor, it was determined that there were changes in terms of material supply and three-dimensional studies (Ertas, et al., 2021). In this context, the following results were obtained under four different headings of change during the pandemic process.

6.1. Basic Design Education and Environment

Due to the pandemic, the physical environment has quickly left its place to the virtual environment in basic design education. Students who took the basic design course for the first time met each other and instructors for the first time through remote education and tried to continue the education remotely. They used the Microsoft Teams program of Akdeniz University.

When students attend classes from their own homes and via computers, compared to formal education, there is a great change in environmental factors. This change has been put forward under 3 headings:

- **Studio environment:** With the pandemic, the studio environment, which is an important part of basic design education, has disappeared and a big gap has been created in education. While students are affected by all the elements around them, the environments of design-based faculties offer a very favorable environment in this respect. The exhibitions in the corridors, the models, the textures of the material oriented works hung on the floor and the wall, and even the unique smell of the design studio contain many elements that can inspire students. Students attending classes from their homes could not benefit from the skills and competencies provided by the studio environment during the COVID-19 period.

- **Student-instructor:** In the changing environment with the pandemic, the communication between the student and the instructor may weaken and the information transferred may be more difficult to be understood by the student compared to the formal education method. In this direction, while it is difficult to explain the concept of abstract thinking, which occupies an important place in basic design, to students even under physical conditions, it has become more difficult with distance education.

- **Student-student:** In the realization of the peer education model, which is an important type of education for basic design courses, the studio environment has a flexible and productive environment where students can interact with other students around them; The studio environment, which was taken away by the pandemic, caused students not to benefit from the peer education model.

6.2. Basic design training and process

With the pandemic, the education process in basic design has also changed and the teaching of the lessons, the delivery of homework, exams, student-faculty member relationship has been moved to a completely virtual environment. In this context, change in terms of process during the pandemic has been discussed under three different headings.

- **Online process:** Students who could not attend the course due to reasons such as power outage, internet and connection problem etc. during the remote education were given the opportunity to watch the missed course again by recording the courses given to the system. Although it is a big plus for the student to be able to watch the course again, the student was deprived of the

criticism that he would receive on the work he had done in the basic design course, which was focused on design, communication and interaction. This poses a bigger problem for the student of the basic design course compared to other courses and reduces the efficiency of the course.

- **Follow-up of homework and homework criticism:** In this process, the homework given to the student was received online. Homework uploaded to the remote education system was projected onto the screen during the lesson and could be viewed on the screen of all students simultaneously. Thus, students gained the opportunity to closely follow the criticisms made on other assignments.

- **Lesson flow:** As the students turn their work into presentations and show them in order, the course is more fluent than the classroom environment. The same is true for exams. Students who made their deliveries through virtual platforms also saved time.

6.3. Basic design education and person

Considering the “person” element, which is another title of the 4P Model, while the concepts of environment, process and product changed during the COVID-19 process, the concept of person remained constant due to the fact that the same student profile took the course before the pandemic. While the living environment, process and product factors are undergoing a visible change, when we consider the person factor, it has been psychologically affected by the COVID-19 period. At this stage, staying indoors with the curfews negatively affected the motivation of both students and instructors.

6.4. Basic design training and product

In this context, the change in terms of the product during the pandemic process has been discussed under two different headings.

- **Material supply:** The variety of materials in design education supports creativity. Abstract model works continued in basic design education during the pandemic process, but with the curfew, the model materials in the hands of the students were sometimes insufficient and the students had problems in supplying materials due to the restrictions. This has led to changes in the quality of the resulting product.

- **Three-dimensional studies:** Based on the interview data, while a process in which three-dimensional studies are predominant in the traditional education process in basic design education in some institutions, it has been

revealed that two-dimensional studies are given more attention as a result of the feedback received from the students during the pandemic process. This is seen as an obstacle to the development of three-dimensional studies, which have an important place in basic design education, and thus the development of students' three-dimensional thinking ability.

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CHAPTER IV

FRAMING THE CONTEXT OF BASIC DESIGN EDUCATION IN INTERIOR ARCHITECTURE

Seden ODABAŞIOĞLU¹ & Timuçin ERKAN² & İnci Deniz ILGIN³

*¹Assist. Prof. Dr. - Marmara University,
email: seden.odabasioglu@marmara.edu.tr
ORCID: 0000-0003-2794-803X*

*²Res. Assist. - Marmara University,
email: timucin.erkana@marmara.edu.tr
ORCID: 0000-0002-2907-9272*

*³Prof. Dr. - Marmara University,
email: deniz.ilgin@marmara.edu.tr
ORCID: 0000-0002-1062-7902*

1. Introduction

Design activity involves multi layered and interconnected processes of inquisition, creation, application and sharing. All these stages require a creative and analytical mind, intellectual foundation, and knowledge of craft and production techniques. Basic Design aims to prepare students to the challenges of the creative phase of design. It is a compulsory course in most of the first year of Interior Architecture Departments. The literature related to this course, including architecture, design and planning departments in Turkey, generally consist of different approaches and applications of various universities. As Erdoğan (2016) states there is a gap in the knowledge of the relationship between the theoretical framework and the course content in most of these studies. Defining this relationship is crucial to have a coherent structure of the course as well as of the whole interior architecture education as it has a

fundamental role in shaping the design thinking. Findeli (2001) emphasizes the importance of identifying the overall purpose of design education and practice in order to have a coherent curriculum.

This study does not question how a Basic Design course should be structured. The main purpose of the article is to explain what is prioritized in the Basic Design course at the Interior Architecture Department of Marmara University Faculty of Fine Arts (MUFFA) and what kind of relations are established with the educational framework.

In this context, Basic Design course in the formation of the curriculum of interior architecture education alongside the expectations towards higher education in European Union and Turkey are briefly mentioned, in order to explain which principles and values the course considers as precedent to meet a contemporary education, and what kind of approaches it tries to produce in relation to these topics.

Following this, the structure of the Basic Design course developed over the years by Prof. Dr. İnci Deniz İlgin are explained in detail for the Interior Architecture Department of MUFFA. In addition, a proposal has been put forward for the effectiveness of the educational outcomes of this course, whose structure has changed over the years, taking into account the changing conditions, to be more sustainable.

2. The Role of Basic Design Course in Interior Architecture Education in a Universal Perspective

In the changing world, individuals are forced to develop life competencies to deal with uncertainty, nurture their resilience, develop on a personal level, build successful interpersonal relations, and learn how to learn. The European Commission's Joint Research Center defines these competencies by proposing a conceptual framework named LifeComp (Sala, Punie, Garkov & Cabrera Giraldez, 2020). According to this framework nine key competencies are defined and categorized into three intertwined competence areas as: personal (wellbeing, flexibility, self-regulation), social (empathy, communication, collaboration) and learning to learn (growth mindset, critical thinking, managing learning). In this context, formal, non-formal, and informal education is addressed to be redefined along with new learning strategies when contributing to the acquisition of these competences.

Similar to the European Commission, Bologna Process is also engaged with competences regarding citizenship, labor market needs and international

mobility. Within this process, guidelines were prepared for the professions in higher education and the countries involved in the process made arrangements and created their national qualifications frameworks based on these guidelines. Turkey, as one of the participants of the Bologna process, created the National Qualifications Framework for Higher Education in Turkey. According to this framework, qualifications of interior architecture education are defined based on the fields it is classified into as architecture and art (TYYÇ, 2010). In Interior Architecture education around the country program outcomes, curriculum and outcomes of the courses are determined considering these frameworks.

While determining the importance of the Basic Design Course in Interior Architecture Education, it will also be useful to benefit from ESCO's (European Skills, Competences, Qualifications and Occupations) resources focusing on knowledge, skills & competencies relevant for the EU labor market and education and training. The information given below has been examined under the professions of Interior Architects & Interior Designer on the ESCO platform and generalized through its relationship with the Basic Design Course (ESCO, 2022).

- understand and apply design principles, translate requirements into visual design
- understand aesthetics needs & artistic concepts, express oneself creatively
 - research new ideas, think innovatively & creatively, improvise
 - work with others, exchange ideas
 - work efficiently, be proactive & be positive

Parallel to given definitions from ESCO, Erdoğan (2016) emphasizes the following points in her article which she tries to define the structure of the course by considering the Basic Design Education of many architecture faculties in Turkey. Although the approaches to the course vary according to institutions and instructors, it is generally defined as follows;

- focuses on teaching principles of design while doing 2 and 3 dimensional work
 - focuses on the process and creativity, not on a single correct result
 - based on representations and abstract expressions
 - aims to develop visual perception and thinking skills
 - conceptualize the situations related to the living environment, to express them with the appropriate design language, and thus to acquire a design culture

In the light of the information described above, the Interior Architecture Department of MUFFA aims to strengthen student's learning skills that can be valid in many disciplines and foster them to become competent individuals who are aware of the realities of their era and who want to change and sustain the world as livable, aesthetically pleasing and nature-respected place. Basic Design course of the department is the starting point of this objective, which attempts to equip students with the basics of creative thinking and doing while keeping their curiosity, enthusiasm, humor and virtue alive and cultivated. In accordance with this purpose, the educational framework in the Basic Design course is discussed in the following sections.

3. Framework for Basic Design Course in Interior Architecture at MUFFA

In the Interior Architecture Department of MUFFA, Basic Design is a two-semester compulsory course along with Technical Drawings and Basic Art. It is a unique curriculum as it comprises two "basic" complementary yet distinctive courses; Basic Art and Basic Design. Basic Art course has been in the curriculum of every department of the school since its foundation in 1957 as Devlet Tatbiki Güzel Sanatlar Yüksek Okulu (DTGSYO). For more than twenty-five years, the course was conducted twenty-four hours per week in the first semester and twenty hours per week in the second semester. Its program was significantly influenced by a German particularly Bauhaus system as it was initially developed by Prof. Dr. Ing. Adolf Gustav Schneck who was assigned by Maarif Vekaleti (Milli Eğitim Bakanlığı/ Ministry of Education). For years, Basic Arts was taught in two or three departments concurrently by a group of instructors in the same studio, which created a climate of inter-disciplinary dialog and collaboration.

After the foundation of Higher Educational Council (YÖK) in 1982, the school became part of Marmara University and so came the changes in the educational system. Shortly after, with a consensus of all departments the Basic Arts Department was established as a service department to organize both Basic Art course and theoretical art courses. Nevertheless, this incisive development didn't help surviving the decrease in the weekly hours of Basic Art course, which eventually went from 24 hours to 14 hours. This development required a re-configuration of the curriculum which also meant compromise in some of the major topics and exercises.

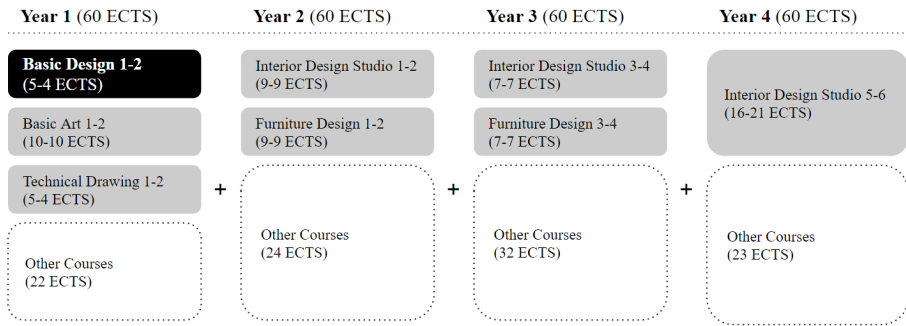


Figure 1: Program Structure of Interior Design Department in Marmara University after 2014

All these structural developments had various impacts on the departments of the school. In the Interior Architecture Department, it was essential to provide more disciplinary experimental studies to foster the creative thinking process of the first year students. To solve this problem, such exercises were initially allocated in the first quarter of the Sophomore Year Design Studio and led by Prof. Nurten Ünansal. Later, with Prof. Nurten Ünansal's initiatives, the curriculum was re-defined and the Basic Design course adapted to the first year along with the Basic Art course (Figure 1). As the Basic Art course equips students with general principles of artistic creativity, the Basic Design course focuses its attention to the principles and creation of form and spatiality with their multiple interfaces in an abstract and foundation level.

Today, the Basic Design Program is being taught following the structure developed by Prof. Dr. İnci Deniz Ilgın, who led and designed the course between the years 2000 and 2022 within the scope of educational work in Washington State University, University of Cincinnati and MUFFA. In 2012, Assist Prof. Seden Odabaşoğlu and in 2017, Research Assist. Timuçin Erkan joined the teaching team who are currently leading the course in MUFFA.

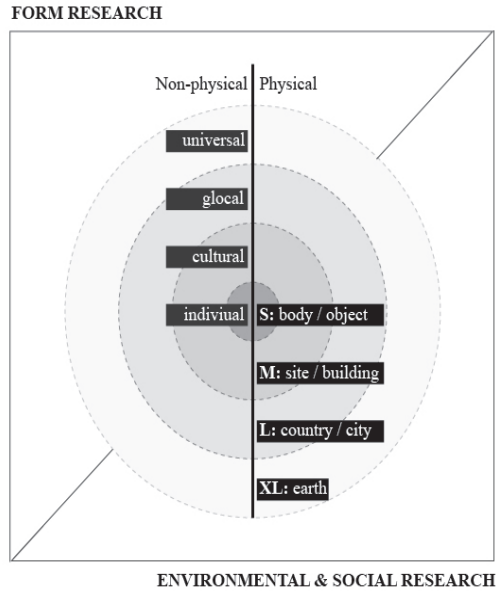


Figure 2: Contextual Relations of the Course

The Basic Design course at MUFFA is built on two different constructs that are formulated in Figure 2 to achieve effective results in terms of the learning outcomes of the course. In the first semester, the very first day of the course the students are given an A4 sheet with an arbitrarily sorted design related keywords. The keywords are not explained in lecture format instead students are expected to question the meaning of the words and refer to them to describe their works throughout the year. They are also encouraged to understand key principles and limitless possibilities of form creation by understanding Gestalt visual perception theory, through various exercises. The exercises aim to foster students to discover how and in what ways their form studies reach to a moment of “the good”. They are also encouraged to observe what is accepted as ‘good’ in the cultural and universal context. It is built on understanding the nature of conventional production methods in reaching the ‘good’ and learning the rules of visual grammar.

In this semester, “curiosity” and “mastery” over “potentials of form” is consecutively aimed to achieve. In their first exercise, as students struggle to find a decent compositional order with three simple pieces of rectangular prisms and barely reach to a perfect end, they start questioning what carries them to a happy and satisfactory end. As exercises follow one another, students’ ability to express their design motives through “design vocabulary” progress remarkably.

At the end of the first semester, they become “form literate” and ready to move to next semester’s spatial and urban-cultural context.

Unlike the first semester, which is purely abstract and detached from real life issues, the second semester aims to turn students’ attention to everyday life where various levels of human and spatial relations occur. Cognitive, emotional and perceptual understandings on spatiality in different scales and bodily experiences is the main learning outcome of this process.

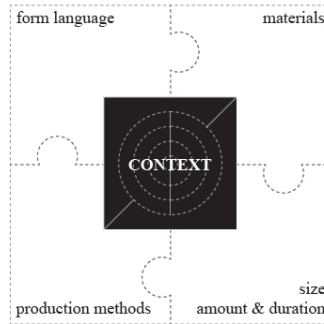


Figure 3: Categorization of Limits in the Course

For effective comprehension of the contents of the Basic Design course, limits for all the operation of the process have been simply defined as indicated in Figure 3. All contexts belonging to the course are described around the design language, material, production method, size and quantity of the thing/s to be produced, and the time allotted to the relevant production. With these limitations in the design process, to reach a good/strong design language, the student’s understanding of the course process is facilitated and the student is directed to develop a context-centered and creativity-oriented approach. The basic approach in this conceptualization is defined for each project and described in the following section.

Table 1: Knowledge area of course

Main Subjects	Visual Domain	Operative Domain
<p>Form Research</p> <ul style="list-style-type: none"> ● experimenting the 2D, 3D forms ● understanding the concept of visual research ● feeling & understanding "the good" form is and generating concrete / abstract ideas about form ● understanding of spatial relationships; spatiality ● understanding of modeling techniques (analog production: hand, eye and mind coordination) <p>Environmental & Social Research</p> <ul style="list-style-type: none"> ● understanding of everyday usual: place, objects, body & mind, culture, identity, condition, surroundings, enclosure, proxemics, viewpoint, relationships, materials, quantities ● understanding of thoughts, facts, values, opinions & feelings, belief & emotions, concrete / abstract concepts 	<p>Visual Elements</p> <ul style="list-style-type: none"> ● form, shape, size, value, tone ● point, line, plane, volume ● dimension, material, texture, color ● light, shadow ● space, time <p>Visual Structure</p> <ul style="list-style-type: none"> ● composition ● hierarchy ● balance ● emphasis ● contrast ● proportion, scale ● visual distribution, proximity ● position, orientation, direction ● repetition, rhythm, pattern 	<p>Visual Relations in the Structure</p> <ul style="list-style-type: none"> ● large, small ● high, low ● thick, thin ● broad, narrow ● light, heavy ● light, dark ● transparent, opaque ● soft, hard ● smooth, rough ● much, less ● figure, ground ● negative, positive ● solid, void ● inner, outer ● parts, wholes ● unity, variety ● static, dynamic ● continuity, discontinuity ● symmetry, asymmetry ● simple, complex ● strong, weak
		<p>Experiencing (the known + the new)</p> <ul style="list-style-type: none"> ● perception through the senses ● connecting with experience ● being self-aware of representational modalities ● observing methodically, measuring, recording, describing <p>Analyzing (functionally + critically)</p> <ul style="list-style-type: none"> ● analyzing functions ● predicting, evaluating outcomes ● exploring options (construction, deconstruction, transformation) ● creating narratives <p>Conceptualizing (by naming + with theory)</p> <ul style="list-style-type: none"> ● abstracting, diagramming or modeling of visual keys and physical elements ● generalizing or linking the all information <p>Applying (appropriately + creatively)</p> <ul style="list-style-type: none"> ● making things work, mechanically and humanly speaking ● creating hybrid, interdisciplinary solutions

Parallel with its conceptual structure and the limits of the course, it is also important to define the knowledge area of the course. Keywords in Table 1, created in order to be able to talk to students through an effective design language, are grouped in 3 main categories (Subjects, Visual Field, Operational Field). First category is defined by subjects to be examined and it consists of 2 sub-categories (Research on Form, Research on Environment & Social Contents). Second category is the visual domain which was developed by using Gestalt principles, and has been defined under 3 sub-categories (visual elements, visual structure, visual relations) according to the way they are handled in the course. The concepts of visual domain are learned by doing (operative domain) based on given subjects. Learning by doing (operative domain) area constitutes the third category of this structure.

This third category indicates what students do to learn in the scope of the course. Kalantzis and Cope (2004) framed knowledge processes in their study, in which they researched the learning by design practices, as Experiencing, Conceptualizing, Analyzing and Applying. These knowledge processes involve “learning through immersion in the real, everyday stuff of the world; the development of abstract, generalizing concepts; the examination of cause and effect, structure and function, elements and their relationships; and active intervention in the human and natural world, learning by applying experiential, conceptual or critical knowledge-acting in the world on the basis of knowing something of the world” (pp.64-66). Learning activities applied in the Basic Design course, which can be grouped under these four categories within operative domain (Table 1), allow students to develop creative and analytical thinking, theoretical knowledge of design, and knowledge of craft and production techniques. Considering the knowledge area of the course, the exercises conducted are explained in detail in the following section.

4. Exercises Conducted in the Basic Design Course in Interior Architecture at MUFFA

Basic Design course at MUFFA, aims to prepare students to the challenges of the creative phase and the complex stages of design with exercises in which they deal with an increasing uncertainty and learn how to learn by keeping their curiosity and enthusiasm. The exercises in the first semester (rectilinear volumes, cube, 2D to 3D, freeform studies) are based on solely and intentionally form studies. The exercises in the second semester focus on the bodily experiences of spatial qualities from an urban scale to the body itself (see Figure 4).

Throughout the year, the process and outcome of the exercises are regularly discussed, criticized and refined with the contribution of the students. The use of time in the studio is separated into studio and workshop studies as well as a good amount of design and everyday life related conversations. While the first semester consists of individual studies, the second semester is based mostly on team work. In this semester, students utilize place and space as an exploratory field and also examine the self and the others' existence within the place from a larger scale (city) to smaller (body). Aforementioned exercises are explained thoroughly in the following sections with their context and limits and the outcomes of the course were discussed in the conclusion.

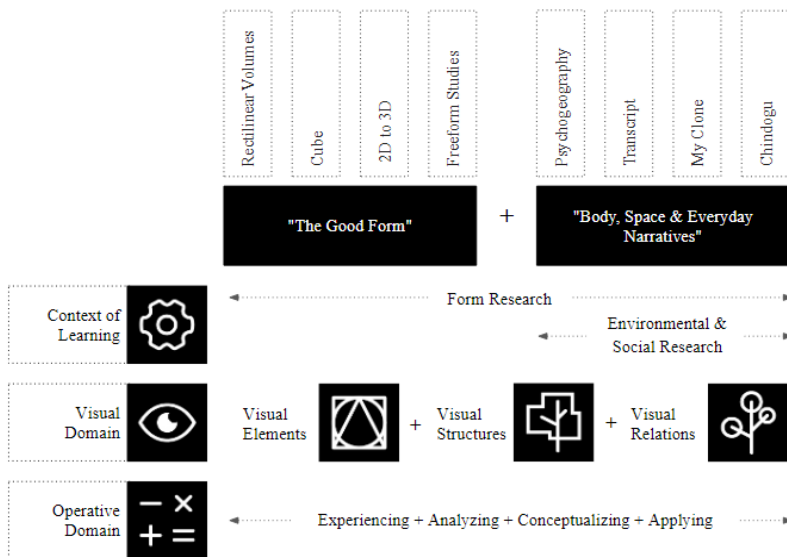


Figure 4: Structure of the course within the relations of knowledge area

4.1. Rectilinear Volumes

This study was integrated into the course structure, by directly adopting Rowena Reed Kostellow's works under the title of Rectilinear Volumes. In the exercise, three rectangular/square prisms of different sizes are used in order to create a composition. Kostellow emphasizes the understanding of the dominant, subdominant and subordinate volume and creating form with cradling, wedging or piercing relationships when handling the study (Hannah, 2002, p.54). It is also expected to consider the direction of the parts and balance of the whole along with other visual relations such as: large/small, thick/thin, light/heavy etc. Total body of the exercise is explained in Table 2.

Table 2: Limits of Rectilinear Volume Works

Context	: Understanding relations of the three rectangular/ square prisms; considering visual distribution of components having different weights while providing the unity & balance in total
Form	: Compositions of 3 rectilinear volumes with perpendicular relations
Language	
Materials	: Nonporous white styrofoam
Production	: Three ways to join the volumes: piercing, wedging, and cradling.
Method	
Size	: Final compositions fitting in average shoes box
Amount &	: Minimum 3 models per student
Duration	2 weeks

Rectilinear Volume is chosen as the first study of the course because there are certain limitations in many aspects and it offers the opportunity to question many values of 3 dimensional thinking with a simple set of rules. Some of the student works can be seen in Figure 5. This exercise seems very simple yet challenging to come up with visually unified and well-balanced compositions. Additionally, students gain an understanding of proportion and balance. “The difference between beautiful and ordinary form is the sensitivity of these proportions” (Hannah, 2002, p.54). Understanding the beautiful relationships is difficult for students at first. The more they do, the more their sensitivity increases.

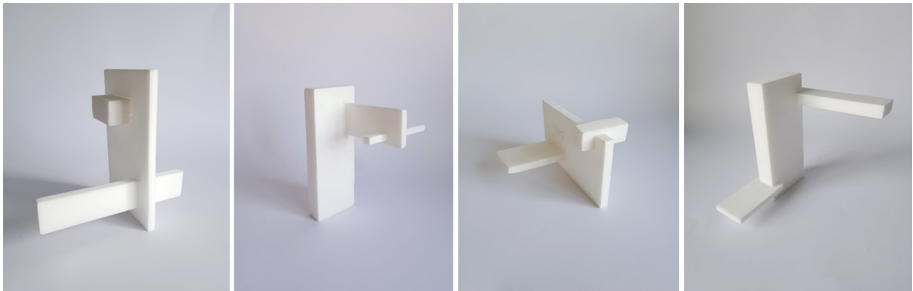


Figure 5: Rectilinear Volumes - Works by Aybeniz Tilbe Yıldırım (left), Burhan Çakıroğlu (two works in the middle) and Özlem Kuzey (right)

4.2. Cube

A composition forming a cube is created either by combining parts to form the whole or by subtracting parts from the whole. Basic geometric shapes

such as square, rectangle, triangle, circle, trapezoid must be used as parts of the composition and visual relations (solid/void, heavy/light, static/dynamic, balance, symmetry/asymmetry, simple/complex, much/little, etc.) should be considered. Only one type of basic geometric shape and its multiple sizes and combinations are allowed to create compositional order. The intention here is to foster students' creative abilities by limiting their sources of elements. Students are given two challenges, first a cube, the most static prism, to contain composition, and second, only one basic geometric shape to create compositional order. Total body of the exercise is explained in Table 3 and some of the student works can be seen in Figure 6.

Table 3: Limits of Cube Works

Context	: Understanding the visual relations in volume within a cube
Form	: Composition of selected geometric shapes such as square,
Language	rectangle, triangle, circle, trapezoid
Materials	: Only white materials
Production	: Not restricted
Method	
Size	: 20x20x20 cm cube
Amount &	: Minimum 3 model per student
Duration	4 weeks

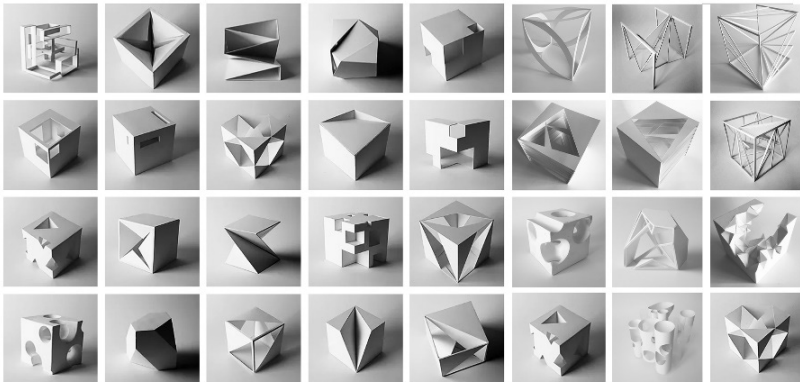


Figure 6: Cube (Collective representation of student works)

4.3. 2D to 3D through Posters

2D compositions are analyzed and in relation to these analyses 3D compositions are created. Various posters from the periods of Suprematism,

Constructivism and Bauhaus are given to students to select from. These specific periods are selected intentionally because of their simple but powerful use of geometric abstractions, compositions and color. First stage of the exercise includes analyses of the poster by drawing its contours, tones and figure/ground relations. While analyzing the poster, the students try to understand the visual structure and relations. As they observe the visual structure of the poster they pay attention to graphically strongest elements of the design through abstraction and simplification. Consequently, they come up with their version of the simplified poster. Second stage of the exercise includes creating 3D compositions out of the student's version of the poster from white material and focusing only on the form, while in the third stage different material properties such as color and texture are also considered. Total body of the exercise is explained in Table 4 and some of the student works can be seen in Figure 7. Final submissions of work seen in Figure 8.

Table 4: Limits of 2D to 3D through Poster Works

Context	: Analyzing visual values of posters from the periods of Suprematism, Russian Constructivism and Bauhaus and producing new forms based on these posters visual structure
Form	: 3D compositions of 2D abstracted figures and simplified shapes
Language	: produced via posters' visual language
Materials	: 2D analyzing phase: pencil & tracing paper; 3D form produce phase: white materials; colored materials based on posters color
Production Method	: Not restricted
Size	: x and y axis of final volumes depends on a5 paper (2D) size and z axis must not exceed 20 cm height for 3D models
Amount & Duration	: 5x2D poster analysis; 3 white & 3 colored 3D models 5 weeks (2 weeks for 2D analyze; 3 weeks for 3D form)

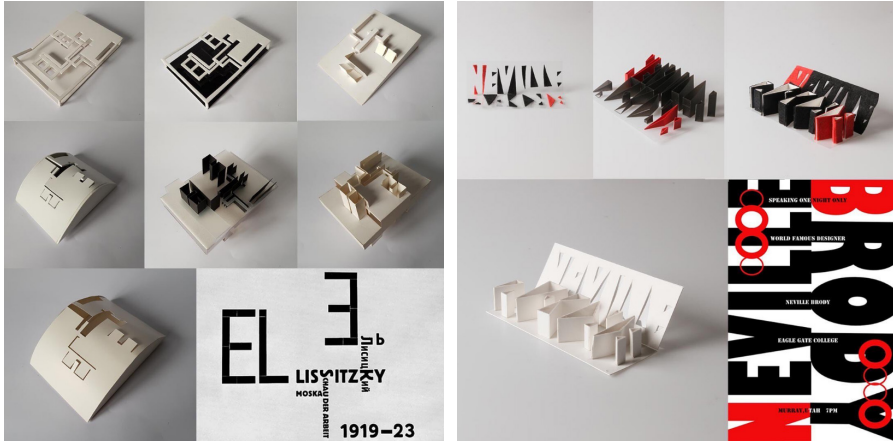


Figure 7: 2D to 3D - Works by Kübra Üstünoldu (left), Aylin Özdemir (right)



Figure 8: 2D to 3D Final Submissions

4.4. Freeform Studies

Any kind of design attempt with freeform structures is one of the most attractive trends in contemporary architecture and design. Freeform studies, which Rowena Reed Kostellow defines also Planar Construction (Hannah, 2002, p.76), are the last study of the first semester in order to capture a holistic perspective in form research. This exercise aims to explore new possibilities in the creation of a complex form by transforming 2D planes into complex 3D forms with simple operation sets and enabling the student to develop ideas about fluidity, dynamism, continuity and complexity of forms. The objective is to choose a basic geometric plane such as square, rectangle, triangle, circle, trapezoid and cut it apart or use as a whole of it then transform these surfaces to new structure by folding, bending, twisting and reorganizing fragments. Total limits of exercises also defined in Table 5.

Table 5: Limits of Freeform Studies

Context	: Understanding the transformation of geometries from basic planes to complex freeform structures; analyzing the behavior of advance form
Form	: One type of shape is allowed, repetition and/or use of various
Language	sizes of selected shape forms compositional order
Materials	: White material (mostly paper)
Production	: Bending, twisting, folding
Method	
Size	: Final composition fitting in average shoes box
Amount &	: Minimum 3 works
Duration	3 weeks

Formation of the elements in the shell must allow the load to be carried across the plane and must be self-supporting in total. Also in this process, particular attention is paid to the use of visual principles of Basic Design such as solid/void, heavy/light, dynamic/static, simple/complex, directional/non directional, balance, symmetry/asymmetry etc.

Experimenting with a series of multiple results of advanced geometries and studio discussions simultaneously allow students to grasp how small shifts in the parts create a significant impact in the whole (Figure 9).

**Figure 9:** Freeform studies (Collective representation of student works)

4.5. *Psychogeography*

Psychogeography is the investigation of the effects of the environment on the emotions and behaviors of individuals and determination of specific

effects. The term was introduced by the theoretician Guy Debord related to the Situationist International Movement (Artun, 2009).

Our bodies are good tools to collect data. The use of five senses (vision, sound, smell, taste and touch) provides us with data about our environment. The routes chosen in the specified regions were examined and analyzed through senses and emotions. Losing direction or unexpected encounters during trips enable perceiving the generally ignored spirit of the city and the psychogeographic maps, created after the experience, express these invisible components of the city relying on the sensation of the individuals' bodies.

The students formed groups of three and selected the region they wanted to experience in İstanbul. It is aimed to create subjective urban narratives with experience, perceptions and interpretations of the individual. They sketch mental maps and mental images of the selected site. They question and try to decode the meaning of their experiences derived by senses through the journey. Total body of the exercise is explained in Table 6 and some of the student works can be seen in Figure 10 and 11. The results of the analysis are represented in a way that best reflects the experienced emotion and/or sensory data (form, material, color, texture).

Table 6: Limits of Psychogeography Works

Context	: Analyses of city through senses and emotions; reflecting the experience through selected site via visual design language
Form	: Not restricted
Language	
Materials	: Not restricted
Production	: Not restricted
Method	
Size	: Final composition must fits in 40x40x40 cm box
Amount &	: 1 site analysis, 1 emotional mapping and 1 model per 3 students;
Duration	3 weeks



Figure 10: Psychogeography - (top row left to right) Works by Azize Aslan-Gülse Boz-Sebiha Tuna (Moda/Kadıköy), Ayşenur Ay, Kübra Ergin, Suhan Semen (İstiklal Street), Ayşen Mercan-Eslem May-Gülizar Toprakkale-Zehra Aydın (Balatt); (bottom row left to right) Works by Buse Nur Erdem-İlayda Çolakoğulları-Simay Atmaca (Eminönü), Dilara Dağlar-Mehtap Göymen-Şerife Deniz (İstiklal Street), Halise Burcu Köse-Sıla Faraşat-Yeliz Aslı Öz (Burgazada)

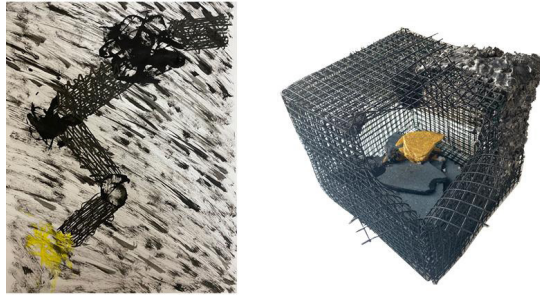


Figure 11: Psychogeography - Tarlabası (Work by Büşra Zülal Reçper, Dilara Nur Binboğa, İkra Berfin Beydemir)

4.6. Transcripts

Transcription describes a sequential action. Sequences often form a linear narrative. These consecutive frames create fragments of the narrative and can refer to the order in which events occur over time. Sequential narratives, including temporality, in which we can transfer different moments and environments. Transcripts form a specialized version of the narratives. The Manhattan Transcripts (Tschumi, 1994), which can be considered as the creative starting point of Bernard Tschumi's works, propose a different architecture reading in which space, movement and events are independent, but they establish a

new relationship with each other, thus breaking the traditional components of architecture / space and rebuilding on different axes (Kürtüncü, 2014).

In transcripts, the relationship of one frame to the other is very important, since the analysis of individual frames cannot reveal how space is handled as a whole. Therefore, transcripts are not self-contained images, but they also establish the memory of the previous frame in the course of events. The changes in the height of view of the moving observer, that is, to look at the subject from higher, lower, or sides, to zoom in and out between the details and the overall image, browsing around on a horizontal axis, shifting and navigating between spaces, reinforces the grasp of architecture and interior with the body. Last meaning of the work is cumulative, it does not depend on only one frame, it occurs with the succession of fragments.

Table 7: Limits of Transcript Works

Context	: Transcription of the building of MUFFA and its immediate surrounding, creating a new visual narrative of it
Form	: Mostly depends on configuration of 7x7 or 7x12 cm abstract frames
Language	
Materials	: transparent, translucent and opaque materials that have monochrome colors
Production Method	: 2D transcript: abstracting visual elements by considering shape, size and emphasis; 3D model: compositions of abstract fragments, recreation of holistic narratives
Size	: Fitting in average shoes box
Amount & Duration	: 1 abstract analysis/transcript and 1 model per 2-3 student; 3 weeks

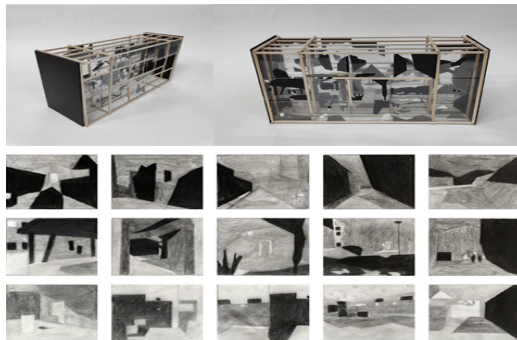


Figure 12: Transcript (Work by Hira Nur Yalın, Levent Karayığıt, Sümeyra Şahin)

In this exercise, a route, which will include ‘entrance’, ‘passage’ and ‘arrival’ spaces, was determined in MUFFA and transcription was performed. Total body of the exercise is explained in Table 7 and some of the student works can be seen in Figure 12 and 13.



Figure 13: Transcript (Work by Seyithan Yılmaz)

4.7. My Clone

“Experience discloses beneath objective space, in which the body eventually finds its place, a primitive spatiality of which experience is merely the outer covering and which merges with the body’s very being. To be a body, is to be tied to a certain world, as we have seen; our body is not primarily in space: it is of it.” (Merleau-Ponty, 1945/2002, p.171)

Developed with reference from the ‘robotic clone’ exercise at University of Cincinnati (Klinger & Swackhamer, 2002), the students examined their own body. The exercise’s subject was creating clones of bodies thinking about how it would be like if we cloned ourselves. Within the scope of the exercise (Table 8), each student designed 1:1 scale clones reflecting their identity (behavioral, physical and characteristics), action etc.

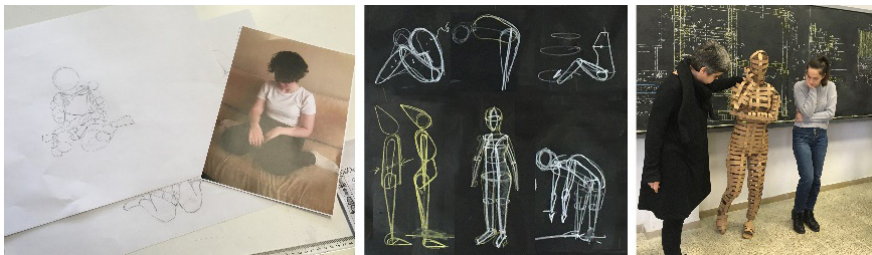


Figure 14: Production Phases – 1/1 Scale Drawing of Body

Table 8: Limits of My Clone Works

Context	: Creating clones of bodies which reflecting their identity & actions related with their characters
Form	: Not restricted
Language	
Materials	: Mostly waste/sustainable object or materials
Production	: Not restricted
Method	
Size	: 1/1 scale representation of body
Amount &	: 1 body drawing and 1 body model per student;
Duration	6 weeks

The exercise had three stages. In the first stage the students identified and deciphered their characteristics of identity and analyze their physical proportions (Figure 14, Figure 15). In the second stage, they decided on the materials (found objects or waste materials which reflect the identity) and action (sleeping, dancing, skiing, etc.) in line with their characteristics of identity (Figure 16). Finally, in the third stage, they construct their clones in accordance with their decisions on Identity, Action and Material and also with the Basic Design Principles (Figure 17).

**Figure 15:** Production Phases – Understanding Proportion of Body**Figure 16:** Production Phases – Material Experimentation

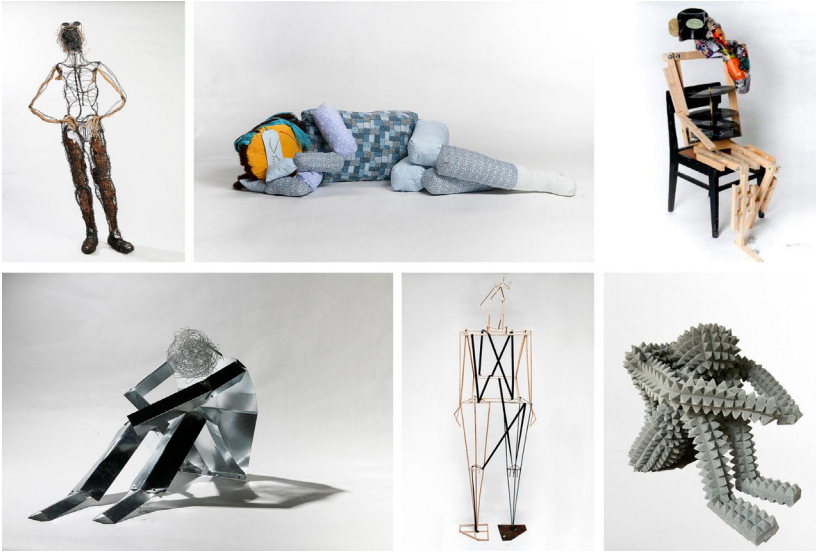


Figure 17: My Clone - Works by Kübra Üstünoldu (upper left), Meltem Artan (upper middle), Yiğit Uzunefe (upper right), Zeren Ökdemir (lower left), Cansu Akkaya (lower middle), Sinem Baki (lower right)

4.8. Chindogu

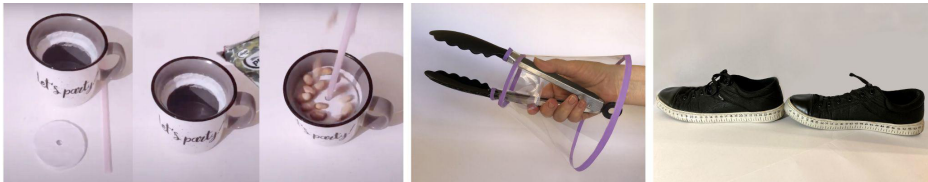
Chindogu is a Japanese word that means ‘unusual item/tool’. These items/tools are defined as objects that you can almost imagine yourself using and they are inventions that don’t have clear definitions. The concept ‘Chindogu’ was introduced by Kenji Kawakami who is a Japanese inventor and the editor of the Mail Order Life. Kawakami, the inventor of the Chindogu, defines them as ‘un-useless’ objects because they aren’t useful but they aren’t totally useless.

In Turkey the most powerful examples of Chindogu are PROCES which belong to Prof. Zihni Sinir who was created on January 30, 1977 by İrfan Sayar in the *GırGır* magazine. He is a character who questions the relationship between people and things (mostly technology). Zihni Sinir uses the word “PROCE” instead of “Project”. Because PROCES are projects that incorporate three elements such as humor, aesthetics, functionality (“Zihni sinir”, n.d.).

Lastly, Chindogu examined body-related “absurd yet almost functional objects” for everyday use. Chindogu is the only exercise of the course that introduces the “quasi functionality” with a definition “un-useless” which translates not useful but also not totally useless. Total body of the exercise is explained in Table 9 and some of the student works can be seen in Figure 18 and 19.

Table 9: Limits of Chindogu Works

Context	: Observe and analyze everyday praxis and try to find a problem that hasn't been discovered; design an un-useless/ almost useful object
Form	: Not restricted
Language	
Materials	: Not restricted
Production	: Not restricted
Method	
Size	: Not restricted
Amount &	: 1 chindogu model per student;
Duration	2 weeks

**Figure 18:** Socks with Belt by Melisa Türker (left), Pet-Foot Cleaner by Burçin Telli (middle), MaxSleep by Şeymanur Öztürk (right)**Figure 19:** SnackMug by Saliha Kanbur (left), Fry-Protect by Dilara Özbent (middle), Foot-Measure by Doruk Çağan Poyraz (right)

5. Conclusion

Basic Design teaches students the basics of creative attitude. Form studies and learning visual elements and principles have great importance and constitute the main approach in Basic Design education in many institutions. However, it is also of great importance to make students think, question and analyze environmental and social issues. Students should be able to understand and determine the psychological, sociological and cultural data of the environments and their users.

Accordingly, the context of the Basic Design course has been refined through the years and is being adopted considering the current circumstances and requirements. The framework of the course is summarized as follows:

Context about design thinking and design process:

In the recent structure of the course in MUFFA, the first semester focuses on form studies and the second semester focuses on environmental & socio-cultural research. It has a sequential order that nurtures and is built on each other through the one-year course. In the first semester, students using their intuition, and referring to the A4 design vocabulary cheat-sheet as well begin to understand why something looks complete and beautiful and try to achieve the beauty in their works (the good form). In the second semester, focusing on the reality of the context students develop context-oriented & form-based narratives.

The exercises' complexity increases while the limitations decrease. In the exercises of the first semester, there are many limitations and students are forced to push the boundaries of these constraints. They think of multiple alternatives within highly restricted design problems, compare these alternatives and rethink new possibilities. Restrictions fosters creativity. Small alterations within these limits reveals how rich outcomes can be. Another way to trigger creativity is to ask and encourage to ask questions. Asking questions and involving in brainstorming help students come out with new ideas.

In the ongoing progress over the semesters, the expansion of the boundaries and increase of the paths enable students to perceive more complex relations. Consequently, their competences develop and students realize that nothing is in single format and nothing has one right solution.

Context about material, form and semantic:

In the process, not only the context but also the context-specific material knowledge is increasingly diversified. While the first exercises start with representative paper architecture, the latest exercises include the use of all material groups in nature. In the process, students develop knowledge and perspective on designing natural and recyclable materials as well as the reuse of waste materials. In addition to material, form relations are also increasingly diversified.

In each exercise progressively, students learn to express and evaluate what they see and perceive considering the abstract and conceptual definitions. Reading a composition starts with interpreting the form of the composition (syntactic) and following this it goes beyond the appearance and expands the interpretation through diverse parameters such as emotional, cultural, historical, environmental and philosophical (semantic).

Context about learning outcomes and relation with other courses:

Throughout Basic Design course, design principles, design elements and design methods are learned through two and three dimensional experimental studies. Students gain an understanding of spatial relations, compositional order and shape, form, material, color, light and structure relations. They analyze the principles of coexistence of design elements. In addition, students learn to cope with problems and limitations creatively and this learning occurs by experiencing. This experience is transformed into knowledge.

Being creative is an important skill for a human, it has especially great importance in design-architecture-art based professions. According to May (1975/1994), the creative act arises out of “the struggle of human beings with and against that which limits them” (p.113) and “the tension between spontaneity and limitations” (p.115). Spontaneity requires childlike nature to play. In the Basic Design Course creativity is promoted by applying experimental methods and this should turn out to be an attitude. In order to “develop creativity, individuals need to use their imagination and intuition, adopting a playful attitude to explore new ideas and assess new strategies of problem-solving while accepting some levels of risk-taking” (Deakin Crick, Huang, Ahmed Shafi & Goldspink, 2015).

What I have found out from my experience is that, after the first year of Basic Design studies there is a drastic shift in the curriculum from what is fun, thought-provoking, unique, even shocking and therefore “creative” to what is serious, functional, complex, aesthetic, feasible, and therefore “creative”. Whereas, during design studies, students should not lose their “excitement” and “curiosity”, instead, their passion for creativity and “dreaming the impossible” should grow. They should be able to think forward for their time and push the limits. This can be achieved if they are regularly reminded of the “playfulness” and “thinking the unthinkable” sides of the creative process. Integrating “the Basic Design way of thinking” to each year’s curriculum with short, provoking, almost guerilla-like exercises would be one way of stimulating student’s creative

ability. Such exercises can be also part of the studio but not necessarily focus on the same themes, rather a different one just to put off their attention to something else and provoke creativity. (Ilgin, 2023)

Similar to Ilgin (2023), Findeli (2001) also suggests having Basic Design taught not only in the first year of education but through the entire education period, from the first to last year. Thus, “visual intelligence, ethical sensibility, and aesthetic intuition can be developed and strengthened” (Findeli, 2001, p.16).

Design is an individual act that requires awareness of human needs, environment, socio-cultural, technological, and likewise planetary issues. It requires not only a creative mind but intellectual prosperity, empathy, and ethics. Design is an individual act because even if it is created from a perspective of a team, it is unique as it reflects creators’ means of understanding the design problem. And it is a good thing. It is what makes the design act *sui generis*. Design should be beautiful, beneficial, provocative and unique. Hence, Basic Design course at MUFFA, while teaching students the basic principles of the design in their first year, encourages them to discover and keep their introspection and uniqueness. Because the teaching team trusts that the good design emerges only when the design principles meet with the designer’s individual eccentricities. Thus, the structure of the course carries this mission and reminds students; look beyond what is given, not afraid of failure, be curious about life, look around and envision the environment as a playground and beyond don’t forget to be respectful and tender. This mission is aimed to be achieved by above mentioned program which is slightly restricted in the first semester with the objective of understanding “the good form” and constructed as “self-governing” in the second semester with the objective of exploring bodily interaction with the environment from a self-exploratory, socio-cultural and urban perspective.

Consequently, the experience of the first year Basic Design course and its impact on the interior architecture discipline at MUFFA reveals that “basic design way of thinking”, as it serves as a driving force to think, explore, create, enjoy, and produce differently, should not be stopped in further years of design studies. It can be designed to sustain the enthusiasm and crave for engendering new ideas. Such practices can be integrated as one day projects into the flow of studio or structured as short “attention shifter” workshops to provoke students’ creative thinking and remind students to stay connected with their inner child which allows them to think the unthinkable, experiment the impossible and free their mind creative mind from real life design restrictions.

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CHAPTER V

THE USE OF ARTIFICIAL INTELLIGENCE IN INTERIOR DESIGN EDUCATION AND IT'S FUTURE

Göktuğ Görkem MARDİN¹ & Elif SÖNMEZ²

¹Res Asst. - Altınbaş University, İstanbul

e-mail: goktug.mardin@altinbas.edu.tr

ORCID: <https://orcid.org/0000-0003-0295-8813>

²Assoc. Prof. Dr. - Altınbaş University, İstanbul

e-mail: elif.sonmez@altinbas.edu.tr

ORCID: <https://orcid.org/0000-0002-0649-6313>

1. INTRODUCTION

Artificial intelligence has been a rapidly developing technology in recent years and is used in many fields. Nilsson (2022) says the following about artificial intelligence in his book: The second part of the book, titled “First Discoveries”, describes the conferences on artificial intelligence held in the 1950s and 1960s and the theoretical dilemmas and practical problems that arose with the new methods that emerged from these conferences. The three major meetings held during this period are important cornerstones for the future development path of artificial intelligence. Nilsson states that at these meetings, scientists gained important insights into their research in AI and that these insights formed the basis for future work in AI. AI algorithms work with numerical data and must first convert all types of data into numerical data in order to perform operations. Today, however, AI is being used as a creative tool in the fields of art and design. This use affects the creative process in art and design by developing a new aesthetic understanding and language of expression. Artificial intelligence plays an important role as a machine-artist/designer collaborator, creating new opportunities in these fields (Deveci, 2022). Some of these are

the fields of architecture, design and art. Artificial intelligence applications can help designers increase their creativity by enabling them to work faster and more efficiently in these fields, especially in the design process. The use of AI applications in students' architecture and interior design education can help students optimize their designs and make better decisions by giving them access to more data and information during the design process. However, there are also some concerns about the effects of AI applications on students. This study aims to answer the questions of what are the effects of artificial intelligence technology on interior architecture education, and what are the views of students studying interior architecture design on the relationship between interior space and artificial intelligence.

The use of artificial intelligence in a field such as architecture, which has to ensure interaction between all stakeholders in order to find solutions to complex design problems and where the amount of information belonging to many disciplines is very high, can be examined from many angles (Ergül, Malkoçoğlu, Özgünler, 2022). In this context, the study focuses on the artificial intelligence work experiments carried out within the scope of the course titled "Experience of Space". Within the scope of these applications, students analyzed an interior space in detail and wrote down the experience of the space. Then, they used artificial intelligence applications such as Midjourney and Dall-e to capture the real space. This study is also a resource for those who want to do more research on the relationship between artificial intelligence technology and students, or to propose an educational model.

2. INTERACTION BETWEEN SPACE AND ARTIFICIAL INTELLIGENCE

In some approaches, the design process is treated as a decision-making process and designed as a solution-oriented process. This process includes decision-making stages of different nature and consists of phases in which design strategies and objectives are determined. Due to the complexity of the design problem and the large number of variables, decisions are made at each stage based on the previous stage. According to this approach, each stage is also considered as a process of research, investigation and decision-making, and the process is repeated cyclically until the goal is reached (Ediz, 2006.) Interior design also follows the steps of design processes. Many factors are taken into consideration when designing interiors. As stated in the definition

of these factors, the aim is to produce spaces that are functional, aesthetic and comfortable. The creative process of architectural design covers many stages. These stages include information gathering, designing, creating different options, selection and development, implementation and finally evaluation. Each of these stages includes important steps such as defining the architectural problem, setting goals and programming the design (Gür, 2014), (Figure1).

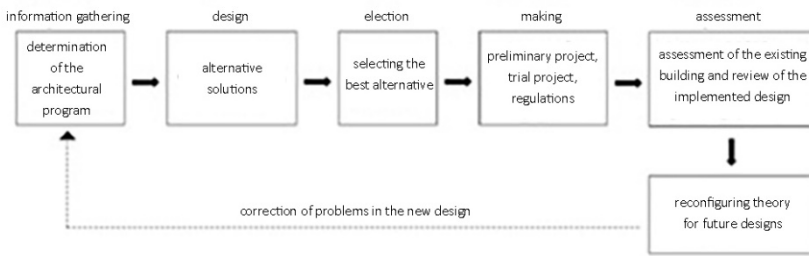


Figure 1. Gür’s architectural design process model (Gür, 2014)

Despite some differences in every design field, including interior architecture, they are mostly similar. Especially in the interior design process, the “employer” has a very important role in this process. The process that starts with the client or employer can be shaped as obtaining information, analyzing the information obtained, synthesis, evaluation and finally implementation (Dodsworth, 2012). In the interior design process, after obtaining the necessary information from the client, the first stage is usually the analysis of the space and the definition of design problems. At this stage, factors such as the dimensions of the space, lighting, the intended use of the space and style preferences are taken into consideration. Designers then identify strategies to improve the functionality and comfort of the interior space to be designed. For example, for a functional design, factors such as furniture layout, storage solutions and ease of use are important. In terms of aesthetics, color palette, material, texture choices and accessories as complementary elements are the factors that determine the atmosphere of the space. In interior design, each stage in the design process is interconnected. Designers construct a design by taking into account the characteristics and needs of the space. When these fictions are realized, an interior space where functionality and aesthetics are presented together emerges. It is possible to collect the service process of interior architecture discipline under five headings. These titles are; design preparation, design, presentation, production and implementation (Figure 2).



Figure 2. Interior Architecture Services Process (Yıldırım & Demirarslan, 2021)

The interaction between interior design and artificial intelligence has also become a rapidly growing topic in recent years. AI technologies can be applied in many different areas related to the design, use and management of interiors. For example, AI technologies can be used for intelligent control systems of interiors. In terms of sustainability concepts, the use of artificial intelligence is quite common. Apart from these, artificial intelligence can also be used to improve the user experience. With AI-supported voice and image recognition systems, interaction with indoor users can be established and the use of indoor spaces can be much more optimized. Apart from these, the use of artificial intelligence technologies in the design process of interiors has become popular today. Artificial intelligence-supported design tools have started to provide designers with the opportunity to work faster and more effectively. Various artificial intelligence algorithms can provide a much more personalized design of the interior by suggesting specific colors, patterns, textures according to the preferences of the users.

Recently, two artificial intelligence applications have come to the fore. Applications such as Midjourney and Dall-e are very potential technological developments that can be used and even started to be used in the design process and interior design. If their working logic can be explained in a simple principle; they use and process billions of images available on the internet as data (URL-1, 2023). AI-supported tools such as Midjourney and Dall-e can provide designers with a number of conveniences. These include providing faster and more effective design recommendations and minimizing cost and time losses. By increasing efficiency in the design process, these technologies can help create more creative and innovative designs. In addition, since these tools can work as artificial intelligence-supported platforms that generate images from a text, they can quickly provide more personalized design suggestions for requests and needs.

2.1. Artificial Intelligence in Interior Architecture Education

The use of the meta-universe in all areas of physical life with digital transformation has led to the definition of a different dimension of space in terms of architectural structure and interior design. In this way, digital designs of surfaces

such as walls, ceilings and floors positively affect the spatial perception of users. The combination of real world and imaginary designs brings the discipline of interior design and interior architecture to the forefront in the creation of living spaces through realism and fiction (Karyağdı, 2022). Artificial intelligence-supported applications such as Midjourney and Dall-e can have positive and negative effects on interior architecture education. These applications can help students work faster and more efficiently in the design process and increase their creativity. For example, Midjourney can offer students the opportunity to experience and review their designs in a virtual reality environment. Moreover, such AI applications can allow students to access more data and information during the design process.

Through these apps, students can access data and features of previously designed and built structures. This can help students optimize their designs and make more accurate decisions. However, many educational institutions and faculty members have started to encourage students to understand and use AI technologies. In the literature review, it was observed that the students who participated in the master's thesis titled "Evaluation of the Interaction of Artificial Intelligence and Space Design in Today's Design Education" had an awareness of artificial intelligence. It was determined that the students were open to development and change and were also curious about the subject (Bayrak, 2022). "Power to the Teachers: An Exploratory Review on Artificial Intelligence in Education", artificial intelligence offers educators a kind of model proposal under teaching and learning (Lameras & Arlab, 2022). The focus has been on helping people adapt to a changing and transforming world. Such initiatives are meant to give students practical skills in solving problems, bridging design and technology. However, there are also some concerns about the impact of AI applications on students. For example, it is thought that these applications may limit students' creativity and ignore the human factor in the design process. There is also a risk that such AI applications may simplify the design process and reduce the critical thinking skills needed to make the right decisions. In addition, debates on the concepts of uniqueness and creativity have developed in a very natural way.

2.2. Originality ve Creativity

Creativity and the ability to think creatively is one of the most prominent characteristics of human beings and has been discussed by many thinkers, philosophers and scientists throughout history. This characteristic is an

important factor that determines human beings' worldview, their understanding of art and their desire to explore. Creativity is also an ability that enables people to generate new and original solutions to cope with the challenges and problems they face. For this reason, creativity has always been and will continue to be a subject of interest (Eker & Sak, 2016). Although artificial intelligence can produce original designs, it is difficult to say that these designs fully comply with the concept of creativity. Artificial intelligence usually designs based on predetermined parameters or data, and these designs usually contain a limited element of creativity. So, the designs produced by AI may have a more limited creative potential compared to the creativity of a human being. Therefore, the use of AI technologies in design processes may reduce or limit the originality of the design and the designer. But AI technologies can also offer different approaches to the design process and help designers to make design decisions more quickly and efficiently. This context is still a matter of discussion.

Artificial intelligence technologies can allow students to develop creativity by spending more time in the design process and actually encouraging them to design projects. Depending on how fast these technologies produce results in the eyes of the student and depending on the instant design results they receive above their current capacities, they are likely to be interested in these technologies and spend more time on their project. However, it is also necessary to consider the possibility that the use of AI technologies may limit students' creativity over time. For this reason, the use of artificial intelligence technologies in design education and professionally should be handled correctly and used in a way that supports creativity. Within the scope of these evaluations, while using AI-supported applications such as Midjourney and Dall-e in education, it should be emphasized to students that this is a supportive tool. The effects of AI applications in interior architecture education will depend on how these technologies are used and how students integrate them into the design process. Therefore, students and educators should be conscious and careful about the use of artificial intelligence technology in interior architecture education.

3. MATERIAL and METHOD

This study was conducted with 46 students who took the course within the framework of the elective course "Experience of Space" under the direction of Assoc. Prof. Dr. Elif Sönmez in Altınbaş University Department of Interior Architecture and Environmental Design in the Fall Semester of 2022-2023. After various readings on space and the experience of space, attempts were made to obtain the real space with artificial intelligence supported applications over the selected spaces with the students. Fifteen examples

from the literature and important designers and buildings of the period were selected. In addition to being important projects of the period, different style approaches, various interior atmospheres, material diversity, functional differences and projects that are important in terms of architectural history were taken into consideration while selecting the spaces. These projects are;

1. Tadao Ando - Church of Light,
2. Frank Lloyd Wright - Waterfall House,
3. Norman Foster - Walbrook,
4. Mies van der Rohe - Farnsworth House,
5. Peter Zumthor - Zumthor House Studio,
6. Ömer Selçuk Baz - Troy Museum,
7. Louis Kahn - Exeter Academy Library,
8. Louis Khan - National Assembly Building in Dhaka,
9. Atelier Alter Architects - Yingliang Stone Museum of Natural History,
10. Renzo Piano - Pathe Foundation Gallery,
11. Le Corbusier - Chapelle Notre Dame du Haut.
12. Le Corbusier and Pierre Jeanneret - Villa Roche,
13. Le Corbusier and Konstantin Melkinov - Dominican Convent of Saint Marie de La Tourette,
14. Emre Arolat - Sancaklar Mosque,
15. Antoni Gaudi - Casa Battlo.

After this research study, artificial intelligence supported applications were introduced to the students and various examples of how they are used in fields such as architecture, interior architecture and industrial design were shown. How these applications are used in practice was explained within the scope of the course. After the introductory activities, students were asked to describe the space they would work on in a one-paragraph text. It was aimed to evaluate and experience the space from every angle. This experience was revised every week to increase their capacity to perceive a space. Each revised text was practiced over and over again through Midjourney and Dall-e.










4. RESULTS and DISCUSSION

Students tried to create visuals with the texts they wrote on two different platforms, Midjourney and Dall-e, on the sample spaces given to them. They selected two interior and one building images for the given sample space. For each image, they conducted space experiments in three steps. In each step, they

were asked to work again on the images they obtained in line with the texts they introduced to the applications. The aim of this revised study was to strengthen their communication with artificial intelligence and to raise awareness about what they perceived as missing while experiencing the space. When the completed works were analyzed, 34 students were successful in the course and 12 students failed. When the sheets of the successful students were evaluated, it was observed that they achieved success in textual descriptions of the visual space at each stage. Since it is not possible to include all 34 sheets within the scope of the study, 4 randomly selected examples are included in detail.

It is seen that the student who realized the Norman Foster - The Walbrook study was successful in perceiving the structure and space. The student used the same text describing the space for both applications. As a result of these studies, it is seen that the Dall-e application gives visuals closer to reality than Midjourney. While the student was able to reach close results by creating two texts for the building image he chose, he wrote three texts for the interior images and wrote the space in more detail (Table 1).

Table 1: Norman Foster -The Walbrook structure sample student work

	Image 1	Image 2	Image 3
Student's Selected Image			
Midjourney			
Dall-e			

In this study, it is seen that the student was able to perceive the structure in general in the first text. Here, he/she tried to enter some numerical value data. He described the door heights and the number of steel lines wrapping the facade and got successful results. In the second text, he revised the elements he saw

with numerical data closer to reality and obtained much closer results when he added more details (Figure 3).



Figure 3. Images resulting from the first text / Dall-e above, Midjourney below

In the interior studies, a place where the environmental relationship is seen from the interior and the welcome lobby area were selected. As a result of creating three texts for this image, the desired level of results were obtained (Figure 4).

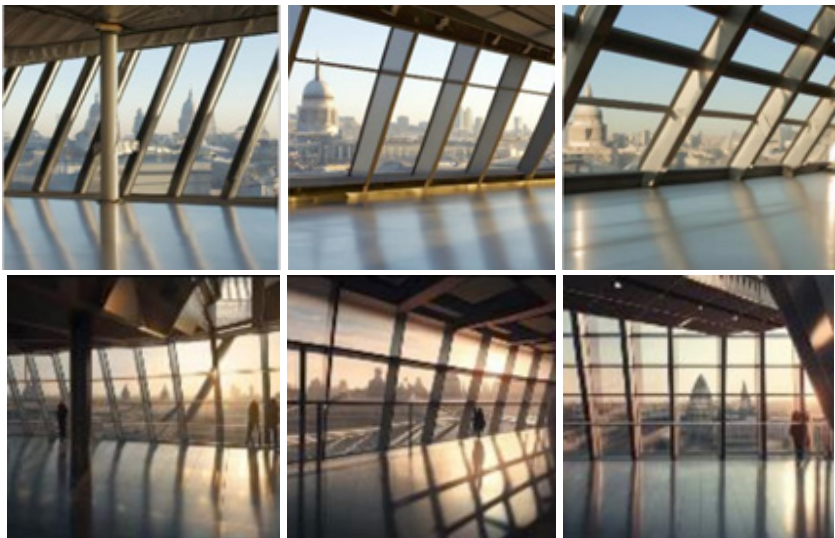


Figure 4. Images that the student obtained as a result of the experiment / Dall-e on top, Midjourney below










In the lobby - reception area study, the lack of detail in the welcome desk was reflected in the visuals in the same way. However; it is clearly seen that the student's level of experiencing and perceiving the interior space has improved in the texts after each attempt (Figure 5).



Figure 5. Images obtained respectively as a result of the three described texts / Dall-e above, Midjourney below

It is seen that the student who realized the case study of Peter Zumthor - Zumthor House Studio was very successful in the building mass and interior visuals. While the applications remained at a level to resemble the real one for the mass of the building, visuals that are very close to the real one were obtained in the interior visuals. In interior space studies, both applications gave very close results. Here again, it is understood that good results can be obtained in both directions as a result of a correct perception of space and good text writing (Table 2).

Table 2. Peter Zumthor - Zumthor House Studio building sample student work

	Image 1	Image 2	Image 3
Student's Selected Image			
Midjourney			
Dall-e			

The student wrote three texts for each image. In the first text he created for the mass of the building, he was able to perceive the point of view and give the material information at first glance. In his first attempt, he gave incomplete explanations about the structure, which resulted in unrealistic results, and in the other attempts, he was able to obtain a visual close to reality with the increase in the details given. Here, it can be seen that Dall-e works more successfully than Midjourney (Figure 6).



Figure 6. Images obtained respectively as a result of the three described texts / Dall-e above, Midjourney below


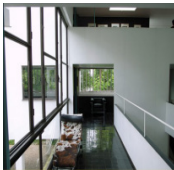




Due to the incomplete descriptions of the wall surface directly opposite the viewpoint, the applications completed that surface in different ways. Likewise, as a result of the lack of detail in the furniture, the applications gave different working furniture in each visual. Except for these deficiencies, (he/she) succeeded in obtaining visuals that are very close to reality with his explanations (Figure 7).



Figure 7. Images resulting from the descriptions
/ Dall-e above, Midjourney below.

For the Le Corbusier & Pierre Jeanneret -Villa La Roche example, it is seen that the student understood the subject and purpose well with the visuals (he/she) obtained and managed to use the applications very efficiently (Table 3).

Table 3: Le Corbusier & Pierre Jeanneret -Villa La Roche building, sample student work

	Image 1	Image 2	Image 3
Student's Selected Image			
Midjourney			
Dall-e			

The student prepared three texts for each visual. As a result of the studies, it was determined that the Dall-e application gave slightly better results. Trying to perceive the interior of the building contributed positively (Figure 8, 9).



Figure 8. Images resulting from the descriptions / Dall-e above, Midjourney below

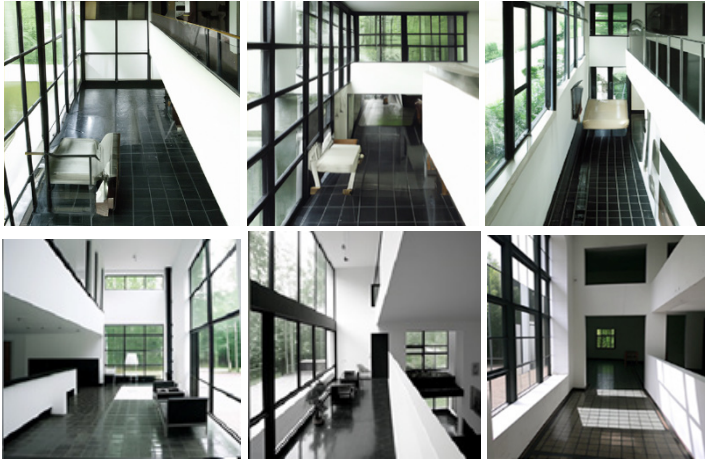


Figure 9. Images resulting from the descriptions / Dall-e above, Midjourney below









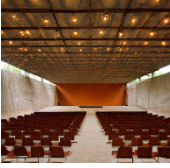
It is seen that the student was able to explain the window frames, color palette and viewpoints well. He was even able to explain the type of paint coated on the wall surface and get good feedback from the application. It can be seen from the visuals that he gave incomplete information about the seating units, the location of the window openings and the arrangement of the frames. Nevertheless, he was generally successful in experiencing the building and the spaces (Figure 10).



Figure 10. Images resulting from the descriptions / Dall-e above, Midjourney below

For the example of Ömer Selçuk Baz - Troy Museum, the student developed 3 texts for each selected image. The student was able to create a good level of experience and expression in the form of the building, facade cladding material, window openings and interior spaces (Table 4).

Table 4. Ömer Selçuk Baz - Sample student work on Troy Museum building

	Image 1	Image 2	Image 3
Student's Selected Image			
Midjourney			
Dall -e			

While defining the mass of the building, it can be clearly seen how every information given about the frequency of the facade cladding, the location, size and arrangement of the window openings gives a result. How the level of the student's perception of the building develops can be clearly understood with the visuals provided by the applications (Figure 11).



Figure 11. Images resulting from the descriptions / Dall-e above, Midjourney below

While the use of natural light in interior spaces was well explained by the student in the corridor, a good result could not be obtained in the conference hall due to incomplete explanations. It is seen that the applications give visuals much closer to reality when they do not give data about the seating arrangement at first and then give their details. While defining the corridor, the student could not obtain a correct space because he did not specify the direction, shape and location of the coated surfaces at first. After experiencing this, it is seen that he perceived the space much better than before with a more accurately explained text (Figure 12).

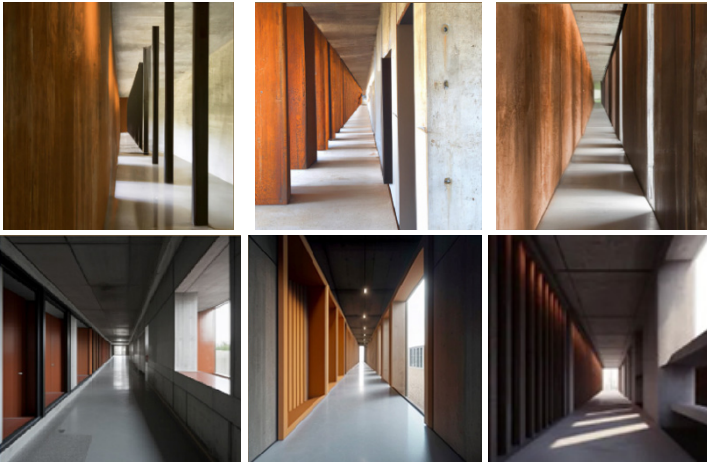


Figure 12. Images resulting from the descriptions / Dall-e above, Midjourney below

In the conference hall, it was found that the Midjourney application worked much better than Dall-e. In the corridor, it was understood that both applications gave similar results. As a result of all the steps, it was seen that the student obtained visuals that were more distant from reality than the other studies and the level of experiencing the space was lower. In the conference room, it was necessary to change the explanation text for the application. Here, she experienced the space again as it is but with a different narrative style. It is seen that she started to get the right image step by step (Figure 13).

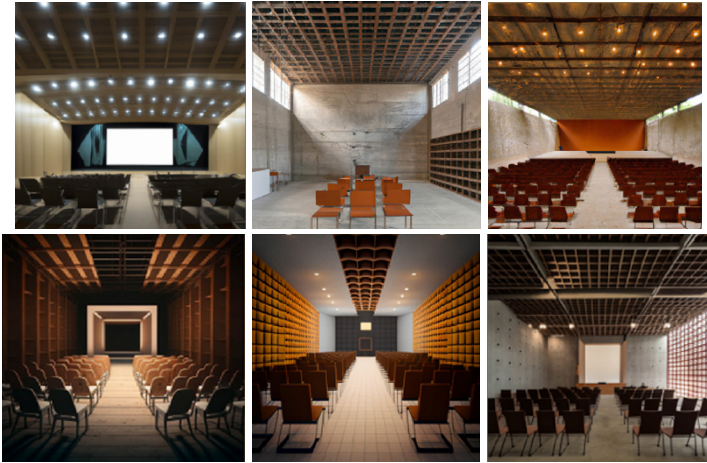


Figure 13. Images resulting from the descriptions / Dall-e above, Midjourney below

Within the scope of the course, these studies were carried out with each student, and it is seen that they have developed towards the use of artificial intelligence and artificial intelligence in the process. As a result of the studies, it was determined that there were serious improvements in the students' perception of space and experiencing that space with all its elements. Then, within the delivery for the course, the students were asked to explain these three-step continuously developing and changing works by determining a motto and presenting them in a single sheet (Figure 14).



Figure 14. Samples of the sheets prepared at the end of the study

At the end of all these studies, a questionnaire study was conducted to reveal the students' comments and experiences on both artificial intelligence and the experience of the space.

When we look at the answers to the question about what kind of a feeling it arouses in terms of professional future with the gradual inclusion of artificial

intelligence in our lives, 38% of 46 people stated that it aroused serious curiosity, while 17% found it frightening (Figure 15).

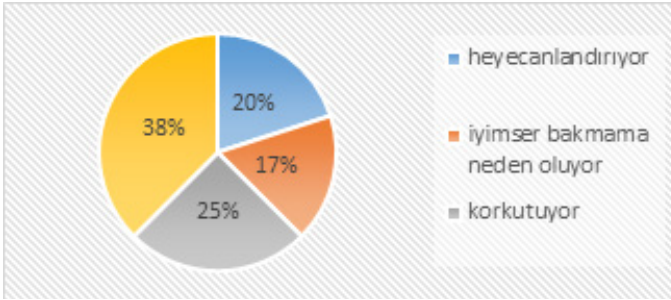


Figure 15. Graph of the rate of emotion evoked by the work completed

The question “Would you like to use artificial intelligence programs in your project courses while you are still a student?” was answered by 46 respondents, 96% of whom said yes (Figure 16).

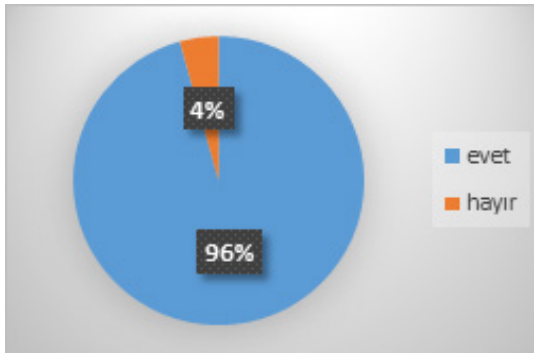


Figure 16. Preference graph for the use of artificial intelligence

When asked whether the artificial intelligence programs used in the course were learned for the first time in the course, 91% said yes (Figure 17).

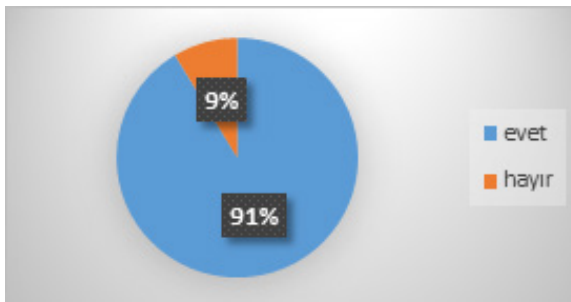


Figure 17. Graph of awareness of artificial intelligence by students

The extent to which such a topical issue is known by university students is debatable. But interviews also showed that the experience was found to be fruitful by the students and really aroused their curiosity.

5. CONCLUSION and SUGGESTIONS

The results showed that this exercise, in which students expressed their experience of the space in writing and then tried to capture the real space using artificial intelligence applications, was very productive. As a result of the detailed study of the space, the students gained more knowledge about the design of the space, the design elements and the use of the space. Moreover, the process of creating the real space using AI applications encouraged students creativity.

This study has raised students' awareness of how AI-supported applications can be used in the field of design and architecture. At the same time, it has shown again that artificial intelligence has limitations in terms of originality and the importance of these limitations for the need for the creativity of the human designer.

Except for the "Experience of Space" course, expressions such as "I worked", "I did it" were encountered at the end of the work done by the students on these artificial intelligence supported applications in both project courses and other applied courses. As a result of using the applications, there were cases such as owning what the student obtained as a result of using the applications for himself/herself and using the visual given by the application directly in his/her project. Even if they do not use this image directly, they are very attached to the visual obtained from the application and cannot break away from the proposed idea. It is necessary to develop a multidisciplinary working method together with educational scientists on how these artificial intelligence-supported applications can be integrated into the education process in the right way. Some suggestions have been developed as follows for the scope of the interior architecture education process:

1. By lecturing theoretically about artificial intelligence technologies, students can be informed about the features, advantages and disadvantages of these technologies. In this way, students can have a better understanding of artificial intelligence technologies and have an idea about how they can use them in the design process.

2. Through practical trainings, students can experience the use of AI technologies in the design process. Students are encouraged to create original designs by giving different tasks.

3. By presenting real examples and visual materials, students can be helped to understand the potential of AI technologies. These materials allow students to analyze the examples they see visually and get an idea of how they can use them in the design process.

4. It is useful for students to have discussions about the limitations of the originality of AI technologies in the design process. These discussions help students to understand different views and make more informed decisions.

5. Providing training on what criteria should be taken into account in terms of originality can help students to make their designs original by utilizing the potential of AI technologies. In this way, students can make more creative designs by fully utilizing the potential of AI technologies instead of limiting originality.

As a result, the artificial intelligence studies carried out under the subject of “Experience of Space” helped students to develop their creativity in space design and to increase their awareness about the use of artificial intelligence in the field of design and architecture. It made them realize that each project idea is unique in the human brain and that they cannot achieve the desired result exactly except for other applications in a one-to-one way other than doing it themselves. But apart from these, very useful feedbacks were also received in terms of how such applications can accelerate the project design processes, how different solutions can be in the production of concept ideas, how to connect and analyze ideas during the design process, and how to save time. All these studies will undoubtedly contribute to the more widespread use of artificial intelligence technologies in the field of design and interior architecture in the future, and will develop and change much faster than now.

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CHAPTER VI

THE THOUGHTS OF INTERIOR DESIGN STUDENTS ON VIRTUAL ENVIRONMENTS

Şen YÜKSEL¹ & Nilhan KAYA² & Betül GÜNDOĞDU³

¹Assoc. Prof. Dr. - Beykent Üniversitesi,
e-mail: senyuksel@beykent.edu.tr
ORCID: 0000-0002-0827-3930

²Res. Assist. - Beykent Üniversitesi,
e-mail: nilhankaya@beykent.edu.tr
ORCID: 0000-0002-8006-9299

³Res. Assist.- Beykent Üniversitesi,
e-mail: betulgundogdu@beykent.edu.tr
ORCID: 0000-0002-0505-5241

1. INTRODUCTION

Today, the accelerated development of technology has brought about the change and transformation in daily life. Starting with the invention of the Turing machine and progressing towards today's computers, technological developments have led to the enhancement of smartphones, tablets and many other devices we use today. In many places such as residences, workplaces, schools and hospitals, these devices can be used individually or in multiples for various purposes in a fast, efficient and practical way.

Devices such as computers, tablets or mobile devices can be used personally for many purposes. While actions such as sending e-mails, holding meetings, producing projects are carried out for business purposes, these actions are carried out in a virtual environment (VE). VE is not located in the physical world, but in the digital environment. VE means that a user interacts with other users and their work and computing environment through permitted network connections. Any environment where e-mail, chatting, sharing is called a VE.

With 3D modeling and artificial intelligence technologies, various developments have been made in VE that can enrich the interaction between users. These can be defined as Virtual reality (VR), augmented reality (AR), mixed reality (MR) and extended reality (XR). VR is based on computer simulation reality and includes technologies that appeal to sensory organs such as sound and image by copying the real environment. AR includes the processing of artificial productions on what exists in the real world. MR refers to combining the real and virtual worlds to produce new environments and visualizations where physical and digital objects coexist and interact in real time. XR defined as a combination of real and VEs that the user uses. VEs using these technologies include direct or indirect representations of physical environments (PE). Therefore, various factors found in PEs are present in VEs. On the other hand, in terms of the well-being of users, the elements of PEs should be present in VEs and these two different environments should be connected indirectly. In this context, VE designers should be individuals with a background in PE design.

The study aims to understand the thoughts of interior design students who are currently studying design and who have a design background in previous years about VEs and to interpret and discuss how these people and their thoughts will guide the future conjuncture. The environments in the physical world are designed by the interior designer professional group in order for the user to live comfortably in optimum conditions. In this context, it is thought that interior designers will also design the VEs that will be in parallel with the physical world environments.

Within the scope of the study, semi-structured interviews were conducted with interior design students, who are thought to design future VEs, under the title of virtual world. The interview was structured to understand the thoughts of interior design students about the VEs that will be designed today and in the future. The opinions of the students' opinions were categorized and interpreted. As a result, the students described VEs, compared physical and virtual environments in this context and stated in which context VEs are and will be needed. Figure 1 can be examined to explain the flow of the study.

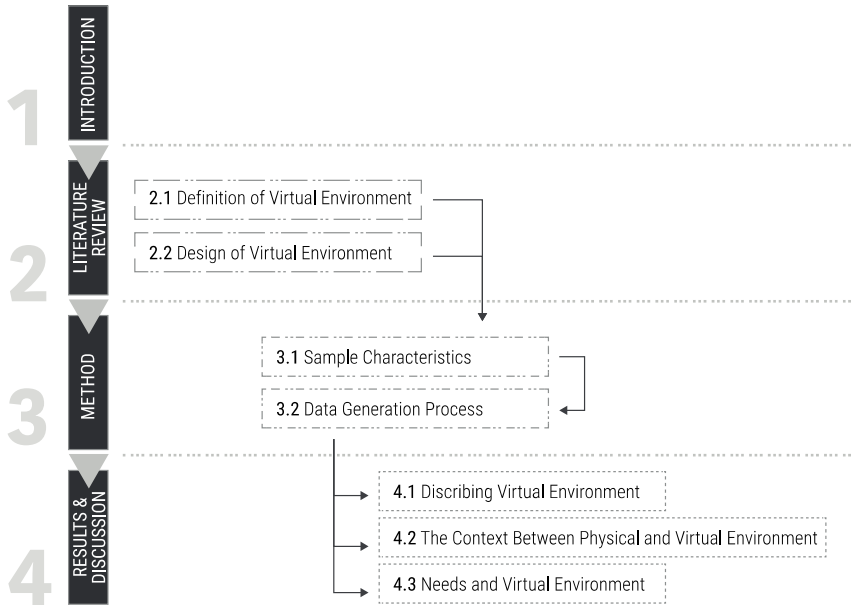


Figure 1: Flow Diagram of the Study.

2. LITERATURE REVIEW

2.1. Definition of Virtual Environment

VE is defined as an environment that enables a software to be developed and executed in a controlled and isolated environment separate from the underlying operating system and other software on a computer. VE is generally used to develop Python-based programs and provides an environment that can be easily used and replicated on different computers or machines by isolating all the dependencies required by the project in the computer environment. VE is an application that allows a user to interact with other people with the help of a computer connected to a network. E-mail, web-based applications, games are examples of these environments. According to the definition of Blascovich (2002), VE is defined as “a space that creates a psychological state in which an individual perceives himself/herself as existing in a VE,” it has acquired the meaning that we use mostly today: an environment in which interaction is established. This concept, which is used in the context of software within the scope of computer technologies, is also referred to as a computer-generated simulation in which an individual interacts with a person, object or environment, whether realistic or not (Ellis, 1994).

VEs can be used in many different fields and sectors depending on the purpose of use. Common uses of VE include education, entertainment, design and engineering, marketing and advertising, healthcare, real estate and cultural heritage. In the context of education, VE can be used to teach simultaneous courses such as mathematics, physics, piloting, captaining or simulations for healthcare professionals. It can also be used to provide a learning experience by providing interaction in educational environments. VE can be operated for entertainment purposes such as theater, concerts, sports competitions, as an environment where many people are together for entertainment purposes. In the design and production process, VE can be utilized to create 3D models of structures, visualize them and make the customer experience them. In marketing and advertising, VE can be organized to show the product or service to customers and to show all the features of the product to be sold before it is purchased. Health services such as diagnosis and treatment can be managed in the VE, and it can also be used psychologically to overcome fears and bad habits. In the real estate sector, it is possible to show sold or rented properties to customers in VE. Finally, VE is a powerful tool used in many different fields and sectors to preserve historical artifacts and to simulate and experience various scenarios and environments.

Since the VE term encompasses VR, AR, MR and XR, it is appropriate to give information about these three terms and review them in Figure 2. VE is a concept that encompasses any environment created by a computer and interacted with by a user. VR, AR, MR, and XR are types of VE that differ in terms of their level of interaction and engagement with the real world. VR is a type of VE that is experienced with sensory devices such as headsets and goggles and in which the person feels completely immersed (Jerald, 2015). The user is immersed in an environment that is fictional but contains real-world elements. AR, on the other hand, is a type of VE that is usually viewed through a smartphone or tablet, overlaying digital information on the real world on the screens of these devices (Carmigniani et al., 2011). Additional information and visualizations can be added depending on the angle at which the screen is displayed. MR, on the other hand, aims to offer a completely new experience by combining the virtual world and the real world. In this context, characters and environments in MR can be mixed with real environments. XR is used for environments where real and VEs are used together and AR, VR and MR technologies are used together (Rauschnabel et al., 2022).

To summarize, VE is a computer-generated environment that users can interact with. VR, AR, MR, and XR are types of the VE that differ in their level of interaction and integration with the real world.

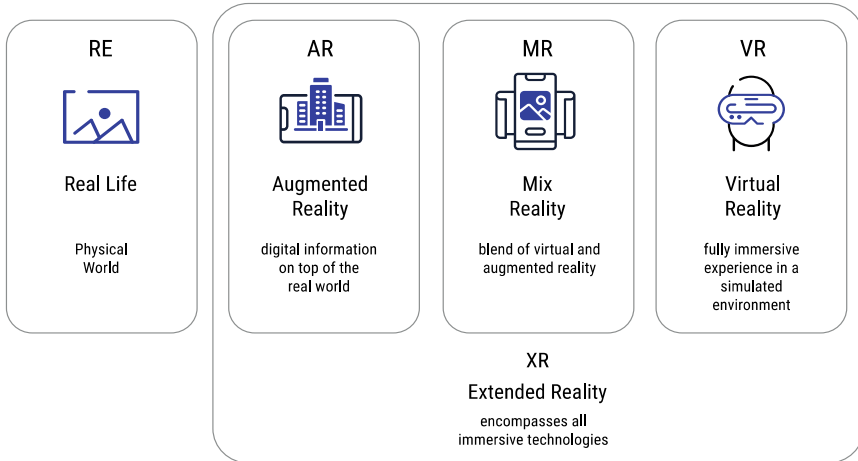


Figure 2: The definition of real life (RE), augmented reality (AR), mixed reality (MR), virtual reality (VR) and extended reality (XR).

2.2. Design of Virtual Environment

Design of VEs has become an ongoing significant phenomenon within the high-tech era because VEs may be experienced in a more direct manner as three-dimensional places thanks to the supporting technologies, such as VR, that enable them. VEs might be seen as “hyperrealities” endowed with experience properties, existing autonomously in their own right and not necessarily as simulations of real things and phenomena, which are the components that make up PEs (Bridges & Charitos, 1997). Thus, the design of VEs requires its own theory and practice. It is not necessary for a VE to replicate any reality, as is the case with the simulation of a task that occurs in the real world. As such, VEs can be designed in order to incorporate a number of spatial entities and events that provide support for several aspects of human behavior, including navigation, interaction, and communication (Bourdakis & Charitos, 1999). VEs is not only associated with physical appearance as being an extension of PEs, but also cultural and social interaction, and philosophical engagement (Moneta, 2023). In the design of VEs, it is possible to find that imposing a certain spatial structure requires to make use of architectural principles.

On the other hand, the natures of VEs and PEs are very different from one another even though their manifestations to humans may be very similar, as seen in the Figure 3.

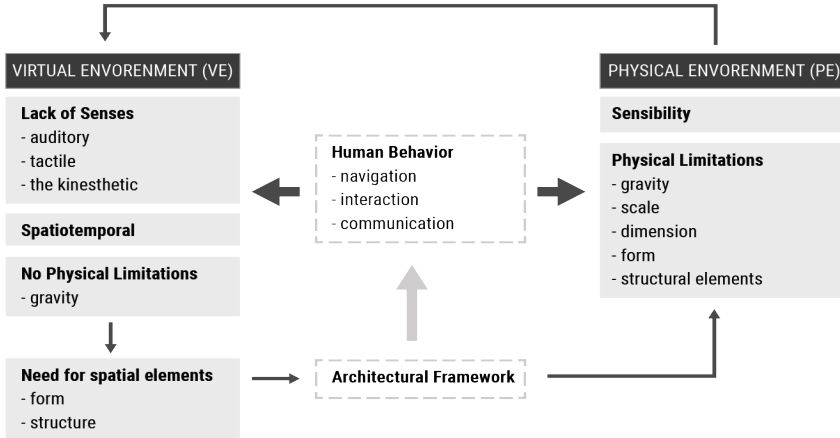


Figure 3: Differences between Virtual Environment (VE) and Physical Environment (PE).

This is due to the fact that the human experiences both types of environments through the same set of perceptual processes that are used to perceive the real world. In sense of current technology, users with their avatars in VEs do not obtain sufficient information from the depiction of their bodies in such environments in terms of either the visual, the auditory, the tactile, or the kinesthetic senses. Further, the dynamic, spatiotemporal character of a VE is not constrained by any physical laws, such as gravity or friction (Bridges & Charitos, 1997). Furthermore, architecture is the discipline that focuses on the design of environments that satisfy human need in the PEs. Nevertheless, the delimitation of space in VEs is necessary in order to make the environment more readable, and therefore simpler to navigate and recall while experiencing a VE for more than one time. In this sense, Bourdakis and Charitos (1999) argues that in order to have organized and meaningful experiences in VEs, it is necessary to design such environments with certain forms and structure by constructing an architectural framework with as a system of meaningful spatial components (Maher et al., 2000).

The design of VEs has gained an importance in many research areas related to architecture, including architecture education (Anderson et al., 2003, p. 20; Schnabel, 2011; Thoring et al., 2018), virtual museum designs (Charitos

et al., 2000; Lepouras et al., 2001), and architectural professions (de Klerk et al., 2019). The development of VEs that is suitable for the use by a diverse range of individuals involves a significant number of problems. Therefore, the designer is tasked with creating a virtual world that is not only intuitive but also consistent, user-friendly, engaging and, to a large extent, appropriately equipped to sustain everyday use (Lepouras et al., 2004). Moreover, Moneta (2023) states that in order to bring utopian designs to life and make the seemingly impossible a reality, VEs will need to acquire a grasp of architectural principles and theories through understanding history and context.

3. METHOD

With technological developments, each part of the society has become associated with VEs at different scales and in the context of different disciplines. Different age groups use VEs in areas such as education, trade and professional practice. Today, every individual uses various applications in the context of technological developments to facilitate their daily lives. These applications are available in a number of VEs and people can experience these environments individually or in groups.

VEs such as various phone and tablet applications, web pages, private and shared internet networks are frequently used by the age group identified by UNESCO as young people between the ages of 15-24 (Youth | UNESCO, n.d.). VEs, which are mostly used by this age group for gaming and socializing, have been widely used and gained importance in the field of education with the Covid-19 pandemic. This situation has caused the younger generation to spend more time in these areas compared to before the Covid-19 pandemic. This is exemplified by university students who spend a large part of the day studying in a VE. While the use of VEs in education provides positive effects such as enabling participation in the relevant course from different regions and providing time and economic benefit, the use of such environments for entertainment purposes causes many negative effects due to the fact that people are in these environments for long hours and continue the game uncontrollably. In this case, VEs continue to be used in many different disciplines and scales despite their positive and negative effects. In this context, the thoughts of the young generation, who spend most of their time in VEs, about the future in the context of these environments are very important.

Interior design is a profession that optimizes the conditions of the PE where people are located and designs the comfort zone of the users. These spaces are designed by interior designers in functional, ergonomic and aesthetic aspects. Interior designers share their works in the context of environmental conditions and user requirements with the user and the design develops by receiving feedback. VEs are used in the design development process between the interior designer and the user and in the representation of the final design product. In addition to representation tools such as plan and section drawings, these environments, which help to perceive the environment as real, are a tool that helps to develop the design between the interior designer and the user. The use of VEs has become important in both theoretical and practical application stages in the field of interior design.

In this study, semi-structured interviews were conducted with interior design students to explore their thoughts on VEs. Design students who use VEs both in their daily lives and in the field of education were preferred in the context of the study and their thoughts about these environments were evaluated.

3.1. Sample Characteristics

In the study, semi-structured interviews were conducted with 10 interior design students in different classes selected from the same university according to the random sampling method. In the interview conducted by 3 interior design instructors, the sample group consisted of 6 female and 4 male students with an average age of 19 - 22. The students who participated in the interview have different levels of VE experience depending on the semester they are in. Among them, there are 3 students who have used VR headsets in their design studio courses. Among the other students, there are those who have tried VR headsets during their internships.

In the historical process, design education has been affected by technological development and social changes. When design education is analyzed from past to present; education with traditional tools such as paper and pencil, education with computer and digital tools, and education processes with today's online-virtual tools are seen. Each new tool in teaching and learning processes has enabled students and teachers to enrich their design thinking.

Interior design students design interiors in accordance with the knowledge they have learned in other courses in the design studio courses, which are the basic courses of the education program. They develop their designs together with their instructors every week in a subject and place determined for a semester.

While developing their design skills and abilities, they use digital design tools as well as traditional methods technically and in the context of the development of design thinking. Today, VE and tools associated with VE provide advantages to interior design students in the context of design-thinking.

3.2. Data Generation Process

Semi-structured interviews were conducted with interior design students who frequently use VEs in subjects such as education and entertainment areas, and the VEs were questioned. In the study, qualitative research method was applied by conducting a 2-hour focus group interview with students in a predetermined VE. Before starting the semi-structured interview, it was emphasized that the students could answer the questions as they wished. In addition, it was explained to the students that there was no right or wrong answer to the outcome of the study, and that the study was not quantitatively or qualitatively goal-oriented. The interview was recorded auditorily, not visually.

The interview was conducted in two stages without any break. In the first stage, questions were asked to define and describe the VEs. The use of VEs in different functions and for different purposes was mentioned. The characteristics of the VEs they use, the way they use them, the frequency of use and the reasons for their preference were questioned. In the second stage, the differences and intersections between PEs and VEs, the advantages and disadvantages of these environments in different subject contexts were examined. Why and how questions about the expression of VE design were asked to make students think about this issue. Contextual examinations were made about the similarities and differences between PEs and VEs. The requirements for VE design and the flexibilities provided by these environments were discussed.

The audio recordings from these two stages were categorized under three main headings as seen in the results and discussion section: describing VE, the context between PE and VE, needs and VE. The data obtained from the study are discussed under this title.

4. RESULTS AND DISCUSSION

4.1. Describing Virtual Environment

Within the scope of this study, it was intended to evaluate the understanding of the interior design students for VEs through their description of such environments. The students, at first, defined VE not as a place in

which individuals use for specific purposes, but as a digital platform, such as Twitter, YouTube, and Instagram, for social activities. Despite using different expressions, the students concentrated on a main theme in order to define VE: digital interface. They all agreed that there should be a digital interface to create a VE, as Dwivedi et al. (2022) indicated. Even though such environment cannot give a sense of three-dimensionality as being a PE, individuals have a greater opportunity to socialize with other users through different ways of digital communication, such as texting, voice and video calls. However, the students indicated VEs have been evolving from being a platform for only social purposes to three-dimensional VEs, combined with the use of VR, AR, MR, and XR. From the design perspective, they also stated that the use of VEs provides immense advantages to architecture and interior architecture/design sector as showing a preview of reality.

4.2. The Context Between Physical and Virtual Environment

VEs were discussed with regard to its context with the PE to understand the criteria by which such environments should be experienced. The students indicated that there should be a context between PE and VE as in the same line with Yüksel and Yıldız (2022) because the VR created isolates individuals from the real world (Görgülü, 2022). According to the students, it has a greater importance not to detach ourselves from the PE while being in the virtual world, as Aydoğan (2017) stating there should be precautions against eliminating the real world. As the students emphasized the VEs can lead to individuals to spend too much time in such environments because the experience of enjoyment in VEs resulted in spending more time in such environments (Lee & Chen (2011)). According to the students, this has negative impacts on the psychology of individuals even though the use of such environments with different purposes might vary from individual to another. This was interpreted by the students as a fear of being in VEs. The most important reason for that was spending time in these environments, especially in the 3D frame, might make it possible for individuals to immerse themselves in that world and make them feel they belong to these environments, especially because such environments with many extremes allow individuals to do activities that is impossible be perform in a PE. This situation may result in individuals to disconnect from reality completely or partially, especially when spending excessive time in such environments. This may cause memory loss, as indicated in the study of Yüksel and Yıldız (2022) because individuals may not want to return to reality even though Orr et al. 2021

revealed that VEs have a potential to enhance the life quality of individuals with memory loss.

The students offered some suggestions to prevent the VE from disconnecting individuals from reality. According to the students, it is important not to cause loss of memory due to experiencing virtual environments that all access and commands within such environments should be in the hands of the current user in order to return to the real world at any time. The reason behind this is to feel safe while in VEs. On the one hand, the students stated that VEs with three-dimensionality should be design with regard to sensibility, as experienced in the real world, not to detach from the PE. The presence of real-world elements in these environments will remind them of the PE.

Further, they gave a priority to the fact that any VE cannot match and even diminish the feeling we get when we see someone, we have not seen for a long time because these kinds of environments lead to a lack of empathy in individuals. The reason behind this for the students is that VEs causes a sense of artificiality as stated in the study of Siriaraya and Ang (2019). In case, they also gave an example for education in 3D virtual classroom. Classroom atmosphere can be created, but the level of reality should not be increased because students are connected to the internet, which its outages cause to completely disconnect from classroom. As such, most of them emphasized that the use of VEs takes away people's humanity and this can become an important factor that can lead to mutation of human beings, not adaptation to a new world order.

4.3. Needs and Virtual Environment

Finally, within the scope of the study, the participants identified their purposes in creating their VEs. They stated that these environments cannot be created without a purpose and that such environments will be produced, designed and experienced by people for various purposes. While people have vital needs such as breathing and eating in the PE, they also have psychological needs such as having fun, socializing, and sightseeing (Pittman & Zeigler, 2007). According to the participants, while we cannot fulfill our vital needs in VEs, we can fulfill our psychological needs. According to the participants, what is important in this regard is that VEs should make our lives easier in many areas, regardless of our needs. This increases our commitment to the VE. So how do VEs make our lives become easier? In which areas of our lives do they help us? Participants think that the lack of things in the physical world should create the VE. In this regard,

the participants predicted that VEs will help us in social, profession, education and commercial issues and will change our lives positively.

As mentioned above, the impact of VEs on the social situation involves multiple people meeting and interacting in a such environment. It is predicted that the person can meet and interact with the people they want, and even feel that person with wearable technologies. Examples of this include actions with different numbers of participants, such as meeting with one's significant others, the same person attending a game with many different people and watching the game together. At this point, the action of meeting people, which is difficult to realize in daily life or cannot be done at any time, has been created for the needs of the person.

In terms of profession, it was given as an example that it can be used as a tool for the relevant professional group to both develop in the field of interest and as a tool. According to the examples given by the participants, a person working as an interior designer can visit the building they will work on in a VE, take a section of the building or access the finishing materials. With this data, he/she can make his/her own design/project and place it in the building, and such environments can help him/her make the final design decision. Or a doctor can use VEs to learn how a new machine produced with technological advances and used in medical improvement methods works. A medical operation that will take place in this environment can take place in a VE. In this way, VEs can serve different professions and contribute to the development of different professions.

Education in the VE, which has progressed rapidly due to the pandemic, is another issue mentioned by the participants. While it is given as an example in both the participants and the literature that online education in the VE makes our lives easier (Onyema et al., 2020), on the other hand, it is envisaged that such environments will support the work of interior design students on the building they work on within the scope of the project. Many elements such as the relationship of the building with its environment, environmental conditions affecting the building, structural features of the building can take place in the VE and the interior design student can experience this environment. Since the educational activities carried out within the scope of different professional branches vary, the scope of the VE in the context of these disciplines may also vary.

The last issue addressed by the participants is the contribution of VEs to commercial issues. According to the example given, some of the participants shop for clothes from websites or phone applications without trying them on.

The fact that these clothes are tried on in the VE and shopping accordingly, and that it is easier to understand whether the clothes bought will be suitable for the person or not, are examples given to this situation. On the other hand, non-fungible token (NFT), which people produce and sell in the VE, is thought to contribute to the trade in today's PE.

5. CONCLUSION

Virtual environment has developed with the changing technology with the emphasis on human needs nowadays. With the accelerated enhancement of technology, the design of virtual environments has gained importance in the sense of architectural framework because such environments have to be fulfilled the needs of their users, such as communication, interaction, and navigation. As such, it is needed to comprehensively understand how the future design based upon professionals, including interior designers, evaluate virtual environments to design human-centered environments. Thus, the aim of this study is to gain an understanding of the thoughts of interior design students who have a design education and a design background regarding virtual environments, as well as to comment on and discuss the ways in which these students and their thoughts would shape the future conjuncture of virtual environments.

Virtual environments that need a digital interface to be used provide greater opportunities to communicate with different individuals at the same time, that is, such environments regardless of its immersive types can enhance sociability of individuals who cannot find possibility in physical environments. However, with the increased evolution of three-dimensional virtual world, the description of virtual environment towards its design has been changing because of the increased needs for architectural background. The reason behind this is that virtual environments are not seen as only social platform, but also a potential use for daily activities with its three-dimensionality characteristics. Furthermore, this case provides extensive possibilities to design and architecture sector to show a preview of reality to be understand the environment in a more comprehensive manner that might not be possible in real world in which physical limitations arise, such as gravity.

With the change in the characteristics of virtual environment, there should be a context between virtual environments and physical environments since the use of virtual environment can lead individuals to isolate themselves from the real world despite the sense of artificiality. Therefore, it is important to design virtual environments in relation to take precautions against a loss

of memory, particularly related to daily life in physical environments. In this sense, controlling virtual environments and sensibility through real-world architectural elements, reminding individuals the real world in such environments, should be taken into consideration while designing virtual environments.

Having a purpose in the design of virtual environments is important because these environments should be designed and experienced by individuals for specific purposes, especially for psychological needs that they lack in the physical world in order to have more livable environments. Virtual environments with regard to social purposes should be designed to increase interaction with individuals who cannot be seen anytime. Such environments also can be produced to have experiences being not possible in the real world. Furthermore, designing virtual environments for professions should be gained importance to enhance the interest to the field and practical activities. Therefore, such environments can be given a priority to serve different professions and their developments. In the sense of education, the design of virtual environments regarding experience of architectural structures, and environmental psychology may be important design decision in the design process of such environments in order to understand the conditions of the buildings in detail. With the commercial purposes, virtual environments can give opportunities to understand the suitability of the products that they want to purchase in the real world, therefore, it is important to design virtual environments to support the commercial activities that provide a benefit for the companies. As a result, the current study contributes how the design decisions would be taken into consideration the context between virtual environments and physical environments in the process of designing virtual environments.

The study was limited only with interior design students, thus, their perspectives can be related more interior spaces. Future studies might take into consideration an interdisciplinary perspective with different professions, such as urban planner, construction engineer, and even philosophy students to understand the importance of the virtual environments and improve the design of such environments in a more comprehensive manner. Due to the conditions, this study was conducted virtually through a type of application. Although the use of this application, which is considered a virtual environment, in the study supports the scope of the study, in future studies, thoughts of students about the virtual environment can be discussed while providing multiple experiences in three-dimensional virtual environments.

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CHAPTER VII

THE ROLE OF CONCEPT IN DESIGN EDUCATION AND ITS REFLECTIONS ON DESIGN IN PROJECT PROCESS

Çisem BOZBEK¹ & Elif SÖNMEZ²

¹Res. Asst. - Altınbaş University, Istanbul

e-mail: cisem.bozbek@altinbas.edu.tr

ORCID: 0000-0001-9763-1375

²Assoc. Prof. Dr. - Altınbaş University, Istanbul

e-mail: elif.sonmez@altinbas.edu.tr

ORCID: 0000-0002-0649-6313

1. INTRODUCTION

Design is a creative problem-solving process that involves the creation of new ideas, products, and systems. In design, concept refers to the main idea or theme that leads the design process. It is the fundamental principle that gives a design its meaning and purpose. Concept can be thought as an overarching vision that guides all design decisions, from the choice of color, shape and material to the functionality and usability of the final product.

Due to the binding and integrative aspect of the concept in design, it can be characterized as the basis on which a successful design is built. Without a specific concept that is well defined and appropriately reflected in each component of the design, a design can become disjointed and confusing, lacking coherence and purpose. A well-defined concept provides a framework for the designers to work within and helps them to guide their choices and decisions throughout the design process. A strong concept can also help set a design apart from its competitors. In today's crowded market, creating designs that stand out from the crowd is essential. A unique and attractive concept can be the key to achieving

this by giving a design a distinctive identity that grabs the attention of users. Also, a well-developed concept can improve the functionality and usability of a design. Designers who understand the concept need underlying everything such as a planned place, product, logo can create more intuitive and user-friendly designs. The concept also helps convey the message or story behind a design. A strong concept can establish a deeper connection with consumers or users by conveying the values and beliefs of a brand or organization. For example, the concept behind a sustainable product might be to reduce waste and promote environmental responsibility. By emphasizing this concept, designers can help consumers or users understand the importance of the product and why it matters. As a result, a well-defined concept as a guiding principle helps create more consistent, attractive and user-friendly designs. It can also help differentiate a design from its competitors and communicate the values and beliefs behind a brand or organization.

Space design is the art and science of creating physical environments that are both functionally and aesthetically successful. Whether it is a residence, an office or a public space; The design of the space plays a very important role in how people interact with it. A well-designed space can improve people's quality of life and experience, while a poorly designed space can have the opposite effect. One of the most important elements in space design is the concept. According to Sakarya and Canbolat, a concept is a guiding idea or principle that guides the space design process. The fact that the design is based on a certain main idea and that this idea is expressed together with each design element makes it possible to ensure the existence of a main idea in the design and a linguistic integrity in the space (Sakarya & Canbolat, 2021: 572). The function of the space and the theme of its design may be specific, but there must be one more component that connects all the elements of the space and creates a coherent design. The concept takes on this task and directs the space design process. It provides a framework for making decisions about the layout, organization, materials and colors of the space. A well-executed concept helps create a memorable and effective space. For example, if the concept of a restaurant is to "bring the outdoors inside", the design might include natural materials such as wood and stone, large windows and vibrant green walls. This concept makes the restaurant stand out in their minds, creating a unique and memorable experience for diners. The concept also influences how people feel in the space. In a space designed with the concept of "calmness and serenity", a feeling of relaxation can be created by using soft, matte colors and simple, clean lines. This can be particularly important in areas

such as hospitals or spas where patients or clients need to feel comfortable. Additionally, the concept can help convey the purpose of the space. A space designed with the concept of “innovation and creativity” can include open, co-working spaces with bright colors and unique furnishings. This can convey to employees and visitors that the space is designed for creative thinking and collaboration (Sanders & Stappers, 2014). However, it is important to note that the concept should not exceed the functionality of the space. The concept should serve to enhance the purpose of the space, not hinder it. For example, a “minimalism” concept can create a visually appealing space that makes users feel calm, but if it compromises the functionality of the space, this space design cannot be considered successful.

As a result, the concept is an important guiding factor in many aspects about how each component of the space will be designed by forming a framework for the designers in the design of the space. plays an important role in orientation (Figure 1). Thus, it helps to reveal a successful space design both functionally, aesthetically and contextually.

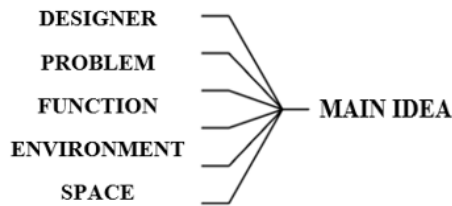


Figure 1. Components Constituting the Main Idea Concept in Design (Sakarya & Canbolat, 2021:575)

The design concept should be able to establish a relationship with the context apart from the function, purpose and aesthetics of the space. The location of the space to be designed, the function of the space and the specific theme that the function will serve, the structure and environment of the place, the climate, culture and historical context of the location are the factors related to the context that should be considered when determining the design concept (Erman & Yılmaz, 2017). The design concept, which can also be defined as the main idea of the design, is the key concepts and design decisions in which the designer expresses his ideas. These concepts help the designer design a space appropriate to the context, taking into account the architectural traditions of the region and local materials. Therefore, the harmony between the design concept and the context directly affects the success of the design (Tarboush & Gürdallı, 2022).

2. TRANSFERRING THE DESIGN CONCEPT TO THE SPACE

The design is created by considering the dimensions of the space, its form, purpose of use, lighting conditions, material selection and functional structure. Space components include elements that designers should consider while transferring the design concept to the space. Concept and space components are mutually affected elements in the design process. While the features that the space components have or are intended to have shape the design concept, the design concept also shapes them by applying them to the space components in a way that each of the space components will reflect. Therefore, instead of characterizing the process of transferring the concept to the space as the next stage from the process of determining the concept, it would be more appropriate to consider these stages as a holistic process that progresses by being influenced by each other in the design process.

2.1. Design Elements and Space Elements

An original, qualified and identified design is possible when it has a well-chosen and successfully implemented design concept. In this way, the spirit of the space and the emotion desired to be felt can be conveyed to the users in space design. The transfer of a successful space design concept to the whole space is the result of the concretization of the design criteria and an original approach. Design elements and space components are tools in embodying the design concept. While blending the space components and the design concept, the designer creates a whole with meaningful pieces such as form, color and material.

It is possible to classify the design components that bridge the transfer of the design concept to the space as follows:

- Form
- Color Selection
- Material Usage
- Lighting Design
- Acoustic Features
- Universal Design Elements
- Ergonomics
- Venue ID
- Textures and Surfaces (Gündüz & Sönmez, 2021)

In spatial design, form is one of the most important design elements and is directly related to the concept. It is one of the most powerful means of conveying the emotion and message that is intended to be given to the users with the design of the space. According to the concept and perception to be created, the form of the space and the design elements in the space is determined. The form creates this perception as a whole with other design elements such as texture, color, lighting and fittings. The form, together with the design concept, is shaped according to the function of the space, the user group and user expectations. In interior design, form can be divided into several different types in general terms. The element to be considered in choosing the dynamic, static, organic or inorganic forms of the form is that it is suitable for the concept, function and user group. For example, while the designer can provide a serene environment by choosing static forms in places where the age range of the user population is higher and designed in relaxing concepts, such as a nursing home, a stimulating concept is created by using dynamic forms in places such as kindergarten where the average age of the user group is lower and active and lively actions will take place. can create (Kaptan, 1997).

Color is a perceptual bridge between the user and the space in space design. This role of color in conveying the perception desired to be felt by the user makes it an important parameter in space design. Therefore, the choice of color is one of the issues that should be emphasized in detail in transferring the design concept to the space. With the effect of choosing the right color, the user can perform the desired action in the spaces. For example, at the entrance of a place, the user is asked to feel a sense of curiosity about the place and to move into the space; When the appropriate colors for this are applied correctly in the right parts, the user can be drawn into the space (Bozbek et al., 2022).

Another important tool of the designer in transferring the concept to the space is materials and surfaces. In the formation of the identity in the space, the properties of the materials and their relationship with other materials, the relationship with the whole design are very effective. From the stage of determining the design concept, the material and construction methods should be considered together with other factors. In the design of the space, an approximate shape is determined in the early stages of the design process, usually with the influence and pressure of other factors, and a material search is made for this shape (Erçetin & Erdemir, 2021).

Another means of transferring the concept to the space is lighting. The design concept provides a framework for lighting, and the right lighting

determines the atmosphere of the space in accordance with the purpose of the design concept. For example, while yellow light creates a warm atmosphere; blue light creates a cold atmosphere. Therefore, yellow light is preferred in restaurant design. In addition, the design concepts of the hotels are generally about creating a luxurious and relaxing perception for the guests. Therefore, the use of dim and warm colored lighting in hotels helps to create this concept. Light plays an important role in the perception and meaning of space. At the same time, the perception of colors in the space is related to lighting. As the lighting design changes, the perception of the colors in the space also changes (Kavasogullari, 2021).

2.2. Analysis of Concept Hotel Project Example within the Scope of Design Elements and Space Components: Joali Being Resort (Autoban Architecture)

Joali Being is a five-star nature resort hotel located on the scenic island of Bodufushi, away from the crowds in Raa Atoll, Maldives. It was designed by Autoban Architecture by adopting the lightness and fluidity themes, which are the identity of the island and the philosophy of the facility, as the design concept (Figure 3), (Url-1).



Figure 3. Joali Being aerial view (Url-2).

Joali Being, which aims to provide an invigorating experience, consists of various areas with different functions: AREKA, which is used as a comprehensive wellness center, AKTAR, a plant science center, FLOW, an interactive communal dining area, SAI, designed as a tea room, with water. KAASHI, a treatment and relaxation center, and MOJO, a tropical beach shelter. Along with these areas,

there are 68 villas in total, including 34 beach villas and 34 water villas, serving the accommodation of the users of the facility (Figure 4), (Url-2).



Figure 4. Aktar (Url-2) and Musical treatment room (Url-4)

A sense of lightness is felt at the center of the design identity of the project, throughout the linear and flowing architecture in the space, where the users feel that they are in a luxurious space, with nature and healthy life themes at the forefront with its design (Figure 5).



Figure 5. Areka, spa center (Url-3)

Roof eaves, surfaces and garden walls create a sculptural feel and can be folded slightly. The partitions are fluid and transparent, providing interaction with nature from every point. The design elements softly integrate with the natural environment, floating in nature, in a successful harmony like a part of nature (Figure 6).



Figure 6. Sai, tea house (Url-4)

Organic forms are generally used in the design of the reinforcements and dividing elements in the spaces in the design, and the repetitive uses of surface textures and patterns refer to the configurations of nature. Commonly encountered in nature and accepted as a sacred geometry; Hexagonal forms, symbolizing balance, harmony and spirituality, appear everywhere from roof lines to entrances, from door handles to roads. The sand grain pattern on the plaster-covered walls and the mosaics depicting the hypnotic traces of the waves in the sand refer to the characteristic features of the ocean. The texture of the surfaces, on the other hand, has rhythmic and organic characteristics, with its exquisite handcraft that carries the natural rock grooves carved by the action of the waves for centuries (Figure 7).

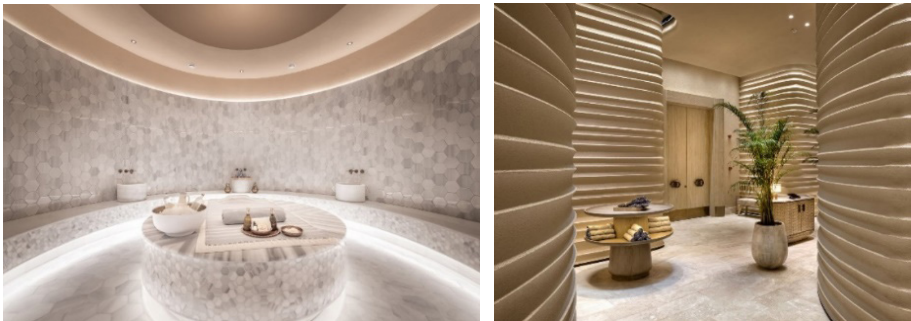


Figure 7. Kaashi, water-treatment center (Url-4)

Standing in front of a three-tiered pool and terrace, the raised structures resemble temples, with thatched roofs floating on textured columns. Eclectic

upholstery and rattan furnishings, sculptural pendant lighting, uninterrupted ocean views, and lush greenery all serve the purpose of giving the spaces a natural temple feel (Figure 8).



Figure 8. Exterior views of villas (Url-3)

The roof of the open-plan communal dining area called Flow has a undulating roof that reflects the movement of the ocean. The transition from this place to the sand is provided by steps made of shiny marble. This is a design abstraction of the descent of the cliffs towards the ocean in nature (Figure 9, 10).



Figure 9. Flow, main restaurant (Url-2)



Figure 10. Usage of colors in flow (Url-1)

In luxury guest villas, the spaces are perceived as wider and as a part of nature, with transparent or movable partitions that remove all obstacles to the outside world. Hexagonal rattan pillars and bespoke furniture designed by Autoban Architecture feature a soothing, nature-like color palette of ivory, gold, green, pink, and blue (Figure 11).



Figure 11. Interior views of villas (Url-4)

When this example, the details of which are included, is examined with the classification of design components that bridge the transfer of the design concept put forward by Gündüzlü & Sönmez (2011) to the space, it is seen that each component is designed to serve the concept (Table 1).

Table 1. The analysis of Joali Being Wellness's design components

Project: Joali Being Wellness Resort	
Concept: Weightlessness and Fluidity	
Design Components	
Form	Organic forms are used in dividing elements and structural forms, large-wavelength wavy forms on roofs, organic and hexagonal forms are used in openings, reinforcements and some wall coverings.
Color Selection	Colors of ivory, gold, green, pink and blue, which are common in nature, were used.
Material Selection	Generally, marble, stone, bamboo, wood, reed and rattan are used in the spaces.
Lighting Design	Daylight is used in the common areas and villas, and white light is used in the spa area, which integrates with the color of the marble. Lighting elements have organic forms and sustainable materials such as bamboo and rattan.
Acoustic Features	Thick fabric curtains, reed material and fabric use in seating units, which are frequently used in both villas and common spaces, contribute to acoustic absorption. When the foldable dividers are turned on, the sound coming from the ocean is controlled. The sound transitions between the villas are controlled by the use of dense greenery and fences at the borders of each other. In the project, there are places where therapy is given with music and vibration.
Universal Design Elements	The circulation areas are wide enough. The villas and access roads are at the same level and can be accessed without stairs.
Ergonomics	Stairs used in common areas have low step heights. Seating units, tables and benches are in the appropriate range of heights from the ground.
Venue Identity	Nature oriented health and retreat center
Textures and Surfaces	Natural stone and marble textures are used extensively.

3. ANALYSIS OF INTERIOR ARCHITECTURE DEPARTMENT STUDENT PROJECTS WITHIN THE SCOPE OF CONCEPT

The foundations of the concept of contemporary design were laid with the Bauhaus design school at the beginning of the twentieth century. Bauhaus

(1919-1933) has an important place in the development of design research (Bayazıt, 2004). Because the scientificization of design gained momentum again in the 1960s. Jones's (1970) "Design Methods", Broadbent's (1973) "Design in Architecture", Alexander's (1977) "Notes on the Sythnesis of Form" can be given as examples of these studies. Cross (2008) accepts that the design process consists of the stages of discovery, creation, evaluation and communication, respectively, and emphasizes that there is a cyclical structure between the stages of creation and evaluation. The foundations of the education given to manage this whole process are laid in design studios that include the learning-by-doing model, that is, in project courses. These studios form the basis of education and students are expected to solve the design integrity, develop their presentation skills and carry out the space design process that will reflect the characteristics of the subject. Design education is a multi-stage and multidisciplinary process. In today's studios, whether face-to-face or online, the time spent between the project coordinator and the student is focused on one-to-one communication and very different techniques are applied. In the project courses, given in Altınbaş University Department of Interior Architecture and Environmental Design by Assos. Prof. Dr. Elif SÖNMEZ and Res.Ass. Çisem BOZBEK, different trials are carried out to help students gain the ability to interpret and blend experiential knowledge with conceptual knowledge.

In the project courses, firstly, students are expected to analyze the environment, user group, function and space after gaining information about the project subject and function. After the process of obtaining information and analysis, the design concept they have determined and the design ideas and space setup are synthesized. Afterwards, this concept is evaluated with the design components and an integrated design is constructed. It is a guide for them at every stage of the concept project design process. It is expected that this concept will be applied in all design components during the project course and as a result, a holistic space designed in a common language will be created. In this study, Gündüzlü and Sönmez's (2021) classification of design components related to the design concept chosen by each student in the context of the project topic and function determined by selecting samples from randomly selected student projects; form, color selection, material selection, lighting, acoustics, universal design elements, ergonomics, space identity, texture and surfaces (Table 2-9).

Table 2. Student project example 1


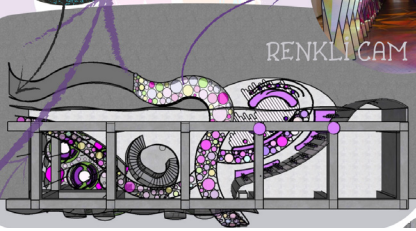
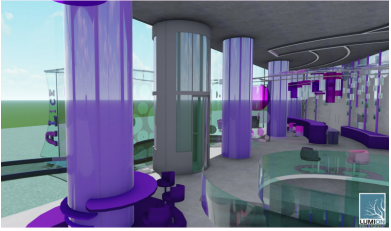
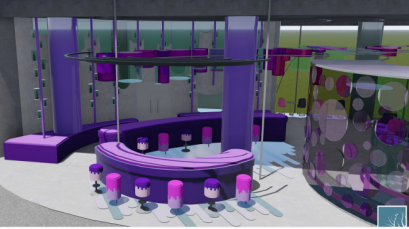
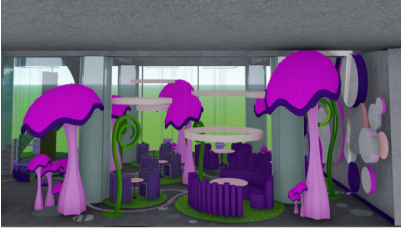
<p>Project Year - Term: 2020-2021 Spring Semester Course: Interior Architecture and Environmental Design III Project Subject: Restaurant / Alice Restaurant</p>		
<p>Concept: Imagination and Fairytale</p>		<p>Color Palette: </p>
		
		
<p>Design Components</p>		
<p>Form</p>	<p>Color Selection</p>	<p>Material</p>
<p>Organic forms, circular, oval shaped reinforcements and design elements with biomimic forms</p>	<p>Purple, pink, blue, green, gray and its shades</p>	<p>Laminated Glass, Concrete, Stone, Ceramic, Phosphorous Cement, Curved Glass</p>
<p>Lighting Design</p>	<p>Acoustic Features</p>	<p>Universal Design Elements</p>
<p>Circular lighting elements and intense white light are used.</p>	<p>There is no special design related to acoustics.</p>	<p>Not too many different levels were used on the floors and they were designed for disabled access. Transitions are facilitated by the intensive use of circular forms.</p>
<p>Ergonomics</p>	<p>Venue ID</p>	<p>Texture and Surfaces</p>
<p>Bench heights and widths of seating units comply with universal design criteria.</p>	<p>An extraordinary and stimulating space identity has been created.</p>	<p>It is designed fluid and smooth in order to reflect textures and superficial fairy tales.</p>

Table 3. Student project example 2




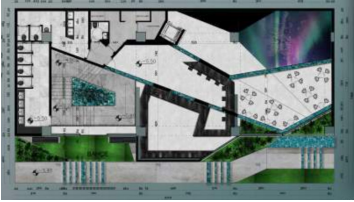

Project Year - Term: 2020-2021 Spring Semester		
Course: Interior Architecture and Environmental Design III		
Project Subject: Restaurant / The Arctic Scandinavian Restaurant		
Concept: Northern Lights and Glaciers		Color Palette: 
		
		
Design Components		
Angled linear forms are used.	Cold colors with gray, white, blue and tones are used.	Stone, ceramic, marble, epoxy and aluminum have been used. Water elements are also used.
Angled linear lighting elements following the form and white light were used.	There is no special design related to acoustics.	Flow and circulation in the space are facilitated by linear and angular forms.
The design dimensions comply with the universal design criteria, the height of the stair steps is low.	A relaxing, relaxing and ocean-reminiscent space identity has been created.	While the wall surfaces are rough to resemble glacial surfaces, smooth surfaces are used on the ground to refer to the surface of the ocean.

Table 4. Student project example 3



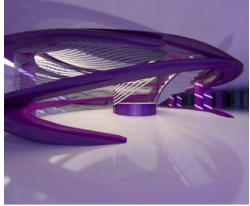


<p>Project Year - Term: 2020-2021 Spring Semester Course: Interior Architecture and Environmental Design V Project Subject: Concept Hotel / The Diamon Hotel</p>		
<p>Concept: Lotus</p>		<p>Color Palette: </p>
		
		
Design Components		
Form	Color Selection	Material
Organic forms were used.	Blue and purple hues are used.	Materials such as glossy ceramics, glass, epoxy were mainly used.
Lighting Design	Acoustic Features	Universal Design Elements
White led lighting elements and spots are used.	There is no special design related to acoustics.	The number and dimensions of furniture were kept low, and the area of the openings was increased.
Ergonomics	Venue ID	Texture and Surfaces
Space dimensions are wide, furniture and bench heights are among the appropriate dimensions.	A meditative, relaxing and comfortable space has been created.	Glossy and smooth surfaces are created.

Table 5. Student project example 4






<p>Project Year - Term: 2020-2021 Spring Semester Course: Interior Architecture and Environmental Design V Project Subject: Concept Hotel / Youtube Park</p>		
<p>Concept: Youtube</p>		<p>Color Palette: </p>
		
		
<p>Design Components</p>		
<p>Form</p>	<p>Color Selection</p>	<p>Material</p>
<p>Organic forms and soft angular forms are used.</p>	<p>Red, gray, white, black and its tones are predominantly used.</p>	<p>Gross concrete, ceramics, epoxy and aluminum have been used.</p>
<p>Lighting Design</p>	<p>Acoustic Features</p>	<p>Universal Design Elements</p>
<p>White LED lighting is mainly used.</p>	<p>Wide carpet elements used in common areas prevent reverberation.</p>	<p>Level differences are kept to a minimum. Organic shaped dividers and reinforcements have increased the maneuvering areas.</p>
<p>Ergonomics</p>	<p>Venue ID</p>	<p>Textures and Surfaces</p>
<p>The dimensions of the fittings, the dimensions of the furniture and the room widths are in accordance with the universal ergonomics measures.</p>	<p>These features of the Youtube company, which is based on institutionalism and visuality, formed the identity of the place.</p>	<p>Texture and surfaces are smooth. Wallpapers are used in the rooms.</p>

Table 6. Student project example 5



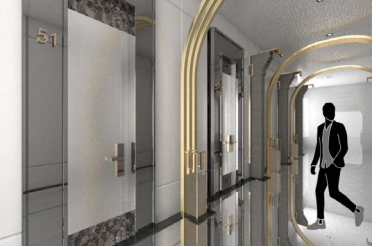


<p>Project Year - Term: 2020-2021 Spring Semester Course: Interior Architecture and Environmental Design V Project Subject: Concept Hotel / Beymen Fashion Hotel</p>		
<p>Concept: Luxury and Elegance</p>		<p>Color Palette: </p>
		
		
<p>Design Components</p>		
<p>Form</p>	<p>Color Selection</p>	<p>Material</p>
<p>While semicircular and arched forms are predominantly used in furniture and fittings, there are also angular forms.</p>	<p>Gold, white, gray and its tones are used, with a small amount of red in certain places.</p>	<p>Materials such as steel, aluminum, marble, ceramics were mainly used.</p>
<p>Lighting Design</p>	<p>Acoustic Features</p>	<p>Universal Design Elements</p>
<p>Natural yellow light and oval-shaped lighting elements are used.</p>	<p>There is no special design related to acoustics.</p>	<p>With the use of arched dividers, the transitions have been widened. The maneuvering areas are wide enough.</p>
<p>Ergonomics</p>	<p>Venue ID</p>	<p>Texture and Surfaces</p>
<p>Organic shaped furniture is suitable for making users more comfortable. Furniture and bench heights are in appropriate sizes.</p>	<p>The luxurious and elegant design identity of Beymen is reflected in the venue.</p>	<p>Veined textures and smooth surfaces are used extensively.</p>

Table 7. Student project example 6






<p>Project Year - Term: 2022-2023 Fall Semester Course: Interior Architecture and Environmental Design IV Project Subject: Library / Kaizen Library</p>		
<p>Concept: Kaizen Philosophy</p>		<p>Color Palette: </p>
		
		
<p>Design Components</p>		
<p>Form</p>	<p>Color Selection</p>	<p>Material</p>
<p>Diagonal forms are used.</p>	<p>Beige, white, brown and tones are used.</p>	<p>Solid wood and terazio marble were used.</p>
<p>Lighting Design</p>	<p>Acoustic Features</p>	<p>Universal Design Elements</p>
<p>Led, pendant, liner lighting are used.</p>	<p>Volume control is provided with dividers in the reading areas.</p>	<p>Spatial dimensions were arranged in accordance with the needs and transportation between floors was supported by an elevator.</p>
<p>Ergonomics</p>	<p>Venue ID</p>	<p>Texture and Surfaces</p>
<p>The circulation and maneuvering areas are left wide, and the furniture is ergonomically designed for sitting and reading for a long time.</p>	<p>An identity that is minimal, natural and focused, encouraging development has been created.</p>	<p>The natural rough texture of wood and marble dominates the space surfaces.</p>

Table 8. Student project example 7


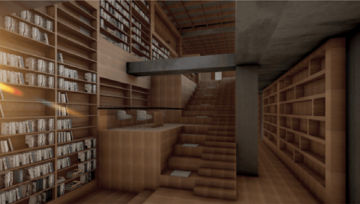
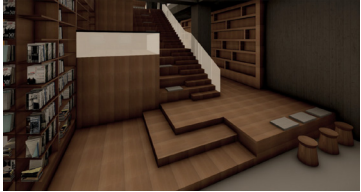
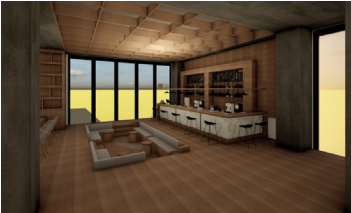

<p>Project Year - Term: 2022-2023 Fall Semester Course: Interior Architecture and Environmental Design IV Project Subject: Library / The Space Library</p>		
<p>Concept: Space</p>		<p>Color Palette: </p>
		
		
<p>Design Components</p>		
<p>Form</p>	<p>Color Selection</p>	<p>Material</p>
<p>Angular forms are used. In order to reflect the concept of space, level differences have been created in the space.</p>	<p>White, beige and brown tones were predominantly used.</p>	<p>Wood, marble and ceramics were used.</p>
<p>Lighting Design</p>	<p>Acoustic Features</p>	<p>Universal Design Elements</p>
<p>Linear, led and spot lighting elements with natural yellow light are used.</p>	<p>The indented forms used on the ceiling are functional in terms of sound insulation and prevention of reflection.</p>	<p>Level differences are a disadvantage in terms of disabled access. Maneuvering areas are sufficient and the dimensions of the furniture such as bookshelves and furniture are appropriate.</p>
<p>Ergonomics</p>	<p>Venue ID</p>	<p>Texture and Surfaces</p>
<p>Creating level differences facilitates access to the upper shelves of the bookcases. The cushions used on the steps are functional for the comfort of the user.</p>	<p>A natural and authentic library identity has been created with the materials used.</p>	<p>The wooden surfaces are of natural texture, the remaining marble surfaces and the floor are smooth.</p>

Table 9. Student project example 8

Project Year - Term: 2022-2023 Fall Semester		
Course: Interior Architecture and Environmental Design IV		
Project Subject: Library / The Nordic Library		
Concept: Nordic		Color Palette: 
		
		
Design Components		
Form	Color Selection	Material
Soft angular oval forms and circular reinforcements are used.	White and beige tones are used.	Solid wood, wood veneer and matte ceramics are used.
Lighting Design	Acoustic Features	Universal Design Elements
Natural yellow light and white light are used together. A separate lighting element is placed on each work desk.	Sound insulation is supported by using carpet tiles in quiet working areas.	In the space where there are no level differences, the areas are separated by ground colors. Maneuvering areas and circulation areas comply with universal standards.
Ergonomics	Venue ID	Texture and Surfaces
The dimensions suitable for the working areas of the users have been taken into account. Furniture is large and organic form.	A minimal identity was created with the Scandinavian design concept.	There are surfaces with the natural texture of solid wood and veneered wood, and rough surfaces created by matte ceramic.

4. CONCLUSION

In space design, it is aimed to create physical environments that meet the needs such as functionality, aesthetics and sustainability and appeal to the user group. The design concept is a framework that guides the designer on this path and ensures that a linguistic unity is created in the space by basing the design on a certain main idea, thus enabling the design to be successful. It is possible to transfer the design concept, which is shaped and determined by the needs of the designer, design problem, function, user and space characteristics, to the space and to reflect it to the whole space, by handling all design components in accordance with the concept. Design components can be generally classified as forms in the space, color selection, material selection, lighting design, acoustic elements, universal design elements, ergonomics, space identity, texture and surfaces. A successful space design is ensured by the holistic design of each of these components in a common language.

It is revealed that the student, who is the most important dynamic of the studio environment, is in the center as a thinker and learner, and how he will follow while embodying his thoughts. Rather than presenting an educational model, this study focused on how the process was managed with the design components, with the concept and accompanying conceptual study after research and analysis. In the face of a problem, the designer first collects and analyzes the data on the subject and internalizes it. Then, it synthesizes this data with its experience and knowledge, externalizes it within a concept and now objectifies the solution. In the design of each of the design components in the space, this concept creates a decisive and guiding framework for them in the design process. Within the scope of the design ideas created with this concept, form, color selection, material selection, lighting design, acoustic design, handling of universal design elements, ergonomics, space identity, selection and design of textures and surfaces, and application of this concept in design, thus creating a common language, holistic teaches how a space design is externalized and embodied.

As a result, it can be said that the creative thinking education in this study design area positively affects the creative thinking skills of the students and each student manages this process differently.

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CHAPTER VIII

OBJECTIVE DESIGN PROCESS EVALUATION AT THE JURY STAGE IN INTERIOR ARCHITECTURE EDUCATION

Ahmet Fatih KARAKAYA¹ & Cansu ADA²

¹*Asst. Prof. Dr. - TOBB University of Economics&Technology*
e-mail: afkarakaya@etu.edu.tr
ORCID: 0000-0002-4656-3074

²*Mdes - TOBB University of Economics&Technology*
e-mail: cansuada@etu.edu.tr
ORCID: 0000-0001-6776-7570

1. Industrial Revolution

Throughout history, societies have experienced definite functionality, growth, evolution, and revolution. The revolution which means sudden, drastic change has happened throughout history when new technology and inventive perspectives on the world cause a significant shift in social and economic systems. There have been four significant industrial revolutions up to the present day. *The First Industrial Revolution* (Industry 1.0), commonly known as the Age of Steam or Steam Era, spanned from 1760 until 1840. Steam Era is named after James Watt invents the steam engine, which is often recognized as the beginning of the period. With the discovery of the first water-powered mechanical looms, the use of steam power progressively increased, and new tools and equipment for machines were developed. The First Industrial Revolution might well be defined as the shift from human or animal power-based manufacturing to machine-based production. This shift featured the use of coal as the primary energy source, with railways serving as the primary mode of transportation. During this time, the weaving business expanded, and metallurgy developed. With the expansion in steel production, the shipping

and railway sectors grew. *The Second Industrial Revolution* (Industry 2.0), often known as the Technological Revolution, popularized the use of electrical energy with the transition to mass production in the late nineteenth and into the early twentieth century. Around this time, the first electrically powered production line was installed by Henry Ford in 1913. This technique has been replicated in various areas, resulting in increased production effectiveness. Significant technologies such as the telegraph and the telephone were invented around this time. Among the important developments of the Technological Revolution are the development of railways, the facilitation of transportation, and the advancement of communication with the technological transformation initiated by steel production. Depending on these developments, trade gained momentum, the use of oil became widespread, and the automotive sector developed accordingly with the introduction of the internal combustion engine. *The Third Industrial Revolution* (Industry 3.0) often known as the Computer or Digital Revolution evolved in the 1960s. The utilization of electricity is seen as the start of the Third Industrial Revolution. During this period, a high level of production automation was achieved by using electronic devices and information technologies. Electronic and computer technologies have enabled advanced automation in mass manufacturing. Telephones, TVs, and satellite antennas became widespread. Heavy industry and information technology advanced in the mid-twentieth century, and new economic terminology such as information society developed. This era saw the development of technologies such as computer technology, telecommunications, lasers, nuclear, genetic, fiber optics, chip technology, atomic energy, manufacture of micro-electronic, and the internet. *The Fourth Industrial Revolution* (Industry 4.0) first emerged on the agenda at the Hannover Fair in 2011 as a technology effort launched with the German government's assistance to transition to a computer and internet-supported manufacturing paradigm. The project's goal is to boost resource efficiency and create an integration in which consumers may participate in the manufacturing process. According to Klaus Schwab (2016), the Fourth Industrial Revolution happened for three key reasons and is not a continuation of the Third Industrial Revolution: velocity, breadth and depth, and systems impact. Industry 4.0 is defined as machines' ability to control production processes without human intervention, with a focus on machine power rather than human power. The system is fully based on internet infrastructure, with everything connected to create a network. These smart networks connect not only data and equipment but also everything involved in the process, including smart

items and people. The internet of things (IoT), the industrial internet of things (IIoT), cyber-physical systems (CPS), smart manufacturing, smart factories, cloud computing, cognitive computing, artificial intelligence, 3D printing, and Blockchain are all part of Industry 4.0. The ability of machines to be coordinated as a result of breakthroughs in computer and internet technologies has resulted in the new industrial revolution. Because of this new system, known as the “Internet of Things”, manufacturing has evolved to an expert stage, factories are self-managing, and advanced technology is being implemented. Industry 4.0 can be described as a synthesis of modern production technologies that enable businesses to meet their targets more quickly. These technologies will open new possibilities in all aspects of life and affect society and the economy in a variety of ways.

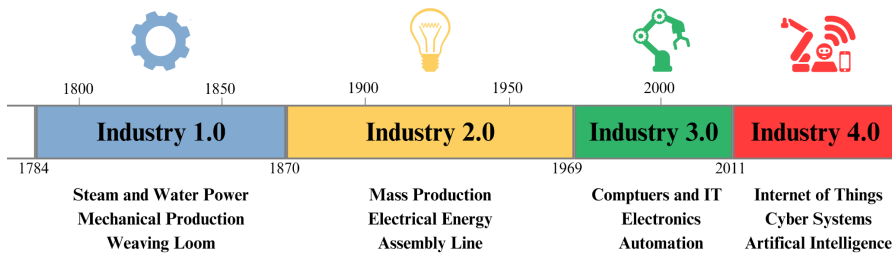


Figure 1. Evolution of Industrial Revolutions

1.1. Industrial Revolution's Impact on Social Life

While industrial revolutions progressed from the mechanization of production in the first revolution to mass production in the second revolution, and finally automation of production in the third revolution, most people's living conditions throughout the world increased dramatically. Emerging technologies and broad-based innovation are spreading considerably quicker and more extensively in the Fourth Industrial Revolution than in past three ones. For instance, the internet took less than a decade to spread over the world. According to Schwab (2016), the second industrial revolution has yet to be experienced by 17% of the world's population who do not have access to electricity, and the third industrial revolution has yet to be experienced by half of the world's population who live in developing countries and do not have access to the internet. The various effects of the fourth industrial revolution on the economy, business, geopolitics, and international security, regions, and cities demonstrate that the next technology revolution is expected to have a wide range of societal effects.

The fourth industrial revolution involves much more than simply technological advancement. Without a doubt, the newest industrial revolution's ability to advance technology has the potential to create even bigger advances in every part of our life changes than the first three industrial revolutions combined. The fourth industrial revolution has allowed for the creation of new products and services that increase the efficiency of consumers' lives at a low cost. The Internet, smartphones, and dozens of applications make consumers' lives simpler and more productive thanks to their remoteness. Firstly, the fourth revolution is built on the Internet, which allows for fast access to information as well as a simple exchange of products and services. Secondly, it is built on green energies, which reduce the environmental effect of energy. Furthermore, it is motivated by revolutionary innovation to positively impact the most important industries and sectors, such as health, business, and education.

1.2. Industrial Revolution's Impact on Education Area

Industrial revolutions are considered a period in which technological developments accelerate. During this period, mechanical and electrical devices were developed, work processes were automated and production efficiency was increased. A similar effect was observed in the field of education. During the industrial revolutions, the use of technological developments in education increased. After the Industrial Revolution, education systems began to standardize training for the workforce. Before the industrial revolution, education was generally available to a limited number of people. However, the industrial revolutions revealed that many people with verbal and numerical skills should be trained to meet the workforce's needs. In response, education became standardized to meet social needs and the use of technological developments increased. Therefore, after the industrial revolutions, the education system was modernized and contributed to social development by reaching more people.

In addition, during the industrial revolutions, with the development of science and technology, new educational tools were also developed. For example, the production of books with printing machines accelerated and they reached more people. In this period, new media tools such as radio and television emerged, and these tools began to be used in the field of education. Finally, the use of computer and internet technology, as it is today, has increased in the field of education after the industrial revolutions. Computers provided the opportunity to present students with interactive and customized educational materials. In addition, students had the opportunity to access distance education

and online resources. Blockchain technology helps to make education more efficient by ensuring the security and integrity of data in the field of education. The use of this technology increases the validity of the documents received by students and allows them to follow their learning processes more effectively.

2. Blockchain

A block is a unit that stores records of legitimate transactions that have been coded. A chain is formed by connecting blocks by putting them together. Blockchain is a system in which each block includes the encrypted function of the previous block. The most basic definition of Blockchain is a decentralized, shared, immutable, distributed database that contains blocks that are securely linked together via cryptographic hashes and contain the encrypted function of previous blocks. Each timestamp includes the previous timestamp in its hash, forming a chain, with each additional timestamp reinforcing the ones behind it. (Nakamoto, 2008:2) Blockchain is a decentralized, secure, transparent, and distributed database consisting of information-carrying chains that record every transaction. The term database refers to a system that stores analog, magnetic, and digital records. Blockchain is well-known for its safe network, tamper-resistant nodes, smart contracts, and efficiency. This technology, which uses a decentralized peer-to-peer network, eliminates the need for third-party intermediaries such as banks. Because transactions are peer-to-peer, information is stored in several locations throughout the system in a transparent and immutable manner. It differs from traditional processes and services in that it is decentralized, meaning it is not managed by a single entity. Individuals storing data in a distributed ledger do not need to know or trust one another. This system is characterized as a consensus structure since all network users agree on the rules that are initially developed based on the system's requirements. When a data chain is removed, updated, or corrupted, the chain is broken. System participants fix the broken link in the distributed ledger network. The mechanism then restarts from the point where the chain was broken.

Although it first gained popularity as a means of digital payment with cryptocurrencies such as Bitcoin and Ethereum, it has now extended to many other aspects of life. Blockchain technology has been applied in a variety of industries including finance, education, banking, supply-chain management, governance, healthcare, military, and business. There are still some issues with scalability, smart contract security, and user adoption, but Blockchain technology is still in its early stages and evolving daily. It's been said that Blockchain will

do for transactions what the Internet did for information. While it is believed that the growing Blockchain technology will help to discover solutions to today's industrial restrictions and issues. Blockchain technology is projected to be used to construct cyber systems, smart goods, the internet of things, smart agriculture, energy commerce, smart production, and smart cities. According to Tapscott and Tapscott (2017), Blockchain technology will control 10% of the world's economy by 2025.

2.1. History of Blockchain

Blockchain technology, which is extensively used today as the backbone of the cryptocurrencies Bitcoin and Ethereum, has a far older history. Despite its present popularity, cryptographers Stuart Haber and W. Scott Stornetta advocated the use of Blockchain technology in 1991 research. The post goes into depth on how to use documents with crypto signatures and timestamps. Later, Harold Thomas Finney described a technique known as reusable proof of work (RPOW) in 2004. The system introduced the token, which can be exchanged from person to person, which is where cryptocurrencies originated. Satoshi Nakamoto's paper called "Bitcoin: A Peer-to-Peer Electronic Cash System" reintroduced the idea of Blockchain in 2008. The article explains how the cryptocurrency called Bitcoin interacts with the data infrastructure known as Blockchain. The article proposes a decentralized system without the use of a third party based on previous research. The name Blockchain is not used in the article, but the suggested system is a working Blockchain system.

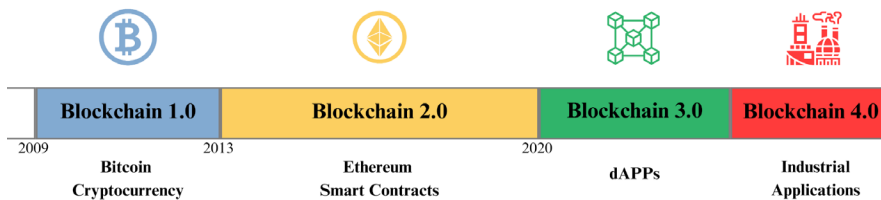


Figure 2. Evolution of Blockchain Technology

Blockchain Version 1.0 (2009 and later) includes applications for digital money transfer and financial payment. Blockchain 1.0 was the first widely utilized cryptocurrency for payment services such as foreign exchange, small-value transactions, and one-to-one cash payments. At this stage, Bitcoin was the first cryptocurrency, and cryptocurrencies have been at the forefront.

Blockchain Version 2.0 (2013 and later) the Ethereum operating system has been used to create smart contracts as an innovation. Smart contracts are at

the forefront of several complicated transactions at this point, including regular banking transactions, bonds, shares, bonds, loans, bonds, futures, and contracts.

Blockchain Version 3.0 (2020 and beyond) saw the application of Blockchain technology in industries other than digital money, contracts, and financial applications arise. Decentralized apps, or “dApps,” are digital programs that run on a Blockchain network of computers rather than the single computer, and were the most significant invention during this period. At this time, Blockchain technology has permeated all aspects of life, beyond the economy and financial sectors. Blockchain 3.0 is concerned with the regulation and governance of Blockchain applications in government, health care, research and technology, education, communication, management, cyber security, culture, art, and audit.

Blockchain Version 4.0 aims to broaden the application field by combining artificial intelligence algorithms and Blockchain technology in a hybrid form. Blockchain technology will most likely be adopted into large-scale industries. It is predicted that the evolving Blockchain technology would answer today’s industrial restrictions and problems. It is projected that the use of safe and decentralized Blockchain in the establishment and growth of industrial businesses will narrow and facilitate the gap in business life. Blockchain is expected to support cyber systems, smart goods, the internet of things, agribusiness, energy trade, smart manufacturing, and smart cities by merging artificial intelligence and distributed ledger technology. Blockchain aims to deliver data privacy and security with new Web 3.0 applications. (Srivastava, 2018, Alabdulwahhab, 2018)

2.2. Features of Blockchain

Hash is an algorithm that is also known as fingerprinting. A hash function is a function that converts (maps) data of any length (whether a single letter or Atatürk’s Nutuk) into data of a fixed length. (Güven & Şahinöz, 2018). The same inputs get the same hash value every time. Even little changes in the inputs cause the hash value to alter. The most significant aspect of this system is that it is one-sided. A hash value is incapable of obtaining data inputs. In the Blockchain system, the SHA-256 (Secure Hash Algorithm) hash function type is commonly utilized. The inputs are used to produce a hash function with a fixed length of 256 bits. Every modification to the inputs entirely alters its value. Each produced block includes the hash function of the previous block. The Genesis Block is the only block in the Blockchain that does not display the information from the preceding block. Additional blocks are added to the

chain by using the information from the first block. To modify any information in any block, you must return to the beginning and interfere, which is not feasible. The blocks in which the data is recorded form a Blockchain system that is dependent on each other, and any modification will affect all blocks. Furthermore, because the transactions are dependent on the consensus method, it is not feasible to make modifications or modify the data in any manner. As a result, the Blockchain system is dependable. The Blockchain consists of four main different types “Open, Private, Hybrid, and Consortium Blockchain” according to the permission mechanism.

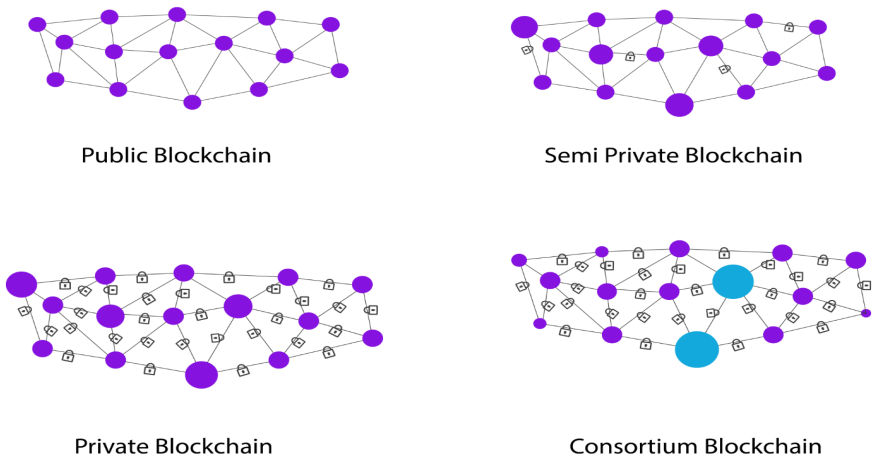


Figure 3. *Type of Blockchain Network*, B. Hill, S. Chopra, P. Valencourt, N. Prusty (Blockchain Developer’s Guide, 2018, p.18)

Open Blockchain, also known as Public or Permissionless, is a system where anyone can join the Blockchain network without permission. This system is regarded as a Blockchain system that is entirely autonomous and does not require a central authority. Anybody may join an open Blockchain network, send and receive transactions, building blocks, and validate blocks. It is a decentralized system that employs smart contracts and distributed ledger technology. Public institutions can use the open Blockchain system for transparency, planning, and accountability. The most well-known systems that use the open Blockchain network are Bitcoin, Ethereum, Litecoin, and Monero.

Private Blockchain, also known as completely authorized or permitted, is a system where only authorized users can join the network. In contrast to an open Blockchain, a central authority establishes the rules and is in charge of the system’s installation, administration, and upgrading. Only invited authorized

users can participate in the system. As a result, it is smaller, more restricted, and safer than open Blockchain. The authority can control who has access to view, alter, and add data. The private Blockchain system offers great privacy, security, and performance, but it is transitioning from an egalitarian to a regulated system. The system is chosen by banking, auditing firms, business sectors, and government organizations that wish to keep their data secure and within predetermined borders. Private Blockchain is exemplified by Hyperledger Fabric and Ripple.

Hybrid Blockchain is a system that combines public and private Blockchain capabilities. Some information in the system may be wholly private, while others may be entirely public. The hybrid Blockchain's greatest favorable characteristic is its hybrid nature; the system cannot be hacked unless 51% of the users take control of the network. It provides inter-institutional transaction solutions to the healthcare industry, government, real estate, and finance organizations. While property firms operate privately, they can share adverts with their clients openly. The Ripple network, XRP, and IBM Food Trust are examples of Hybrid Blockchain, which were created to boost efficiency throughout the whole food supply chain.

Consortium Blockchain also known as federal Blockchain is a system that runs under the guidance of a group and has many of the benefits of a private Blockchain, such as privacy, efficiency, scalability, and performance. Yet, it is managed by a group of individuals who have their communication channels and confidential data that only they have access to. At first, an authority is assigned to handle the setup and procedure, and this authority is in charge of initiating, transmitting, and receiving transactions. The data on Consortium Blockchain can be publicly or privately accessible only to authorized individuals.

2.3. Blockchain use cases

Blockchain technology is a new and emerging technology that may be viewed in a variety of media, including television and radio broadcasts, as well as academic articles. It is a technology that was originally designed to regulate the use of Bitcoin, but it has grown in popularity over time and is currently seen as a tool that may be utilized in a variety of decentralized applications across industries. Apart from the cryptocurrency and financial activities that come to mind when thinking of Blockchain, the system includes improvements that will affect the social and public realms. The most common application of Blockchain technology today is financial transaction records. Despite this, Blockchain

technology has a wide range of applications, including property ownership, government bureaucracy, supply chain management, telecommunications, personal information (health, birth, and marriage, etc.), the internet of things, and voting systems. Blockchain technology is projected to be the “new internet” because of the diverse variety of applications that are already in use and will develop in the future. There are several advantages to utilizing this technology, including the reduction of errors and the provision of a trustworthy and decentralized contract ecosystem. Blockchain technology has begun to be used in the field of education today, assisting education in becoming more efficient. Blockchain technology would benefit interior design education processes in terms of privacy, efficiency, and design copyrights.

3. Interior Design Education

“As a process and product, a design includes everything that has been deliberately created by people.” (Davis, 1987:1) Design education is founded on creativity, one of the most difficult ideas to grasp. As with ideas, drawings, and products, design challenges may have an endless number of correct answers. Versatile talents should be employed in tandem to achieve these results. The major elements of design programs are studio courses in which students apply all their design knowledge and abilities to solve design problems. The “studio” is the primary learning environment for the design education process. In contrast, the classroom can be considered a traditional educational environment in terms of the types of problems it deals with, the teaching techniques used, and the style of communication required. The design process produces a wide range of outcomes depending on the discipline. These can be papers, layouts, illustrations, presentations, storyboards, technical drawings, artistic drawings, process files, product drawings, videos, photos, models, and mock-ups. In design education, design juries are used to evaluate students.

The accurate reason for the original connection between design juries and courtroom juries is unknown. According to Anthony (1991), the jury system in design education may be dated directly to the nineteenth-century Ecole des Beaux Arts (School of Fine Arts) in Paris, and the Bauhaus impacted the notion of the design studio. The juries evaluated proposals that were primarily developed for various contests using this new methodology. The grading method was based on passing, failing, or “HC” Hors de Concours, (which meant “out of competition” and meant the project had to be redone). According to Anthony (1991) and Schank and Belman (1999), in the following years, studio instruction

and consequently juries as a mode of evaluation gained major importance in design education and the “learning by doing” approach replaced lecture-based teaching.

“It is not possible to determine the success of a student by traditional approaches called paper and pencil tests or by designs produced in two- or three-dimensional creative products based on complex skills. This situation makes the evaluation of design education be a subject of performance evaluation which is called as “alternative measurement method” in evaluation of complex skills.” (Nitko, 2004:236)

In design juries, students have to condense weeks of work into a few minutes of presentations. Design juries are most comparable to the processes used to judge work in the fine arts when compared to other evaluation techniques. A performance review using an evaluation criterion that encompasses the student’s product quality, product process, theme conformity, aesthetics based on technical aspects, and novelty should be conducted. Each design discipline should establish its performance standards.

Interior architecture design education can follow these standards:

- **Functionality:** Interior design education focuses on the functional purposes of space. The design of the interiors is configured to meet the needs and requirements of the users. Therefore, interior designers pay attention to spatial functionality and user needs as well as aesthetic concerns.

- **Creativity:** Interior design education promotes innovative and creative design approaches. Interior design is also important to be visually appealing and aesthetically impressive. As a result, interior design students employ design elements such as various materials, colors, textures, and light to handle spatial design in novel ways.

- **Communication:** Interior design education requires strong communication skills to present and explain design ideas. Interior architecture students may also have to interact with other design disciplines so they can share their design ideas with other design professionals or clients.

- **Collaboration:** Interior design education emphasizes the necessity of collaborating with other design disciplines. The design of interiors is tightly integrated with other disciplines such as architecture, engineering, graphic design, and industrial design. Therefore, interior design students develop their teamwork and collaboration skills by interacting with other design professionals.

- Human-orientated: Interior architecture education adopts a human-centered approach. The design of interiors pays attention to factors such as human behavior, comfort, and health. Therefore, interior architecture students combine knowledge and skills from different disciplines to design spaces to improve people's quality of life.

4. Blockchain on Education

Recently, numerous universities have built education systems that are consistent with the “Industry 4.0” paradigm, allowing graduate students to begin their professional roles more informed, capable, and helpful. Coding, financial literacy, electronic design, STEM, and Blockchain courses are just a few of the education programs offered as part of the Industry 4.0 paradigm, which fosters variation in curriculum and educational procedures. Some educational institutions are already adopting Blockchain technology for the creation, verification, and storage of e-transcripts, certificates, and digital degrees. Its application in higher education has been recommended to assist with recordkeeping, assuring data validity and security, decreasing transaction costs associated with data management, and offering a student-centric approach.

Because of its design, Blockchain stands in the way of fake certificates and academic papers, allowing users to retain and share their academic records in a secure, permanent, and transparent way. As a result, the system removes the need for third parties to validate papers, such as the student affairs department. The data owner can distribute their papers without permission or approval, which simplifies administrative processes and reduces bureaucracy.

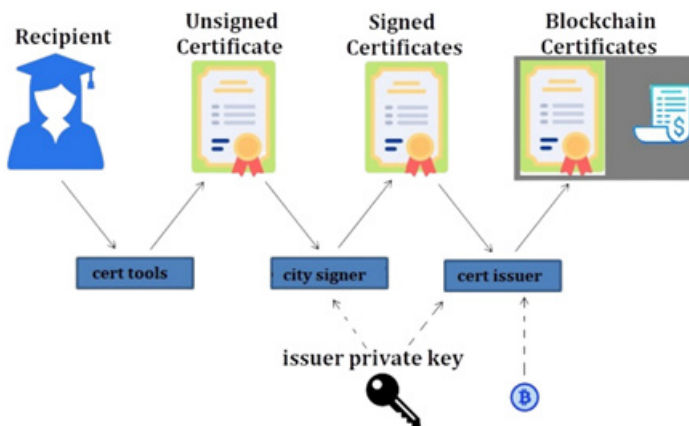


Figure 4. Role of Blockchain in education, Source:

<https://blog.athenagt.com/Blockchain-in-education-and-5-use-cases-to-observe/>

Moreover, Blockchain-based systems can provide less expensive cloud storage than traditional providers, and they may be utilized to check credentials and identity, minimizing exploitation from fake identity. The system cannot fail due to its distributed structure, saved data cannot be modified, and only authorized users have access to data. Data is kept safe by establishing a database with encryption and a two-level authentication system. Because of its ready-made infrastructure, Blockchain is a more beneficial solution than establishing a system from scratch. This technology will make it possible to transfer certificates easily, and securely among national and international educational institutions. Since it's able to accelerate career job applications and transcript requests while securely preserving sensitive information, it has the potential to revolutionize the education industry. IBM and Sony Global Education (2017) have agreed to use Blockchain to store and interchange student information and credits.

5. Blockchain on Jury Process

Blockchain has been applied in various sectors of education, but its maximum capabilities remain untapped. More studies should be conducted to discover more ways Blockchain may be applied in many fields of education. Since its current use is not considered adequate, Blockchain technology is recommended for application throughout the judging procedures, which are the most important and hardest components of design education. Design studio juries are one of the most unequal and difficult components of design education. For the design process to be successful, students and instructors must communicate effectively.

A committee of instructors and jurors oversees the jury procedure. Due to the Blockchain system's structure, jurors may have private communication lines and private data that only they have access to (Figure 5). Students and other attendees may interact with the jury process but may not interfere with the jury outcomes. Students are expected to submit jury presentations to the chosen Blockchain data storage so that everyone in the group can observe the design process. Among the jury materials were papers, layouts, presentations, articles, drawings, illustrations, lecture notes, inter-student documents, videos, images, models, and so on. Sessions between students and jurors can be filmed and uploaded to Blockchain to ensure that ideas created during jury critique sessions did not be lost during the design phase. Everyone in the Blockchain group can see the date, owner, and timestamp of the data, which couldn't be changed or erased. Because the content is inaccessible to others, the group's members can

simply confirm its veracity. As a consequence, Blockchain delivers a digital archive solution that is less costly, faster, safer, and more efficient than cloud services.

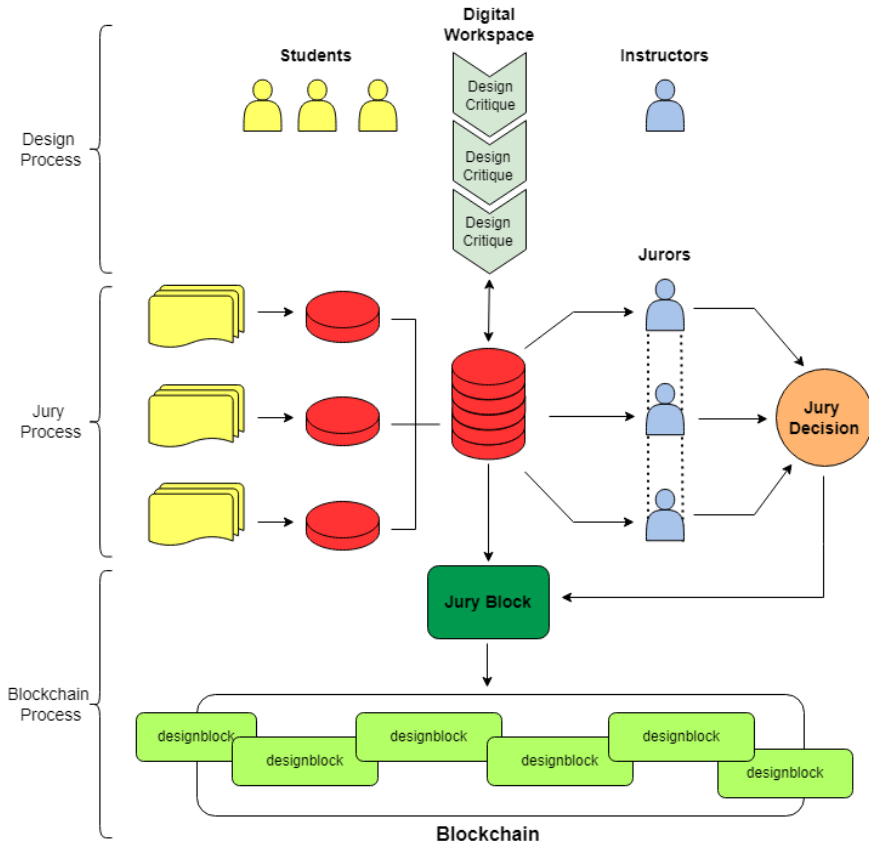


Figure 5. Evolution of Design Process in Blockchain

6. Conclusion

The first aim of this research is to look into the effects of different Blockchain technology characteristics on the judging procedure for interior design studios. The second aim is to provide students with a broad range of Blockchain knowledge and skills that adapt students to future technological challenges. The third aim is to create a diverse curriculum and teaching procedures while also making the design education process equitable for all students by utilizing emerging technologies, especially the Blockchain.

Our proposed design jury model demonstrates an objective evaluation of the design process on Blockchain. In terms of student traceability, every

document and critique session could be recorded and encrypted on a network that is accessible to any design student or instructor. Every 2D drawing, 3D model and visual created by the student and design instructor will be encrypted and uploaded to the database before the jury process. If there is a juror who has not followed the design process, the evaluated student's development and design process will be able to be followed.

The use of Blockchain technology in the interior design education jury process for jury members can ensure that the design and methodology are easier to grasp and that grading is fairer. After the design studio classes, students can be encouraged to share their jury presentations as a portfolio with others outside the group. As a result, it is proposed that Blockchain technology can be used in the interior design business sphere. Further studies, involving collaboration between the educational and IT sectors, are required in the future to unearth new potential uses for Blockchain technology in the design education sphere.

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CHAPTER IX

EVALUATION OF THE IMPORTANCE OF FURNITURE DESIGN COURSE IN INTERIOR ARCHITECTURE EDUCATION

Beyza TEMUR¹ & Funda KURAK AÇICI²

*¹Interior Architect - Karadeniz Technical University
e-mail: beyzaatemurr@gmail.com
ORCID 1: 0000-0003-0030-9465*

*²Assoc. Prof. Dr. - Karadeniz Technical University
e-mail: fundaacici@gmail.com
ORCID 2: 0000-0003-2592-2266*

1. Introduction

Education and teaching have been a part of our lives since the beginning of human existence. Education is a social process that includes activities in selected and supervised environments and academic units that help people develop social skills (Ertürk, 1984; Düzgün, 2004, p. 19). Education is a multifaceted process that encompasses the entire life of human beings and ensures their upbringing, acculturation, socialization, adaptation to society, and behavior improvement (Dirik, 2015, p. 2). In contrast to the general and comprehensive education structure, teaching is defined as specific behavioral changes in a more limited area within the framework of plans and the concepts of time and space (Dirik, 2015, p. 5). Individuals acquire knowledge and skills throughout their lives. The world is developing and changing rapidly. Therefore, countries need individuals who acquire knowledge and skills, question, research, and produce. In a rapidly developing world, knowledge and skills are increasingly shaped by the needs of individuals. Professionals elaborate expectations that develop along with needs (Bakır & Sungur, 2010, p. 178). The development of occupations supports social change. In the information

age, economic, social, and technological needs require specialization (Bakır & Sungur, 2010, p. 180). Specialization in professional skills, which are invested in the future with the equipment of the past, is met with opportunities and qualified educational processes. Specialization has paved the way for changes in needs, living environments, and social developments. One's living environment includes one's physical and social environments. Physical environments form the basis of architecture to organize the living environment (Sahil, 1997, p. 258). As man settled down, he brought with him differentiated needs in architecture. People have started to adapt to the areas they live in and design them according to their lifestyles. The design has taken its place in every professional group over time and with different approaches (Düzgün, 2004; Sever İslamoğlu & Kurak Açııcı, 2010, p. 526). Architecture and architectural education, which is more prominent when it comes to the living environment, space, and design, includes the private in the general framework, the subject in the objective framework, and the individual in the universal framework (Sever İslamoğlu & Kurak Açııcı, 2010, p. 526).

From a general perspective, architecture begins with the need for shelter. Architecture, with more needs, leaves the phenomenon of a single space and takes on a hybrid structure that cannot be considered independent of the interior space. Interior designs have been treated together with architecture throughout history, with analyses that vary across periods and cultural differences (Erbay & Ulusoy, 2021, p. 1). Interior design has changed throughout history in accordance with people's needs. Since the 20th century, it has developed and provided the transition to the interior design profession and interior design education. Furniture designs, which are particularly prominent in any field of interior design, are among the essential elements in people's living environments. Furniture design is gaining more importance in education and professional development and is becoming an integral part of the interior design profession and education. According to Bilgin (1991), people live in environments with more furniture in parallel with economic development. He argues that we should consider people with their furnished world, that is, with their furniture, because furniture is a fundamental element in the social environment, and people have more experiences with furniture and spend more time with furniture (Bilgin, 1991, p. 30). Pieces of furniture are objects that provide significant traces of human life. In addition to many factors that influence furniture design, industrialization has accelerated the changes in furniture. It is increasingly important to use qualified products and effective

materials per the conditions of the time. This requires people trained and specialized in the field of design.

This study examined the importance of furniture design in interior design education and the place of furniture design courses in interior design education. The study focused on the furniture design courses included in the curricula of “Interior Architecture-Interior Architecture and Environmental Design” programs of public universities. We aimed to determine the current situation of education in furniture design courses in interior architecture education. We evaluated the importance and adequacy of furniture design courses in the undergraduate curricula of universities.

1.1. Interior Architecture Education Throughout History

Interior architecture concerns spaces’ practical, aesthetic, and symbolic functions to meet people’s needs. Interior architecture is defined as a professional field that designs versatile spaces so that users can perform their actions according to their physical and mental characteristics (Turgut Kaçar, 1997; Özsağ, 2011, p. 4). Interior architecture is developing day by day by increasing its impact. The interior architecture was created in order to respond to housing needs. Developing design concepts with technology in the seventeenth and eighteenth centuries showed its effect on homes and furniture. The industrial revolution in the nineteenth century brought changes in the understanding of design. In the twentieth century, it began to institutionalize and incorporate professional practices in the United States of America (Özsağ, 2011, p. 5). With the development of interior architecture, the need for specialized people who can apply the designs increases. Specialization should be effective in the field of education and the field of profession. Although the influence of interior architecture was felt at the beginning of the twentieth century, we witnessed the beginning of interior architecture education and training of specialists in this field in the 1970s. With the beginning of organizational processes for the professional field, the educational field of interior architecture progressed in an organized manner, and the training of professionally conscious interior architects dates back to the 1980s (Kaptan, 1998, p. 82). The first education at the level of courses began to be institutionalized after the Second World War. Interior design education gained an academic identity by opening departments to provide the necessary training at universities (Kaptan, 1998; Çelik, 2008, p. 52).

2. UNDERGRADUATE INTERIOR DESIGN EDUCATION IN TÜRKİYE

Interior architecture is a field of specialization that enables one to create one's immediate environment and paves the way for the efficient use of these spaces. Interior design in Türkiye should be evaluated together with the historical development of education and training. (Sever İslamoğlu & Özlü Değer, 2015, s. 608). Interior design education in Türkiye is more recent than the development process in the world. The development of interior design education in Türkiye began with the Sanayi-i Nefise School, founded in 1882. The official name of the school is Mektebi-i Sanayi-İ Nefise-i Şahane. The school was known as Sanayi-i Nefise Mektebi-i Alisi until 1927 and continued its academic life as the Istanbul State Academy of Fine Arts after 1928 (Cezar, 1983; Çelik, 2008, p. 56). In 1929, the Decorative Arts Department, which formed the basis of the Interior Design Department, and the Ceramics Workshop were opened. The current name of the academy, which has a deep-rooted history, was changed to Mimar Sinan Fine Arts University in 2004 ("Mimar Sinan Fine Arts University," 2022). The Academy of Fine Arts (MSAFA) was the only institution that provided interior design education until the School of Applied Fine Arts (MÜ) opened. Education in interior architecture continued with the Istanbul School of Applied Fine Arts, now known as Marmara University, established in 1957 (Güner Aktaş, 2019, p. 38). The School of Applied Fine Arts consists of five different departments according to their areas of specialization. One of these departments is the Department of Furniture and Interior Design. The department's field of study was determined as the ability to design and draw the interior plans of buildings according to specific functions, furniture, etc. furniture designs according to applications (Aslıer, 1970; Çelik, 2008, p. 57). As seen at the beginning of education, furniture is still an indispensable part of interior design. Nowadays, interior architecture education takes place in state and foundation universities. The education is given in architecture, engineering, design, and art faculties with different names. The education is theoretical and practical. In Türkiye, there are 34 bachelor's degree programs in interior architecture, 17 of which are public universities and 17 of which are foundation universities. There are 40 universities with Interior Design and Environmental Design programs, of which six are public, and 34 are foundation universities. The number of universities where both fields are

taught is 2. In total, the number of universities offering bachelor's programs in interior architecture is 76 (Table 1).

Table 1: Public and Private Universities Providing Interior Architecture Education

Program/ University	Public	Private
Interior Architecture Undergraduate Program	17	17
Interior Architecture and Environmental Design Undergraduate Program	6	34
Both Undergraduate Programs	-	2

2.1. Universities with Interior Architecture Undergraduate Programs

Thirty-six universities in Türkiye offer Interior Design programs. According to the results of the exams, students are admitted with numerical (num) score types. There are design-oriented programs where technical details of the architecture are taught (Table 2).

Table 2: Faculties with Interior Architecture Undergraduate Programs

Faculty/No	Public	Private
Faculty of Fine Arts	2	1
Faculty of Fine Arts and Design	-	1
Faculty of Fine Arts Design and Architecture	-	1
Faculty of Architecture	9	4
Faculty of Architecture and Design	5	3
Faculty of Engineering-Architecture	-	4
Faculty of Art and Design	1	3
Faculty of Art Design-Architecture	-	2

2.2. Universities with Interior Architecture and Environmental Design Undergraduate Programs

Thirty-six universities in Türkiye offer courses in Interior Design and Environmental Design. According to the results of the exams, students are admitted with equal weighting of the score type. The functioning is similar to the bachelor's program in interior architecture. Environmental design studies are included in the programs (Table 3).

Table 3: Faculties with Interior Architecture and Environmental Design Undergraduate Programs

Faculty/No	Public	Private
Faculty of Fine Arts	3	1
Faculty of Fine Arts and Architecture	-	2
Faculty of Fine Arts and Design	1	3
Faculty of Fine Arts Design and Architecture	1	7
Faculty of Architecture	-	2
Faculty of Architecture and Design	-	7
Faculty of Architecture Design and Fine Arts	1	-
Faculty of Engineering-Architecture	-	5
Faculty of Engineering and Natural Sciences	-	3
Faculty of Arts and Social Sciences	-	1
Faculty of Art and Design	-	3
Faculty of Art Design-Architecture	-	2

3. THE IMPORTANCE OF FURNITURE DESIGN COURSES IN INTERIOR DESIGN EDUCATION

Furniture, which was used by the first human beings to meet their general needs for sitting and lying, is made of materials such as wood, stone, metal, plastic, glass, marble, and leather (Yavuz, 2007, p. 5). The first furniture made of wood, bone, and stone thousands of years ago, which has survived to the present day, is still exhibited in museums in different countries (Kurtoğlu, 1986, p. 70). These examples, which took place in the history of furniture, were aimed at satisfying the needs of people by putting functionality at the forefront. People in the early ages sat on stone or animal skins and then made objects from wood and mud. Information about the use of wood has been found in ruins dating back to 4000 BC (Erdem, 2007, p. 10).

Furniture, which has been created according to the design concepts of the periods, has shown changes according to the style and material of the period in which it exists. According to Kurtoğlu and Evcı, the styles that change in the historical process of furniture can be accepted as a combination of ideas created by furniture design methods and factors such as visuality (aesthetics), functionality, originality, safety, economy, ergonomics, etc. (Karakaya, 1988; Kurtoğlu & Evcı, 1988, p. 51). At this point, furniture, which has gone through stages and adopted different styles throughout the ages, shows its existence in different cultural values, different functions, and different time intervals in history, not only to meet

the needs but also as a form of our lifestyle that has been transformed into forms with socialization and design phenomena (Erdem, 2007, p. 3). In the research on the art history of furniture, it is generally accepted that the first age furniture (antiquity) art, which is the first emergence period of furniture design, is generally accepted. The sub-periods of this period include Egyptian, Mesopotamian, Anatolian, Greek, and Roman furniture art (Bal & Kılavuz, 2015, p. 59).

The lifestyle and artistic style of each era is reflected in furniture. Mechanization and changes in social life, rationalization, increased consumption, new materials, material conditions, usefulness, and comfort accelerate modern furniture design understanding. With the effect of globalization, furniture draws attention to innovations in architecture with the development of industrialization and technology in today's world, where the social structure and daily life patterns are changing (Çiftci & Demirarslan, 2021, p. 1624). This situation, which is effective in architecture, also comes to the fore in educational processes. Theoretical and practical processes in education must be integrated and related to design. At this point, it is necessary to master the history of architecture and interior design in architectural education (Brooker & Stone, 2011; Abbasoğlu Ermiyagil, 2018, p. 460). Interior designers, in particular, should know zoning laws and regulations, fine structure and material details in the design, application techniques, cost calculations, and new developments in art, and be aware of design trends (Abbasoğlu Ermiyagil, 2018, p. 460).

Furniture design has been developing in Türkiye since the 1950s. After being influenced by different periods, the 1980s paved the way for progress. Since the 2000s, furniture designs have been enriched in terms of design dimensions, materials, and technical aspects (Kurak Açııcı & Konakoğlu, 2018). It is necessary to have technical knowledge, material knowledge, application-oriented details, and production processes specific to furniture, which is an integral part of the design. Furniture, which is included in the curricula of universities and is an effective element in the discipline of interior design, plays an essential role in forming architectural interiors. Technical, theoretical, and practical training on furniture is provided in theoretical, design, studio, and workshop courses at universities (Güner Aktaş, 2019, p. 40). Individuals who are specialized in their field are trained in these pieces of training. Today, students of furniture design education gain experience by putting the theoretical knowledge they have acquired in the courses into practice. Design-based education involves processes shaped by creative ideas, what the individual has learned, emotions, and experiences. These ideas are supported by interdisciplinary studies (Öztürkoğlu & Yalçınkaya, 2022, p. 462). The studies in

design-based courses enable the application of theoretical knowledge in the design process. In design-based courses in interior design education, these processes are developed in feedback with each other and contribute to strengthening knowledge (Torun, 2017, p. 31). Furniture, which is more prominent in design-based courses, is a tool that conveys messages and carries meaning in addition to its utility functions. It provides information about its environment, function, user, and designer in accordance with the purpose of its construction. One can know about many factors, such as the furniture's periods, styles, and social identities (Özçam & Uzunarlan, 2013, p. 85). Furniture designs have changed throughout history and have been influenced by periodic situations. Furniture designs classified by Işık (2017) as Art and Craft, Art Nouveau, Werkbund, Michael Thonet, De-Stijli, Bauhaus, Pop Art, and Postmodernism were inspired by the effective art movements of the time (Işık 2017; Kurak Açıcı & Konakoğlu, 2018). Furniture designs from recent art movements are presented in Figure 1.









Art and Craft	Art Nouveau	Werbund	Micheal Thonet	De-Stijli
				
a	b	c	d	e
William Morris -Morris Chair	Charles Rennie- Machintosh Hill House	Josef Hoffmann- Sitzmaschine Chair	Michael Thonet-No.14	Gerrit Rietveld- Red and Blue
Bauhaus	Pop-Art		Post-Modernizm	
				
f	g		h	
Marcel Breuer- Wassily Chair	George Nelson- Marshmallow Sofa		Philippe Bestenheider -Binta	

Figure 1. Furniture designs under the influence of art movements

3.1. Evaluation of Furniture Design Courses in Public Universities

In order to evaluate the importance of furniture design courses in interior architecture education, the undergraduate programs of Interior Architecture - Interior Architecture - Environmental Design at universities in Türkiye are examined, and furniture design courses in their curricula are identified. A comprehensive literature review was conducted in this context, and state and foundation universities were examined. The study is limited to state universities for elaboration and focus. The current status of furniture design courses in the departmental curricula, which are included in the course information packages of the universities, is discussed. It is observed that furniture design courses are mainly taught theoretically and practically from the third semester. The courses, which include classroom, group, and laboratory work, aim to enable students to develop their knowledge and skills about furniture and acquire a well-established discipline in the field of furniture. The study analyzed the curricula of 23 state universities, 17 of which are “Interior Architecture” and 6 of which are “Interior Architecture and Environmental Design .”The furniture design courses in the universities are included in detail.

3.1.1. Evaluation of Interior Architecture Undergraduate Program

Seventeen state universities in Türkiye offer bachelor programs in interior design. The education is carried out theoretically and practically as compulsory Elective (E) courses. The universities listed in Table-4 of the 2022-Ösym Higher Education Programs and Quotas Guide are included in the study.

3.1.1.1. Akdeniz University

Akdeniz University was founded in Antalya in 1982. The Interior Architecture Bachelor Program started its education and training activities in 2000 within the Faculty of Architecture. The number of quotas of the department, which is preferred with numerical score type, is 70. Two of the furniture courses in the curriculum are must courses, and four are Elective (E) (Table 4). The design courses called “Furniture Design I-II” are must courses in the third and fifth semesters (“Akdeniz University,” 2023).

Table 4: Akdeniz University Furniture Courses

Name	Semester	Must (M)/ Elective (E) (E)	T/U (num.)
Furniture Construction I	III	E	2/2
Furniture Design I	IV	M	2/2
Furniture Construction II	IV	E	2/2
Furniture Design II	V	M	2/2
Urban Furniture Design	VII	E	2/1
Urban Furniture in Historical Spaces	VIII	E	2/1

3.1.1.2. Atatürk University

Atatürk University was founded in 1957 in Erzurum. Interior Architecture Bachelor Program was established in 2010 within the Faculty of Architecture and Design and started its education and training activities in 2021. Sixty students are admitted every year according to the numerical score type. Two furniture courses in the department's curriculum are must courses, and three are Elective (E) (Table 5). The design courses called "Furniture Design I-II" are compulsory in the fifth and sixth semesters ("Atatürk University," 2023).

Table 5: Atatürk University Furniture Courses

Name	Semester	Must (M)/ Elective (E) (E)	T/U (num.)
History of Furniture and Interiors I	III. Semester	E	2/1
History of Furniture and Interiors II	IV. Semester	E	2/1
Furniture Design I	V. Semester	M	-
Furniture Design II	VI. Semester	M	-
Urban Furniture Design	VI. Semester	E	-

3.1.1.3. Çukurova University

Çukurova University was founded in Adana in 1973. The Bachelor Program of Interior Architecture was established in 1994 within the Faculty of Architecture and started its education and training activities in 2000. Sixty-five students are admitted every year according to the numerical score type. The department offers four must and three Elective (E) courses (Table 6). The design courses "Furniture Design I-II" are theoretical-applied must courses in the V. and VI. semesters ("Çukurova University", 2023).

Table 6: Çukurova University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Interiors and Furniture I	III. Semester	M	2/0
History of Interiors and Furniture II	IV. Semester	M	2/0
Furniture Design I	V. Semester	M	1/2
Furniture Material	V. Semester	E	2/0
Furniture Design II	VI. Semester	M	1/2
Styling in Furniture	VI. Semester	E	2/0
Experimental Furniture	VII. Semester	E	2/0

3.1.1.4. Eskişehir Technical University

Eskişehir Technical University was established in Eskişehir in 2018 by transferring the educational units of Anadolu University. The Bachelor of Interior Architecture program was established in 1991 within the Faculty of Fine Arts and continued its education and training activities within the newly established Faculty of Architecture and Design in 2012. The department offers five must and three elective courses (Table 7). “The Introduction to Furniture Design” course is theoretical in semester IV, and design courses called “Furniture I-II” are must courses in semesters V and VI (“Eskişehir Technical University,” 2023).

Table 7: Eskişehir Technical University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Interiors and Furniture I	III. Semester	M	2/0
The Introduction to Furniture Design	IV. Semester	M	2/0
History of Interiors and Furniture II	IV. Semester	M	2/0
Furniture I	V. Semester	M	2/1
Furniture Construction	V. Semester	E	2/1
Furniture II	VI. Semester	M	2/1
Socio-Cultural Influences on Furniture Design (TR)	VII. Semester	E	2/0
Children as Users in Space and Furniture Design (TR)	VIII. Semester	E	2/0

3.1.1.5. *İskenderun Technical University*

İskenderun Technical University was established in İskenderun in 2015. Interior Architecture Bachelor Program started its education and training activities in 2020 within the «Faculty of Architecture.» Sixty students are admitted every year. The department offers three must courses (Table 8). The design courses called «Furniture I-II» are must courses («İskenderun Technical University,» 2023).

Table 8: İskenderun Technical University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture	IV. Semester	M	3/0
Furniture Design I	V. Semester	M	2/2
Furniture Design II	VI. Semester	M	2/2

3.1.1.6. *Istanbul Technical University*

Istanbul Technical University was founded in 1773 in Istanbul. Interior Architecture Bachelor Program started its education and training activities in 2002 within the “Faculty of Architecture.” Forty students are admitted every year. The department offers one must and three elective courses (Table 9, “Istanbul Technical University,” 2023).

Table 9: İstanbul Technical University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Space and Furniture	V. Semester	M	1/3
Contemporary Furniture Design	VI. Semester	E	1/2
Mater.&Finish.in Furnit. Design	VI-VII-VIII. Semester	E	1/2
Urban Furniture and Space	VII. Semester	E	2/0

3.1.1.7. *İstanbul University*

Istanbul University was founded in 1453 in Istanbul. Interior Architecture Bachelor Program was established in 2018 within the “Faculty of Architecture” and started its educational and training activities in 2020. Sixty students are admitted every year. The department offers two must courses (Table 10).

The design courses called “Furniture Studio I-II” are must courses (“Istanbul University,” 2023).

Table 10: İstanbul University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Studio I	III. Semester	M	2/2
Furniture Studio II	IV. Semester	M	2/2

3.1.1.8. Karadeniz Technical University

Karadeniz Technical University was founded in 1955 in Trabzon. Interior Architecture Bachelor Program started its education and training activities in 1993 within the “Faculty of Architecture .”Seventy students are admitted every year. The department offers two must and four elective courses (Table 11). The design course called “Furniture Design” is a theoretical and practical must course (“Karadeniz Technical University,” 2023).

Table 11: Karadeniz Technical University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture	V. Semester	M	2/0
Furniture Material Selection and Decoration	V. Semester	E	2/0
Contemporary Furniture	V. Semester	E	2/0
Furniture Design	VI. Semester	M	2/2
Natural Wood Materials in Furniture Production	VI. Semester	E	2/0
Urban Furniture Design	VII. Semester	E	2/0

3.1.1.9. Kocaeli University

Kocaeli University was founded in 1976 in Kocaeli as the Kocaeli State Academy of Engineering and Architecture and was renamed its current name in 1992. Interior Design Bachelor Program was established in 1998 within the Faculty of Fine Arts and transferred to the Faculty of Architecture and Design in 2006. It started its educational and training activities in 2007. Seventy students are admitted every year. The department offers two must and one elective course (Table 12). The design courses named “Furniture Design and

Construction Knowledge I-II” are theoretical-applied must courses (“Kocaeli University,” 2023).

Table 12: Kocaeli University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Design and Construction Knowledge I	III. Semester	M	2/2
Furniture Design and Construction Knowledge II	IV. Semester	M	2/2
Furniture Making Techniques	V. Semester	E	2/1

3.1.1.10. Konya Technical University

Konya Technical University was established in Konya in 2018. The bachelor program of interior architecture started its educational and training activities in 2020 within the “Faculty of Architecture and Design .”Forty students are admitted every year. The department offers three must and two elective courses (Table 13). The design course called “Furniture Design” is a theoretical-applied must course (“Konya Technical University,” 2023)

Table 13: Konya Technical University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture-Making Methods and Techniques	IV. Semester	M	2/2
History of Furniture	V. Semester	M	3/0
Contemporary Furniture Design	V. Semester	E	2/0
Furniture Design	VI. Semester	M	2/2
Urban Furniture	VIII. Semester	E	2/0

3.1.1.11. Kütahya Dumlupınar University

Kütahya Dumlupınar University was founded in 1974 in Kütahya under the name of Kütahya School of Management Sciences. The university’s history goes back to the Kütahya Academy of Economics and Administrative Sciences. Faculties and institutes were gathered under the name of Dumlupınar University in 1992. The Bachelor of Interior Architecture program started its education and training activities in 2018 within the “Faculty of Architecture .”Seventy students are admitted every year. The department offers one must

and two elective courses (Table 14). All the courses are theoretical (“Kütahya Dumlupınar University,” 2023).

Table 14: Kütahya Dumlupınar University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Design and Construction	V. Semester	E	3/0
High-Level Operations in Furniture	VI. Semester	E	3/0
History of Architecture and Furniture	VII. Semester	M	2/0

3.1.1.12. Marmara University

Marmara University was founded in 1883 in Istanbul. In 1959, it became Istanbul Economic and Commercial Academy. In 1982, it continued its education under the name of Marmara University. Interior Architecture Bachelor Program started its education and training activities in 1957 within the “Faculty of Fine Arts .”Sixty students are admitted every year. The department offers six must and seven elective courses (Table 15). All the courses are theoretical-applied (“Marmara University,” 2023).

Table 15: Marmara University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Studio Furniture I	III. Semester	M	4/2
Furniture Construction I	III. Semester	M	1/2
Studio Furniture II	IV. Semester	M	4/2
Furniture Construction II	IV. Semester	M	1/2
Furniture Construction III	V. Semester	M	1/2
Conceptual Furniture Design	V. Semester	E	2/2
Studio Furniture III	V. Semester	E	6/2
Studio Freestyle Furniture I	V. Semester	E	6/2
Furniture Construction IV	VI. Semester	M	1/2
Studio Furniture IV	VI. Semester	E	6/2
Studio Freestyle Furniture II	VI. Semester	E	6/2
Studio Furniture V	VII. Semester	E	2/2
Studio Freestyle Furniture III	VII. Semester	E	2/2

3.1.1.13. Mimar Sinan Fine Arts University

Mimar Sinan Fine Arts University was founded in Istanbul in 1882 under Mekteb-i Snayi-i Nefise-i Şahan. It adopted its current name in 2004. The Bachelor Program of Interior Architecture started its education and training activities in 1925 within the “Faculty of Architecture .”Sixty students are admitted every year. The department offers six must and one elective course (Table 16). All courses are theoretical-applied (“Mimar Sinan Fine Arts University,” 2023).

Table 16: Mimar Sinan Fine Arts University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Introduction to Furniture	III. Semester	M	1/2
Structure in Furniture	IV. Semester	M	1/2
Computer-Aided Furniture Design	Fall Semesters	E	1/1
Identity in Furniture	V. Semester	M	1/2
Experimental Furniture	VI. Semester	M	1/2
Furniture Workshop I	VII. Semester (every semester)	M	0/2
Furniture Workshop II	VIII. Semester (every semester)	M	0/2

3.1.1.14. Nevşehir Hacı Bektaş Veli University

Nevşehir Hacı Bektaş Veli University was founded in 2007 in Nevşehir under the name of Nevşehir University. It took its current name in 2013. The Bachelor Program of Interior Architecture started its education and training activities in 2022 within the “Faculty of Fine Arts .”Thirty students are admitted every year. The department offers six must courses (Table 17). The design courses called “Furniture Design I-II” are theoretical-applied must courses (“Nevşehir Hacı Bektaş Veli University,” 2023).

Table 17: Nevşehir Hacı Bektaş Veli University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Construction I	III. Semester	M	3/1
Furniture Construction II	IV. Semester	M	3/1
History of Furniture I	V. Semester	M	3/0
History of Furniture II	VI. Semester	M	3/0
Furniture Design I	VII. Semester	M	3/1
Furniture Design II	VIII. Semester	M	3/1

3.1.1.15. Selçuk University

The first serious steps towards establishing Selçuk University were taken in 1962 through Selçuk Education Institute and Higher Islamic Institute. It was established as an active university in Konya in 1975. In 1999, the Faculty of Interior Architecture and Environmental Design was established under the Faculty of Fine Arts and started its education in 2003. In 2021, it was transferred to “The Faculty of Architecture and Design” and continued its education and training activities in Interior Architecture Bachelor Program. Fifty students are admitted every year. The department offers three must courses (Table 18). The design course called “Fittings Design” is a theoretical-applied must course (“Selçuk University,” 2023).

Table 18: Selçuk University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Reinforcement	V. Semester	M	2/0
Reinforcement Design	VI. Semester	M	1/2
Urban Furniture	VIII. Semester	M	2/2

3.1.1.16. Trakya University

Trakya University was founded in 1982 in Edirne. Interior Architecture Bachelor Program started its education and training activities in 2021 within the “Faculty of Architecture .”Forty students are admitted every year. The department offers three theoretical-applied must courses (Table 19) (“Trakya University”, 2023).

Table 19: Trakya University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Studio I	V. Semester	M	2/2
History of Interior Architecture and Furniture	V. Semester	M	2/0
Furniture Studio II	VI. Semester	M	2/2

3.1.1.17. Yalova University

Yalova University took the first steps by establishing Yalova Higher Education Foundation in 1995 and Yalova University Construction and

Sustenance Association in 2007. It started education in 2008 under the name of Yalova University. Interior Architecture Bachelor Program was established in 2011 within the Faculty of Art and Design and started its education and training activities in 2019. Sixty students are admitted every year. The department offers three must and eight elective courses (Table 20). The design courses called “Furniture Design I-II” are theoretical-applied must courses (“Yalova University,” 2023).

Table 20: Yalova University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture Design	IV. Semester	E	1/2
Furniture Design I	V. Semester	M	2/2
Furniture Construction	V. Semester	M	2/2
Wooden Furniture Production Techniques I	V. Semester	E	1/2
Metal Furniture	V. Semester	E	1/2
Furniture Standards	V. Semester	E	1/2
Furniture Design II	VI. Semester	M	2/2
Wooden Furniture Production Techniques I	VI. Semester	E	1/2
Furniture Workshop I	VII. Semester	E	2/2
Furniture Workshop II	VIII. Semester	E	2/2
Surface Treatments in Furniture Industry	VIII. Semester	E	3/0

3.1.2. Interior Architecture and Environmental Design Undergraduate Program

Six universities in Türkiye have Interior Architecture and Environmental Design Undergraduate Programs. Education is carried out theoretically and practically through must-elective courses. The universities listed in Table-4 of the 2022-Ösym Guide to Higher Education Programs and Quotas are included.

3.1.2.1. Afyon Kocatepe University

Afyon Kocatepe University was founded in 1992 in Afyonkarahisar. The university’s history goes back to the Afyonkarahisar School of Finance and

Accounting, founded in 1974. Interior Architecture and Environmental Design Undergraduate Program started its education and training activities in 2012 within the “Faculty of Fine Arts .”Sixty students are admitted every year. The department offers two must and two elective courses (Table 21). The design course called “Furniture Design” is a theoretical-applied must course (“Afyon Kocatepe University,” 2023).

Table 21: Afyon Kocatepe University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture	V. Semester	M	2/0
Furniture Applications	V. Semester	E	2/1
Furniture Design	VI. Semester	M	2/1
Urban Furniture Design	VII. Semester	E	2/1

3.1.2.2. *Bilecik Şeyh Edebali University*

Bilecik Şeyh Edebali University was founded in 2007 in Bilecik under the name of Bilecik University. It adopted its current name in 2012. The Department of Interior Architecture and Environmental Design started its education and training activities in 2019 within the Faculty of Fine Arts and Design. Sixty-five students are admitted every year. The department offers three must and three elective courses (Table 22). The courses are theoretical-applied (“Bilecik Şeyh Edebali University,” 2023).

Table 22: Bilecik Şeyh Edebali University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture	V. Semester	M	3/0
Furniture Making, Methods and Techniques I	V. Semester	M	2/2
Furniture Making, Methods and Techniques II	VI. Semester	M	2/2
Urban Furniture Design	III. Semester	E	2/2
Ecological Furniture Design	V. Semester	E	2/2
Contemporary Furniture Design	VIII. Semester	E	2/2

3.1.2.3. Hacettepe University

Hacettepe University was established in 1967 in Ankara. The history of the university dates back to 1954. The Faculty of Interior Architecture and Environmental Design started its education and training activities in 1985 within the Faculty of Fine Arts. Eighty students are admitted every year. The department offers six must and three elective courses (Table 23). The design courses called “Furniture Design I-II” are theoretical-applied must courses (“Hacettepe University,” 2023).

Table 23: Hacettepe University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture-Making Methods and Techniques I	III. Semester	M	2/2
Surface Finishing in Furniture	III. Semester	E	2/1
Furniture-Making Methods and Techniques II	IV. Semester	M	2/2
History of Furniture I	V. Semester	M	3/0
Contemporary Furniture Design	V. Semester	E	2/0
History of Furniture II	VI. Semester	M	3/0
Furniture Design I	VII. Semester	M	2/2
Furniture Design II	VIII. Semester	M	2/2
Furniture Material and Application Methods	VIII. Semester	E	2/0

3.1.2.4. Kırıkkale University

Kırıkkale University was founded in 1992 in Kırıkkale. The Interior Architecture and Environmental Design undergraduate program was established in 2014 within the “Faculty of Fine Arts” and started its educational and training activities in 2015. Sixty students are admitted every year. The department offers six must and five elective courses (Table 24). The design courses called “Furniture Design I-II” are theoretical-applied must courses (“Kırıkkale University,” 2023).

Table 24: Kırıkkale University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Furniture Material and Application Methods	III. Semester	E	2/0
Furniture Construction I	III. Semester	M	2/2
Furniture Construction II	IV. Semester	M	2/2
Surface Finishing in Furniture	IV. Semester	E	2/0
History of Furniture I	IV. Semester	M	2/0
Contemporary Furniture Design	V. Semester	E	1/2
History of Furniture II	V. Semester	M	2/0
Experimental Furniture Design	VI. Semester	E	2/0
Furniture Design I	VII. Semester	M	2/2
Furniture Design II	VIII. Semester	M	2/2
Outdoor Furniture Design	VIII. Semester	E	2/0

3.1.2.5. Necmettin Erbakan University

Necmettin Erbakan University was founded in 2010 in Konya as Konya University. It adopted its current name in 2012. Interior Architecture and Environmental Design Department started its education and training activities in 2013 within the Faculty of Fine Arts and Architecture. Sixty students are admitted every year. The department offers three must and two elective courses (Table 25). The design courses called “Furniture Design I-II” are theoretical-applied must courses (“Necmettin Erbakan University,” 2023).

Table 25: Necmettin Erbakan University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
History of Furniture Art	II. Semester	E	2/0
Furniture Design I	V. Semester	M	2/2
Furniture Design II	VI. Semester	M	2/2
Urban Furniture	VII. Semester	M	3/0
Limited Interiors and Furniture Design	VIII. Semester	E	1/2

3.1.2.6. *Osmaniye Korkut Ata University*

Osmaniye Korkut Ata University was established in 2007 in Osmaniye. The university's history goes back to Osmaniye Vocational School, founded in 1976. Interior Architecture and Environmental Design Undergraduate Program started its education and training activities in 2019 within the "Architecture, Design and Fine Arts Faculty ."Sixty students are admitted every year. The department offers three must and three elective courses (Table 26). The design course called "Furniture Design" is a theoretical-applied must course ("Osmaniye Kokut Ata University," 2023).

Table 26: Osmaniye Kokut Ata University Furniture Courses

Name	Semester	Must (M)/ Elective (E)	T/U (num.)
Introduction to Furniture	III. Semester	M	2/2
Structure in Furniture	IV. Semester	M	2/2
Furniture Design	V. Semester	M	2/2
History of Furniture I	V. Semester	E	2/0
History of Furniture II	VI. Semester	E	2/0
Modular Furniture and Construction Systems	VIII. Semester	E	2/0

4. CONCLUSION

Interior architecture education should aim to turn students into creative and original designers who improve the quality of the profession and adhere to ethical values. Design-oriented education should encourage students to develop different perspectives and design products that meet the needs of the age. Therefore, universities should emphasize furniture design courses, which are indispensable for furniture and interior architecture education. This study evaluated the importance of furniture design courses in interior architecture education within this framework and determined the current situation. Public or private universities offer interior architecture undergraduate education for four years (eight semesters). Education is carried out as an "Interior Architecture Bachelor Program" and "Interior Architecture and Environmental Design Undergraduate Program ."Both Bachelor's Degree Programs are similar. Furniture design courses in design-oriented and interior architecture education are;

- Either must or elective.
- Theoretical and/or applied.
- Conducted face-to-face or group work or as laboratory activities.
- Both Bachelor's Degree Programs have similar and different names.
- Where there are different nomenclatures, they are similar in content and functioning.
- In the early years, they are discussed in general terms, while in the later years, they are elaborated in terms of design, technique, and implementation.
- They were mainly concentrated from the third semester onwards.
- There is an increase in number and diversity from the third semester onwards.
- There are more applied courses than theoretical courses.

Academics should use different design methods and original teaching techniques to manage furniture design courses. The diversity of must and elective courses, course processes, and the methods applied in the courses should be developed and adapted to the age requirements. Researchers should analyze different training methods in different universities and develop valuable parts of the processes for education and professional practice. Education should be equipped to support these processes. In this sense, it is clear how vital furniture design courses are, especially in design-oriented and interior architecture education.

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CHAPTER X

TRACES OF SUSTAINABILITY IN INTERIOR ARCHITECTURE GRADUATE EDUCATION

Serap FAİZ BÜYÜKÇAM¹ & Hande EYÜBOĞLU²

*¹Assoc. Prof. Dr. - Ondokuz Mayıs University
e-mail: serap.faizbuyukcam@omu.edu.tr
ORCID: 0000-0003-4263-1671*

*²Res. Asst. - Samsun University
e-mail: hande.eyuboglu@samsun.edu.tr
ORCID: 0000-0003-0504-2886*

1. INTRODUCTION

Sustainability gained importance in the last quarter of the 20th century. It has been discussed within the framework of the ability of natural resources to meet current and future needs in a balance of production and consumption. Built environment studies are one of the main focus areas of sustainability studies, which are on the agenda with the approaches and practices developed in various fields ranging from economy to education and environmental studies. The disciplines of architecture and interior architecture, which have an impact on various parameters such as resource use and conservation, energy efficiency, waste management, protection of cultural and historical environments, have established a close relationship with sustainability. While approaches and practices related to sustainability in architecture start with infrastructural problems such as land settlement and the use of climatic data, in interior architecture, it takes place with various applications at the building scale, such as the selection and use of building materials, ensuring energy efficiency as well as determining the function in reuse.

In this study, it is aimed to make an evaluation to understand the place of sustainability in the discipline of interior architecture. The first approaches and

awareness towards the professional practice of interior architecture begin in higher education. The theoretical or practical knowledge gained in education life is effective in the execution of the profession. In this direction, it is aimed to make an evaluation of sustainability through postgraduate theses, which are the concrete outputs of higher education. Postgraduate studies on sustainability in the discipline of interior architecture in higher education in Turkey were opened to discussion through various information such as year, university, type and scope. In this direction, the scope of the study was determined as the graduate theses produced in the departments of interior architecture and interior architecture and environmental design in the National Thesis Center of the Council of Higher Education.

2. PERSPECTIVES ON SUSTAINABILITY

Sustainability is the practice of using resources to meet the needs of the present without compromising the ability of future generations to meet their own needs and focuses on finding a balance between economic activity, environmental protection, and social equity. In other words, sustainability is an approach to managing resources consciously, taking into account economic, social and environmental impacts (Clayton & Radcliffe, 2018; Giddings, Hopwood, & O'Brien, 2002). Sustainability consists of three components: environmental, economic and sociocultural. Environmental sustainability focuses on minimizing the impact of human activities on the environment, such as reducing pollution, protecting natural resources and preserving ecosystems (Bay, 2010; Goodland, 1995; Williamson, Williamson, Radford, & Bennetts, 2003; Tekeli & Ataöv, 2017). Economic sustainability involves the efficient and responsible use of resources to create a strong economy that can support current and future generations (Baumgärtner & Quaas, 2010; Chan & Lee, 2008; El Sorady & Rizk, 2020; Goodland, 1995). Sociocultural sustainability, on the other hand, involves finding solutions to improve the quality of life for all people by considering social equity and preserving cultural values for future generations (Colantonio, 2009; Goodland, 1995; Kohler, 1999; Littig & Griessler, 2005).

Various conferences, reports, principles and declarations on sustainability have been organized in many countries. The development of the sustainability approach on a global scale first came to the agenda at the Stockholm Conference organized by the United Nations in 1972. At this conference, emphasis was placed on the protection and development of the environment in which we live and the creation of awareness of environmental protection (United Nations, 1972). The definitions of sustainability and sustainable development were made

in the Brundtland Report organized in 1987. The concept of sustainability was defined in the report as “having the ability to make development sustainable by providing daily needs without jeopardizing the ability of nature to meet the needs of future generations” (Brundtland Commission, 1987). Since then, sustainability has been in the focus of the whole world and various studies have been carried out in this field. In 1992, at the Rio UN Conference on Environment and Development held in Rio de Janeiro, action plans called Agenda 21, covering the topics of environmentally sensitive biodiversity, climate and combating desertification, were put forward (United Nations, 1992). The social and economic dimensions of the action plan focused on issues related to the discipline of architecture such as human comfort and sustainable human settlements. In the early 1990s, the sustainability architecture approach started to gain importance. Sustainability architecture is a design approach that incorporates sustainability principles into the design and construction of buildings (Owen & Dovey, 2008). Sustainable architecture, which is the practice of creating buildings with materials, methods and technologies that minimize environmental impact, use fewer resources and promote well-being for people, aims to use natural and renewable materials, reduce the impact of human activities on the environment and design comfortable and healthy buildings that are livable (Bauer, Möslle, & Schwarz, 2009; Sassi, 2006; Williams, 2007; Williamson et al., 2003). The US Green Building Council and the UK Building Research Establishment are important milestones in the development of this understanding. In 1990 the Building Research Establishment in the United Kingdom established the Building Research Establishment Environmental Assessment Method (BREEAM) certificate. This certificate is a system that grades buildings according to their environmental performance, with points awarded according to the degree to which they meet certain criteria in areas such as energy efficiency, water efficiency, material selection and indoor air quality. On the other hand, the Leadership in Energy and Environmental Design (LEED) certification was established by the United States Green Building Council in 1998. LEED certification is a system of rating buildings according to their environmental performance with points awarded for meeting certain criteria in areas such as water efficiency, energy efficiency, material selection and indoor air quality (Awadh, 2017; Cole & Jose Valdebenito, 2013; Kubba, 2012). At the World Summit on Environment and Development organized in 2002, environmental awareness and sustainable development strategies were determined (United Nations, 2002). At the Rio+20 United Nations

Conference on Sustainable Development organized in 2012, a road map named “The Future We Want” was created for the establishment of sustainability awareness from global to local scale. In addition, decisions were taken for the design of sustainable living spaces (United Nations, 2012). On the other hand, this situation directly concerns design-oriented fields such as architecture and interior architecture. Afterwards, the “Agenda 2030: UN Sustainable Development Goals”, consisting of 17 goals and 169 sub-goals, were adopted in New York in 2015 (United Nations, 2015). Article 11 of these goals, titled sustainable city and life, is related to the field of architecture.

3. SUSTAINABILITY IN THE DISCIPLINE OF INTERIOR ARCHITECTURE

At the end of the 19th century, interior architecture emerged as a profession and entered the process of institutionalization in the field of education in the same years. Interior architecture, which is a professional field that designs living environments functionally and aesthetically in accordance with the physical and psychological needs of the user, develops according to the needs and expectations of the day in both education and professional practice (Massey, 2008; May, 2008; Cordan, Görgül, Numan, & Çiñçik, 2014). In the early years of the profession, decorative approaches, in which object applications such as two-dimensional surface decorations and accessories were made, were replaced by the concept of design and functional interiors in the 20th century (Piotrowski, 2001). As of the 21st century, sustainable interior designs have come to the agenda.

Sustainability research, which has an important place in built environment studies and practices, is an important field of study for the discipline of interior architecture with sustainable interiors. In the “Sustainability by Design” conference organized by the International Union of Architects, it was stated that not only the field of architecture but also all design-based disciplines dealing with built environment design are responsible for the creation of sustainable environments. Interior architecture is one of these disciplines. Sustainability in interior design is a holistic approach to creating interiors that respect the environment and provide a comfortable and healthy living environment for people. Sustainable interior design is the design of interiors that allow users to use them more efficiently by reducing their negative environmental impact in meeting their needs. The use of daylight, selection of natural materials such as stone, wood, bamboo, minimal use of synthetic materials, use of renewable

energy sources such as wind and sun, natural ventilation solutions to ensure indoor air quality are the prominent issues in sustainable interiors (Bauer et al., 2009; Jones, 2008; Williams, 2007). In this sense, LEED for Interior Design and Construction certification is one of the regulations that positively affects the orientation towards sustainable space designs as well as building design by drawing attention to sustainable interior design.

Sustainable design awareness in the field of interior architecture is not a consciousness that needs to be gained in professional practice, but it is necessary to create the infrastructure by gaining the necessary awareness in educational practice. In this context, the fact that Council for Interior Design Accreditation integrates the sustainable design approach into the standards for interior architecture education supports the importance of sustainability awareness in interior architecture education. In the 2023 Summit Report, there are trends regarding the importance of integrating environmental sustainability, especially energy and water resources management technologies and climate change, into the discipline of design education. It refers to the need to have knowledge about sustainable design in the education process and to be open to interdisciplinary holistic partnerships to overcome challenges (Council for Interior Design Accreditation, 2023).

Sustainable built environment and interiors are among the most important research areas in Turkey as well as in the world. These researches are supported by various courses, theses, workshops and seminars at higher education level. There are many compulsory and elective courses on sustainability approach in interior architecture graduate education in Turkey. In these courses, learning sustainability criteria in design, establishing a relationship between the natural environment and the built environment, gaining sustainable design skills, evaluating the effects of sustainability approach on the interior space, sustainable furniture design come to the fore. On the other hand, it focuses on gaining a critical perspective on the sustainability approach, discussing it in the context of environmental, social and economic dimensions on a global scale, developing the ability to conduct and interpret detailed research in the field and developing analytical thinking skills in line with a sustainable approach.

4. RESEARCH DESIGN

4.1. Material

In this study, which aims to reveal the traces of sustainability in interior architecture education through postgraduate theses, a document scanning study

was conducted from qualitative data collection techniques. The study population consists of a total of 2104 graduate theses produced in the departments of interior architecture and interior architecture and environmental design in the National Thesis Center of the Council of Higher Education, which contains nearly 700,000 graduate theses in Turkey as of 2022. Then, the postgraduate theses obtained were limited with the keyword “sustainability” within the scope of this study and 79 postgraduate theses were determined as the sample of the study.

4.2. Method

The study was designed with a mixed research design in which qualitative and quantitative methods were used together. In this design, firstly, a review of international literature on sustainability, sustainable design and sustainability in interior architecture education was conducted. In the second step, the population and sample were determined. In the third step of the study, findings and examinations related to the theses were included. This step consists of two separate stages. In the first step, general frequency distributions of graduate theses were calculated in the SPSS statistical program. In general frequency distributions, firstly, bibliographic data such as year, university type, university distribution, institute and thesis type of the theses were deciphered. Then, general frequency distributions of the sample group, building type diversity, countries where the sample is located, the sustainability component focused on, and data collection and analysis methods were made. In the second step, content analysis of the titles, keywords and indexes of the postgraduate theses was carried out and word clouds were created through MAXQDA, a qualitative data analysis program. Finally, all the analyzed data were evaluated together and the reflections of sustainable approach in postgraduate theses produced in the field of interior architecture were revealed (Figure 1).

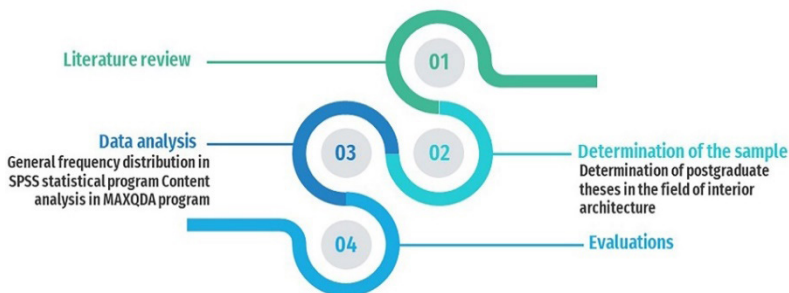


Figure 1. Research Design

5. TRACES OF SUSTAINABILITY IN GRADUATE THESES

An evaluation of sustainability through graduate theses is discussed under two different headings: statistical evaluations and content analysis evaluations.

5.1. Statistical Evaluations Of Graduate Theses

When the years of the postgraduate theses related to the field were evaluated, it was seen that the first studies on “sustainability” started to be conducted since 2008. This may be associated with the integration of sustainable design approach into the standards established by the Council for Interior Design Accreditation for interior architecture education in 2006. The years 2022, 2019 and 2016 were the most productive years with a rate of 11.4%, followed by 2017 with 10.1% and 2018 with 8.9%. Since 2008, it is clear that there has been an increase in the number of studies on the subject (Figure 2). It is thought that the congresses organized in many countries around the world, various events and the awareness created on the subject with the final reports prepared have played an important role in increasing the number of postgraduate theses. Especially in the UN Conference on Sustainable Development (Rio+20) held in Rio de Janeiro in 2012 and in the Agenda 2030: UN Sustainable Development Goals call organized by the United Nations in New York in 2015, it is clear that the decisions to set goals for the design and improvement of settlements and living spaces and to integrate the sustainability approach into design and planning have encouraged academic studies as well as practice.

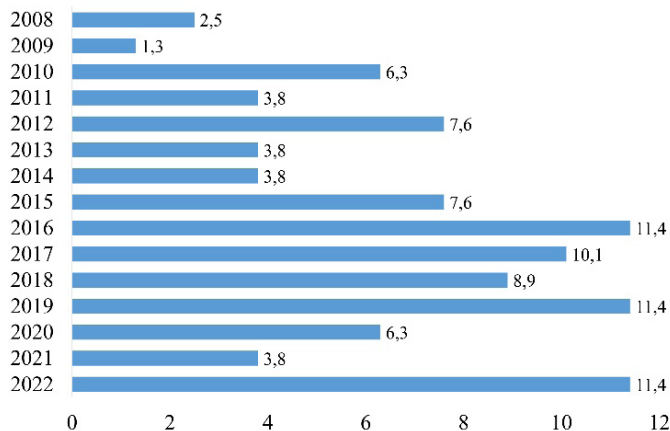


Figure 2. Ratios Of Graduate Theses By Years

In the evaluation made according to university types, it was seen that 55.7% of the postgraduate theses on “sustainability” were conducted in public universities, while 44.3% were conducted in foundation universities. This can be attributed to the fact that public universities are free of charge while foundation universities are paid or partially paid (Figure 3).

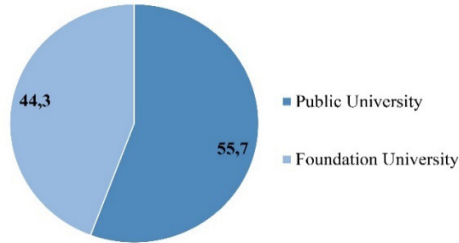


Figure 3. Thesis Rates At Public And Foundation Universities

Focusing on the universities where graduate theses were produced, it was observed that Hacettepe University took the lead with 22.8%. Hacettepe University was followed by Mimar Sinan University with 13.9% and Çankaya University with 7.6% (Figure 4). This situation may be directly related to the number of graduate students in universities, but it is also related to the years in which universities started graduate education. On the other hand, sustainability-oriented courses in the content of graduate education programs are also a major determinant in the formation of thesis contents. Curricula that include various applied and theoretical-based courses such as sustainable space design, energy efficient design strategies, sustainable design philosophy, waste management in design, biophilic design principles, etc. can encourage the production of a large number of theses in the field.

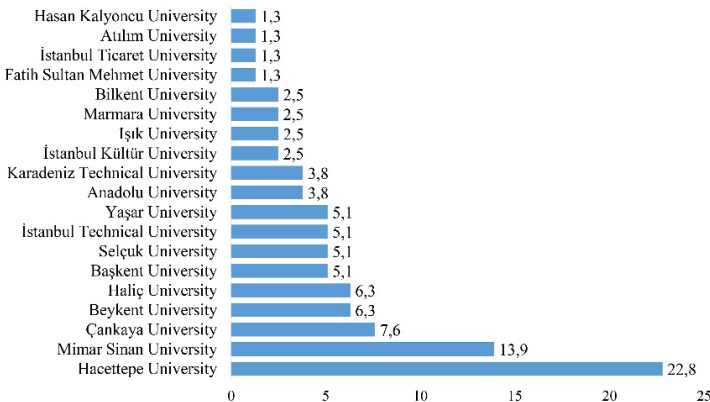


Figure 4. Thesis Rates By Universities

According to the evaluations made according to the institutes to which graduate education is affiliated, 40.5% of the theses are affiliated with the institutes of science, 27.8% with the institutes of social sciences and 21.5% with the institutes of fine arts (Figure 5). The faculties and institutes to which interior architecture or interior architecture and environmental design departments are affiliated are determined depending on whether the programs admit students with numerical or equal weight score types. Accordingly, it is clear that programs that admit students according to the numerical score type contribute more to the production of postgraduate theses on sustainability. It was observed that 83.5% of the postgraduate theses on “sustainability” were master’s theses, 10.1% were proficiency in art theses and 6.5% were doctoral theses (Figure 5). The limited number of doctorate and proficiency in art programs in interior architecture, interior architecture and environmental design departments in Turkey has been effective on the limitation of the number of these thesis types. In addition, considering that doctoral and proficiency in art theses are preferred by researchers who aim to improve themselves in the academic field, the reason for this numerical difference will be understood. On the other hand, the duration of education in these programs has a similar effect on the number of thesis types produced.

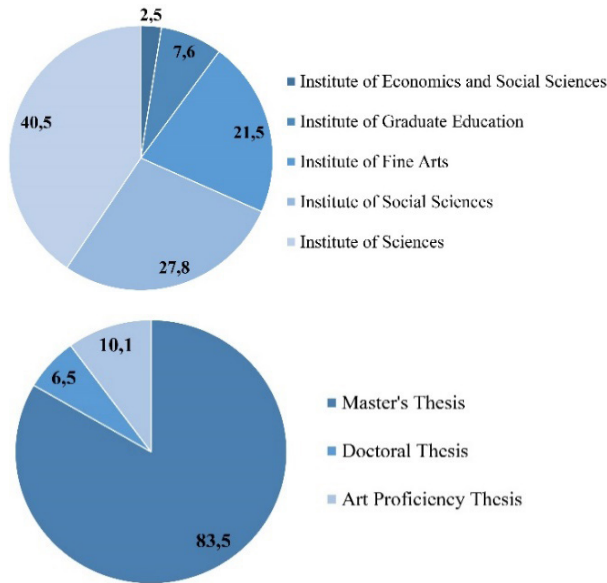


Figure 5. Ratios Of Theses By Institutes (Top), Ratios Of Thesis Types (Bottom)

Considering the scope of the theses on “sustainability” conducted in the departments of interior architecture, interior architecture and environmental design, 79.7% of these studies examined sustainability within the scope of a single building, while 15.2% examined it through multiple buildings. It can be said that exemplifying various parameters of sustainability is effective in addressing different structures in the studies on the subject. On the other hand, 5.1% of the studies did not focus on a building or building type, but mainly included various discussions within the scope of furniture (Figure 6).

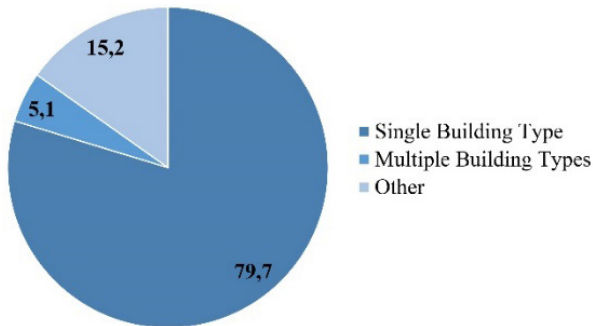


Figure 6. Sample Groups Considered Within The Scope Of The Thesis

The building types discussed in the theses were evaluated by proportioning the sum of their weights to the number of theses (79) (Figure 7). In this direction, 34.2% of the theses consist of various housing types such as housing, traditional housing, collective housing, temporary housing, 25.3% of the theses consist of commercial buildings such as offices, shopping centers, restaurants, cafes, and 15.2% of the theses consist of studies that deal with sustainability on the scale of furniture instead of examining it on a building-specific scale. On the other hand, 10.1% of the theses focus on accommodation structures for tourism activities such as hotels, hostels, eco-villages, while 8.9% are related to cultural buildings. Museums, libraries and exhibition spaces were the most common structures in the cultural buildings group. 3.8% of the studies focused on health structures such as hospitals and clinics. It is possible to explain the focus of theses on residential buildings in various ways. The first is that residential buildings take the lead in the general building stock, and the other is that traditional houses stand out as they are essentially ecological examples.

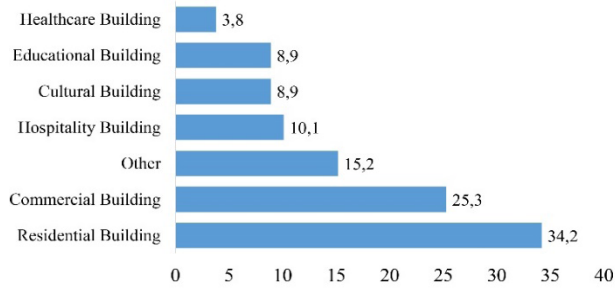


Figure 7. Types Of Structures Covered In The Theses

It was observed that all components of sustainability, including environmental, economic and socio-cultural, were generally included in the theses. However, when it is evaluated which component is mainly focused on, it is seen that 63.3% of the theses are related to environmental sustainability such as environmental awareness, environmentally friendly, natural and local material preferences, waste utilization, energy conservation (lighting, heating, cooling, ventilation, renewable resources), improving indoor and environmental quality, ensuring human health and comfort (visual, auditory, thermal) and protecting morphological values (Figure 8). This situation shows that interior architecture practice has a strong interaction with the determinants of environmental sustainability that allow the evaluation of concrete data. On the other hand, 22.8% of the studies were associated with socio-cultural sustainability, such as the preservation of belonging and identity, and 13.9% of the studies were associated with economic sustainability, such as maintenance and repair costs, contributing to the local labor force and economy, and energy saving.

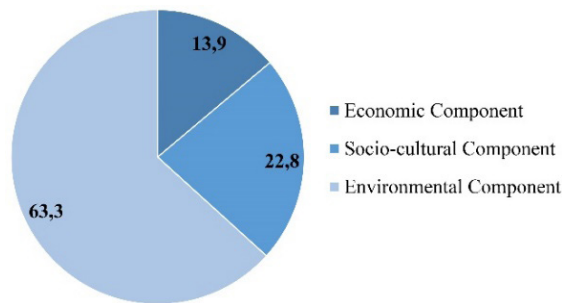


Figure 8. Sustainability Components Focused On Theses

The evaluation of the countries where the buildings discussed in the theses are located was obtained by proportioning the total number of countries to the number of theses (79). 75.9% of the studies consist of buildings or

building groups located in Turkey (Figure 9). In terms of accessibility to data and information, the country where graduate education takes place plays an active role in determining the sample. While 15.2% of the theses do not have a defined field of study, 10.1% are located in the United States, 5.1% in the UK and Germany. It is noteworthy that this ranking continues with countries that contribute to the development of sustainability approaches with various reports and declarations, as well as the developer of internationally recognized sustainability assessment certificates such as LEED and BREAM.

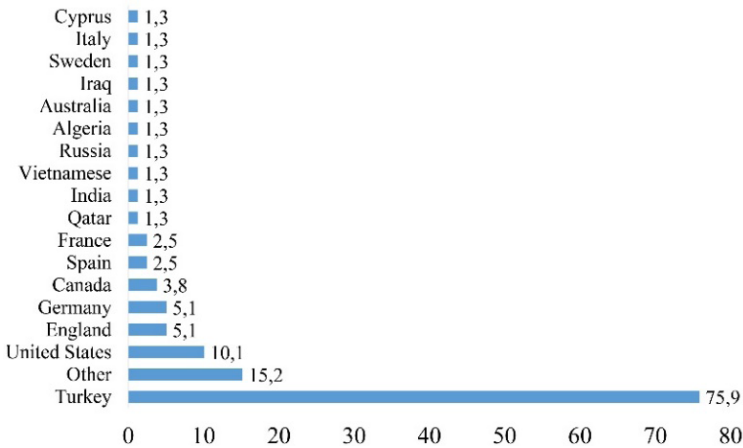


Figure 9. Countries Where The Samples Of The Theses Are Located

When the diversity of the countries in which the structures or groups of structures are included in the theses is examined, it is seen that 64.5% of the studies are limited to a single country. Studies comparing practices in various countries account for 20.3%. On the other hand, 15.2% of the theses did not examine any specific field of study, but these theses mostly focused on relevant approaches and certifications (Figure 10).

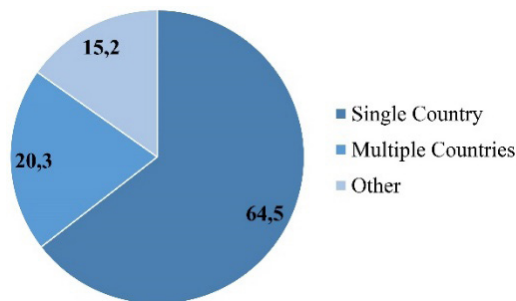


Figure 10. Countries Where The Study Area Is Located

According to the determinations made regarding the methods of accessing information and collecting data in the studies, it was seen that 79.7% of the studies consisted of qualitative research such as case and case studies and action research, in which detailed descriptions obtained through interviews, observations or documents were made. On the other hand, 12.7% were mixed studies such as explanatory or exploratory designs, and 7.6% were quantitative studies consisting of survey, correlational and relational research. In the analysis of the studies, 79.7% used qualitative analysis methods such as content analysis, coding, visualization, visualization, and inference, 12.7% used mixed analysis methods in which quantitative and qualitative analysis were used together, and 7.6% preferred quantitative analysis methods that allow various statistical evaluations (Figure 11).

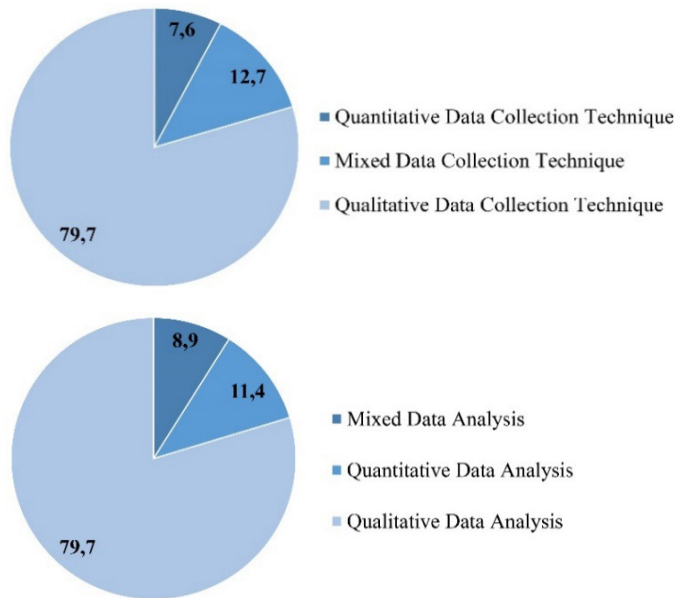


Figure 11. Data Collection (Top) And Analysis (Bottom) Methods In Theses

5.2. Evaluations On Content Analysis Of Graduate Theses

A word cloud was created for the keywords and thesis titles of 79 graduate theses evaluated within the scope of the study. The most prominent word in the word cloud, which includes 101 words that repeat at least 3 times, is sustainability. Design, interior, building, architecture, housing, furniture, office, ecological, green, material are other words that come to the fore in sustainability

studies. This situation indicates that the related studies have gained weight within the scope of building, interior and furniture, while housing and office buildings stand out as a sample. On the other hand, material selection has also taken an important place within the scope of sustainability studies, and ecological and green architecture have become alternative concepts. Other prominent words such as structure, lighting, leed and criteria indicate studies on the criteria of various certification systems on the subject. In addition, cultural sustainability studies stand out with studies that include the evaluation of natural and/or artificial lighting within the scope of sustainability (Figure 12).



Figure 12. Word Cloud Created From Graduate Thesis Title And Keywords

The indexes in which the theses within the scope of the study are defined show that the subject of “sustainability” has been opened to discussion with interdisciplinary studies. A word cloud was created from the indexes belonging to all of the theses covered in the study. In addition to decoration, interior and architecture, tourism, sociology, history, education, wood, urban planning, industrial product, fine art, regional and training were the other disciplines where the subject was discussed (Figure 13). The components of environmental, socio-cultural and economic sustainability explain the interdisciplinary work. Within the scope of environmental sustainability, product design with sustainable materials and sustainability of wood materials come to mind, while socio-cultural sustainability studies include sustainability in education, tourism, history and sociology. At the intersection of environmental and socio-cultural sustainability, urban and rural studies can be given as examples. On the other

hand, in addition to all disciplines, studies such as energy conservation and green energy, which are defined in architecture and interior design, should not be considered separately from the economic component.



Figure 13. Indexes Of Graduate Theses

6. CONCLUSION

It is a fact that sustainability studies are needed more than ever in the face of global resource problems. It is clear that the interior architecture profession, which is an important and widespread discipline of built environment studies, should do its part in this regard. It is possible to discuss all components of sustainability such as resource conservation, energy efficiency, preference and use of local materials, protection of historical and cultural environments in interior architecture vocational education. It is clear that various sustainability studies addressed in postgraduate theses contribute to the field.

Theses on sustainability in the field of interior architecture came to the agenda as of 2008, and although their number has decreased from time to time until today, the number of studies in the relevant field has increased in this 14-year period. The unbalanced, irresponsible and unfair use of resources indicates that the issue of sustainability will not fall off the agenda. It is clear that sustainable environment, space, building and product designs, which are kept up to date with congresses and events supported by various institutions and organizations, will be the main actors of future research topics.

The close ratios of sustainability and interior architecture studies in public and foundation universities give clues about the importance of the issue accepted by all circles. The fact that the universities that stand out with the number of

theses on the subject are located in metropolitan cities such as Istanbul and Ankara shows that this issue is more prominent on a global scale.

The fact that postgraduate studies on sustainability are predominantly affiliated with science institutes can be explained by the fact that the subject is based on various calculations and measurements as well as the combination of structure, material and application. The intensity of studies at the master's level is entirely related to the number of students studying at this level. On the other hand, it is clear that researchers who aim to gain employment in academia and produce doctoral and/or proficiency in art theses in this direction should pay more attention to the related field.

The fact that the studies on sustainability are intensively addressed within the scope of the building depends on the evaluation of the subject, especially together with the environmental systems. On the other hand, the fact that theses in which a single building is evaluated are at the forefront is likely to be due to a situation related to study methods such as fieldwork and on-site detection. The limitation of sample numbers can also be added to this situation. The fact that the sample buildings are mostly residential and commercial buildings is related to the general building stocks in the cities. In addition, the practices and approaches of sustainable designs developed for these building types, which provide intensive and active uses during the day, are effective in the prominence of the buildings.

Although the theses are related to all components of sustainability, especially environmental sustainability components are at the forefront. It can be argued that the structure of the professional practice of interior architecture, which enables the discussion of concrete factors such as structure, materials and lighting, is effective.

The fact that the thesis samples are mostly limited to the country of graduate study may be associated with the preference of study methods such as on-site observation and identification at the point of accessing data and information. On the other hand, it would not be wrong to explain the fact that countries such as the United States of America and the United Kingdom are in the first place in this ranking with the fact that they have developed various internationally recognized certification systems.

The use of qualitative data collection and analysis methods in most of the theses evaluated within the scope of the study can be explained by the effort to sample the application practices of thesis constructs in buildings or building groups.

According to the thesis titles and keywords, it can be said that holistic evaluations of the sample buildings or building groups, including lighting, material selection and use, and some structural designs stand out. In addition, it is clear that various analyzes of certification systems are also among the main topics of sustainability research. The fact that sustainability studies play a wide range of roles from product design to building design, from urban and rural studies to tourism studies shows that they are discussed on interdisciplinary platforms.

As a result, it is very valuable to raise awareness and consciousness about sustainability in higher education, to support it and to support it with concrete outputs. It is clear that sustainability research will be an important resource for legislators and practitioners as well as academics. Supporting these studies with various funds and incentives will be important initiatives that can increase interest in the subject.

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CHAPTER XI

CONSIDERING THE RECONSTRUCTED TRADITIONAL ANTALYA KALEİÇİ HOUSES WITHIN THE FRAMEWORK OF ARCHAEO-SPACE*

Busra GOKUZ¹ & Zuhale KAYNAKCI ELINC²

*¹Res. Asst. - Akdeniz University, Antalya
e-mail: busragokuz@akdeniz.edu.tr
ORCID: 0000-0003-2346-3019*

*²Prof. Dr. - Akdeniz University, Antalya
e-mail: zuhalelinc@akdeniz.edu.tr
ORCID: 0000-0002-6997-7296*

1. INTRODUCTION

People try to make sense of the conservation of natural and cultural assets with the desire to learn the history of the society they live in and the history of the geography they belong to, and to reach the meaning of the nature they are a part of (Emre, 2017). While contemporary culture changes day by day, it also makes an effort to understand the history of humanity. Contemporary societies open to innovations also research their past with great interest (Kuban, 2000).

Many cities are built on the civilization that preceded them and are multi-layered. There are many architectural works underground and above ground in cities continued as constructions throughout history. These works provide an understanding of the different periods of the city (Savrum Kortanoglu, 2007). In recent years, archaeological findings have been frequently encountered in

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foundation excavations of new constructions or at the stages of development projects. The valuable findings unearthed in such excavations are both exhibited and preserved in museums if they can be transported (Zeren and Uyar, 2010). While, as architectural findings are immovable assets, they have to be preserved. Therefore, the necessity of protecting the archaeological heritage in-situ arises. It is necessary to cover the archaeological architectural remains unearthed during constructions in cities with the help of a structure or to protect them by taking all the findings into a specified space. Moreover, since these remains are cultural heritage, they should be exhibited and examined by archaeologists when appropriate. Preserving such relics and handing them down to future generations requires an interdisciplinary study. While planning the formation of the space for archaeological remains, it is necessary to avoid designs that will take precedence over archaeological remains. They should be designed according to the archaeological remains, which are the main subject of the area.

The archaeological sites in a city constitute the memory of it that continue to exist. These archaeological sites bring the city to a privileged position with its past and create a common past for the inhabitants of the city (Savrum Kortanoglu, 2007). In the historical process, cities have been enriched with different architectural structures. Each period has had its own unique architectural understanding. The conservation of the buildings and their environments bearing the traces of these periods is important for protecting cultural heritage.

2. CONSERVATION AND DEVELOPMENT OF THE CONCEPT OF CONSERVATION

The concept of conservation is defined as “securing an asset against danger and external influences”, and in archaeological terms, “taking necessary precautions for the survival of structures or parts of the city that have historical or artistic value” (Emre, 2017). The concept of conservation is defined in the 21 July 1983 dated and 2863 numbered Law on the Conservation of Cultural and Natural Heritage as, “Conservation, maintenance, repair, restoration, function change operations in immovable cultural and natural assets, and preservation, maintenance, repair and restoration works in movable cultural assets” (KTVKK, 1983).

The desire to understand the past as a whole reveals protectionism. Today, historical buildings are protected for their cultural values. In the past, because of the high construction costs of the buildings and the long construction periods, the buildings were protected in order to continue using them (Tapan, 2014).

Studies on conservation in Turkey can be divided into two parts as the Ottoman period and the Republican period. Since most of the movable cultural assets were protected during the Ottoman period, they were protected with the understanding of museology. In the Republican period, the idea of protecting both movable and immovable cultural assets was developed. Furthermore, the integrated conservation approach, where the social and cultural structure is protected instead of physical conservation, has been effective (Keskinçilic, 2008).

The Asar-ı Atika (Antiquities) Regulation, which was valid on February 13, 1869, was the first comprehensive legal regulation related to the conservation of cultural assets. With this regulation, researchers were approved to carry out archaeological excavations and the artifacts unearthed during the excavations were prevented from being smuggled to other countries. This regulation was amended in 1874, 1884 and 1906 in accordance with the needs (Ahunbay, 2009). In the regulation of 1874, the definition of an ancient artifact was made for the first time. In the regulation of 1884, the prohibitions that would prevent the works from smuggled to other countries were taken again. The Atika Regulation, which was valid in 1906, provides information on subjects such as the definition of movable and immovable cultural assets, and organization. This regulation has an important place in Turkey as it is the first legal text of the law that has been systematically prepared (Eris, 2012).

Since 1935, the dominant conservation criteria in Europe have also been applied to movable and immovable cultural properties in Turkey. It was among the first twenty states to recognize the UNESCO Convention with the 4895 numbered and 20 May 1946 dated law (Emre, 2017).

In 1951, GEEAYK “High Council of Real Estate Antiquities and Monuments” was established with the 5805 numbered law to supervise the conservation works such as maintenance and repair of cultural assets that need to be protected in Turkey. This council was established to prepare the principles to be followed in conservation practices, to monitor and supervise these practices, and to express its views on monuments (Ahunbay, 2009). While GEEAYK took decisions on a single building scale in conservation practices, it started to take decisions on an environmental scale with the “Zoning Law” enacted in 1956. With this law, the definition and concept of the archaeological site began to be emphasized and detailed studies were carried out on the urban archaeological sites (Madran and Ozgonul, 2011).

The 1710 numbered Law on Antiquities, which entered into force on the 25th March 1973, ensured the preservation of the historical environment as a

whole. The concepts of natural, historical and archaeological sites were included in this law (Ahunbay, 2009). This law is the first law related to antiquities in the Republican period. The 1710 numbered Law on Antiquities is the version of the Asar-ı Atika Regulation, which came into force in 1906, in which the regulations and additions were made to that regulation (Madran and Ozgonul, 2011).

Turkey joined the International Council of Monuments and Archaeological Sites in 1974 and established its national commission that year. In the following processes, Athens, Venice, Amsterdam Conventions were accepted (Madran, 2009).

The Law on Antiquities was repealed on the 21st July 1983 and replaced by the 2863 Law on the Conservation of Cultural and Natural Assets. While the definition of “ancient works” was used in the Law on Antiquities, the definition of “cultural assets” adopted by UNESCO after this law was used (Ahunbay, 2009). In the 1983 dated and 2864 numbered Law on Conservation of Cultural and Natural Assets, the close surrounding of historical buildings or the protected areas that cover larger conservation areas than the neighborhood scale are mentioned (Keskinilic, 2008). After the 1983 dated and 2864 numbered Law, the High Council of Real Estate Antiquities and Monuments was abolished, GEEAYK was abolished and replaced by the “High Council of Cultural and Natural Assets” and “Regional Immovable Cultural and Natural Heritage Board” (Ahunbay, 2009).

The Article No. 10 of the 2863 numbered Law on the Conservation of Cultural and Natural Assets states that it is under the authority of the Ministry of Culture and Tourism, “To take the necessary measures to ensure the conservation of immovable cultural and natural assets, regardless of the ones having them in their possession or the administration, to have these necessary measures taken and to make all kinds of inspections or to have public institutions and organizations, municipalities and governorships do them” (KTVKK, 1983).

According to the 18th article of the 2863 numbered and 11 June 2005 dated Law, it was decided to establish Conservation, Implementation and Control Offices (KUDEB) within municipalities. These offices have been assigned duties such as supervising, reporting and permitting (Kaynas, 2018). KUDEB inspects buildings before the modification and repair applications to be carried out in the other structures in the protected area or conservation area, excluding the registered buildings and the structures that face or adjacent to them, issues the preliminary permit document for the repairs, inspects the implementation of the modifications and repairs in accordance with the original texture, issues a repair conformity certificate for the found ones (Keskinilic, 2008).

Turkey has accepted the principles and methods of conservation in the international arena by signing many international conventions. Turkey has been involved in activities such as the 1964 Venice Convention, the 1965 European Council, the Barcelona Symposium, the European Heritage Convention, the Granada 1987 Washington Convention, the Conservation Convention for Historic Cities and Urban Areas. The conservation approach in Turkey has largely caught up with contemporary standards with the regulations in 2004-2005 (Emre, 2017).

3. CONSERVATION AND STRUCTURING IN URBAN AND ARCHAEOLOGICAL SITES

Archaeological layers in urban areas are revealed randomly or systematically through excavations. These archaeological layers may come to light with the foundation excavations during the renovation of the structures. Unearthed findings need to be documented. The report prepared on the findings is submitted to the relevant regional conservation board, and after evaluating this report, it is decided on how to preserve the finding. For urban archeology, it is important to preserve the findings in situ. Even if there are new constructions, the findings can be preserved in the basement level. In this way, spaces that reveal the past of the city are formed. According to the importance of the archaeological remains, it is possible to exhibit without constructing any structure (Ahunbay, 2010).

Archaeological sites have been graded and the conditions of use and conservation have been determined with the 658 numbered principle decision of the High Council for the Conservation of Cultural and Natural Assets. No construction is allowed in 1st degree archaeological sites. 2nd degree archaeological sites are the areas that will be preserved as they are, except for the studies aimed at protecting them. The 3rd degree archaeological sites are the areas where new constructions will be allowed with the conservation and usage decisions (KTVKYK, 1999). All excavations in the 3rd degree archaeological sites are carried out under the supervision of a museum. In this way, all interventions are made under control and the cultural assets found during the excavation can be taken under conservation. In this case, the controlled use and conservation of the archaeological site is ensured (Madran and Ozgonul, 2011).

The High Council for the Conservation of Cultural Assets took the 10.04.2012 dated and 37 numbered decision on, “the Conservation and

Evaluation of Existing Archaeological Sites or the Cultural Heritage not Known Before and Revealed from New Constructions, Infrastructure Works or Natural Disasters”. By deciding this principle;

- It is necessary to continue the excavations with scientific methods and bring the cultural assets unearthed outside of the archaeological excavations in the places declared as protected areas and to be brought to the city by exhibiting them in situ through appropriate preservation methods.

- Cultural properties, not suitable for in-situ conservation, can be removed under the supervision of experts, in accordance with the decision of the relevant regional conservation board.

- If the unearthed cultural asset reflects the characteristics of the period it belongs to, belongs to an ancient city texture, or if it is revealed that the remains can expand to neighboring parcels as the excavations continue, this cultural asset should be preserved and exhibited in situ.

- If the unearthed cultural asset is located inside a private ownership, it should be transferred to public ownership. If this asset cannot be transferred to public ownership, it must first be scientifically excavated, then preserved and exhibited on site by the property owner. Provided that the cultural assets are protected by not damaging them, the owner of the property can apply a project in this area with the permission of the ministry and the regional conservation board (KVYK, 2012).

The salvage excavations emerged as a necessity with the settlements in the cities and the understanding of the rich historical data carried by the city centers were two factors that enabled the development of Urban Archeology (Tuna, 2000).

4. HISTORICAL PROCESS AND CONSERVATION APPROACHES OF KALEIÇİ

Kaleiçi is a settlement where every period since ancient times has passed. The region has been affected by these historical developments and there are important examples of the building culture heritage from ancient times to the present (Karaesmen, 2021).

Kaleiçi, which has hosted various civilizations throughout history, is the historical city center of Antalya. In the region, prehistoric civilizations, Hittites, Lydians, Persians, Macedonians, Ptolemies, Seleucids, Pergamons ruled, and

then the Roman and Byzantine periods passed (Guclu, 1997). After the Roman and Byzantine periods, with the domination of the Anatolian Seljuk Turks beginning from the 12th century, structures such as madrasahs, mosques, tombs and caravanserais were built in the city. Then, the city, which was became a part to the Ottoman Empire, became one of the important sanjaks of the Ottoman Empire (Kayır and Salim, 2005). The harbor and the ancient city of Attaleia, which developed behind it, have been used as a settlement area uninterruptedly since the 2nd century BC and have survived to the present day (Keskinılıc, 2008).

Kaleiçi Region was accepted as a “Protected Area” with the 09.06.1973 dated and 7176 numbered decision of the High Council of Real Estate, Antiquities and Monuments (Uyar and Erdogan, 2007). The “Kaleiçi Conservation Development Plan” was approved in accordance with the 22.09.1979 dated and 1850 numbered decision of the High Council of Real Estate Antiquities and Monuments. This plan was approved by the Ministry of Construction and Settlement in 1982 and entered into force (Gul, 2006).

The Antalya Kaleiçi urban and archaeological sites were re-determined in accordance with the 26.12.1986 dated and 2929 numbered decision of the High Council of Immovable Cultural and Natural Heritage, 403 registered and protected groups of civil architecture examples, 21 city walls and bastions, 24 monumental structures, 32 wells, 32 gardens and 25 trees to be protected have been determined (AKVKBK Archive, 2021).

Definitions such as the 1st and 2nd Degree Archaeological Site, Historical-Urban Site, Natural Site, which were introduced with the current plan decisions and various committee decisions for Kaleiçi, made it difficult to perceive and evaluate the area as a whole (Gul, 2006). Therefore, in 1989, the Cultural and Natural Heritage Preservation Board requested that these problems be evaluated holistically within a plan revision. METU Prof. Dr. Mustafa Parlar Education and Research Foundation has been assigned to prepare a “Conservation Development Plan Revision”. The Conservation Plan was approved in accordance with the 13.05.1992 dated and 1442 numbered decision of Antalya Cultural and Natural Heritage Preservation Board. Within the scope of the Conservation Zoning Plan Revision of Kaleiçi; 127 monumental structures, 473 examples of civil architecture with registered and designated conservation groups, 93 gardens and 25 monumental trees to be protected have been registered as cultural and natural assets. Furthermore, the entire area has been defined as an “Urban and 3rd Degree Archaeological Site” (Keskinılınc, 2008).

In the following period, the borders of Kaleiçi Urban and Archaeological Sites were renewed in accordance with the 23.03.1998 dated and 3736 numbered decision of the Antalya Cultural and Natural Heritage Preservation Board (Keskinkılınc, 2008).

The in-situ preservation of the structures or the remains of the structures in Kaleiçi, which have archaeological value and is determined to be protected by AKVKBK, is taken as a basis. The structures or structure remains intended for strengthening or re-functioning are intervened in accordance with the decision of AKVKBK (AKVKBK Archive, 2021).

Kaleiçi determined to be a 3rd Degree Archaeological Site, drilling works are carried out by the experts of the Museum Directorate before the new construction (Keskinkılınc, 2008). After the report prepared as a result of the drilling is evaluated by AKVKBK, operations are carried out according to the decision to be taken. Before implementing the reconstruction project approved in accordance with the AKVKBK decision for the structures registered as immovable cultural property to be protected are demolished due to fire, dilapidation and similar reasons, and sounding excavations are carried out in these parcels. If archaeological remains are found in the parcel as a result of the drilling, the parcel may be turned into a Special Project Site status in accordance with the decision of AKVKBK in order to protect and exhibit the remains. In these parcels, which have been assigned the status of Special Project Site, a new structure is constructed in accordance with the specified issues regarding the Special Project Sites without amending the plan (AKVKBK Archive, 2021).

In addition to its natural beauties, Antalya is a city rich in archaeological and historical artifacts. Therefore, archaeological and historical artifacts should be protected with an appropriate conservation approach after they are registered with their current status.

4.1. Data on the Buildings Examined in Kaleiçi

Within the scope of the study, 4 buildings related to archaeological findings in Kaleiçi were examined (Figure 1). These buildings;

- 102 block 12 parcel (Kılınçarslan Neighborhood, Hesapçı Street)
- 148 block 15 parcel (Tuzcular Neighborhood, Karanlık Street)
- 148 block 31 parcel (Tuzcular Neighborhood, Uzun Çarşı Street)
- 148 block 34 parcel (Tuzcular Neighborhood, Uzun Çarşı Street)



Figure 1. Location of the studied buildings (Arranged on the map taken from Antalya Metropolitan Municipality)

102 block 12 parcel (Restaurant);

Excavation work was carried out before starting the construction on 102 block 12 parcel located in Antalya Province, Muratpaşa District, Kılınçarslan Neighborhood, Kaleiçi Urban and 3rd Degree Archaeological Site.



Figure 2. Archaeological finds revealed as a result of excavations in 102 block 12 parcel (Nejat Uregen Architecture Office Archive, 2021)

The new construction project in 102 block 12 parcel was approved in accordance with the 17.02.2006 dated and 865 numbered decision of the Conservation Board.



Figure 3. Project drawings of the building located on 102 block 12 parcel (Nejat Uregen Architecture Office Archive, 2021)

The function of the building is the restaurant. The building is designed as two-storey. On the ground floor, there is the exhibition area, the kitchen, the preparation area, the storage space and on the upper floor there is the working and sitting area, the administration room and the toilets. The construction system of the newly designed building is reinforced concrete. Some of the columns are covered with brick and some with wood. The walls are made of bricks. The walls are plastered and painted.

The findings were covered with laminated glass. Laminated glass flooring ensures that the findings are both preserved and exhibited. The flooring other than the laminated glass flooring is travertine.



Figure 4. Photographs of the building located on 102 block 12 parcel (Original, 2021)

148 block 15 parcel (Culture and Art House);

The drilling excavation was carried out between 13-21.11.2003 and 01-04.12.2003 on 148 block 15 parcel, located in Antalya Province, Muratpaşa District, Tuzcular Neighborhood, Kaleiçi Urban and 3rd Degree Archaeological Site, after its owner applied to the Museum Directorate for a construction permit for this area (Figure 5).

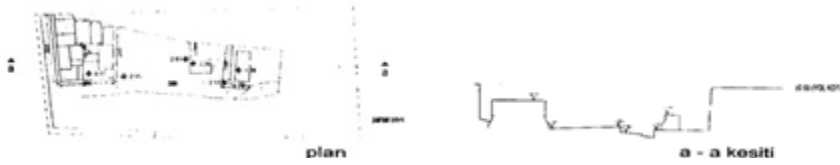


Figure 5. Drilling excavations carried out on 148 block 15 parcel (Yener and Malkoc, 2004)

According to the 16.12.2003 dated report of Antalya Museum Directorate, it was determined that the finding in the north corner could be the mount of an entrance, and the other finding was a cut stone in situ condition. Archaeological findings are located in the northern corner and middle of the parcel.

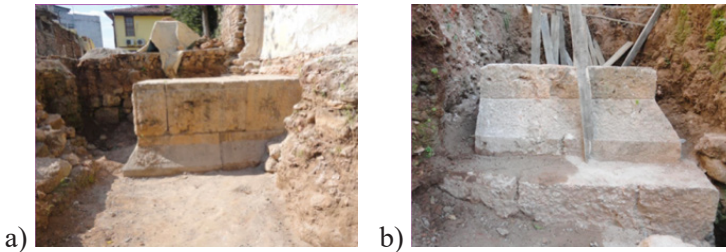


Figure 6. a) In-situ pillar in the north corner of the parcel; **b)** In-situ stone block in the middle of the parcel (Biz Architecture Office Archive, 2021)

The project, which was prepared for preserving and exhibiting the registered monumental building found on 148 block 15 parcel in Kaleiçi Urban and 3rd Degree Archaeological Site, was approved in accordance with the 21.02.2012 dated and 13 numbered decision of the Conservation Board.

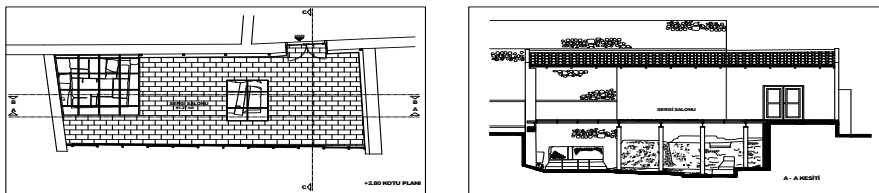


Figure 7. Project drawings of the building located on 148 block 15 parcel (Biz Architecture Office Archive, 2021)

The function of the building is the exhibition hall. Temporary exhibitions will be held in the exhibition hall and will be open to the public. The building is designed as a single-storey. The building is accessed from the neighboring

parcel in the northeast. The entrance to the Exhibition Hall is through a wooden two-armed door from the northeast. On the road side, there are wooden windows with sliding straps on the stone wall. In this way, the desired filtered light for the exhibition hall is provided. The stone walls are unplastered from the inside and outside. The newly built brick walls are plastered and painted.

The findings were covered with laminated glass and illuminated from the lower level. It was ensured that the findings were exhibited by walking on the glass floors. The parts on the pavement over the findings were covered with laminated glass. The flooring other than laminated glass is travertine.



Figure 8. Photographs of the building located on 148 block 15 parcel (Original, 2021)

148 block 31 parcel (Pension);

The drilling excavation was carried out between 31.01.2011-17.06.2011 on the private property located at 148 block 31 parcel, located in Antalya Province, Muratpaşa District, Tuzcular Neighborhood, Kaleiçi Urban and 3rd Degree Archaeological Site by the Museum Directorate of Antalya upon the restructuring application of the owners.



Figure 9. Archaeological finds revealed as a result of excavations in 148 block 31 parcel (Demirel et al., 2012)

The new construction project, which also includes the preservation of the findings in this parcel, was approved by the 11.12.2012 dated and 1240 numbered decision of the Conservation Board.



Figure 10. Project drawings of the building located on 148 block 31 parcel (Biz Architecture Office Archive, 2021)

The function of the new building is hostel. There are 2 double rooms on the ground floor, 1 double room and 1 family room on the upper floor, and a view terrace on the basement floor. The construction system of the newly designed building is reinforced concrete. All the walls are made of bricks. The walls are plastered and painted. In the project, the retaining wall passes along the boundary of the parcel. The retaining wall is covered with cut stone.

The findings are preserved in situ and uncovered. The drainage of the findings is ensured by laying gravel in the garden area outside the findings. The floor of the view terrace at -2.50 elevation is travertine flooring. There are wooden railings on the surfaces of the view terrace associated with the archaeological findings. Although it is tried to be maintained periodically, uncovered situation of the findings accelerates the deterioration.



Figure 11. Photographs of the building located on 148 block 31 parcel (Original, 2021)

148 block 34 parcel (Pension, Restaurant);

The drilling excavation was carried out on 31.01.2011 on the private property located at 148 block 34 parcel, located in Antalya Province, Muratpaşa District, Tuzcular Neighborhood, Kaleiçi Urban and 3rd Degree Archaeological Site by the Museum Directorate of Antalya.



Figure 12. Archaeological finds revealed as a result of excavations in 148 block 34 parcel (Biz Architecture Office Archive, 2021)

The function of the new building is hostel. There is the entrance hall, reception, public toilets, kitchen, breakfast hall (cafe, bar) on the ground floor, 5 double rooms on the upper floor, the engine room on the basement floor and the area where the findings are exhibited. The construction system of the building is reinforced concrete. All the walls are made of bricks. The walls are plastered and painted. The retaining wall is covered with cut stone.

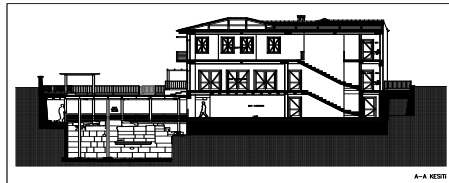
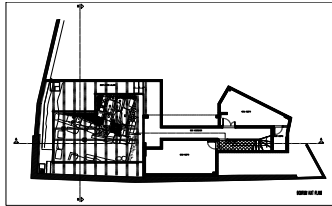


Figure 13. Project drawings of the building located on 148 block 34 parcel (Biz Architecture Office Archive, 2021)

Archaeological findings were protected from natural conditions by covering them with laminated glass and making it easier to exhibit. The findings

can be reached from the stairs inside the building. The basement floor is arranged for the purpose of exhibiting archaeological findings. There is a railing around the findings.

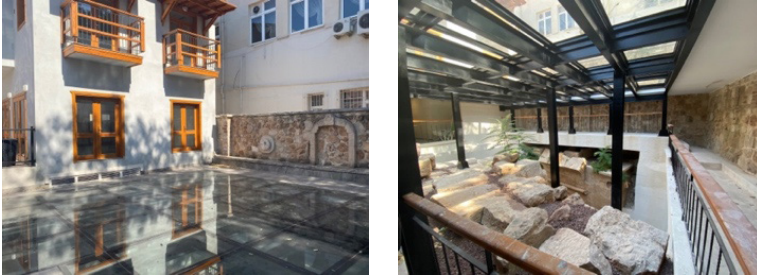


Figure 14. Photographs of the building located on 148 block 34 parcel (Original, 2021)

5. ANALYSIS OF BUILDINGS SHAPED BY ARCHAEOLOGICAL FINDINGS

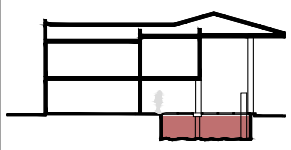
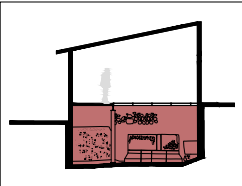
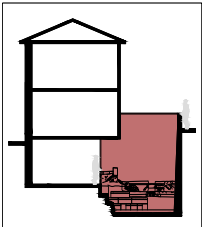
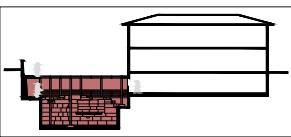
The buildings examined in Kaleiçi are the buildings whose archaeological findings were reached during the new constructions. These archaeological findings unearthed during constructions have led to the implementation of structural projects for the conservation and exhibit of archaeological findings.

The examined buildings were analyzed for the preservation and exhibit of the archaeological findings, the relationship of the findings with the materials of the horizontal and vertical elements of the spaces, and the relationship between the archaeological findings and the equipment in the spaces.

5.1. Analysis of Archaeological Findings in Buildings in Terms of Conservation and Exhibition

The conservation and exhibition forms differ in these buildings in the 3rd degree archaeological site, where archaeological findings were reached during the sounding excavation before the construction (Table 1).

Table 1. Conservation and Exhibition of Archaeological Findings

Information of the Building	Conservation and Exhibition of Archaeological Findings	
<p>Block Parcel: 102 block 12 parcel</p> <p>Function of Building: Restaurant</p>		<p>Conservation Type: Archaeological findings are preserved at the sub-ground level of the building.</p> <p>Exhibition Type: The exhibition of the archaeological find was provided with the laminated glass flooring on the floor.</p>
<p>Block Parcel: 148 block 15 parcel</p> <p>Function of Building: Culture and Art House</p>		<p>Conservation Type: Archaeological findings are preserved at the sub-ground level of the building.</p> <p>Exhibition Type: The exhibition of the archaeological find was provided with the laminated glass flooring on the floor.</p>
<p>Block Parcel: 148 block 31 parcel</p> <p>Function of Building: Pension</p>		<p>Conservation Type: Archaeological findings are preserved at the sub-ground level of the building.</p> <p>Exhibition Type: The archaeological find is exhibited as an open top. The exhibition of the archaeological find has been provided with the viewing terrace located at the sub-ground level.</p>
<p>Block Parcel: 148 block 34 parcel</p> <p>Function of Building: Restaurant</p>		<p>Conservation Type: Archaeological findings are preserved at the sub-ground level of the building.</p> <p>Exhibition Type: The archeological finds are exhibited both with the laminated glass flooring on the floor and the promenades created around the archaeological findings.</p>

If the buildings are examined regarding the way the archaeological findings are preserved and exhibited;

- It has been determined that the archaeological findings in all buildings are preserved at the sub-ground level of the building.
- It has been determined that the artifacts in 3 buildings (102 block 12 parcel, 148 block 15 parcel and 148 block 34 parcel) are protected and exhibited with glass flooring, while in 1 building (148 block 31 parcel) the top of the finding was left uncovered.
- While there are no excursion paths around the archaeological findings in 2 buildings, it has been determined that there are excursion paths around the archaeological findings in 2 buildings (148 block 31 parcel and 148 block 34 parcel).
- It has been determined that the archaeological findings in 2 buildings (148 block 31 parcel and 148 block 34 parcel) are accessed from the stairs inside the building.

Table 2. Evaluation of the Building Shaped by Archaeological Findings in Terms of Conservation and Exhibition

Information of the Building	Preservation of Archaeological Findings		Exhibition of Archaeological Findings	
	Conservation Under Ground Level	Conservation Inside the Building	Exhibition with Glass Flooring	Exhibition with Circulation at Artifact Level
102 block 12 parcel	✓	✓	✓	-
148 block 15 parcel	✓	✓	✓	-
148 block 31 parcel	✓	✓	-	✓
148 block 34 parcel	✓	✓	✓	✓

As a result of this study, if the buildings shaped by archaeological findings in Antalya Kaleiçi are taken into consideration in terms of conservation and exhibition (Table 2);

- As a design criterion, attention was only paid in the projects prepared for the buildings to ensure that the carrier system does not damage the archaeological findings.

- It is seen as a method of conservation and exhibit in the buildings that the floors where the archaeological findings are located are usually covered with glass flooring. There is also an example where the archaeological finding is not covered with a glass floor but left open. In such examples, archaeological findings are unprotected against external factors.



- The findings in the buildings are usually covered with glass and can be viewed from the top. There are also examples where the findings from the upper level are exhibited and the level where the archaeological findings are located is accessed. It is possible to examine the findings more closely in the buildings that go down to the level where the archaeological findings are located.

5.2. Analysis on the Relationship of Archaeological Finds with the Materials of the Horizontal and Vertical Elements of the Space in Buildings

With the presence of the archaeological finding in the space, a relationship emerges between the elements that make up the space. In the space, walls from vertical elements and floors from horizontal elements are the space components with the largest surface. Therefore, these elements have an important place in the perception of space.



102 Block 12 Parcel: Covering the area outside the exhibition function with travertine flooring prevents the archaeological findings from being distinguished. The color similarity between travertine flooring and archaeological findings causes this. As the columns are covered with wood and brick and the surfaces between the columns are covered with glass do not have any adverse effect on the perceptibility of the archaeological finding.

Table 3. The relationship of the archaeological finds in 102 block 12 parcel with the material of the horizontal and vertical elements in the space

102 Block 12 Parcel	
Horizontal Elements	Vertical Elements
<p>The area where the archaeological finds are exhibited is covered with laminated glass flooring.</p> <p>The area outside the exhibition function is covered with travertine flooring.</p>	<p>Some of the columns in the space are covered with wood and some with bricks. The surfaces between the wooden covered columns are covered with glass.</p>
	



148 Block 15 Parcel: Covering the area outside the exhibition function with travertine flooring prevents the archaeological findings from being distinguished. The color similarity between travertine flooring and archaeological findings causes this. The fact that the three facades of the building are stone walls reduces the perceptibility of the archaeological finding.

Table 4. The relationship of the archaeological finds in 148 block 15 parcel with the material of the horizontal and vertical elements in the space

148 Block 15 Parcel	
Horizontal Elements	Vertical Elements
<p>The area where the archaeological finds are exhibited is covered with laminated glass flooring.</p> <p>The area outside the exhibition function is covered with travertine flooring.</p>	<p>Stone walls are unplastered. The brick walls are plastered and painted.</p>
	

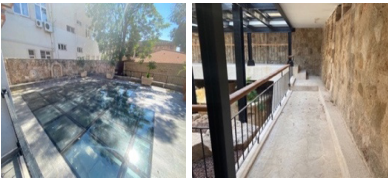

148 Block 31 Parcel: Covering the retaining wall with cut stone reduced the perceptibility of the archaeological finding. As the cut stone is similar to the archaeological finding with its color and texture, it adversely affects the perception of the finding. Furthermore, the travertine flooring prevents the perceptibility of the archaeological finding. The color similarity between travertine flooring and archaeological findings causes this.

Table 5. The relationship of the archaeological finds in 148 block 31 parcel with the material of the horizontal and vertical elements in the space

148 Block 31 Parcel	
Horizontal Elements	Vertical Elements
<p>The viewing terrace on the level where the archaeological finds are exhibited is covered with travertine flooring.</p> 	<p>The retaining wall is covered with cut stone.</p> 

148 Block 34 Parcel: While the laminated glass floor, used for the purpose of exhibiting the archaeological findings from the upper level, forms the floor of the place at this level, these glass floors form the ceiling of the place at the level where the findings are located. As the excursion paths are covered with natural stone which is in the color similar to the archaeological finding, it adversely affects the perception of the finding. Covering the retaining wall with cut stone reduces the perceptibility of the archaeological finding. The use of cut stone in the room adversely affects the perceptibility of the finding.

Table 6. The relationship of the archaeological finds in 148 block 34 parcel with the material of the horizontal and vertical elements in the space

148 Block 34 Parcel	
Horizontal Elements	Vertical Elements
<p>The area where the archaeological finds are exhibited from the upper level is covered with laminated glass flooring. The excursion paths around the archaeological find are covered with natural stone.</p> <div style="display: flex; justify-content: space-around;">  </div>	<p>Some of the walls in the area where the archaeological finds are exhibited are covered with scalloped mosaic plaster and some of them are covered with cut stone.</p> <div style="text-align: center;">  </div>

As a result of this study, if the buildings shaped by archaeological findings in Antalya Kaleiçi are taken into consideration in terms of the materials of the vertical and horizontal elements;

- Travertine flooring or natural stone is used for the flooring, which is outside the exhibit function in the buildings. The similarity of the flooring with the finding in color and texture decreases perceptibility of the archaeological finding.
- The use of local material and reference to the past prevents the findings from being perceived.
- The vertical elements of the 3 buildings are made of stone or cut stone. As these materials are similar in color and texture to the archaeological findings, they prevent the perceptibility of the archaeological finding. In 1 building (102 block 12 parcel), the findings come to the fore because the vertical elements are covered with wood.
- While there are glass floors in 3 building for preserving and exhibiting the archaeological findings, glass floors is not used in the other 1 building (148 block 31 parcel) as the top of the archaeological finds was left uncovered.
- Using materials imitating the old in the buildings prevents the reading of the archaeological findings due to the inability to distinguish between the old and the new. It is important to choose materials that will bring the archaeological findings to the fore in the space design of the buildings.

5.3. Analysis on the Relationship between the Archaeological Finds and the Reinforcement in the Space

In the places where the archaeological findings are located, there are fixtures according to the function of the space. The effect of these fixtures on the visual relationship of the archaeological findings in the space will be examined.

102 Block 12 Parcel: There are archaeological finds in the building, which is used for commercial purposes. The building is used as a restaurant. The restaurant has tables and chairs in the area where the archaeological findings is covered with laminated glass. These fixtures interrupt the visual relationship of the archaeological findings (Figure 15).



Figure 15. The relationship between the archaeological finds in 102 block 12 parcel and the equipment in the space (Original, 2021)

148 Block 15 Parcel: In this place where cultural and artistic activities are held, there is no fixture that will completely interrupt the visual relationship in the area where the archaeological findings are covered with laminated glass. The seating elements of the space and the piano are on the travertine floor. While, the storage unit in the corner of the space is on laminated glass. It cannot be said that this element completely cuts the visual relationship of the archaeological finding (Figure 16).

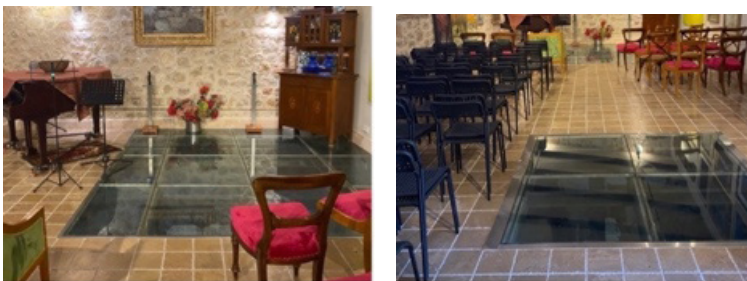


Figure 16. The relationship between the archaeological finds in 148 block 15 parcel and the equipment in the space (Original, 2021)

148 Block 31 Parcel: The archaeological finding is located in a building used for commercial purposes. The function of the building is the hostel. As the archaeological finding is not covered with glass, there is no fixture to interrupt the visual relationship (Figure 17).



Figure 17. The relationship between the archaeological finds in 148 block 31 parcel and the equipment in the space (Original, 2021)

148 Block 34 Parcel: There are archaeological findings in the building, which is used for commercial purposes. The function of the building is the restaurant. In the space where the archaeological findings are covered with laminated glass, there is no fixture element to interrupt the visual relationship (Figure 18).

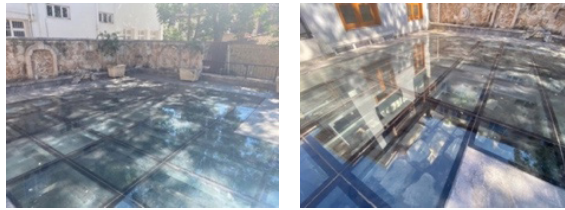


Figure 18. The relationship between the archaeological finds in 148 block 34 parcel and the equipment in the space (Original, 2021)

Table 7. Evaluation of buildings shaped by archaeological finds in terms of laminated glass flooring

Information of the Building	Existence of Equipment on Glass Flooring	Opening of Glass Flooring to External Factors
102 block 12 parcel	✓	-
148 block 15 parcel	✓	-
148 block 31 parcel	-	-
148 block 34 parcel	-	✓

As a result of this study, if evaluated in terms of laminated glass flooring in the buildings shaped by archaeological findings in Antalya Kaleiçi (Table 7);

- Some of the buildings have reinforcements on the glass floor. In buildings with reinforcement on the glass floor, the perceptibility of the archaeological findings in the space becomes difficult. In these buildings, there are fixtures according to the function of the space.
- Glass flooring is used inside the building in order to protect and exhibit the archaeological findings. In one building, the laminated glass floor is exposed to environmental factors such as rain and sun.

6. CONCLUSION

Antalya Kaleiçi region, which continues its existence uninterruptedly with its historical past, is defined as an “Urban and 3rd Degree Archaeological Site”. Conservation works are carried out in this area bearing the traces of many historical periods. The archaeological values and urban elements found underground and above ground in Kaleiçi should be preserved and hand down to the future.

If archaeological values are found in the excavations, the findings should be integrated with the city. In this case, the historical elements of the urban environment will come to the fore. The coexistence of the old and the new in the space ensures that historical and traditional settlements and contemporary structures form integrity. There is an opportunity to use the “values called cultural assets to be protected” in urban life.

It can be said that the conservation approaches for archaeological assets in Antalya Kaleiçi are the right approaches. However, for the archaeological assets that have been excavated and taken under conservation with great efforts to be sustainable, certain conditions must be observed. In the projects approved by the conservation boards, attention is only paid that the carrier system does not damage the archaeological findings as a design criterion. Other binding design criteria should also be defined in these projects. Design criteria such as the correct selection of the materials of the spatial elements to be used in the space where the archaeological findings are located, the placement of the fixture elements to be used in the space according to the archaeological findings in the space should be determined.

There is a relationship between the quality of the finding found in the archaeological area and the type of conservation to be applied. As the finding unearthed in the excavation area is an architectural structure that sheds light on a period or is a part of an architectural structure is an important factor affecting

the size of the project to be established to protect and exhibit the archaeological find. In the construction projects established by prioritizing the preservation and exhibit of the findings, the carrier system is shaped according to the archaeological findings.

The buildings with projects prepared according to the findings should be designed by bringing together very different design criteria. In order for these projects to be prepared in accordance with their function, these spaces must first be defined correctly. No specific definition has been found in the literature for such spaces, and it is thought that the concept of archaeo-space may be appropriate. Although the concept of archaeo-space is a concept that has not yet entered the literature, it is a phenomenon that will be discussed a lot in the coming years. As the concept of archaeo-park in the literature does not sufficiently cover the “archaeo-space”, discussion of this new concept, determination of archaeo-space planning principles and enforcement have become a must for all multi-layered Mediterranean Cities built on the ruins of the Hellenistic-Roman Period. It is derived from the words archaeo-space, archeology and space. This term can be defined as “spaces that allow the exhibits of the findings unearthed as a result of archaeological excavations and have a top cover system that is surrounded by walls or carrier elements”.

If the buildings shaped by archaeological finding in Antalya Kaleiçi are taken into account;

- The exhibited findings of buildings with different functions did not become a striking element. They could not create a point of attraction for the place.
- There is no information about the archaeological findings in the space. It is necessary to inform the ones visiting and using these places to raise awareness about archaeological artifacts.

The most important finding obtained as a result of this study is that the spaces containing archaeological findings should be defined as archaeo-spaces, the design criteria for these spaces should be determined, and these criteria should be accepted by the conservation committees.

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CHAPTER XII

INTERIOR ORGANIZATION OF DETACHED HOUSES IN EARLY TURKISH REPUBLIC PERIOD*

Gülay USTA¹ & Sena TUĞCU²

¹Prof.Dr. - İstanbul Kültür University

e-mail: g.usta@iku.edu.tr

ORCID:0000-0002-5262-6078

²Architect – - İstanbul Kültür University

e-mail: senatugcuu@gmail.com

ORCID: 0000-0002-9043-4624

1. INTRODUCTION

All political, economic, cultural, technological, and social changes and transformations in the world show their effects in different places and fields. One of the areas affected by these changes is architecture. When we look at the historical process, cities received support for their positive effects on changes since their formation (Canatan, 1995). Since the formation of humanity, two great revolutions have changed the habitat in that man exists. The first of these revolutions is the ‘Agricultural Revolution’ and the other is the ‘Industrial Revolution. With the transition to settled life with the Agricultural Revolution, villages and cities were formed. With the mechanization that started after the industrial revolution, the need for production and manpower increased. For this reason, migration from village to city emerged and as a result, modern cities began to form (Kaypak, 2013). The transformation created by the industrial revolution, which is considered to be a turning point in the history of the world,

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has shown its influence in many fields such as culture, art, and architecture in the west and then in other societies.

Modernism, which is formed based on science and a rational mind after the developments in the industry period, is a process in which lifestyles are renewed from traditional. 'Modern Architecture, which was formed by the effects of modernism, has shown its effects first in Europe and then in America. Industrialization and mechanization that started with the Industrial Revolution increased the need for people to work in the city and the need for housing in cities with increasing population and migration. With the industrial revolution, technology and new materials, quick construction techniques, and modular organizations have started to be tried in housing production. Thus, new housing organizations have emerged under the leadership of modernism and science. Plan facades and mass fiction in housing organizations have shown both opposing stances and innovative changes to the selection of furniture and goods, the materials used in many fields such as the previous currents.

In response to these developments in Europe, the Tanzimat Edict as a modernization movement in Turkey is defined as the first step of Westernization efforts. Concerning the record of the stages of modernization efforts by changing the traditional structure of society, and the realization of administrative and legal reforms, the transformation of the modernization movement into a structural and theoretical form began with the establishment of the Republic (Yaşar ve Asal, 2022). The threshold of the main change in this process is the Republican era, which started with the War of Independence and then continued with the establishment of the Republic. The main point that distinguishes the Republic's modernization from the modernization of the Ottoman is the adopted ideological infrastructure. The Republican groups tried to create the new order they had created without caution, maintaining the status, without ignoring the outcome. (Çetin, 2003)

Social, cultural, and economic changes that started with the Republican administration also took place in architecture, and new developments in architectural production were experienced.

With the westernization effect that started in architectural production in the first years of the republican period, and the active role of foreign architects in building production, the modernist understanding began to come to the fore in public and civil building architecture. Along with these interactions, changes in social life have also had an impact on residential architecture. In addition to the apartment-type residences built with western influence, the modernist

understanding of architectural mass, interior planning, and furniture has shown its effect in detached houses, too.

When we look at the research on the architecture of the Republican period, it is seen that there is research on historiography and city or building-specific studies. Aslanoğlu's (1980) work is one of the first and most comprehensive studies of Early Republican architecture. The work talks about the shaping of building products about the social, cultural, and economic innovations in the Turkish Republic between 1923-1938. This piece in which the given period was referred to as the "Early Republic period" for the first time has its research area in the capital, Ankara.

In the research on the residential architecture of the period, it is noteworthy that the buildings focused on architectural dimensions such as mass composition, and facade-plan setup, and that there were insufficient studies on interior design. It is thought that the studies on how modernism and changing living habits affect the interior organization of houses, furniture, and textiles are not sufficient. For this reason, it is thought that the reflection of the changes brought by the Republic and the changing living habits with the understanding of westernization on the interior design of the houses and the elements in the interior will be an important source of literature for the discipline of interior architecture. Therefore, this study, it is aimed to determine how the modernist understanding of the Early Republican period affected and shaped the interior space organization of detached houses. In the study, *Arkitekt Journal*, which is an important archive documenting the residential architecture of the period and the only printed source in terms of Turkish architecture, was chosen as a research resource. In the scope of the research; The main reason for examining detached houses is the assumption that they are primarily affected by the social, political, cultural, and economic changes of the period and that they can be detected more easily spatially.

2. SOCIAL STRUCTURE AND ARCHITECTURE IN THE EARLY TURKISH REPUBLICAN PERIOD

The social order that started to change with the Republic and the lifestyle that moved away from the traditional structure brought along new spatial searches. Developments expressed in different periods in architecture influenced their perspectives in parallel. In this period, the words "Modern" and "Asri" were used quite often as a symbol of the ideology of change, to define architecture and space in a contemporary dimension, as in every field (Bilgin, 1996).

The Republic was established in 1923 and Ankara became the capital. The basic project in the founding of the Republic is not only based on political qualities. There are three main points in the aimed change. The first of them is nation-state building, the second is the fundamentalist modernity project and the third is to develop a new cultural program. The first two of these concepts used to describe the Republic are the ones frequently used by social scientists. However, the third is a characterization made by Mustafa Kemal himself. Mustafa Kemal said;

“My problem is not to reform the Istanbul Darülfünun. My problem; is to program a new culture.” (Tekeli, 2011, p.25)

When the Republic was established in the 1920s the architectural perspective that was dominant was “First National Architecture”. However, the founder of the Republic, Mustafa Kemal, took a stance against nationalist historicism and sided with the newly developing modern architecture in Europe. During that time concept of modern architecture has just started to develop in Europe and there was not an architectural community that supported this concept yet. Mustafa Kemal who was trying to build a nation was wanting the new politic model that emerged after the establishment of the Republic and the establishment of the nation-state model to be symbolized in the architecture field. With the establishment of the nation-state, new goals such as the renewal of the government image and symbolizing the success of the Republic were thought of (Erarslan, 2020). It was thought that architecture would be shaped by its practices and free thoughts as part of the institutionalization to reach the ‘Level of Contemporary Civilization / Level of Contemporary Civilization’. The opening of modernity, which started with the Ottoman period but could not run due to the incompatibility with the structural components of the empire, was paved with the Republic (Batur, 2011).

In particular, it was desired that Ankara, as the capital, should be re-established in a way that would reflect the innovative and contemporary character of the young Republic with its architecture and set an example for all Anatolian cities. On the other hand, in this period when the collapse of the 600-year-old empire and the heavy economic burden of the war continued, an attempt was made to solve the 1929 economic crisis with the policy of progressive statism. In this period, the number of architects was very limited. Thus, “The Encouragement Industry Law” of 1927 was enacted. With this law, it was possible to bring foreign technical experts, planners, engineers, and architects. The brain drain that started due to the oppressive regimes that developed in

European countries and the suffocating political environment made the young Republic of Turkey attractive to experts. In this context, starting in 1927, many foreign experts in many fields took part in Turkey as practitioners and educators. Most of the incoming architects were representatives of the Central European-Viennese architectural school (Hasol, 2017). Architects like Ernst Egli, Bruno Taut, Clemens Holzmeister, Paul Bonatz, Gustav Oelsner, Giulio Mongeri, and Theodor Jost were influential in the country's architecture and urbanism. Architects, whose projects are mostly state buildings in Ankara, have designed buildings both as foreign architects and together with Turkish architects in all the leading cities of the country. With the innovative perspective brought by the Republic, the understanding of building in the national architectural style was abandoned, and buildings with plain and simple facades, built for the purpose for which they will be used, were preferred in line with the principles of modern architecture (Kopuz, 2018). Rational and functional architectural understanding, cubic mass, wide glass facades, and free design principles are the most striking features of modern architecture. On the facades, stone and brick materials are generally used. Monumental-looking buildings with sharp lines, and plain and symmetrical geometry came to the fore.

The first national architectural period, which was influential in architectural production in Turkey in the 1920s is defined as;

“In this period; architecture was mobilized for the first time and on a large scale for identity-building and nation-building. Turkish architects systematically calculated new building types, construction techniques, and design principles for the first time in this period. Architects, who designed and built in this style, produced works in both the Ottoman and the first Republican periods.” (Bozdoğan, Akcan, 2012, p.33)

In the 1920s, when the First National Architecture movement was influential, the function and mass organization of the buildings were taken from the west, while arches, columns, projections, and consoles taken from Seljuk and Ottoman architecture were used in their exteriors and decoration. In the construction of the buildings, symmetrical and axial plan arrangements and construction systems such as steel and reinforced concrete were applied (Tekeli, 2007).

The international style, which was influential all over the world in the 1930s, was also influential in Turkish architecture. Contradictions experienced in the past in the architectural environment have decreased. ‘New and ‘modern’ buildings have gained a new look by getting rid of the Classical Ottoman - Seljuk architectural ornaments. In this process, the use of new

construction techniques, especially reinforced concrete, became widespread in civil architecture examples after public buildings. This diversity is seen in building groups such as villas, multi-story buildings, apartments, and office buildings. With the developing transportation networks of the city, new settlement areas have been opened, and city centers have become areas where high-income families reside.

Between the years 1930-35, various laws were enacted for the planning of cities, and zoning activities were regulated. Planning obligation has been introduced for cities of a certain size with Municipal Law No. 1580 enacted in 1930, Public Health Law No. 1593 enacted in the same year, Building and Roads Law No. 2290 enacted in 1933, Municipal Expropriation Law No. 2722 enacted in 1934, and Law No. 2763 on the establishment of Municipalities Development Committee enacted in 1935 (Tekeli, 1998). In this period, unadorned plans and facades were designed in residential and public buildings, reinforced concrete construction systems, plain geometric masses with flat or concealed roofs, wide glass surfaces, rounded corners combined with prismatic masses, horizontal strip windows, and uninterrupted sill lines were used. Towards the end of the period, especially in public buildings, symmetrical arrangements increased, and columns of two or three floors were built to create a vertical effect on the facades (Aslanoğlu2001). Industrial buildings, health, and education buildings, train stations, post office buildings, and social housing were first placed in the construction policy of this period. People's houses, which are used as cultural centers, are an important building type built in this period. One of the positive initiatives of the period was the planning of urban green spaces with large parks (Bozdogan, 2002).

The concept of "new", which is associated with the "contemporary and modern" Western/European architecture that emerged at the beginning of the 20th century, was used to describe the architecture of the new administration established with the proclamation of the Republic, thus, the architecture of the Republican period was defined within the framework of the modernization process of the nation-state. The concept of "new architecture" was considered as the image of the republican regime to create a contemporary society. The term "new architecture", advocated by Turkish architects from the beginning of the modernization process, has taken its place in the literature as the most rational response to the terrain, climate, program, and context (Bozdogan, 2012).

“One of the important reasons for the spread of new architecture is the publications on the subject. Celal Esat Arseven, a professor of architectural

history and urbanism at the Academy of Fine Arts, published his important booklet “New Architecture” in 1931. In the book; He brought up the formal and aesthetic principles of modernism—flat roofs and terraces, consoles and balconies, free facades and horizontal windows, pilot and open plans—and dealt with these principles concerning the ‘logical criteria’ and ‘contemporary needs’ that shape them. In particular, he emphasized the role played by new materials in radically changing the definition of architecture. In 1931, the year New Architecture was published, the journal ‘Arkitekt’ began to be published under the management of Zeki Sayar, Abidin Mortaş, Sedad Hakkı Eldem, Şevki Balmumcu, and Abdullah Ziya... Arkitekt, witnessing the formation of the modernist architectural profession in Turkey is the primary document. (Bozdoğan, 2012, p.178).”

The architectural culture of the period offered the opportunity to create a new synthesis by blending modern and national concepts. With these concepts, society is divided within itself; while some defended the national one, some supported the modern one. Due to the years of wars, the decrease in the skilled labor force in our traditional marble, stone, and tile processing crafts has brought serious restrictions to the construction of buildings. The

simplicity, rational, and economic nature of modern lines have become a very attractive option after the economic crisis (Ozan, 2009). On the one hand, while the new understanding of modern architecture was adopted, on the other hand, Turkish architects reacted to the transformation of imported architecture into the dominance of foreign architects. In the process of internal solidarity that started in line with these reactions, the Turkish Architects Association was established first in Ankara and then the Fine Arts Union in Istanbul. Architects such as Seyfi Arkan, Şevki Balmumcu, Sedad Hakkı Eldem, Maruf Önal, Rukneddin Güney, Şekip Akalın, Ziya Kozanoğlu, Hüsnü Tümer, Bekir İhsan Ünal, and Sedad Erkoğlu stood out in the Turkish modern architecture of the period. The basic principles of modern architecture, such as flat roofs, plain cubic mass, corner windows, and concrete parapet balconies, are the prominent elements in building designs. Instead of structural elements such as roofs, tile, and eaves, which are important architectural elements of Ottoman architecture, plain, smooth geometric, and cubic forms were used. This architectural understanding has been effective in the architectural production of public and civil buildings and has been applied in apartment-type residences and detached houses as well as public buildings.

While the changes experienced by the Republic made themselves felt mostly in public buildings in Anatolian cities; This process took time to reflect on daily life. In the early Republican period, a bipolar structure formed by the modernized and traditional ones in the whole of Anatolia draws attention (Bilgin, 1998).

While the understanding defined as modern architecture or “cubic architecture” is seen as the objective equivalent of creating a new identity and reaching the “contemporary civilization level”, on the other hand; it is seen as a “foreign” phenomenon to culture, context, and tradition (Şumnu, 2013). The Second National architectural movement, which was effective between 1940-the 50s, was born as a reaction to the modernism movement and to highlight local architectural elements. It did not completely abandon modernism but came to the fore as a reinterpretation of historical elements. The important elements of the Seljuk, Ottoman, and Turkish houses were applied with a simple understanding in the formation of the building. It lasted until the 1950s because it could not adapt to the conditions, requirements, and modern lifestyle of the period.

As stated above, the political, economic, and social changes and developments in the years after the establishment of the Republic were influential in the field of architecture. In the early Republican period, the traditionalist understanding was moved away and a new modernist architectural understanding emerged, and in the following years, the understanding of the interpretation of historical elements in architecture was adopted as a reaction to modernism. Table 1 shows the developments affecting the field of architecture in the Early Republican period.

Table 1: Developments in the Early Republican Period

Political	Economic	Social	Architectural
1923- Treaty of Lausanne was signed. 1923- Republic was proclaimed. 1924- The caliphate was abolished. 1923- The alphabet was revolutionized. 1930 - Municipa Law no:1580, 1933- Building and Roads Law no: 2290 1934 - Municipal Expropriation Law 1935- With the law on the establishment of the Municipal development committee, planning obligation was introduced for cities of certain sizes.	1924- Türkiye İş Bankası was established. 1925- The first republic star was printed in the Istanbul Mint. 1927- Teşvik-i Industry law was enacted. 1929- The US-centered world economic crisis has begun. 1931- The Central Bank of the Republic of Turkey became operational. 1933 - Sümer Bank was established as a textile industry and a bank.	1925- The use of international clock and calendar was started. 1926- Turkish Civil Code was accepted. 1935- The weekday has been taken from Friday to Sunday across the country. 1938- Atatürk passed away.	1908-1930 First National Architecture movement began to be active. 1927- Foreign experts began to teach in schools. 1928- The Directorate of Reconstruction was established in Ankara. 1930- The effects of foreign architects became palpable in the buildings. 1931- Arkitekt, Turkey’s first regular architecture journal, started to be published. 1940-1950 Effects of the Second National Architecture Movement

To summarize; The first years of the Republic were the years when modern, innovative thinking was dominant and there were reform movements aimed at creating a new nation. For this reason, the buildings built with the understanding of “new architecture” in the 1930s can be considered concrete indicators of the young republican regime. While the first national architectural period was dominant in the country in the 1920s, from the proclamation of the Republic until the end of the 1930s, the “cubist-modern” period with the effect of westernization and modernization, and the effects of the “second national architecture” period, which turned to local searches from the 1940s onwards. When we look at the production of architectural structures, two different approaches draw attention,

on the one hand, the traditional perspective created by local and historical elements, and on the other hand, the modernist understanding in which western architecture is given importance.

Architectural developments in the country have not only been limited to building products but have also created developments in the field of architectural publishing. With the efforts of young architects, the journal *Mimar*, the first periodical in the history of Turkish architecture, started its publication life in 1931. The Journal has been among the most important sources documenting the architecture of the Republican period in Anatolia and especially in Istanbul. In the Journal, examples of public and civil buildings produced in the Republican period are included in detail about their design approaches and spatial planning. The first and only printed publication in the field of architecture of the period, 'Architect', was published between 1931 and 1980 as the journal *Arkitekt* with its new name. The *Arkitekt* Journal, in which the architectural developments in the west and the structures of the leading architects of modernism are published as translations, as well as the buildings built with a modernist understanding in the Republican period, is the sample area of this research. The examples of detached houses examined within the scope of this study were selected from the *Arkitekt* Journal.

3. HOUSING ARCHITECTURE IN THE EARLY REPUBLIC PERIOD

The first years of the Republican era were a period of changes, innovations, and differences in terms of Turkish society. With the arrival of bureaucrats and state officials in Ankara, the new capital of the country, the construction work of Ankara started. The formation of architectural structures has changed due to both the understanding of creating a nation-state brought by the Republic and the different architectural movements in this period. Naturally, the effects of these changes and currents were also seen in residential architecture.

With the aim of the republic to create a nation-state, the effort to create a new city in Ankara started, various laws were enacted on housing, and decisions were taken. With the thought that Ankara will set an example for other cities as the new capital city, it is thought to be restructured as a model city. As Cengizkan (2002, p.27) quotes Aslanoğlu (2001), the citizens of the city were encouraged to build in the capital Ankara, with the laws and regulations of the time.

"In 1923, with the law numbered 368, the following measures are introduced to encourage development: "Reconstructed or to be reconstructed

real estates will be exempted from some taxes (real estate and musakkafat (income generating goods)) to encourage the development activities of the citizens... Some facilities will be provided to companies and establishments that undertake the construction of buildings” (Aslanoğlu, 2001, p.190)

In 1928, the Directorate of Zoning was established as the most important directorate responsible for building products in the capital, and its priority was to share the zoning and construction rules with the participating citizens to encourage construction. (Cengizkan, 2002). Mayor Ali Haydar Bey made the following statement for the New Town Houses;

“The houses to be built in the New City will have one or two floors. In all of these, I will observe European comfort in terms of internal divisions. There will only be a national style on their fronts” (Türkoğlu, 2019, p.38) (Cengizkan, 2002, p.30)

In particular, the change in the lifestyle of the Turkish family structure and the effect of westernization was also reflected in the interiors of the houses. In Ankara, detached houses with two floors, four or five bedrooms, servant rooms, and modern kitchen and bathroom designs were built primarily for civil servants (Figure 1). These residences, in which western styles came to the fore, started to appeal to the high-income segment in later times.

The developments in the social, political, and economic fields that came with the Republican administration increased the desire for Westernization in society. In addition, with the migration to the city and the increase in population, the increasing need for housing has begun to be met with multi-story apartments compared to detached houses. As a result of industrialization, which gained importance in the modernization program brought about by the understanding of the new state, mass housing-type buildings started to be built (Figure 2). Especially around the industrial zones, lodging-type settlements with the modernist and plain lines of the period were built (Bilgin, 1996)

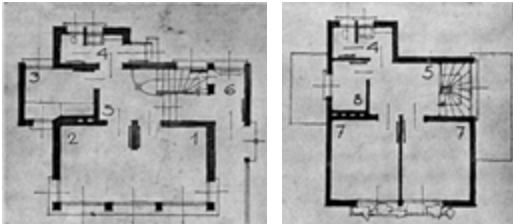


Figure 1: Sample house plans,
(Arkitekt Journal)



Figure 2: Sümerbank Cloth Factory Housing, (Arkitekt Journal)

In the 19th century, mansions, pavilions, waterside mansions, summer houses, palaces, and embassy buildings were built on both sides of the Bosphorus by the notables of the state and the wealthy non-Muslims. Most of the buildings are stone structures in the masonry system, and Baroque, Rococo, and Ampyr The effects of western movements such as Orientalism, Neo-Classicism, Eclecticism, and Art Nouveau are seen (Erarslan, 2020). In this period, new types of housing began to emerge in Galata and Beyoğlu, where wealthy non-Muslim and Levantine Istanbul residents, the closest communities to the western style, settled. A multi-focused culture was formed in daily life as the Muslim people of Istanbul expanded their borders towards the Galata-Pera region, where non-Muslims settled. The traces of new urban housing types seen next to traditional houses begin to be seen both in traditional neighborhoods and in large mansions on the Bosphorus. Another type of housing built during this period is the “Row houses”.









In Turkish architecture, which came under the influence of the Bauhaus during the Republican Period, the residential architecture of this period showed functionalist tendencies. According to the architects, who prioritized the function, the house should first be simple and economical. The traditional Turkish House, consisting of rooms that did not acquire special features, quickly transformed into a housing concept consisting of spaces shaped according to their importance, features, and function between 1930-1933. With modern life, the traditional concept of the extended family has started to be replaced by the concept of the nuclear family. When the Republic was proclaimed, the nuclear family had already been adopted in Istanbul and there was no distinction between harem and Selamlık in the homes of wealthy families. Now the traditional wooden house in the garden was insufficient to meet the needs of the leading names of westernized Istanbul (Bozdoğan, 1996). For this reason, apartment-type housing started to be built especially in Istanbul and Ankara. With a modernist understanding, flats with neat geometric cubic forms, horizontal band windows, and the separation of night hall and day hall of indoor organizations were built. The eaves, which are an important element of traditional Turkish architecture, have been replaced by flat roofs, and reinforced concrete skeletons have been widely preferred as the construction system. Apartment houses built between 1930 and 1945, owned by a single person and rented to generate income, are called “rental houses” (Bozdoğan, 2002).

Modernism, which met with the idea of reaching the ‘contemporary civilization level’, which started in the first years of the Republic in Turkey,

brought many innovations in the political, social, economic, and cultural structure. While modernism is the result of developments in every field in Europe, it has shown its effect mostly in the field of architecture in Turkey, unlike the West. New settlement areas were planned according to the increasing population as a result of the developing urban functions by preparing the zoning plans of the cities (Ataöv and Osmay, 2007). Along with the ideologically accepted understanding of modernism, the goal of creating a modern society, primarily with the wishes and directions of the state administrators, has led to a move away from traditional housing organizations. All-purpose rooms and sofa areas in the traditional, courtyard house types known as Ottoman houses have disappeared. Rooms named according to their purpose and function (bedroom, dining room, living room, etc.) were formed. The layout of the living space in the house has changed by creating a distinction between a guest hall and a service hall. With the development of technology, plan schemes based on devices such as television, refrigerator, and washing machine, which are included in houses, have begun to emerge (Alsaç, 1976). It draws attention to the fact that in the apartments, which are inspired by the west, there are rooms with regular geometric forms, large reception areas, rooms named according to their functions, elevators, and servants' rooms and cellars in large ones. In addition, the built-in cabinets inside the rooms in the traditional residence have been removed, and a dining room and pantry associated with the kitchen are included in most designs. Apart from apartments, villas or single-family detached houses have begun to replace houses such as waterside mansions and mansions. Plans reflecting the modernist understanding of the period were also made in the plans and mass organizations of the detached houses.

The residences, which were built intensively in the Early Republic period; were detached houses with gardens, villas, and apartments in cities (Table 2).

Table 2: Early Republican Period Housing Types

Apartment Rental House	Waterside	Detached House Villa	Row House
 	 	 	 
Pangaltı Apartment, Sırrı Arif, 1932	Painter 'Şevket Bey' Mansion, Semih Rüstem, 1934	Villa in Suadiye, Zeki Sayar, 1937	Bahçelievler Building Cooperative, Hermann Jansen, 1936

4. INTERIOR ORGANIZATION IN EARLY TURKISH REPUBLIC DETACHED HOUSES

In the issue of Hakimiyet-i Milliye newspaper published on 20 July 1929, "How Should a Modern House Be Furnished?" In the article written with the title, how the house designed for a family is evaluated in the concept of modern housing is defined as follows;

"It is necessary to illuminate the living room with a light, diffused and matte light, it would be convenient to place additional ornate table lamps next to the armchairs... Stated that the bedroom should be sanitary and comfortable, he stated that a wide bed, flat items that cannot be a dust-headed-dressing table, a nightstand, wardrobe and a couple of chairs, a lamp with a canopy on the nightstand... Daylight and electric light are both welcome in the living room, and there is also a floor lamp. A low tea table, colorful and ornate pillows, and chandeliers give the room joy and character (Modern Bir Ev, 1929, p.5)."

In the journals and newspapers published in the same period, there are similar definitions of these definitions, which are conveyed in sensory and visual details due to the variety, colors, health suitability, and functions of household items (Değirmencioğlu ve İleri, 2020).

II. During the Mahmud period, it was seen that while the goods coming from Europe were a social status tool offered to the Ottoman bureaucrats and elite class, they also attracted attention outside the elite part of the society, which was the upper stratum of the society at the end of the 19th century and the beginning of the 20th century. It has given special importance to the house, which is the living space, and this is also emphasized in literary works (Tanyeli, 1997).

One of the first books with the quality of a handbook on contemporary living models is the work called “Avrupa Adab-ı Muaşeret Yahut Alafranga” written by Ahmet Mithat Efendi in 1894. The purpose of this work, written by Ahmet Mithat Efendi, is to show people the wrongs they have done because of their enthusiasm to imitate and to tell what is right. In this book, which includes detailed observations and examinations of European etiquette, the author points out that the most important issue to be considered in the decoration and arrangement of small or large halls is lighting (Mithat, 2001, p.155).

In addition to the importance of lighting elements in the interior of the houses in 1920 and after, the 20th century coincides with a period in which life was simplified and women began to become active in business life and spent limited time at home, and in this context, the spaces began to be more useful and simple. The rooms in the house have shrunk over time, and the spaces have begun to be designed for a single-family (Figure 4). With the adoption of the principles of modernism, functional, bright, and extroverted spaces have begun to emerge (Boyla, 1997).

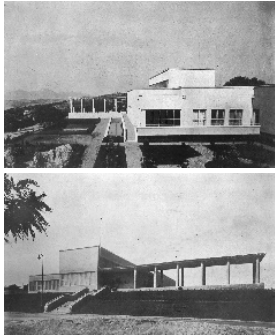
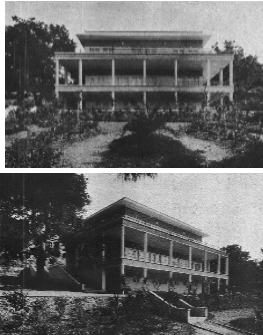
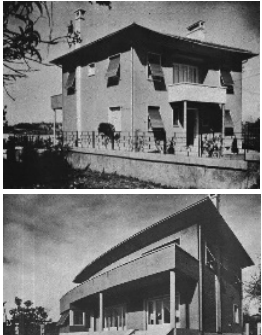
The aim of creating a new, contemporary nation brought by the Republic and the change in lifestyles in parallel with the changing social, political, and economic structure have also heavily affected the formation of the houses and the organization of their interior spaces. In the thesis, in which the study was produced, 20 houses built in the Early Republican period were analyzed, and because there was a page limitation in the book section, fewer houses were included, and the results of the analysis were explained in detail. Spatial analyzes of detached houses were made under five headings.

- Mass and Facade setup
- Plan Organization
- Indoor and outdoor relationship
- Furniture selection
- Decoration, materials, and textiles

1. Mass and Facade Setup

The modernism movement that emerged in Europe after the industrial revolution was primarily effective in shaping the mass of buildings. The neat geometric form, the cubic shape, and the horizontal band windows, which are the products of modern understanding, were the striking elements. Especially since the 1930s, with the Bauhaus influences being seen, applications that include modernist period lines such as horizontal windows, corner windows, jambs, sill strips, balconies with rounded corners, vertical circulation elements, concrete parapet roofs with concealed roofs come to the fore (Ballance). ,2008). As can be seen from the examples in Table 3, features such as the prominent cubic facades and flat forms, the deliberate exposure of the carrier system, and the increase in the use of strip and corner windows attract attention.

Table 3: Analysis of Mass and Facade Editing in the Early Republican Period

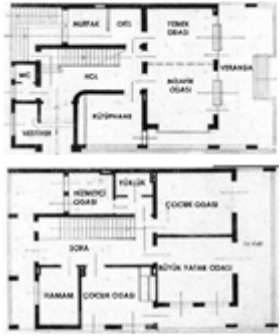


Villa in Çankaya Seyfi Arkan, 1936	Villa in Büyükada Samih A. Kaynak,1936	Villa in Kalamış Zeki Sayar, 1937
		
<ul style="list-style-type: none"> - Cubic facade concept - Strip window - Horizontal emphasis - Roof with concrete parapet and flat eaves - Terrace and balcony for the view 	<ul style="list-style-type: none"> - Cubic facade concept - Strip window - Horizontal emphasis - Flat eaves roof - Terrace and balcony for the view 	<ul style="list-style-type: none"> - Cubic facade concept - Flat eaves roof - Terrace and balcony for the view

2. Plan Organization

In the first years of the Republic, the extended family structure was replaced by the nuclear family, and western-inspired housing types and spatial organizations began to be seen. Rooms meeting many functions have been

replaced by rooms named according to their functions, and spaces such as living rooms, guest rooms, living rooms, and dining rooms have emerged. The sofa space, which provides the connection between the rooms in the traditional house, has left its place in the corridors. It was an important change to create a distinction between day hall and night hall for the places where day and night demonstrations are met. The day hall area, which connects the house with the outside and provides circulation when guests arrive, is separated from the night hall where the bedrooms and bathroom are located. In addition, a living room with ostentatious furniture was created for the guests, and the family used the living room for daily use. Today, it is seen that the living room is still reserved for guests in some houses, and the family members use a space planned as a bedroom for daily activities as a living room. In addition, there were sections such as the service hall, maid's room, and service entrance allocated to the service and service areas in the big houses. In the examples in Table 4, there are examples of houses inspired by the west and built with a modernist understanding.

Table 4: Analysis of Plan Organization in the Early Republican Period




Villa in Moda Ziya Kozanoğlu, 1936	Villa in Kalamış Zeki Sayar, 1936	Villa in Suadiye Zeki Sayar, 1937
 <ul style="list-style-type: none"> - Has a cloakroom - Separate service hall - Has study room and office - Separate living room and dining room - Has a library 	 <ul style="list-style-type: none"> - Formation around the wide hall - Separate living room and dining room - Has a service hall and service entrance - Has a maid's room and study room 	 <ul style="list-style-type: none"> - Formation around the wide hall - Separate living room and dining room - Separate service hall - Has a study room - Has a guest room and wc

3. Indoor and Outdoor Relationship

The relationship with the exterior, which was planned depending on the understanding of privacy in housing planning in the traditional way of life, changed after the proclamation of the Republic. In the traditional house, a courtyard is an important place concerning the street and the house opens to the courtyard, there are thick walls and small windows on the ground floor. With the Westernization and the gains of the Republican regime, the house has gained the feature of being a social space. Due to westernization and modern living requirements, the relationship between the house and the outside has increased, and horizontal wide windows have been used (Table 5).

With the increase in communication with the outside world, which started with the modernism movement brought by the Republic, and the desire to perceive the landscape from the interior, interior and exterior spaces began to be designed as integrated. Balconies, entrance eaves, wide window usage, and intermediate spaces that provide continuity have been tried to be created without breaking the bond between the exterior and interior spaces.

Table 5: Analysis of Indoor and Outdoor Relationship in the Early Republican Period

Villa in Büyükkada Samih Kaynak, 1936	Villa in Kalamış Zeki Sayar, 1937	Villa in Bebek Erip Erbilin, 1937
 <ul style="list-style-type: none"> - Turn towards the view - Large framed windows that provide indoor and outdoor relationship - Use of the large terrace in front of the living room 	 <ul style="list-style-type: none"> - Use of terrace as an intermediate space at the entrance - Large-span windows that provide indoor and outdoor relationship - Use of a corner window for the view 	 <ul style="list-style-type: none"> - Use of the large terrace in front of the living room - Large-span windows that provide indoor and outdoor relationship - Use of a corner window for the view

4. Furniture Selection

In the Early Republican Period, the furniture also changed along with the interior. In the first years of the Republic, furniture from the Ottoman period was later replaced by modern furniture as an indicator of contemporary life. Although this transition takes place gradually, there is no clear distinction. With the increasing and differentiating furniture needs of the period, designers showed more orientation to furniture designs. Especially with the effect of the trend toward modernism, forms have become more plain and simple, and functional and useful furniture has come to the fore (Bozdoğan, 2002). Contrary to the heavy, exaggerated, and ornate features of the furniture of the old houses; functional, light, and plain geometric furniture came to the fore (Table 6). In addition to wooden materials, metal, and glass materials are also used in furniture. In the new order, the first places where furniture started to be used were the living rooms, and then the bedrooms were affected by the effects of westernization.

Palace-style furniture, which was a reflection of the Western lifestyle in the Ottoman Empire, started to enter middle-class houses with the Republic, while it was in the homes of upper-class families. These types of furniture are eclectic style furniture that is frequently used in the 19th century in Europe. In time, simple and comfortable furniture with lines that moved away from the rules of modernism began to come to the fore by being referred to as ‘cubic furniture’ (Şumnu, 2013). Statements revealing the ideology of contemporary society were made in newspapers and journals.

‘Tiles are no longer placed in the halls.’

‘There is no need to put a cover on the piano as the dust on the furniture is now easily removed.’

‘Don’t forget to put a vase with beautiful flowers instead of the alarm clock.’


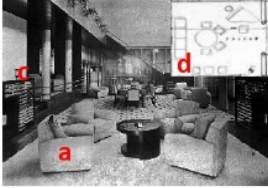




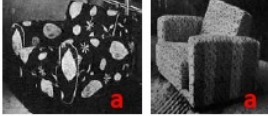

‘It would be a nice job to hide the heating radiator between the bookshelves.’...

It has been tried to create an understanding of interior space for contemporary life with explanations as such (Şumnu, 2013).

The effects of modernism and westernization have caused the decoration elements to change as well as the furniture in the space. In the traditional interior, items such as sofas, cupboards, floor mattresses, and oil lamps, which are more functional, are replaced by western style chairs and sofa sets, beds, beds, etc.,

in direct proportion to the economic level. items such as lamps and electrical appliances. The piano, which is seen as a symbol of westerns, has often become a focal point in living rooms. Glass detailed display buffets, triple-double sofa sets, and single Berjer seats in front of the windows are used in the living room spaces. Straight lines, simple form understanding in furniture, mirrors, glass cabinets, kiosks, libraries, and pianos in some houses were the striking elements.

Table 6: Analysis of Furniture Selection in the Early Republican Period

Villa in Moda Zeki Sayar, 1936	Villa in Çankaya Seyfi Arkan, 1936	Villa in Kalamış Zeki Sayar, 1937
		
		
<p>a- Modern straight line single armchair</p> <p>b- High-legged buffet with glass for display</p> <p>c- Leather quilted seat</p> <p>d- Sitting area the use of a round glass coffee table in the middle</p>	 <p>a- The use of armchairs in different styles</p> <p>b- Low sized furniture</p> <p>c- High-legged buffet with glass for display</p> <p>d- Piano</p>	 <p>a- The use of armchairs in different styles</p> <p>b- Wooden table and chair with fabric details</p> <p>c- L sitting chair with bookcase detail</p> <p>d- Piano</p>

5. Decoration, Materials and Textiles

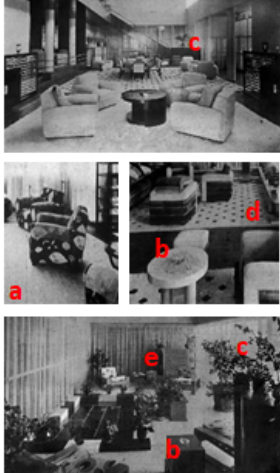
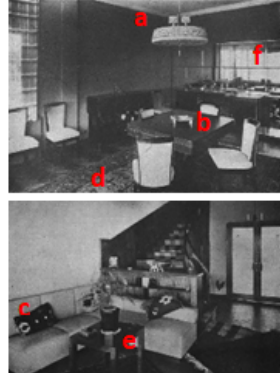
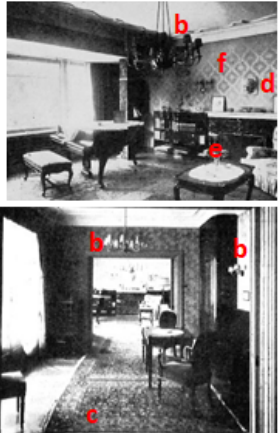
The effect of modernism and westernization is reflected in the choice of decorative elements and materials in the interiors of the houses, as well as in the spatial organization of the houses. While the interior features of the houses such

as walls, ceilings, and floor coverings were decorated and exaggerated before, simple, plain, and functional designs emerged after the Republic. Especially after the 1930s, it is seen that the interiors of the houses are covered with wallpapers in the modernization efforts. In addition, harmony was tried to be achieved by using patterns and colors compatible with the space in the selection of floors and curtains (Uzunarslan, 2002).

While importance was given to the plain and unpretentious furniture in this period, the decoration was only provided with paintings hung on the walls, throw pillows on sofas, curtains, or textiles such as upholstery. The interiors of upper-end homes exhibited a mixture of cosmopolitan tastes. Dressing tables and mirrors from Paris, single berjers and coffee tables, a gramophone, telescope, sewing machine, gramophone, safes intended to give the house a European feel, candlesticks, and the piano, which is a perfect symbol of devotion to western values, were the greatest indicators of Westernism at that time (Bozdoğan, 2002).

Sculptures, vases and ashtrays, paintings, and mirrors, which are symbols of modernism in the interiors of the houses, were frequently used in decoration. Lighting elements, stalactites, and ostentatious chandeliers were used. Various plants are often used indoors as landscape elements. Marbles from local stones in the corridors and wooden materials in the doors, windows, and stairs were widely used in the floor coverings. While edelputz plaster is used on the wall surfaces in some houses, it has been observed that patterned wallpaper is used in some houses. Cushions are important decorative elements in armchairs and armchairs in the living room. Curtains are important decorative elements in the use of textiles. It is also seen that leather is used in the upholstery of the seats as well as the use of fabric. Wood and glass are used in furniture such as tables, chairs, and buffets (Table 7). It has been observed that traditional patterned carpets and rugs are used in the flooring of houses.

Table 7: Analysis of Decoration, Materials and Textiles Selection in the Early Republican Period

Villa in Çankaya Seyfi Arkan, 1936	Villa in Kalamış Zeki Sayar, 1937	Villa in Caddebostan Sedad Erkoğlu, 1941
 <p>a- Use of textured and geometric patterned fabrics b- Use of vase, ashtray c- Landscape included in decoration d- Has a marble flooring e- Decorative wooden cover for radiators</p>	 <p>a- Decorative pendant lighting on the table b- Use of vase, ashtray c- Textured fabric with geometric pattern on pillows d- Traditional patterned carpet on wooden flooring e- Landscape included in decoration f- Mirror coating on the wall</p>	 <p>a- Use of vase, ashtray b- Flashy pendant chandelier and wall sconce in lighting c- Traditional patterned carpet on wooden flooring d- Has a Atatürk portrait on the wall e- Has a fireplace f- Use of patterned wallpaper on wall surfaces</p>

5. CONCLUSION

The concept of modernism, which has made itself accepted in almost every field as a lifestyle in the West, has initiated a radical change, especially in architecture. This change was reflected in the architectural field in line with the renewal effort that emerged with the Republican period in Turkey. However, it has created its language as a result of social developments, needs, and cultural affiliations, and it has manifested itself in different forms despite its effects around the world. In the period from the 1920s to the 1980s in Turkey, the

developments in the field of architecture are shaped as an effort to seek an identity that oscillates in the universal sense. In this quest, social reactions, user requests, architectural approaches of architects, productions of foreign architects, technological developments, etc. many national and international developments have been effective. Especially in the first years after the proclamation of the Republic, the country experienced differences in many areas, and the way of life and perspective changed. In this process, which is called the Early Republican period, social, economic, and political developments caused the way of life to move away from traditional norms and to take western norms as an example. Especially in residential architecture, plans inspired by the west have emerged by moving away from the traditional understanding. When the studies on the housing architecture of the Republican period are examined, it is seen that the researches on the effects of the mentioned developments on the housing formation are intense. In this study, the interior organization of detached houses has been analyzed, considering the lack of research examining the effects of the modernization principles and the awareness of creating a new nation brought by the Republic on the interior organization of the houses.

In this study, which examines the interior space organization in detached houses in the Early Republican Period, it is seen that the prominent parameters of modernism are read in the majority of the houses belonging to the period. The houses analyzed within the scope of the study were selected from *Arkitekt Journal*, which is the first architectural written source in Turkey. Although all of the analyzed houses could not be included in the study due to the page limitation, it can be said that detached house organizations carry the traces of the rational space understanding of modernism. The most important differences between the traditional house concept and the houses inspired by the west are; It can be summarized as a neat geometric setup, plain form and façade setup, horizontal banded windows, and a planning scheme with day and night hall separation. Rooms that meet many functions in traditional residences have been replaced by rooms that are customized according to their functions. The relationship of the house with the outside and the street has been organized by moving away from the introverted understanding of privacy. The horizontal band, and wide-span windows, which are a product of the modernist approach on the façades, are designed to ensure the continuity of the exterior and interior spaces.

In the examples of detached houses, it is seen that the plan organization is shaped around the middle hall and anteroom. The distinction between the day hall and the night hall is clearly visible in the plan. It draws attention to

the investigations within the scope of the research that there are searches for different space analyses in each of the examined housing examples, innovative detail solutions are tried to be developed, and aesthetic usage is sought. The spatial changes in the houses are not only limited to the planning scheme, but also innovations in furniture, materials, textiles, and decorative elements have been determined.

The findings obtained within the scope of the study show that the concept of modernism has caused radical changes in the understanding of housing in Turkey, which is trying to heal its post-war wounds. The orientation towards the nuclear family in housing, cubic house forms, wide window openings, separation and naming of spaces in line with functional requirements, western-style furniture, decorative elements, etc. The issues appear as the effects of modernism. In addition, as a result of the Republic's understanding and modernism's contribution to the architectural understanding of the country, the concept of housing has become a status indicator, not just a shelter that meets the need for shelter. Detached houses, like the houses in the apartment typology of the period, are still important reference sources for the newly designed houses with their modern mass setups and spatial organizations. In particular, detached houses built in the Early Republican period are the most important witnesses of the socio-cultural, economic, and political structure of the period, regarding the modern heritage of the Republican period. For this reason, it is thought that this study, which examines the effect of the search for new and contemporary life in the first years of the Republic, on the spatial organization of the house, contributes to both the historiography of the period and the research.

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CHAPTER XIII

APARTMENT BUILDINGS IN ANKARA: SPATIAL ORGANIZATION DEVELOPMENT AND DIMENSIONAL CHANGES OF INTERIOR SPACES*

Devrim YÜCEL BESİM¹ & Gülnur BALLİCE² & Gizem GÜLER
NAKIP³ & Eda PAYKOÇ ÖZÇELİK⁴

¹*Assoc. Prof. Dr. - Cyprus International University*
e-mail: dbesim@ciu.edu.tr
ORCID: 0000-0003-0435-5194

²*Assoc. Prof. Dr. - Yaşar University*
e-mail: gulnur.ballice@yasar.edu.tr
ORCID: 0000-0002-8564-1821

³*Res. Assist., PhD Candidate - Silesian University of Technology,*
e-mail: gizem.gulernakip@polsl.pl
ORCID: 0000-0002-4508-1823

⁴*Assist. Prof. Dr. - Yaşar University,*
e-mail: edapaykocozcelik@yasar.edu.tr
ORCID: 0000-0002-0892-633X

1. Introduction

The house is the fundamental building type, and its design is the most common topic in architecture and interior design. It can be in different forms and built with various techniques. As the multi-story housing

* The book chapter presented in this book is produced from the unpublished Master Thesis titled “Changes in spatial organization of apartment houses: A Survey in Ankara” by Devrim Yücel, with a thesis number 47383, which was made at Middle East Technical University, in June 1995.

type contains many residences in one structure, apartment building is the most common type, especially in urban areas.

As a private environment, the house is combined with physical elements but also a phenomenon described differently by individuals. It should be planned to meet the needs and the occupants' tastes. It is not satisfying to conform to the accepted space design standards for providing basic requirements such as functionality, ergonomics, safety, comfort, etc.

Housing is a stimulating area of research in Türkiye. There are many historical surveys of housing architecture in Türkiye. Moreover, there are specialised ones on Ankara apartment buildings covering the Republic's first years. Since the house is a complex concept and Ankara carries its importance as the capital city, the architectural studies concentrating on both issues are valuable. In addition, there is a need to focus on the interior design of houses in Türkiye.

1.1. Methodology and Scope of the Study

The study aims to determine the development of domestic architecture in Türkiye while focusing on the changes in apartment buildings in Ankara. It covers almost a hundred years, from establishing the Turkish Republic in 1923 until the 2020s. It analyses the spatial organisation and dimensional requirements of interior spaces of apartment buildings in periods: 1923-1955, 1955-1990, and lastly, 1990-2023.

The study has a mixed type of methodology, literature review, and survey. The literature review focusing on keywords related to domestic interior requirements is used to establish a theoretical background to the survey. Moreover, it helps the understanding of the chronological transformation of domestic/housing architecture in Türkiye. The survey analyses architectural products of certain periods serving the housing needs of a specific stratum inhabiting a particular place. This study contains 7 selected apartments from the 41 previously analysed ones included in the catalogue in Yücel's thesis (1995: 54-94). The methodology used in this session is quantitative, in which dimensional comparisons were made in graphics. The last period is in qualitative methodology as a review to refresh the earlier study and to update the former collected data.

The chapter begins with an introduction including the methodology, an explanation of the analysis, and details on the presentation. It follows with a part on the evolution of residential architecture in Türkiye to explain the changes affecting the development of apartment buildings. Each of the three periods is managed with "socio-economic and cultural context, architectural developments and housing, and architectural evolution of apartment buildings

in Ankara” subtitles.

“**Socio-economic and Cultural Context**” means the changes in the economic, ideological orientations, and cultural structure of the society in Türkiye. These directly affect the family structure and, specifically, domestic lifestyle. “**Architectural Developments and Housing**” explains the challenges in the building sector, such as formal, structural, technological, and infrastructural development in construction. “**Evolution of Apartment Buildings in Ankara**” involves the housing production process, formal and functional changes in apartments, and changes in interior spaces in Ankara.

The study continues conceptual explanations, including the parameters of interior quality, which are constricted in four main headlines: basic physical requirements such as ergonomics and privacy; form and space configuration; space organisation and dimensional issues such as zoning, circulation, and relation with outdoor.

The last part of the chapter has an analysis of the cases and a conclusion. It admits a discussion while evaluating the findings and previous critics. It concludes the relationship between the results of the analysis and the development of the socioeconomic, cultural, and architectural context in Türkiye.

1.2. Limitations

The study has two main limitations, the analysis period and research area (Figure 1) which affect the case selection.

The Periods of Analysis: The period studied in the survey covers approximately seventy years, so this long time is handled as two periods (1923-1955 and 1955-1990) to facilitate the analysis. The basis of this division depends on the changes in the practice of house production in Türkiye, as the housing process was different before the amendment of the Land Registry Law of 1954, which defined apartments as single dwellings and led to the Condominium Law in 1965 (Tekeli, 1980).

The Specific Research Area: As the capital city, Ankara symbolises the rebuilding of a new country. It is one of the places having the most rapid transformations since the establishment of the Republic. These transformations have been seen in architecture and spatial organisation at every scale. The ideological changes have been reflected in different levels of social life, including the city’s living patterns and residences.

Especially in the first decades of the Republic, Ankara was a dynamic city. Establishing a consistent contemporary city with the ideology of the Republican administration has been identified with the regime's success. It was like a social laboratory of experimental approaches that pioneered in forming laws and regulations on planning and developing solutions to housing problems in Türkiye (Tokman Arıbaş, 1985; Tekeli, 1991). As a small Anatolian town before being a capital, it had to show itself, especially against Istanbul (Kılıçbay, 2000; Tanpınar, 2019). Due to the instantly increasing housing need, individual initiatives, the traditional form of housing production, were insufficient. New forms emerged in Ankara to solve this problem, then spread throughout Türkiye.

Many studies introduce Ankara as a historical and political city but primarily emphasise it as a planned city. It is also known as the city of officers, meaning it is calm and safe, and city life is more suitable for residents. Although rapid population growth has caused a large internal migration, it is not a cosmopolitan city having a cultural background created by the new understanding of the Republic (Güzer, 1999). In addition, it is a growing city with more institutional collaborations like universities.

Ankara can be accepted as a model for the urbanisation developments in Türkiye, where it experienced a structuring process and has had an important role in the process, including the apartment buildings since the 1920s (Özmen, 1995).

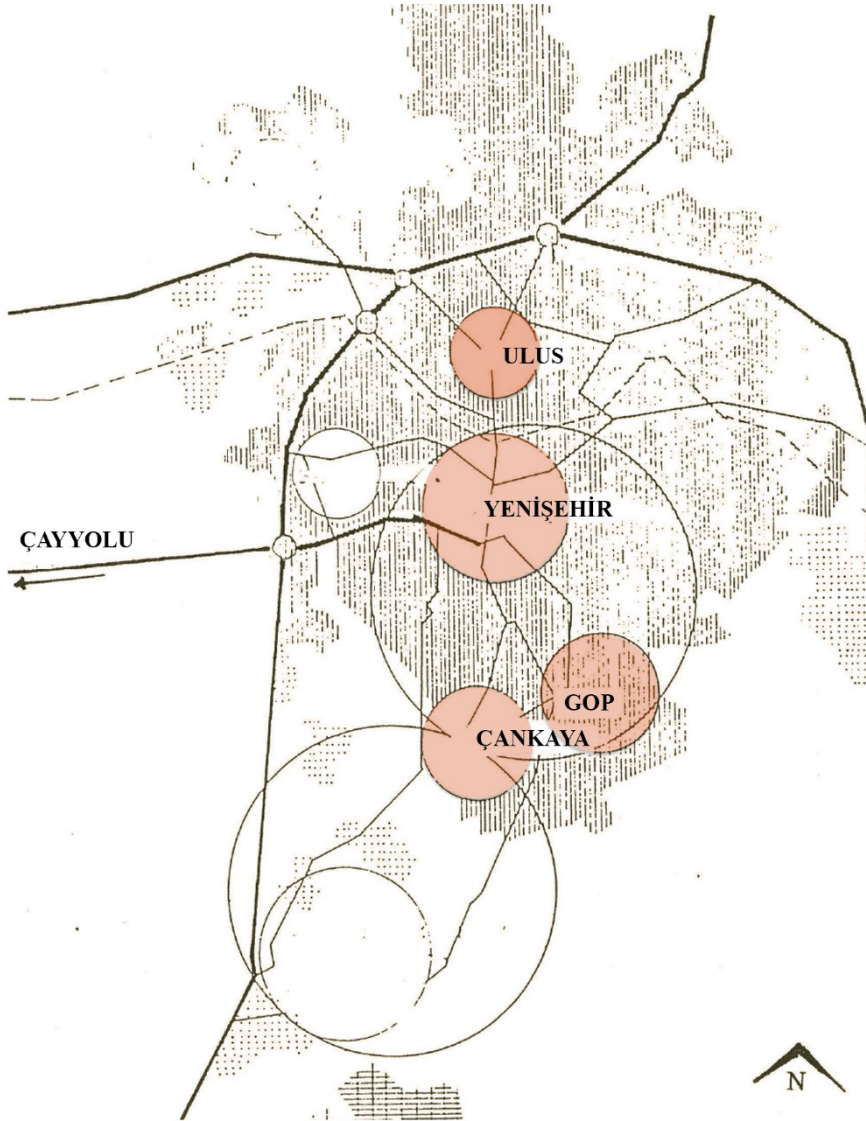


Figure 1. Map of Ankara, The location of selected case studies

1.3. Data Collection and Presentation

Since the survey part is fieldwork, the data is mainly collected during the site visits by observing, measuring, and taking photos. In addition, the municipality archive was visited and interviews with architects and the construction firms' authorities were conducted to reach the plans for the buildings. The selected apartments were scanned in the architectural literature to get additional

information. Then the data of each example was given as a brief to define its architectural identity, including location, construction year and system, architect, and plan characteristics.

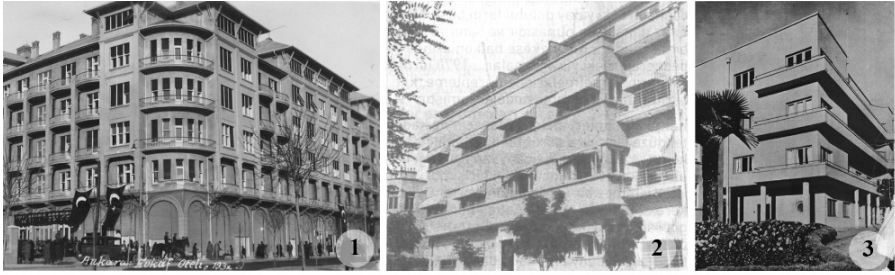
The presentation of the analysed apartments was revised with developed graphics. Unlike the previous analysis of 41 examples, the new analysis includes the schematic floor layout to show the relations between dwelling units on the same level. Only seven selected examples are likely presented as a catalogue with tables in chronological order consisting of photos, plan drawings, and diagrams which were coloured to emphasise the differences between zones and spaces. Each table has three horizontal parts: The top is an introduction to the building; the middle is a floor plan layout displaying the functions of the spaces and indicating the relations between dwelling units, staircase, and light shaft; and the bottom part with three divisions is about the plan characteristics and spatial organisation of a concentrated flat. The first shows the zoning of activity areas in the house, the second points to the circulation principle, and the last denotes the relation between spaces.

The analysis of the spatial organisation is made mainly by investigating the plans of the examples. Comparable tables and graphics are then created to see the change. Firstly, the dimensions of the kitchen, living room, master bedroom, and bathroom are given by measuring the scaled plans. Lastly, the circulation distances between the kitchen and dining; and the master bedroom and bathroom are determined by adding the distances between the mid-points of these spaces while passing through them.

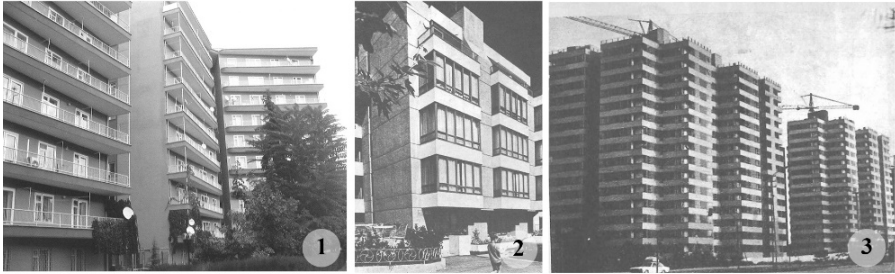
2. Development of Residential Architecture in Türkiye

The development of residential architecture in Türkiye (cities) particularly focused on apartment types of houses in the capital city, Ankara (Figure 2). It covers almost a century, from the establishment of the Republic of Turkey period until today.

In terms of architecture and building production, the constraints, impossibilities, and lack of material and technical equipment before 1950 continued until the mid-1950s. Naturally, the determined periods' political, economic, social, and architectural aspects may be found that do not completely overlap. Urban transformation and architectural formations emerge due to other factors (political, political preferences, economic policies, social transformations, etc.), so the determined periods can witness complex, pluralistic approaches that overlap.



1. Evkaf Building, 1930; 2. Kınacı Apartment, 1936; 3. Şevket Pek Rental House, 1937
sources: 1. Salt Research Archive; 2. Şevki Vanlı 20th century Turkish Architecture; 3. Chamber of Architects Arkitekt Archive



1. Yeşiltepe Blocks, 1956; 2. Ece Apartment, 1969; 3. Tusso Public Housing, 1973
sources: 1. Sivil Mimari Bellek Ankara, Exhibition Catalog; 2, 3. Şevki Vanlı 20th century Turkish Architecture



1. Orman Site Residences, 1987; 2. Batıkent A Residences, 1993; 3. Gencer Apartment, 1999
sources: 1, 2, 3. Şevki Vanlı 20th century Turkish Architecture

Figure 2. Examples of Ankara apartment buildings from 1923 to the present

2.1. The Period of 1923-1955

Socio-economic and Cultural Context: After the ongoing foreign interventions, wars, political migrations, and economic turmoil in the 19th century and the beginning of the 20th century, there was a significant structural change in Turkish society in every aspect of the National Struggle and the first 20 years of the Republic. A multifaceted and practical framework and infrastructure have been formed in the society with laws, political structure, education, and lifestyle regulations (Kıray, 1999). The Republic of Turkey has entered the nation-building process to implement the modernity project.

The world depression in the 1930s created a complete collapse for agriculture, caused a significant contraction in the foreign trade volume, and formed the beginning of state-sponsored industrialisation efforts. The first of the five-year industry plans was in 1934, which determined the policies to be implemented by the state to ensure an industrial breakthrough in the country (Altun, 2003).

WWII devastated it, despite Türkiye being out of the war. The psychological pressure brought on by the war environment, the decrease in income sources and the increase in poverty, the lack of consumer goods, and the emergence of the war rich were the negative aspects that reflected the atmosphere of the 1940s. After WWII, the Republic of Turkey entered a new era of modernisation, and there were important changes in the 1950s when social and economic life significantly transformed. The adoption of a multi-party system in the political arena (1946), the Marshall Aid received with the support of the United States (1947), the acceptance of Türkiye's membership to NATO in the international platform (1952), and the implementation of new liberal policies led to essential developments (Ballice, et al., 2022).

It is necessary to see the power of the modern social order, of which Turkish society has formed its principles and framework with a rapid evolution until the 1950s, that is, market economy in agriculture, industrialisation, urbanisation, organisation, anonymised role order in human relations and a new lifestyle by these. Institutions such as the only legal order, secularism, the standard and equal treatment of differences, and education systems that developed a rational and creative personality have determined the evolutionary change (Kıray, 1999).

Architectural Developments and Housing: The establishment of the Republic brought innovations in urban planning and zoning and the beginning of new changes in every field. Bilgin (1998) states that modernisation has left three primary traces on the settlements and the development process universally: 'public buildings, circulation network, and housing constructions'.

Modern Architecture in Türkiye is not the product of an "internal transformation" of the architectural discipline but has been "imported". Tekeli (1998) states that spatial policies of the nation-state are carried out at two different levels: The transformation of the country space into a nation-state space and arranging cities as the place of Modernity. Initially, there were two major urban problems: "planning and zoning the Anatolian cities" and "planning the capital city, Ankara".

In the period of rational-functional architecture in the 1930s, applications containing the modernist lines of the period in line with the purist principles of Bauhaus were seen. These are horizontal window and windowsill lines, jambs, corner windows, special plaster applications, plain facades without ornaments, balconies with rounded corners, vertically located circulation elements, and hidden roofs behind the parapets. Due to material constraints, advanced technical equipment (elevator, central heating, etc.) has not yet been included in the buildings (Ballice, 2006). Houses were getting smaller, the number of rooms was decreasing, and the kitchen, bathroom, and toilet were inside them while the infrastructure was developed with clean water, sewage water, electricity, gas, and telephone. During this transformation, there were changes in lifestyle affecting the building scale as well. The large family has begun to leave its place to the nuclear family (Alsaç, 1993).

In the 1930s, housing policies were handled at a minimum level. Seyfi Arkan, Şevki Balmumcu, Bekir İhsan Ünsal, Bedri Uçar, Zeki Sayar, Sedat Hakkı Eldem, and Necmettin Emre are among the most important Turkish architects who designed and implemented the housing and public buildings under the influence of cubic architecture between 1925 and 1935 (Sey, 1998).

Towards the end of the 1930s, The National Architecture Movement (NAM) began with efforts to return to the essence and emerged as a reaction to the foreign architect's domination. Sedat Hakkı Eldem, a pioneer, started to work on civil architecture, especially the Turkish house. Leading architects of the period designed low-cost workers', teachers', and civil servants' houses, village houses, adjoining houses, and apartments (Alsaç, 1993). The term "rental house (*kira evi*)" was used for multi-unit buildings with a single owner and several units rented out for income. The term "cubic" was also common in these rental houses as flat roofs, rounded corner balconies, compositions consisting of cubic volumes, vertical circulation spaces on the exterior, and plain facades with continuous window strips and/or corner windows were applied (Bozdoğan, 2002).

In the 1940s and beyond, popular middle-class apartments, modernist plain housing designs, the first mass housing settlements, slums, and detached houses with gardens, coexisted. The term "apartment" was very different from its meaning after the Condominium Law of 1965, during the Early Republican Period. As a result of the housing demand created by the increasing population of the cities, the construction of two-storey houses in the garden and 3-4-storey reinforced concrete carcass family apartments (rental houses) consisting of independent units have become widespread (Bozdoğan, 2002).

Evolution of Apartment Buildings in Ankara: The fact that Ankara is the capital emphasises the direction and form of the new urbanisation and the balanced regional development goal of urban development in the country space as well as the focus of housing problems also shifted to this city. Until WWII, some of the laws related to urbanisation and zoning were enacted directly for its reconstruction, and then they were also valid for other cities. The bank type of facilities was mainly used to reconstruct it in this period (Bilgen & Özcan, 1989) such as the first organisation, *Ankara Şehremaneti* in 1924 and later *Emlak ve Eytam Bank* in 1926 (Tekeli, 1980).

In the first years of the Republic, neighbourhoods (*Dumlupınar, Kurtuluş, Demirlibağçe*) consisting of small houses and residences in gardens were formed for the low-income people envisaged by the Lörcher Plan (1924-25) in Ankara (Cengizkan, 2003). Until 1927, it was seen that legal regulations and practices related to zoning were insufficient in creating a modern city, and new institutions were developed, such as the “Ankara Development Directorate” (1928) (Tekeli, 1980).

In 1932, a simple and functional plan for the city was prepared by Jansen. The plan proposed an arrangement according to income distribution and occupational groups in residential areas. The “rental house” process has started to provide sharing on the basis of the family (Cengizkan, 2003). Because of rapid growth and squatting problems, the plan could not meet the needs in a short time (Altun, 2003).

Between 1923 and 1945, the need for housing was very high in Ankara, where the population was increasing. After establishing Civil Servant Cooperative Law (1925) and the Turkish Cooperative Association (1931), the state built large-scale housing cooperative practices in Ankara. Bahçelievler Building Cooperative (*Bahçelievler Yapı Kooperatifi*) as an organisational form was the first example of a garden-city project in Türkiye (Bozdoğan & Akcan, 2013).

In the mid-1930s, the construction of rental houses in the newly developing areas of the city, especially around Atatürk Boulevard (*Atatürk Bulvarı*) and Ministries (*Bakanlıklar*), the most prestigious axis, accelerated. They were generally three-storey small buildings organised as one or two units per floor having separate service entrances, maids’ rooms, garages, and landscaped gardens. They were symbols of a modern life culture indicating certain income residents. In that period, Bekir İhsan, Zeki Sayar, and Seyfi Arkan designed small apartment buildings (Özmen, 1995).

With the enactment of the Construction of Civil Servant Law (1944), a leading mass housing application, Saraçoğlu Neighbourhood (*Saraçoğlu Mahallesi*) in Ankara, was planned as lodgings for senior civil servants by the German architect Paul Bonatz in 1946 (Alsaç, 1993).

2.2. The Period of 1955-1990

Socio-economic and Cultural Context: While the transformation continued throughout the country in the 1950s, the goods and capital moved more rapidly between countries after WWII. These favourable conditions created an essential breaking point for the modernisation history of the Turkish Republic and led to new social mobility (Bilgin, 1998). This process, expressed in the mechanisation of agriculture, the breakthrough of commercial agriculture, the development of industry in cities, and mass migration to cities, is the result of the international environment (Ballice, et al., 2022). Increasing immigration and rapid urbanization have caused uncontrolled growth in cities and thus the type of housing called ‘slum’ has emerged (Ballice, 2006).

Türkiye’s new social and political era started with military intervention in 1960. With the new Constitution, a libertarian and social justice environment was created, and solutions for all areas of life began to be sought (Ballice, 2006). The 1960s witnessed planned development, such as five-year plans in 1963 institutionalised to increase Türkiye’s growth rate (Bozdoğan & Akcan, 2013). Thus, between 1960 and 1980, new developments, including the growth of industry and business, the emergence of a pluralist worldview, the establishment of an urban way of life, and the rise of social consciousness, occurred (Yücel, 1995).

In the 1980s, a new development process started with a transformed socio-cultural, economic, and political background after the later military intervention (Kayın & Avcı Özkaban, 2013). Communication technologies have developed; liberal monetary policies and exports have become prevalent (Bilgin, 1996). The main features of the 1980s Türkiye as a developing country were population increase, migration from rural to towns, growing cities, rapid cultural transition and economic developments within limited resources, and a high rate of low-income earners to the total population (Yücel, 1995).

Architectural Developments and Housing: The populist attitude in the political area and the international orientation of Türkiye in the 1950s had impacts on buildings. While the influence of the Second NAM began to decline, with the effect of the Modern Architectural Movement, the universalist and

rationalist approach spread with the International Style (Ballice, et al., 2022; Yücel, 1995).

The close relations with the West and the effects of rapid urbanisation were also reflected in the lifestyle. The newly developing industries produced consumer goods such as furniture and building materials, which became integral to domestic life (Yücel, 1995). In the typical three or four-storey apartment buildings constructed after the 1950s, there was a search for benefiting from new and modern opportunities. In the interiors of the flats, the dining rooms were generally arranged as separate spaces, and glass partitions were made between the living room and the other rooms, allowing for different and flexible uses. Positioning of electricity, water installations, and features such as garbage chimneys, gas installation, and heating were the basic comfort conditions sought in the advanced apartment buildings of the period (Ballice, 2006). Black iron and glass doors, handrails, black and white marble planks, pink marble accents, statues, and decorative wall surfaces were used as details to reflect modernity in the interiors (Gürel, 2007).

There were different attempts affecting housing in these years. One was the contribution of various banks to housing production. Other was the establishment of The Ministry of Housing and Settlement of the Turkish Republic (1958) and the legal regulations enacted to prevent slums and the construction of affordable housing (Alsaç, 1993).

The new living environments and housing problems that emerged due to rapid urbanisation affected the construction process. The process of defining apartment buildings as property dwellings were resolved in 1954 with the amendment made in the Land Registry Law and resulted in the enactment of the Condominium Ownership Law in 1965 (Sayar and Zengel, 2004). By 1965, each flat was defined as an independent unit, rapid transition from individual units to a multi-unit apartment block, and the height of the buildings increased (Ballice, 2006). ‘The build-and-sell’ (*yap-sat*) seen in big cities has also accelerated with the effect of this law. In addition to single entrepreneurs, big companies started participating in housing production (Alsaç, 1993). Apartment buildings symbolised the Western model of living with their new look having concrete slab structures, rectangle masses, transparent walls, and austere facades. In the 1960s and 1970s, rather than being imported, construction materials were produced in Türkiye the following decades (Bozdoğan & Akcan, 2013).

Thus, the theoretical and practical debates of the period after the 1960s in the architectural realms can be summarised as functional and programmatic

constraints, consumer ideals, social imperatives, historical and regional advocates, scientific approaches, and positivism in design, rationalist-irrationalist duality, authenticity versus eclectic choice (Yücel, 1995).

In the 1970s, while the field of architecture participated in political and socio-economic developments with various actions, problematic urban developments began to be discussed (Kayın & Avcı Özkaban, 2013). Mass housing practices started at the end of the 1970s, and a standard language was formed in housing structures with the dominance of the public in the sector. Until the 1970s, functional housing plans were applied the same as the plan schemes of the previous period, with a central hall open on four sides and rooms with glass partitions. Later, ordinary attached apartment projects with long corridors were overspread especially in cities where parcel layout is adjacent (Ballice, 2006).

Other significant regulations (the law in 1981 and 1984) were on mass housing to respond to the needs of the increasing population in the 1980s, while the rapid increase in housing production was changing the architectural pattern of the cities and the definition of 'house'. It was the breaking point of a new era in which new developments were experienced, and the production and accessibility of new constructions were increased. Due to the advanced material diversity, workmanship, technology, and information opportunities with globalisation, many domestic and foreign capitals have been created in housing (Yücel, 1995; Ballice, et al., 2022).

The architecture of Türkiye started to open up abroad after the 1980s. The dynamics that determined urbanisation rapidly changed direction, and new housing forms emerged. National identity and assertive modern approaches were abandoned, and over-constructed urban spaces offered different products with large investments (Akbayırlı, 2009). Postmodernism, widespread in the West in the 1970s, was seen in Türkiye between 1980-1990, at the same time examples of pluralism based on external factors became widespread in architecture. In addition, the buildings of the period until the 2000s had commonly imported domestic luxury materials, prefabricated facade elements, and fast production techniques (Ballice, 2006).

Evolution of Apartment Buildings in Ankara: Ankara has experienced a transition from the production of detached houses to apartment buildings since the mid-1950s. The increasing population and expanding urban settlement created the need for a new plan suitable for the new conditions, so a project prepared by Raşit Uybadin and Nihat Yücel was implemented (1957). In the

mid-1950s, legal regulations allowing the construction of apartment buildings came into force, and *Yenimahalle* and *Etlik* neighbourhoods were established for the low-income population in Ankara. The rational architecture that dominated the period showed itself with prismatic forms. In this period, wide-span balconies and large glass openings, symbols of modern architecture, were included and *btb*/glass mosaic coating was often used, especially on the facades of luxury apartments (Göksu, 1994; Özmen, 1995; Alsaç, 1993; Cengizkan, 2003).

In the 1960s, due to the change in the social structure, uniformity, and similarities, generally distributed according to the regions, began to be seen in residential architecture. American architecture's influence, which started in the 1950s, continued, and there was an increase in the use of glass surfaces on facades, the eaves and roof elements have been replaced by sunshades (Aksu, 1987). The approaches such as brutalist tendencies, fragmentation of facades, and softening of right angles mainly applied on balconies were made to eliminate the monotonous effect in these years (Özmen, 1995).

Since the problems related to housing, population increase, urbanisation, and the emergence of slums continued in the 1970s, citizens living in the big cities started to look for new solutions for residents. After *Batıkent*, governmental housing application example other private ones, such as *OR-AN* and *MESA*, were established in Ankara as housing estate construction firms through the 1960s. Especially *OR-AN*, designed by Şevki Vanlı in newly developed areas of the city, was a successful example of housing in which different plan arrangements were implemented. While housing was produced mostly with the traditional methods until 1978, the tunnel formwork system started to be applied after. The purpose was to reduce the cost and time of production time and to increase its amount and quality (Alsaç, 1993; Özmen, 1995).

Then in 1980-1990, to eliminate standard practices with new searches, the size of the area and the number of rooms in the apartments increased, and housing types that could be chosen according to the family structure emerged. In the facades of apartment buildings, plain lines by reference to the International Style, glass surfaces, and horizontal dimensions of Western modernism dominated. After 1980, the comfort level was increased by using quality materials and advanced technology products both on the facades and interiors of apartment buildings; moreover, housing estate projects with landscaping and facilities have been suggested (Özmen, 1995).

2.3. The Period after 1990

Socio-economic and Cultural Context: At the beginning of the 21st century, Türkiye experienced a period in which the neoliberal economy starting in the 1980s gained momentum. In this process, a model in which economic development is based on construction production was followed. The value of urban land has been maximised with the most unscientific, irregular plans and zoning regulations and plan changes. Again, the pressure of the dense population flowing to the central cities, especially Istanbul and Ankara, as a result of lack of planning, was also effective in the overvaluation of the land. The capital accumulation gained in this way was transferred to construction financing (Hasol, 2017).

With the controversial policies implemented in the 2000s, urban rent production continued in the public sector. The authority to make plans and plan changes are vested in the municipalities and the Ministry of Environment and Urbanization, *TOKİ*, *OİB*, etc. Its distribution to numerous public institutions led to anarchic urban developments. The transfer of public lands to certain individuals under the name of ‘privatisation’ with special zoning conditions accelerated the city’s dense and high-rise construction. In such a trend, planning processes were insufficient to create holistic urban environments and decent urban spaces in Türkiye, which on the other hand, is a rapidly developing country. It is still dealing with urbanisation, migration, population, environmental and safety problems directly affecting life by the end of the second decade of the century (Hasol, 2017)

Architectural Developments and Housing: The role of the banks in housing which was important in previous terms continued in the 1990s. Even though *Emlak Bank* gradually moved away from construction institutionally after 1990, it produced large amounts of multi-family houses with the private sector and investment partnerships. After the 1990s, the high-rise “residences” as a new form of housing, built as a status indicator for the high-income group, have become widespread throughout Türkiye. They were located on smaller parcels and designed as mixed-use (residences, shopping, entertainment, sports center, and office) supplying a controlled and safe environment to the user (Görgülü, 2016).

In the 2000s, the urban space transformed with the neoliberal urban policies and the direction of the capital leading to the construction of large-scale urban projects. This period’s most distinctive housing typology was luxury estates and/or residences with technology and security facilities. Luxurious residential

areas, which have become widespread as low-rises in the city peripheries, have begun to be seen as high housing blocks in the city centres (Ballice, et al., 2022).

Since the 2000s, economic policies have given importance to the construction sector. The rapid appreciation of urban land has also made the construction sector the most important actor in the economy. With privileged zoning rights and governmental produced mass housing, vacant areas in the cities have been opened to residential settlements. The zoning rights increased with the “urban renewal” and “urban transformation” initiatives in the city centers have changed their physical pattern. In this process, middle and middle-low-income groups moved away from the center, upper-income groups settled in these areas, and house life changed (Görgülü, 2016).

Whatever their form and production type, “apartments” are turning into “consumption spaces” and symbols of prestige in the current economic period, where the consumption process is intense. In the new residential areas created on the peripheries of the city, a lifestyle supported by all social facilities and constructed in the mass housing apartments built in the form of “gated communities” are offered. In the 1990s, the upper-income group lived here by moving from the apartments in the city’s central areas to the villa sites on the city periphery; by the mid-2000s, it returned to the new prestige apartments created in city centers (Görgülü, 2016; Yılmaz, 2014).

Evolution of Apartment Buildings in Ankara: While apartment buildings have constituted a large part of the construction process (Özmen, 1995) in Ankara the growth of the city between 1975 and 2005 was in this direction: While *Batkent* and *Eryaman*, *Sincan Fatih Mahallesi*, *Emlakbank Elvankent* were developed in the north, *Ümitköy*, *Beysukent*, *MESA Koru Sitesi*, *Çayyolu*, and *Emlakbank Konutkent* emerged in the south. While the developments in the Northern Corridor appealed to the lower and lower-middle income groups, those in the Southern Corridor appealed to the middle and middle-upper income groups. *Batkent*, *Dikmen Vadisi*, and *Eryaman* Stage 3 and 4 can take place among the important projects as examples in the planning and projecting of the city. The housing typologies in these regions, the designs of the region-neighbourhood-housing immediate surroundings, and the quality of the realised environments can be seen as a part of the richness of the housing culture reflected in the residents’ lives. At the same time, they contributed to the professional culture with their architectural design solutions. The preference for common and typical architectural projects in cooperative practices due to low cost has reduced the quality of residential environments (Cengizkan, 2007).

3. Essential Qualities of House Interiors

There is an extensive effort to expand the terminology of housing by architects and interior designers. Dwelling is to make one's abode and to live in a place. While it is the process of living at a location and the physical aspects of doing so, like a shelter it is considered a psychological phenomenon in the meaning of not 'house' but 'home' (Yücel, 1995).

House is accepted as an object in the environment protecting the user and a significant space full of personal meanings. So, its design is complicated since each may reflect an original lifestyle (Lawrence, 1997). While house design asks for such specific and special care, there has been gradually an increase in apartment types of houses worldwide. Apartment housing, becoming a growth with urbanisation especially dominant in dense cities, offers a more uniform life.

3.1. Basic Requirements for House Interior Design

Whatever the type, structure, style, and form of the house, there are essential qualities that should be considered in their design. Although it is not enough to supply the lower needs (or elementary-functional needs), the way of providing the basic needs for the users of the house should be satisfied such as physical needs and privacy satisfaction.

3.1.1. Physical Needs for House Interiors

Each interior space is a cultural image that cannot be independent of time as well as social and psychological evaluations. Therefore, describing the spatial quality of interiors can depend on several factors including adjectives while the main properties for providing it are wholeness and harmony. The parts should be related to only within each separate area but also within the entire whole of the building.

The definitions and classification of Ching (2007) which are generally for interior space can be accepted while focusing on house interiors. According to him, spatial qualities can be examined in two categories as measurable and subjective qualities. While the first is related to ergonomics using necessary anthropometric data and functions of house interiors, the second one relates to the personal and cultural aspects of the residents. Both depending on the various needs of residents equally ask each other (Yücel, 1995).

Ching (2007) in more detail, defines the measurable qualities into categories and explains the concept with physical items forming the space. The

properties of the enclosure include dimensions, shape, configuration, surface, edges, and openings. The qualities of space contain proportions, scale, form, definition, color, texture, pattern, enclosure, light, and view. The size and shape can be described as the most rigid physical characteristics while scale defines its three-dimensional quality.

On the other hand, the subjective qualities of space are considered as the properties which give feelings to its users. They are upon the atmosphere which is not easy to measure. Like the atmosphere, character, mood, or ambiance of spaces are directly linked to culture and traditions. Thus, the residents and their visitors, the first the main and the second temporary users of the house, require and perceive it differently depending on their personality and the lifestyle (Yücel, 1995).

3.1.2. Privacy and Privacy Gradients in House Interiors

Privacy sounds like isolation and solitude but is not simply a clear separation of domains in the house. Its meaning varies depending on the person -even in the same society- and the particular environment at a certain time.

Privacy as the ability to control the interaction between the householders and the ones from outside is a very important parameter in house design. “Privacy within the house is not to divorce oneself from others, but to give freedom to carry out the activities without interfering with other members of the family” (Lawrence, 1987). It is not only the individual feeling of freedom but also the feeling of comfort for all users. So, the house is a place of repose and refreshment, and a renewal of physical and psychological energy as Smith (1994) introduces privacy as a process of regeneration.

Even though it seems that measuring privacy is not easy, providing it in house is possible when focusing on three main functions that it serves: “the management of social interaction”, “the establishment of plans and strategies for interacting with others” and “the development and maintenance of self-identity”. Moreover, privacy can be dictated by attitudes to sexuality, feeling of shame, and, the peculiarity of a particular activity. Those aspects are reflected in the layout of houses both in the separation of the dwelling unit from neighbours and the division of domains within (Bilirgil, 1979).

Since the lifestyle is changing, the understanding of privacy and the gradient follow this transform. For example, although the bedrooms historically have been the most private areas in the house they have been modified. There

are also working spaces that require much privacy in houses since they became more flexible occupying different functions like home offices.

3.2. Space Organisation in House

Space organisation means how spaces (interior and outdoor) establish a system, a structure, togetherness in which they have physical relations with each other. To understand space organisation, it is necessary to briefly review form and space configuration in interior design.

3.2.1 Form and Space Configuration

When two spaces are coming together with spatial relations, there are four main methods to achieve it “space within a space, interlocking space, adjacent space and spaces linked by a common space” (Ching, 2007: 185; Soygeniş, 2006). “**Space within a space**” in which a space might be included within the volume of a larger space that envelopes small in which visual and physical connection can be accommodated. “**Interlocking spaces**” in which a part of a space may overlap with a part of another space so two spaces overlap and a new shared space emerges while each space keeps its own identity and spatial definition. “**Adjacent spaces**” in which two different spaces may repose on each other or share a common border. “**Spaces linked by a common space**” in which two different spaces may rely on an intermediary space and two spaces that are separated by distance are linked together by a third intermediate space in which the visual and spatial relationship between two spaces depends on the third space.

In the design of houses, the third method “adjacent spaces” is the most used one in providing privacy while the first “space within space” and the second “interlocking spaces” methods are used for more social and active areas such as living areas. The fourth one “spaces linked by a common space” can be in the form of halls differently according to the circulation system. (Yücel, 1995).

3.2.2 Proximity and Dimensional Requirements

The type of space organisation is a result of a specific situation that depends on the building program including functional proximities, dimensional requirements, and hierarchical classification of spaces. In addition, the requirements for access, light and/or view, and exterior conditions of the site are effective on its formation (Arcan & Evci, 1999; Soygeniş, 2006).

Five types of spatial organisations can be summarised as “central, linear, radial, clustered, and grid” which differ in terms of their formal characteristics, spatial relationships, and contextual responses (Ching, 2007; Soygeniş, 2006). In “**central organisation**”, there is a focal space that is dominant about which several secondary spaces are grouped and a unifying space that is regular in form and large enough to relate secondary spaces to its boundaries. “**Linear organisation**” is the type in which the spaces alike in size, form, and function are repeated in a longitudinal sequence. Due to its characteristics, linear organisations put forward a direction and signify movement, extension, and growth. When the central space from which linear organisations of space extend radially, it is called “**radial organisation**”. In “**clustered organisation**”, spaces are grouped by physical proximity or sharing a common visual relationship or trait like orientation. It consists of repetitive and cellular spaces with similar functions, and it can be organised at a point of entry or on a movement path. “**Grid organisation**” is the type in which spaces are organised within a structural grid or on a three-dimensional framework. The main characteristics of a grid are regularity and continuity of the pattern which creates a stable set of reference points/lines although the spaces in this organisation may vary in their sizes, forms, and functions (Rengel, 2014; Wallschlaeger & Busic-Synder, 1992).

All the organisation types can be seen individually or as a combined version of house design depending on many factors in various scales. While the floor plan of the house block changes according to the location such as site characteristics and specification the plan of the dwelling unit changes according to the zoning of interior spaces (Ercan & Evci, 1999). For example, the grid organisation is the most common type in apartment buildings which is more efficient suiting structural systems. The linear organisation type is more usual in circulation zones.

3.3. Activities and Zoning in Domestic Interiors

The spatial organisation of domestic interiors can vary according to different qualities depending on the physical boundaries of the space. The adjacencies and the connections between each room within a single house and the flow through the circulation create the overall floor plan of the house. For the comprehensive spatial organisation, an activity planning stage is needed in which the users’ requirements and their intentions of using the spaces are considered.

Functions which mean the activities performed in space for a purpose seem the primary principle to be considered to satisfy the physiological needs of humans. Regarding the activity and function, the organisation of rooms can serve either as limits representing the symbolic definitions of different areas or as physical boundaries which can control the visual and physical connection between spaces according to cultural traditions, social conventions, and personal aspirations of users (Bielefeld & El Khouli, 2010; Soygeniş, 2006).

According to the functionalist approach, houses are designed for satisfying the basic needs of human beings in the areas of sleeping, eating, washing, cooking, storage, studying, and laundry. Some spaces might have more social and psychological meaning whereas some need more control of users like reading, working, and writing. Thus, the zoning of interior spaces in houses can be generally classified as **private (sleeping units); social (common-shared), and service (circulation and wet) areas.**

As a general concern, privacy creates the main structure of spatial positions from the public to more intimate areas of the house. Additionally, its degree changes the space allocating and interior furnishing since it varies depending on time, position, and number of residents in the same room. In addition to this (social, semi-private, and private spaces) the zoning can be clustered according to inhabitants (parents' and children's spaces), functional usage (service and living areas), usage in particular daytimes (night and day use), or combination of all. Not only the social structure including family size, status, and identical properties of householders but also the codes and conventions of what is acceptable including the personal belongings, memories, and devotions of individuals are other main considerations in zoning in house design (Yücel, 1995).

3.3.1. Layout of Movement in Houses: Circulation

Circulation in architecture and interior design means the movement of the user through the spaces. Although being in a single space, the spatial experiences are concerning where the user has been and where to go circulation is important to deeply understand as a positive element that has a direct impact upon the users' and visitors' perception of forms and spaces of the building (Soygeniş, 2006).

Ching (2007: 241) explains the meaning of circulation under five titles while emphasising its importance in space organisation as "approach, entrance, the configuration of the path, path-space relationships and form of

the circulation space”. “**Approach**” can be defined as the distant view as the first phase of the circulation movement, then experiencing and perceiving the space is possible step-by-step. “**Entrance**” creates a direct relation from outside to inside in buildings or separates “here” from “there”. “**Configuration of the path**” is directly related to the sequence of spaces; generally paths are linear and have a starting from which users are taken to the destination. “**Path-space relationships**” are created in various ways; for example, the integrity of spaces is maintained and the path configuration is more flexible in pass-by spaces. Also, mediating spaces can be used to link spaces and paths. “**Form of the circulation space**” meets the needs of promenading, pausing, resting, or taking in a view along a path in the buildings and may vary according to how the boundaries are defined.

3.3.2. Indoor and Outdoor Relations

The house as a shelter to be protected from outdoor conditions is a place that is an “inside” as opposed to an outside. Moreover home is an experience of ‘inside’ as well as an experience of the world in which it has its place (Lawrence, 1997).

The transition between the exterior and interior of a house can be interpreted as separation and liaison between public and private, polluted and unpolluted, and exterior and interior. According to this interpretation, Low and Chambers (1989) give importance to the entrance hall and define it as an ambiguous space regulating the access of people and objects. In addition to the entry of the flats, balconies which can be seen in different forms and structures are not simply platforms above the ground but notable areas connecting the residents directly to the outside (Yücel, 1995).

4. Analysis of Selected Apartment Buildings and Discussion

The study deals with apartments since it is the main type of housing in cities in Türkiye, built both private and public while focusing on seven selected examples. There are certain criteria for the selection: They served the upper middle class and were located in prestigious neighbourhoods of the city. They are the representatives of the period, valuable buildings published in the literature but not concerned with their stylistic differences in this study.

4.1. Catalogue and Determination of Cases

CASE 1 - Apartment 871/8

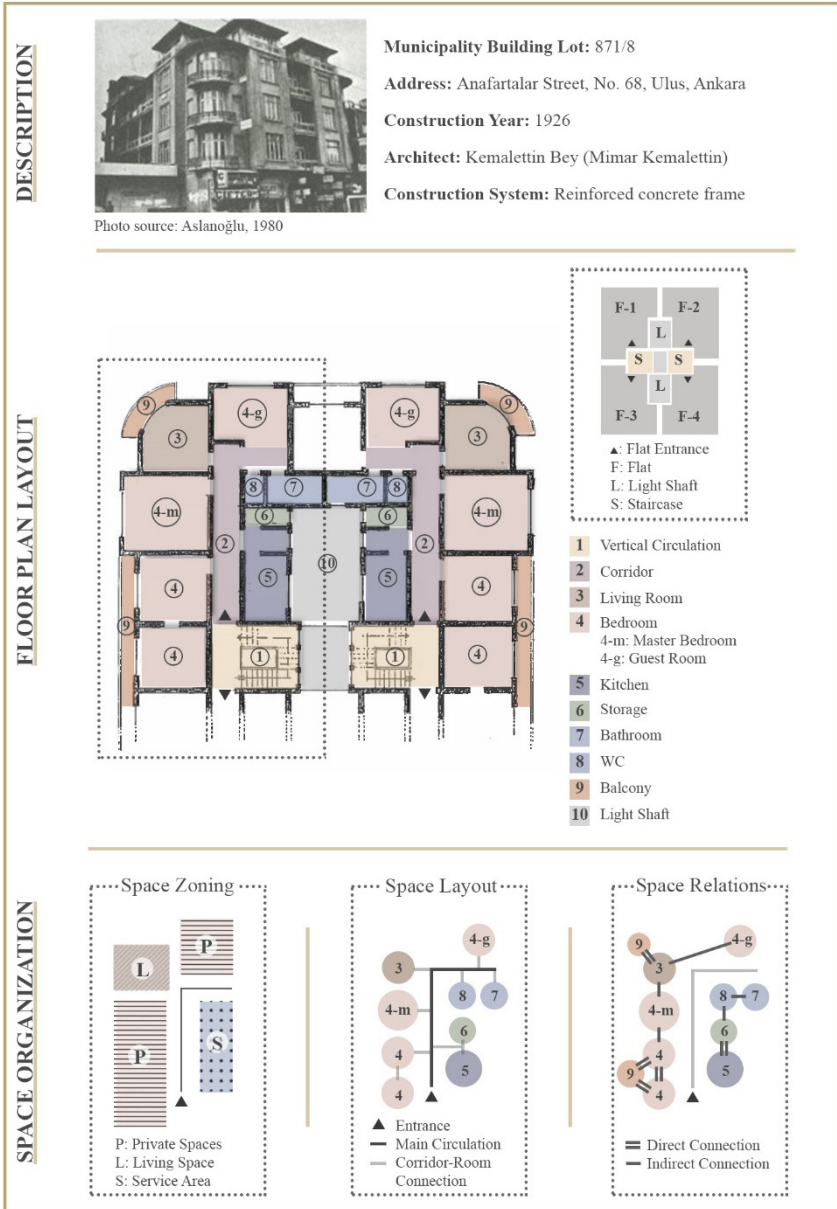


Figure 3. Spatial analysis of Case 1

CASE 2 - Ercan Apartment

DESCRIPTION



Photo source: Aslanoğlu, 1980

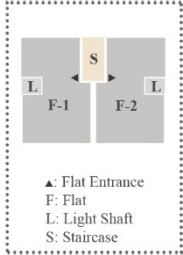
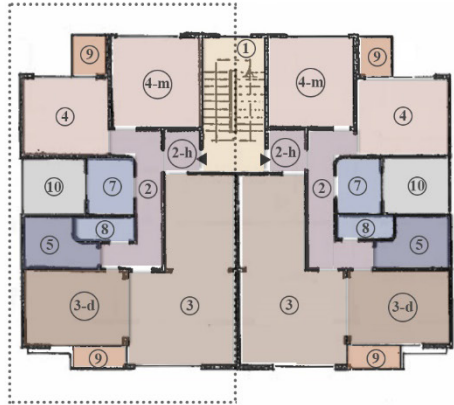
Address: Atatürk Boulevard, Yenışehir, Kızılay, Ankara

Construction Year: 1937

Architect: Bekir İhsan Ünal

Construction System: Reinforced concrete frame

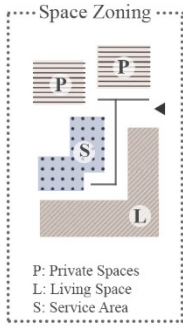
FLOOR PLAN LAYOUT



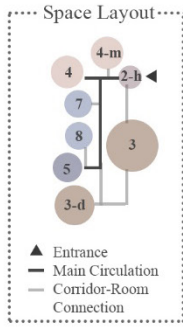
▲: Flat Entrance
 F: Flat
 L: Light Shaft
 S: Staircase

- 1 Vertical Circulation
- 2 Corridor
- 2-h: Hall
- 3 Living Room
- 3-d: Dining Area
- 4 Bedroom
- 4-m: Master Bedroom
- 5 Kitchen
- 7 Bathroom
- 8 WC
- 9 Balcony
- 10 Light Shaft

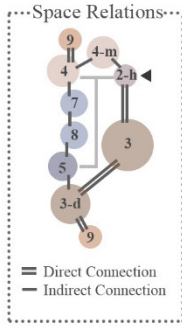
SPACE ORGANIZATION



P: Private Spaces
 L: Living Space
 S: Service Area



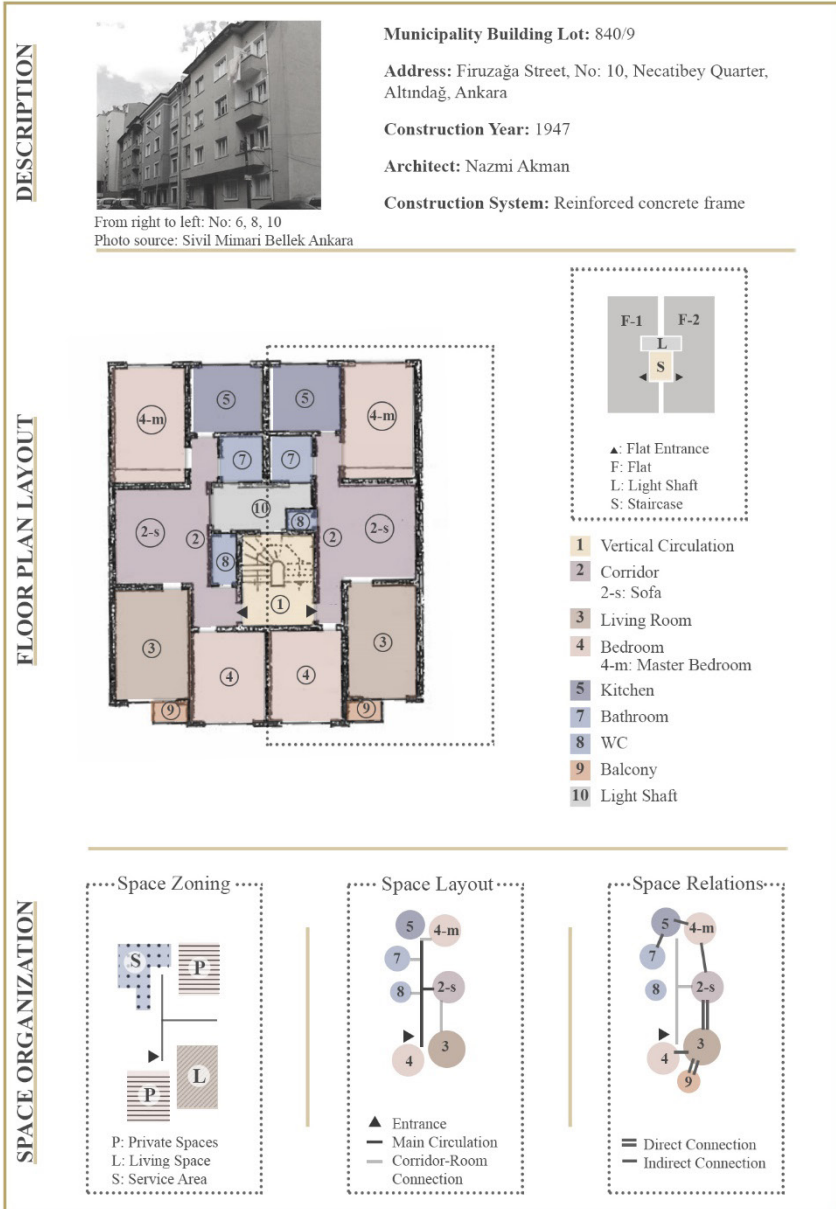
▲ Entrance
 — Main Circulation
 - - Corridor-Room Connection



== Direct Connection
 - Indirect Connection

Figure 4. Spatial analysis of Case 2

CASE 3 - Apartment 840/9



CASE 4 - İlbank Blocks 6049/15

DESCRIPTION



Photo source: Sivil Mimari Bellek Ankara

Municipality Building Lot: 6049/15

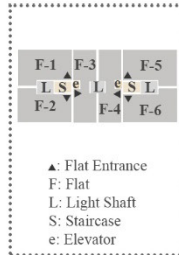
Address: Atatürk Boulevard, İnan Street, GOP Quarter, Çankaya, Ankara

Construction Year: 1957

Architect: Fatin Uran

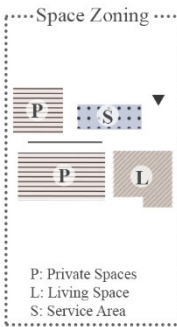
Construction System: Reinforced concrete frame

FLOOR PLAN LAYOUT

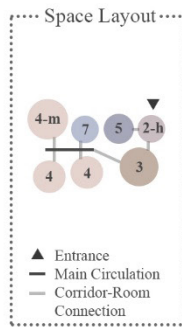


- ▲: Flat Entrance
 - F: Flat
 - L: Light Shaft
 - S: Staircase
 - e: Elevator
- 1 Vertical Circulation
 - 2 Corridor
 - 2-h: Hall
 - 3 Living Room
 - 4 Bedroom
 - 4-m: Master Bedroom
 - 5 Kitchen
 - 7 Bathroom
 - 8 WC
 - 9 Balcony
 - 10 Light Shaft

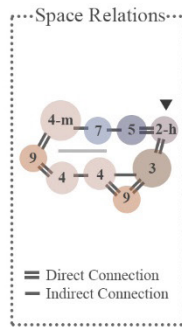
SPACE ORGANIZATION



- P: Private Spaces
- L: Living Space
- S: Service Area



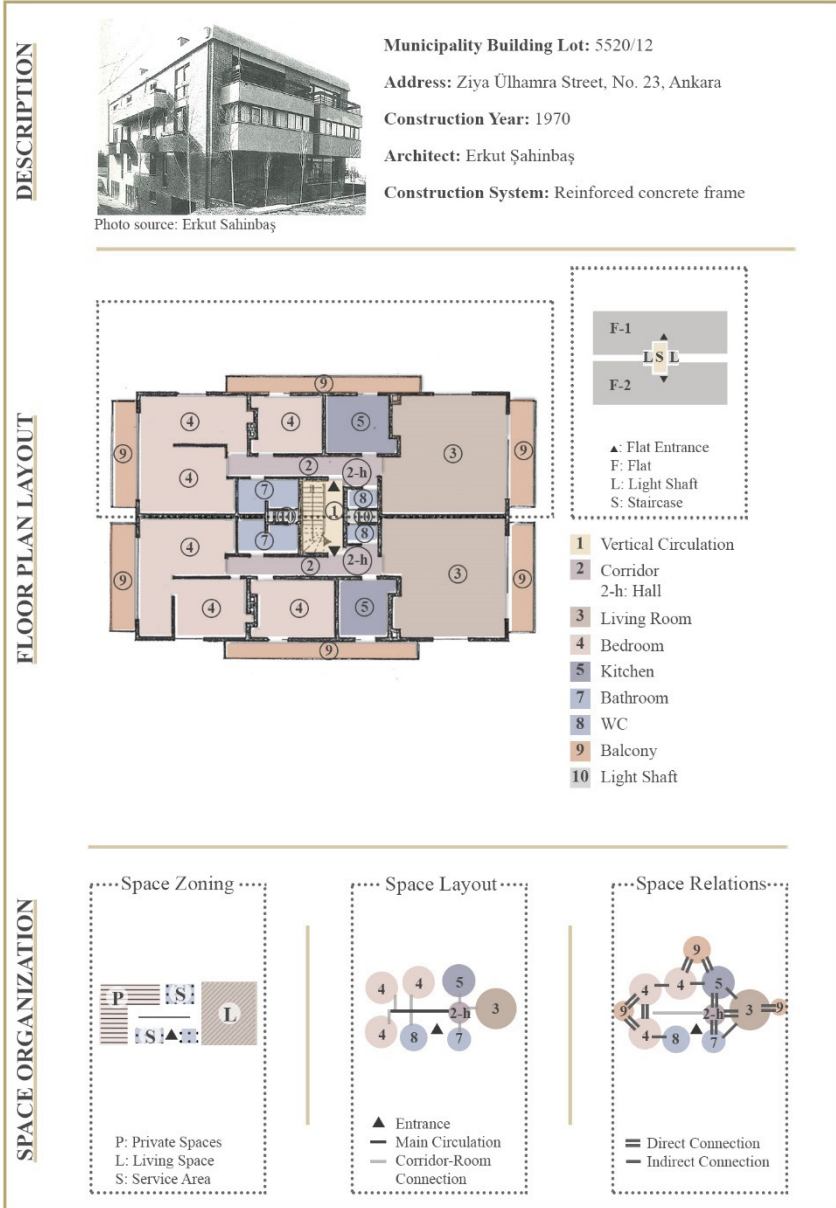
- ▲ Entrance
- Main Circulation
- Corridor-Room Connection



- == Direct Connection
- Indirect Connection

Figure 6. Spatial analysis of Case 4

CASE 5 - Apartment 5520/12



CASE 6 - Botanik Apartment

DESCRIPTION



Photo source: Sivil Mimari Bellek Ankara

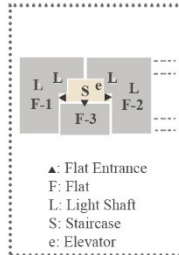
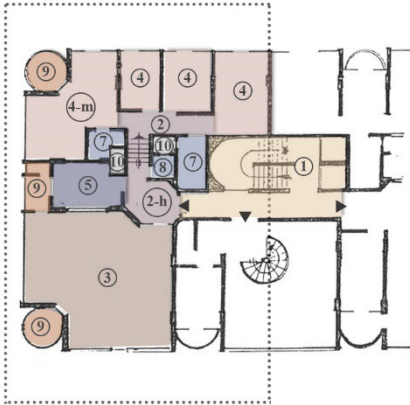
Address: Çevre Street, No. 54-56, Çankaya Quarter, Çankaya, Ankara

Construction Year: 1978

Architect: Vedat Özsan

Construction System: Reinforced concrete frame

FLOOR PLAN LAYOUT



- ▲ Flat Entrance
 - F: Flat
 - L: Light Shaft
 - S: Staircase
 - e: Elevator
- 1 Vertical Circulation
 - 2 Corridor
 - 2-h: Hall
 - 3 Living Room
 - 4 Bedroom
 - 4-m: Master Bedroom
 - 5 Kitchen
 - 7 Bathroom
 - 8 WC
 - 9 Balcony
 - 10 Light Shaft

SPACE ORGANIZATION

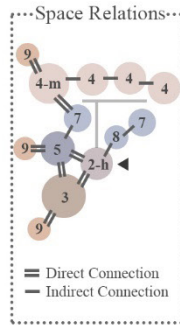
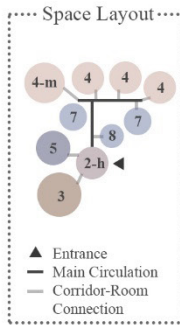
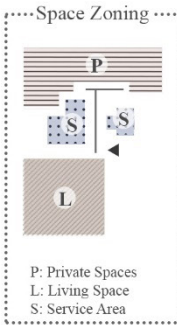
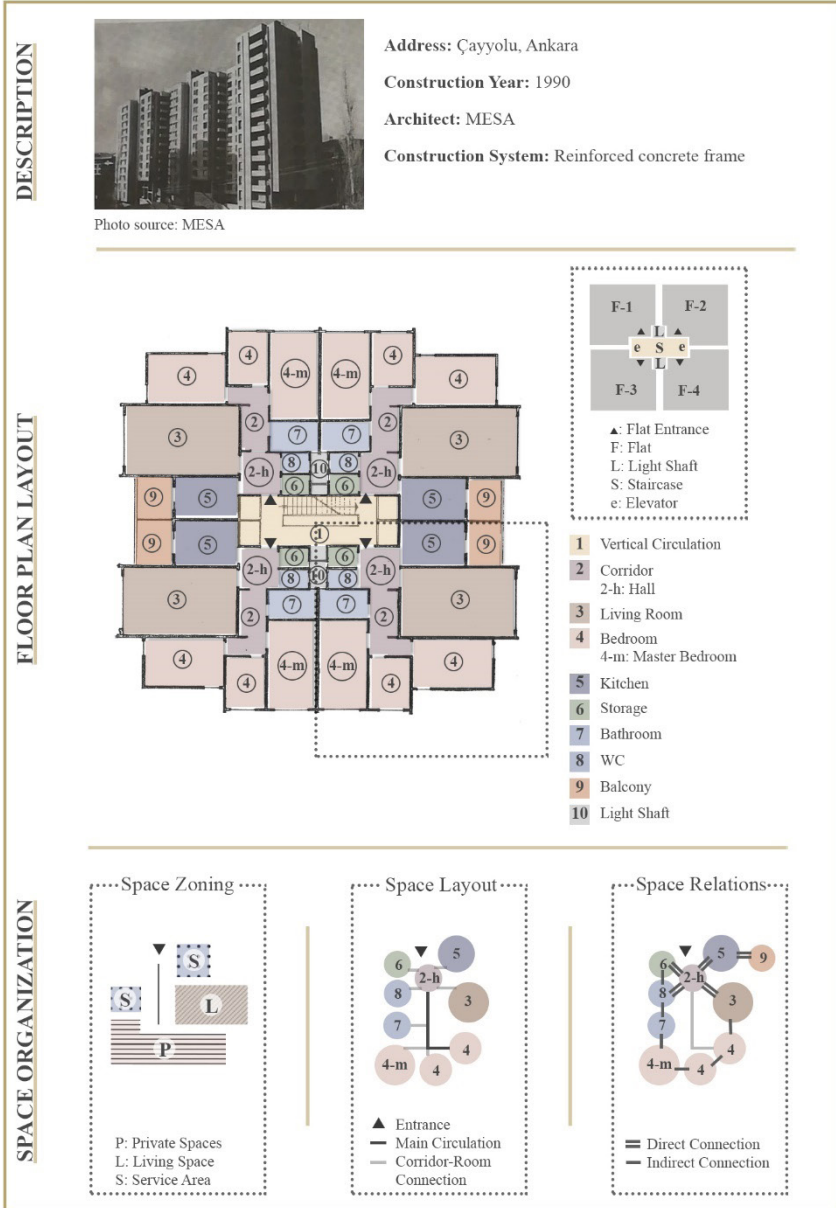


Figure 8. Spatial analysis of Case 6

CASE 7 - Koru B Block 1



Case 1: Apartment 871/8 (Figure 3)²

This apartment (871/8) is one of the oldest buildings analysed in previous studies. It was built in 1926 by Kemalettin Bey, a well-known architect for the early years of the newly established Republic. He is among the pioneers of the First NAM.

It is located at the corner, on one of the famous streets in Ulus. It has five floors: the ground is for commercial use, three floors are repeated as dwelling units for renting and the last is different under the roof. The building is a national style with exterior elements such as column capitals, side balconies, arches, and its roof type.

Floor Layout: The typical apartment floor has four dwelling units organised symmetrically around a service core. There are two same U-shaped staircases and two large light shafts in the center. The main entrances of units are located very close to the staircases and directly looking at each other.

Plan Characteristics: The unit consists of five rooms. The four rooms are almost identical and functionally unidentified. The service areas (kitchen, storage, bathroom, and toilet) are designed around the shaft as a group. The room with curved corners is most probably the living room which looks as big as other rooms. The big room next to the living room is probably the master bedroom, close to the bath and toilet while the others are close to the entrance and have a direct connection with each. The kitchen has indirect relation with the corridor and has a separate small storage room. The linear corridor without natural light is between the private and service zones. The flat has narrow balconies. While the curved one in the corner belongs to the living room the long one is lined through rooms shared by different flats.

Case 2: Ercan Apartment (Figure 4)³ – Demolished

This apartment called “rental house” (*kira evi*) was built in 1937 by Bekir İhsan Ünal, an active architect who designed buildings both in İstanbul and Ankara in the 1940s. It was built on the main and popular boulevard of the capital city, Atatürk Boulevard (*Atatürk Bulvarı*) which is a strong axis between *Ulus* till Çankaya.

2 Aslanoğlu, 2010, p. 337; Nalbantoğlu, 1981, pp. 43-45 / Yücel, 1995, p. 54; Cengizkan & Cengizkan, 2019, *Bir Şehir Kurmak: Ankara 1923-1933*, p. 430; Aslanoğlu, 2010, p. 384; Yavuz, 2009, p. 415; Avcı Hosanlı, pp.110, 398.

3 Arkitekt, 1937, p. 239; Yücel, 1993, p. 65; Bozdoğan, S. (2001), pp. 216-219, 230-232, 261; Aslanoğlu, 2010, p. 367; Uludüz, 2014, p.74

The building was four floors: The ground was partially commercial purpose having four shops and two small dwelling units. There was a basement consisting of storage for flats, a small dwelling unit, and a space for a housekeeper of the building. The building is in modern style with plain surfaces with linear lines and a flat roof type.

Floor Layout: There are two symmetrical flats on each floor. While the U-shaped staircase is at the back the shaft of each unit is on the sides. The hall for the main entrances of units is small so they are located very close and directly looking at each other.

Plan Characteristics: The unit consists of different sizes of rooms. Each dwelling has a master bedroom, bedroom, L-shaped living room with a dining area, kitchen, bath, and toilet. The kitchen has a close relationship with the dining area of the '*salle-a-manger*' which is a combination of living areas. There is a small entrance hall, an L-shaped long corridor, and a hall as part of the living room like a 'sofa' which is a typical space in a traditional Turkish house. While the living spaces are at the front, the sleeping areas are at the back of the building. Each unit has two small balconies, one is with dining, and the other is with bedrooms.

Case 3: Apartment 840/9 (Figure 5)⁴

The building was built in 1947 by Nazmi Akman. It is an attached building along the street and has four floors. Its facade with narrow long windows and projected eaves displays the characteristics of the Second NAM approach.

Floor Layout: The building has two flats on each floor in symmetric treatment. It has a light shaft in the middle. The U-shaped staircase faces it. The access to the flats is in a small floor hall. The entrances of dwellings look at each other.

Plan Characteristics: The flat has a living room looking to the front with a small balcony. There are two bedrooms of similar sizes, one at the back with a built-in closet is probably the master bedroom. It has a corridor but is differently handled. The layout is the product of a 'sofa' like a hall which can be used for dining. While service areas are grouped at the center and backed to the light shaft the kitchen is at the back having daylight. There is a small balcony in the living room looking at the street.

4 Nalbantoğlu, 1981, pp. 137-8; Yücel, 1995, p. 70

Case 4: İbank Blocks (Figure 6)⁵

This apartment was built in 1957 in Çankaya, a newly developed neighbourhood in Ankara in the 1960s. Its architect is Fatin Uran who is a professor at ITU and a practising architect having significant hotel buildings. The building is a massive block that has eight typical housing floors and a ground floor with commercial units. It is in an International style with a modern appearance.

Floor Layout: There are six symmetrical flats on each floor, and two are at the center in different sizes. Double U-shaped staircases and light shafts are located in the middle. There are also elevators for each core. The entrances of the three dwelling units are located close to a small apartment hall.

Plan Characteristics: It has a compact plan in which the kitchen is close to the main entry and living area while the bathroom is serving the bedrooms. Both are around the light shaft. The bedrooms are separated with built-in closets between them. The layout has a shorter corridor starting with an entry hall since the dining area is part of it. There are balconies; one is shared with the living room and bedroom; the other is shared with two bedrooms.

Case 5: Apartment 5520/12 (Figure 7)⁶

This building was constructed in 1969 in the Çankaya neighbourhood. Erkut Şahinbaş, the architect of the apartment, won the Sinan Award in 2012, one of the most important architectural awards in Türkiye. It is a three-story building where the ground is used as offices and a basement. It has a pure and modest look.

Floor Layout: It is planned with two symmetrical flats on each floor. L shape with a long arm staircase in the center while two small light shafts which can be accepted like a service chimney are symmetrical. The entries of flats directly look at each other.

Plan Characteristics: The plan has a large living room at the front facade. The zoning between living, sleeping, and service areas is very clear. The rooms are along the corridor while the bathroom and toilet are facing different shafts. The WC opening to entry is the guest toilet. The kitchen is close to the living room and has a direct relation with the entry hall. There are two types of

⁵ Ankara Municipality archive; Yücel, 1995, p. 74; Sivil Mimari Bellek Ankara 1930-1980 Catalogue, pp.118-119

⁶ Erkut Şahinbaş; Yücel, 1995, p. 81; Şahinbaş, 1998, p. 185

balconies; the bigger one is for the living room while the narrow one is shared with the kitchen and bedroom on the sides.

Case 6: Botanik Apartment (Figure 8)⁷

The building was constructed in 1974 on one of the most known streets in Çankaya. There is a renovation project of the building dating back to 1977. The architect was Vedat Özsan who is a designer of many qualified residential buildings, office buildings, and corporate structures in Ankara. It consists of two basements, a ground floor, and eight house floors. It could be accepted as a high-rise building of its period. Its appearance shows a distinction with rounded balconies on the corners and large windows.

Floor Layout: It has two normal and a duplex flat on the floors. The L-shaped but curved staircase hall with an elevator is in the middle. There is a small light shaft serving the WC and bathroom of the flat. The entries of normal flat and duplex ones are not too close and look in different directions.

Plan Characteristics: The normal flat has a differently shaped, hexagonal entry hall, a large living room, and an L-shaped big master bedroom in the corners. There is a direct relationship not only between the kitchen and dining but also between the bathroom and bedroom. Sleeping units are organised as private zones and separated from semi-public areas with a level difference. While the bathroom is upper level close to the bedrooms the toilet is on the entry hall level for guests. There are same-sized circular balconies at corners; one is for the living room and the other is for the master bedroom; additionally, the kitchen has a small balcony that has access to the living room.

Case 7: MESA Koru B Block 1 (Figure 9)⁸

The building was constructed in 1990 by a well-known and one of the pioneer construction firms in Türkiye. The building is in the newly developed Western part of the city in the 1980s. It is one of the foremost examples of contemporary constructed high-rise housing.

Floor Layout: Each floor consists of four symmetrical flats in symmetry. It has one wing staircase hall in the middle and elevators. The shared light shafts are also located in the central service core. The entrances of the flats are close to the elevators and opposite each other.

⁷ Mimar 1981/2, p.26; Yücel, 1995, p. 87; <https://www.ankaradaizbirakanmimarlar.com/06-ozsan>

⁸ MESA; Yücel, 1995, p. 92; <https://www.mesa.com.tr/ankara-proje-haritasi.aspx>

Plan Characteristics: Service areas are grouped in the middle around a light shaft. While the bathroom is located close to the bedrooms, the toilet and a separate storage room are close to the entrance. The kitchen with a big balcony is related to the living area. The circulation area consists of three parts; a square entrance hall, a short part, and a hall for sleeping units. This entry hall was centralised and gave access to different types of spaces. While the three bedrooms are different in size it can be said that all spaces are in similar proportions.

4.2. Results of Analysis

Before going into the details of the case analysis on the spatial organisation it is possible to discuss general changes related to apartment buildings in Ankara which confronted urbanisation problems as in all other Turkish cities and in which apartments always remained the favoured form of the private building sector.

The apartments built between 1923 and 1955 were commonly to be rented out, most of the flats were used by their owners or family. The examples belonging to this period were designed by architects and for the upper middle class. They were in *Ulus* and *Yenişehir* where the development of apartments was first observed. The years 1954 (amendment in Land Registry Law) and 1965 (The Flat Ownership Law) were important in changing housing production and allowed even the middle-income class to have individual flats. The examples belonging to the 1955-1990 period are produced mostly by banks and big construction firms. They can be accepted as public housing and located in new prestige areas of the city such as *GOP* and *Çankaya* through the south.

A general considerable development is a change in the numbers and sizes of apartment flats (dwelling units) on the floors. The number of apartments per storey increased after the 1950s when there used to be one or two symmetrical on each floor. While the apartment blocks were used by their owners in the 1920s and 30s, they were commonly rented out in later periods and the flats were built to be sold after the 50s.

The absence of land, high land prices, and economic considerations of the users forced architects and builders to design more flats on one floor. However, technological advances lead to providing different sizes and types of flats in locks. According to the needs of householders and intentions which depend on the family size and the type there existed duplex or studio types in the same

block after 1975. They supplied choices for the various family structures and their economic conditions.

Plan sizes of apartment buildings display great variations, however, there are some common characteristics of their spatial organisation. It can be said that the characteristics of plan layouts were hardly changed compared to the stylistic changes. But they were generally parallel to the social changes and domestic life of the households.

The common changes in interior spaces and their organisation can be summarised in two titles (Figures 10, 11): The first is an “increase of the sizes and the number of identified rooms” such as changes in service areas (kitchen and bathrooms; halls and corridors; storages); in living areas (living room, dining), and sleeping areas (master bedrooms) (Figure 12). The second is on “change of spatial organisation” such as the change of circulation distances between the kitchen and dining and between the master bedroom and bathroom (Figure 13).

No	Plan no	Kitchen				Living Room				Master Bedroom				Bathroom			
		W	L	W/L	W/L	W	W/L	W/L	W/L	W	W/L	W/L	W/L	W	W/L	W/L	W/L
1	CASE 1	220	360	65.1	79.2	360	360	100.0	129.6	380	400	49.2	152.0	150	280	53.0	42.0
	PLAN 1	180	340	61.4	73.1	360	360	100.0	129.6	380	400	49.2	152.0	150	280	53.0	42.0
	PLAN 2	180	340	61.4	73.1	360	360	100.0	129.6	380	400	49.2	152.0	150	280	53.0	42.0
	PLAN 3	180	340	61.4	73.1	360	360	100.0	129.6	380	400	49.2	152.0	150	280	53.0	42.0

Figure 10. List of the dimensional properties of spaces

No	Plan no	Kitchen-Dining Room Circulation Distance between Midpoints of Spaces	M.Bedroom-Bathroom Circulation Distance between Midpoints of Spaces
1	CASE 1	13.30	11.40
	PLAN 1	15.00	7.50
	PLAN 2	14.40	9.00
	PLAN 3	9.00	6.00

Figure 11. List of circulation distances between midpoints of spaces

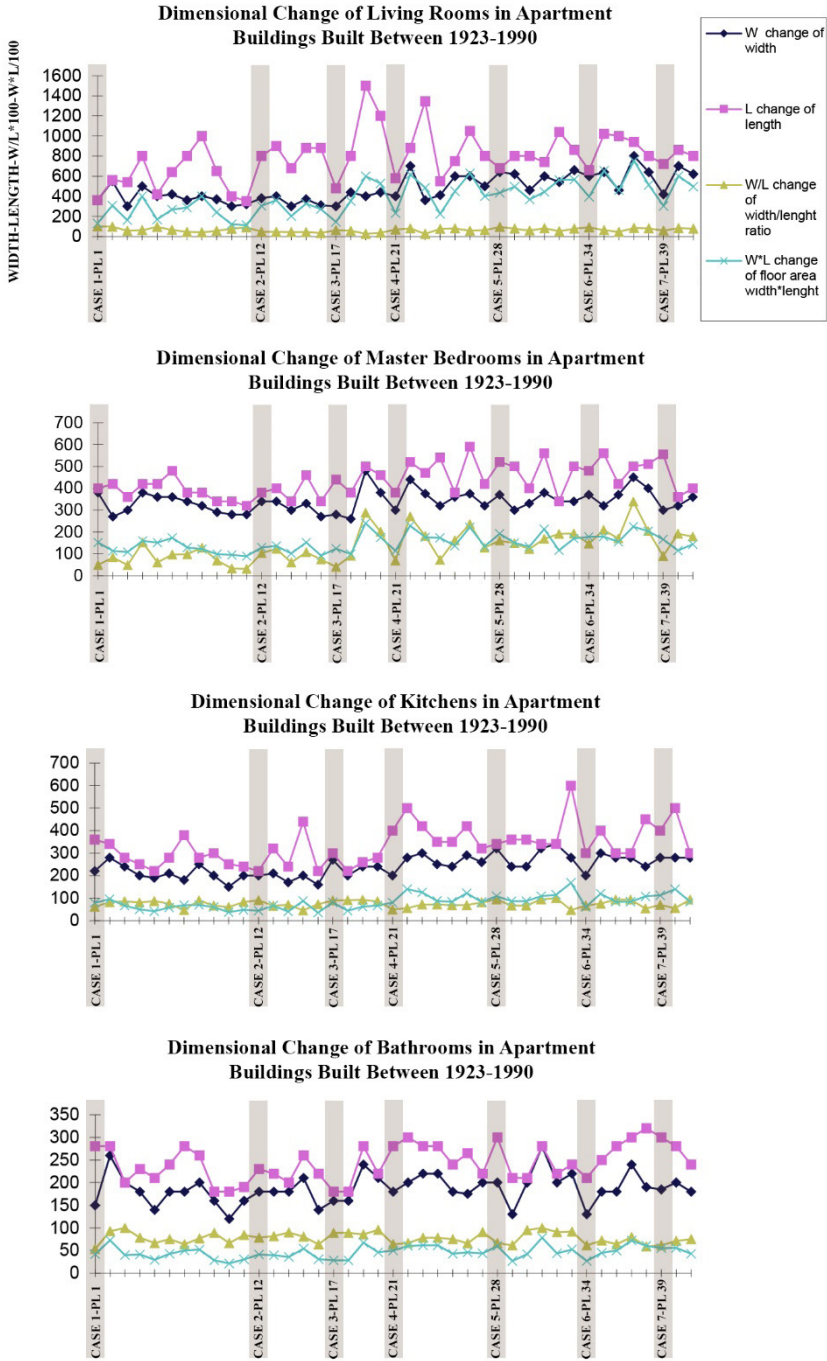


Figure 12. Graphics on dimensional changes of spaces

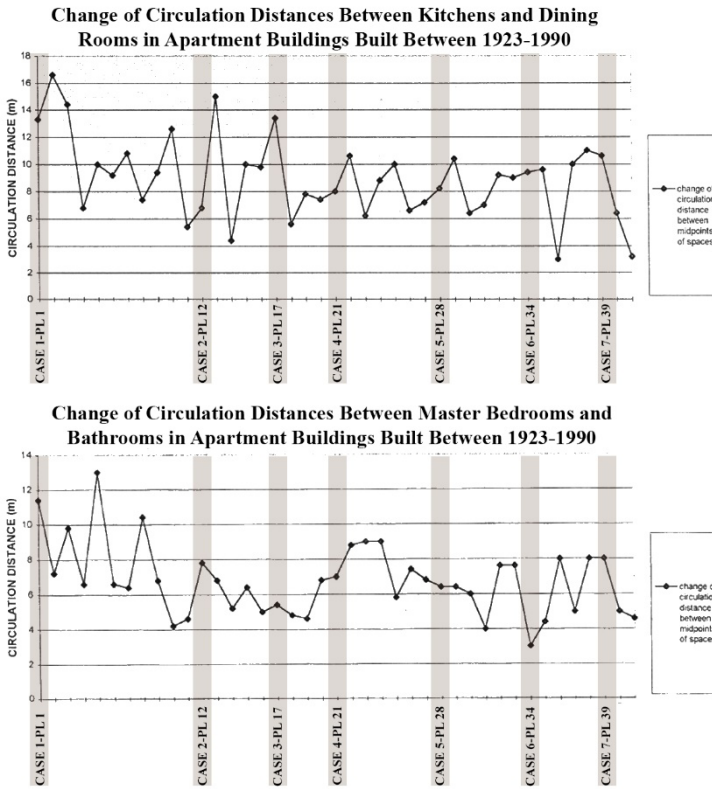


Figure 13. Graphics on change of circulation distances between spaces

Increase in the Size of Interior Spaces and the Number of Identified Rooms

The size of interior spaces depends on many factors like household size, special activities inside, and budget. It is not always an accurate indication of the usable space but also depends on the furniture arrangement and the circulation of each room. However, the floor areas of the kitchen, living room, master bedroom, and bathroom have enlarged as can be observed in the graphics.

It is hard to define the rooms considering their relation with each other and the service areas since the apartments of the 1920s and 1930s particularly have several unidentified rooms (Figure 3). Later, interior spaces in the houses were dimensioned differently according to the activities and were designed for a unique function making it difficult to use them for another purpose.

The number of rooms has also increased because the family members were asking about different levels of privacy. A Separate room for individuals was providing territorial satisfaction of security and identity.

Changes in Service Areas

Kitchens: The floor area of the kitchen has not increased regularly between 1923 and 1990. While the kitchen had separate storage rooms before the 1950s, there is an increase in size after the 1970s (Figure 7). The reason for this dimensional change could be to give the possibility for eating activities in the kitchen. Although the dining area is designed separately, daily eating activities began to take place in the kitchen since it is practical. While cooking Turkish food takes a long time, eating activity is generally short and ordinary, so dining areas are mostly used for ceremonial activities with guests. The woman who works on and has equivalence needed more time and energy savings in the kitchens. She wants not to be isolated while working in the kitchen, so it provides for various activities such as sitting, watching TV, reading, etc. Until the 1940s, the service from the kitchen to dining was not convenient since the kitchen was mostly placed close to the other services because of technical issues (Figures 3, 5). While it looking into light shafts in the 1930s (Figures 3, 4), it has natural light and ventilation in the later examples (Figures 7, 8, 9). The examples of the 1950s have quite direct relations between the kitchen, dining area, and the entrance to serve and to be served easily (Figures 6, 7). The kitchen became a part of the community area and showroom of the house in the 1960s. The consumer society of the 1980s brought forward more luxuries and appliances in the kitchens. With the imported modular systems in the kitchens, expensive materials started to be used. They were treated as showrooms while buying a flat, a symbol of the social status of the family and more of an image of the woman working in it.

Bathrooms: The floor area of the bathroom did not change so sharply. It shows a certain continuity however, it decreased in the 1950s. The bathroom is bigger and has more than one after the end of the 1970s. It seemed like a luxury before the 1980s, then it gained importance in a short time. Moreover, the master bath became the center item of the master bedrooms (Figure 8). A direct relation between the most confidential space and the most private room in the house provided comfort and freedom for the parents without disturbing other households. The circulation distance between the master bedrooms and the bathrooms has decreased. The bathroom is located around a light shaft but

always close to the bedroom while the secondary toilet exists close to the entrance serving the guest (Figures 7, 8, 9). The hygiene, cleanliness, spaciousness, and luxury gained importance for the users since they became prestige areas in the house as kitchens.

Halls and Corridors: The circulation was provided usually with long, narrow, and dark corridors as vast areas until the 1950s (Figures 3, 4). There were exceptional ones having a central hall as part of the corridor (Figure 5) or a dining part of the living room (Figure 6). They are like enlarged corridors. In the late examples belonging to the 1980s and the 1990s, circulation has also zoned in itself. One of them (Figure 9) is organised as three parts in different sizes while the other (Figure 8) is in two levelled parts. Circulation distance between the midpoints of related spaces bedroom-bathroom and kitchen-dining) has decreased and entrance halls gained importance since the 1920s.

Storages: Early examples had some kind of separate small rooms (*kiler* or *sandık odası*) which had a close relation with the kitchen or bathroom (Figure 3) while few bedrooms had built-in closets (Figure 5). In the 1950s and 1960s storage rooms became like offices serving kitchens while in later examples there are storages used as laundries separated from bathrooms. In addition, there existed a dressing room in the master bedrooms and built-in closets after the 1980s. They were not only for storing but also sound barriers providing privacy between rooms. However, the storage area was less than 10% of the all-use area which is not sufficient.

Changes in Living Areas

Living room: The living room shows the most variety in dimensional change and becomes larger. It has always been treated differently than other spaces with its size, shape, and its location. It was emphasised as being elevated or projected (Figures 4, 8, 9) since it was the central focus of activities and the public zone of the house. It has a balcony providing the relation with the outside. It has always been a prestigious area serving social activities and providing a connection with the exterior. Not only its dimensions but also its function has changed since the 1920s. While there was a separate guest room in the early years' examples, the guest room started to be combined with the dining area in the late 1930s. In the 1940s, the whole living space was designed in *salle-a-manger* fashion as a combination of living, dining, and guesting (Figure 4). After the 1950s, the living area was a combination of conversation, recreation, dining, entertaining, etc. but still, its organisation was determined according

to the position of the site. Later, its location was generally in a way looking through the street or having a view. The use of the level differences to separate the activities (Figure 8) and the fireplace as a prestige feature in the living area (Figure 7) and the sitting arrangement around it occurred between the 1960s and 1970s. By using such architectural features different corners are created for different movable furniture groups. In addition, they were used for separation between private and circulation zones.

Dining: The circulation distance between the kitchen and dining area generally decreased since the 1920s. Until the 1940s, service from the kitchen to the dining area was not convenient, then the kitchen was located independent from the service areas (Figures 3, 4, 5). It was located near the kitchen after the 1950s (Figures 6, 8, 9) and the close part of the living area to the kitchen was used as the dining area in the 1970s (Figures 6, 7). Moreover, the level difference was handled to separate eating activity and socialising areas in some apartments. It was always a ceremonial component of the house used for guests.

Changes in Sleeping Areas

Master Bedrooms: The size of the master bedrooms has increased since the 1920s. The spaciousness and functionality have naturally increased because the built-in closets, master bathroom, and dressing rooms were provided after the 1970s. Since all individuals began to require privacy, the number of bedrooms also increased in later periods. While all families were sharing one or two bedrooms in the 1930s, in later periods a number of bedrooms varied in size were designed. They have mostly grouped in a zone away from the circulation and living areas since they were always accepted as private spaces. The idea of locating bedrooms at the back of the building became a theme after the 1970s and still goes on.

Developments in Spatial Organisations

This part of the analysis can be done comparatively with three diagrams placed at the bottom part of the figures in the catalogue and supported with the graphics.

According to the first diagrams which show the zoning of activity areas, the separation between service, living, and private areas have become clearer in later years. Service areas including the kitchen are grouped between living and private zones. Until the 1950s they were usually around the light shafts. Later the kitchen became more flexible.

The second one on the layout focusing on the circulation principle shows that whether linear, L, or U-shaped, circulation is always provided by corridors. In the 1960s dining and living areas had more access and were semi-open to the circulation area. The ones having entrance halls had shorter and spacious corridors. Since the 1970s, the family room has been used as part of the corridor. Bedrooms were located along the corridor while the kitchen and living areas were compact as social areas. Corridors were nearly lost in the 1990s and entrance halls became larger which had all space access.

According to the last diagrams which indicate the interior space relations in the house and additionally outdoor relation with balconies, the relation was dependent on technical issues. A direct relation between the kitchen and living areas was provided in the 1960s. The distance between them became closer after the 1970s. Some kind of relation is provided by opening the wall between the kitchen and dining. The kitchen has also a direct relation with the entrance hall for all examples. The dining room has always had a direct relation with the living area and is designed as a part of it even if there is a level difference. Then it is also related to the entrance hall in the latter years. Bedrooms have a direct relation to baths since they started to have separate bathrooms and dressing rooms at the end of the 1970s. A close relation between WC and the entrance hall has always occurred in plans since it was for guests. The custom of having balconies is usually encouraged by the users' demands but neither the dimensions nor the locations were suitable for outdoor living in the early years. Examples belonging to the 1930s had very small balconies and some were shared types and related to living, guestrooms, or master bedrooms. After the 1940s, at least one balcony appeared which was larger and had a relation with the kitchen, dining, or living areas. Although they were not used sufficiently, the ones opening to the dining and kitchen were designed for eating activities. However, small ones opening to the bedrooms were usually used for storage. The ones on the sides of the buildings probably were to protect the private areas of the house from the neighbours. Compared to the recent apartments, Turkish houses, which are introverted because of customs and traditions, tend to extend towards the sofa, courtyard, or garden, which were controlled by the environment but not by balconies of the apartments looking to the streets.

5. Conclusion

After the results of the analysis including three selected apartments as the examples belonging to the period of 1923-1990 and four as the examples of the

period of 1955 -1990, and a review explaining the period of 1990-2020 it can be concluded that there is a certain change in the spatial organisation of apartment buildings in Ankara since the beginning of Turkish Republic. However, the spatial organisation is a coincidence of many parameters and prescribed according to cultural customs, social conventions, and personal aspirations of the “residents, owners, and designers”. Thus, it is hard to find out the exact causes of its change.

The causes can be explained differently. Direct causes of formation are governmental regulations, codes, legal obligations, and locational and structural necessities whereas a series of socio-cultural determinants are indirect that depend on the preferences of householders, the impact of architects who have different educational backgrounds, and personal sentiments. Especially the zoning in the apartment housing scheme, which is frequently repeated today, was applied within the limitations of the regulations. In addition, the regulations related to city planning and zoning allowed the apartment buildings to reach more dynamic forms by shaping the unit within the apartment structure more freely through the 1980s. On the other hand, social context and lifestyle have always been notable relations to the development of spatial organisation. The effects can be seen in different forms of change.

One of these changes is about plan typology which depends on the change in the internal and external social relations of the family. For example, it is hard to find privatisation in the formation of the living spaces other than the service spaces, a uniformity between rooms in first apartment examples in Ankara. Considering that they were rented as rooms to the bureaucrats, the rooms were formed in a series without differentiation. Özmen (1995) gives another example to support the effect of social relations on the formation of plans. Over the years, the limited number of entertainment venues in the city brought the habit of holding meetings between men and women, which is a necessity of modern life, at home. Thus, guest rooms that were kept larger and reflected on the facade and allowed the invitations were a result of an attempt to establish an external relationship with the family’s lifestyle.

Another change is the layout and dimensions of circulation areas. The corridor still is the most common layout type in apartment buildings. It was entered as an element of modern housing life. Only a few examples have a hall like “the sofa” of the traditional Turkish House. It was a kind of functional separation in a way that it can join the hall when necessary and provide an opening between the living and dining section. In the examples which had *sal-sale-a-manger*, again a foreign-influenced element, the hall continued to function as a distribution area and there was a triple separation between the

spaces used day and night. The transition from the hall to the corridor in the distribution of the interior spaces has been the most obvious spatial change experienced by the contemporary apartments in this last period. The corridor has assumed the role of an auxiliary element in ensuring functional separation within the house.

The change in the kitchen's understanding is also a result of social change, and it was the most changed space type during the development of the spatial organisation. It has gained importance while other activities besides eating have begun to take place. Because women's position in working life has been effective in its use. The kitchen considered in the service zone because of technical restrictions has changed, it became free, close to the entry hall and dining and it turned into a social area for the family. Until the 1970s, kitchens were equipped with concrete countertops, sinks, and open shelves. In the 1980s, with the advancing technology, prefabrication accelerated production, imported products increased, and domestic production developed. In addition, kitchens have also changed in terms of tools and equipment. The development of ready-made and modular kitchen systems brought advantages. With the new demands of the users, the kitchens have turned into active and social places where many different activities can occur and are shared by the guests.

Living areas including dining were social while sleeping areas including bedrooms were private zones that have always been focal of the house layout and their location has always been kept separately. The living room has been generally used outwardly in front where bedroom areas were away from the entries but close to service areas, generally located at the back.

There has generally been a request for more luxury, efficient, and spacious spaces arising from the need for differentiation in both life and the spatial counterparts of the lifestyle. The change in the sizes of spaces increases in the number of room and service spaces and the diverse plan scheme are indicators of the change in social status.

The general understanding of spatial organisation was for certain social groups, rather than a spatial organisation depending on family and its lifestyle in almost all periods hidden within the house and are not visible. For example, the first apartments in Ankara were considered mass housing to meet the needs of the city belonging to the period. The entrance halls and circulation areas of the apartment floor were quite wide. Afterward, these sections in the apartments of individual ownership turned into more restricted spaces. The formation of the common circulation areas varies according to the number of units on the floors.

The stairs were shaped in a two-three-armed, circular-semi-circular form and placed on the skylight or front-rear facade. Keeping these places at the back between 1920 and 1930 can be attributed to the high land prices and limited land use, especially in the *Ulus* neighbourhood in Ankara. Later new housing designs with more luxury attempts were seen in a new region, *Yenişehir*. Apartment buildings became widespread with the tendency to adapt to the American lifestyle in the 1950s. For example, the entrance and circulation areas were expanded by the influence of modern architecture. When the concept of “social housing” was common in the 1960s, the flat size area was reduced since the aim was to place as many houses as possible in the total area. The entrance halls of the apartments have been solved with very limited circulation areas and they were considered as single-armed staircases serving more residential units on each floor. When new economic policies were implemented after the 1980s the behaviour of the “consumption society” affected people to see the house as a commodity which changed the apartment buildings forms. Thus, apartments were becoming more qualified with the materials and design style used. In addition to the residential unit as a status symbol, common areas such as the apartment entrance hall and staircase gained importance, and the quality indicator of the building was tried to be determined with a holistic design approach. The lighting of the vertical circulation area from the roof instead of the skylight, and the gallery spaces on the landings are the products of this understanding. The necessity of elevators in multi-storey buildings starting from five floors has also made a difference in the formation of the halls in floor layout.

In conclusion, the house is a very important environment including various spaces and different organisations. It belongs to the cities and citizens as buildings with their appearance. But it serves the users and meets the requirements. So, they are public and private at the same time. The apartment buildings look similar to each other and contain similar types of flats together are the common housing type in cities in Türkiye. Their design concentrating on the spatial organisation and interior spaces should be considered according to these dialects. It is also very necessary to develop research specified on qualities of interior design.

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CHAPTER XIV

TRANSFORMATION FROM TRADITIONAL TO MODERN RESIDENTIAL INTERIOR SPACES: A DISCUSSION ON THE CASE OF NORTH CYPRUS

Nazife ÖZAY¹

¹Asst. Prof. Dr. - Eastern Mediterranean University

e-mail: nazife.ozay@emu.edu.tr

ORCID: 0000-0002-1050-1082

1. Introduction

Architecture is a mirror of society. It is shaped by values, customs, behaviours, ideas, and techniques layer by layer through history. Different characteristics of variable societies are all reflected in buildings and their environments. In other words, it is possible to read the customs, beliefs, traditions and lifestyles of different societies with the help of buildings. Similar to the cultural aspects, physical conditions, politics, economy and technology also have an important role in architectural development. Thus, architecture can be defined simply as a creation of culture, physical environment, politics, economy and technology. Especially, the house as a basic living unit is the best representative of their societies and the dynamics of the time periods.

By starting the 19th century, the world is under the effect of rapid changes. The high technologies of our days provide major modifications to human life and their living environments. Especially, the communication systems such as telephone, satellite connections, media (television and radio), social media and internet network systems have taken the world under its control. All of these factors are converted the world into a big global city. On this basis, similar benefits, ideas, behaviours and techniques started to be shared by different countries as a part of globalisation.

As mentioned above, architecture is a living organism and reflects the aspirations, beliefs and preferences of society. Thus, the changes in culture, politics, economy and technology are all expressed in the forms and spaces of architecture. The effects of Modernisation created a transformation in the forms of the houses and their interior spaces. It is also enhanced by the forces of globalization. Modern Movement's designers initiated to spread their ideas to different countries. The principles of the international style are common in different countries. They mostly ignore local cultures, traditions and social networks. Even, the local conditions of a country do have not any meaning. Similar design approaches, materials and plan schemes can be applied for cold and hot climates, as Le Corbusier mentioned, "One single building for all nations and climates". From the beginning of modern architecture till now the great effect of globalisation can be observed clearly in different parts of the world.

Cyprus is also an important island that is under the effects of globalisation. It is possible to read its marks on contemporary architecture. Especially, residential buildings and their interior spaces have been affected by the changing world more easily and rapidly. During its known history, Cyprus has accommodated lots of communities and civilizations. At different time spans variable architectural tendencies have been felt in the interior spaces. It is possible to evaluate the general characteristics of North Cyprus's residential interior spaces and read the transformation from traditional to modern related to the historical periods. Ottoman Period (1571-1878), British Period (1878-1960) and Modern Period (1960-2000) are the most significant ones that left remarkable footprints on the island.

Mostly, this study discusses the interior spaces of houses that belong to the periods mentioned above. The main reason for dealing with residential interiors is that we can clearly define and analyse their change throughout the historical process. In other words, houses help to understand the reason and history of change and observe the transformation.

2. Effective Factors on the Design of Residential Interior Spaces

As a basic living unit, a house has a dynamic nature. Throughout history, the changing needs, necessities and preferences of users have shaped houses and their spaces. The location of a house and its specifics are also effective in its design. Especially, the dynamics of the different time periods have a significant role in the people and their living environments. Politics, economy, technology, environmental conditions, context, available materials and culture are the main

issues with a house design. Housing is also an important factor in the processes of distribution of wealth, control over living conditions, access to social resources, and social identity formation and a crucial place in most individuals' daily lives for establishing and maintaining social relationships (Dunn, 2000). Saruwono (2012) defines a home as a physical space that impacts the emotional and mental needs of individuals. For this reason, spatial relationships should be considered in the design of living spaces, especially in residences where individuals perform most of their daily activities (Alitajern and Nojoumi, 2016). As Çakır (2021) mentioned that the lifestyles, habits and choices of the users, as considerations related to the environment and the site are the main domains which are active in the process of house design. Culture is the major factor, which defines the lifestyles, habits and preferences of the users. The impact of culture on housing spaces is very important throughout history. It consists the values such as beliefs, traditions, customs and lifestyle. Rapoport (2006) defines the components of culture as kinship, family structure, roles, social networks, status, identity and institutions. Culture is a set of values and beliefs, which are shared by a social group and are transferred to the other members. These create a world view of a group and are reflected in the designs (Rapoport, 1987). In other words, culture is directly influencing the definition and quality of housing interior spaces. Family houses satisfy the needs of users for the personal identity and ties between the community and culture (Altman and Chemers, 1980). Thus, in addition to the functional role, the house has a symbolic meaning and reflects social and personal status.

In addition to these, the changing technologies are directly affecting our daily lives and our living environments. Today, technologies that aim to make our lives easier are frequently encountered. As well as communication technologies, housing technologies such as kitchen appliances, entertainment devices and security systems (Çetin Er and Özcan, 2022; techUK and GfK, 2021) have an effective role in our lives. Residential spaces mainly respond to physical, psychological and social user needs (Çakır, 2021). As it is said by Ng et al. (2005) houses evolve over time for human survival and better quality of life. Thus, they are adapted to the changing dynamics of the time period to satisfy their users. Residential interior spaces and their characteristics are changing in parallel to these. With modernization, industry, mass production, standardization and international design characteristics started to dominate housing design. Instead of the regional sensitivity of traditional architecture, designs started to be more universal. The transformation from traditional to modern has been seen

in different dimensions. Especially, houses and their interior spaces reflected these by the changing building materials, systems, styles, functional activities and their formation. The local, national and regional characteristics started to lose their impact on designs. As Rapoport mentioned (2006) each component of the culture has changed by the effect of modernization. Besides, globalization is an important phenomenon that accelerates standardization and reduces the effect of local cultures in architecture. Social theorist Giddens (1990) defines globalization as the strengthening of worldwide social relations. This connects localities in a way that local activities are formed by events happening many miles away and vice versa. Giddens's studies related to the globalization process not only consist of the development of telecommunications technology and world economic integration, but it is also considering political transformations, transnational corporation growth, and cultural effects (Giddens, 1990). As related to these, in addition to modernization, globalization as well contributes to the transformation of spaces in terms of styles, layouts and appearances. Thus, residential interior spaces have lost their regional identity and started to be similar.

Cyprus is the third largest island in the Mediterranean Sea, after Sicily and Sardinia. Because of its geography, it is an important island with a rich history. The island managed to combine the Eastern and Western cultures in its heritage, due to its strategic position. Its historical past and cultural richness are reflected in its architecture. Cultural influences from different conquering states, geographic conditions and contact with world architecture were some of the important factors that made a mark on the architecture of Cyprus. With the arrival of the British, a transformation also started to be seen in Cyprus's architecture from traditional to modern. Moreover, the dynamics of globalization contribute to this transformation on the island. The houses which come from different time periods are the main representatives of this transformation.

3. Evolution of Interior Spaces in North Cyprus

Houses provide human beings to conduct their main life activities with their functional properties. They have a special place both in human life and architectural design. The interiors of these buildings where people spend most of their lives reflect the character of people, their society and the design tendency of the time periods.

According to the changing dynamics of the time periods, Ottoman (1571-1878), British (1878-1960) and Modern (1960-2000) Periods in North Cyprus

present different residential interior characteristics. These are reflected in the stylistic tendencies, unchangeable building elements (windows, doors, fireplaces and ceilings) and changeable building elements (furniture, lighting fixtures and accessories) and their organisational effects. Therefore, the issue deals with separate periods to understand the transformation of the interior spaces and the reasons behind them.

3.1. Ottoman Period (1571-1878)

Mostly, the effects of the Ottoman Period have been observed inside the dwellings. After the conquest of the island by the Ottoman, the new settlers migrated there from the Ottoman lands. They had different lifestyles. Hence, they began to build their own houses. Originally, the building masters came from Anatolia. In time, other Turkish builders, who were living in Cyprus, took over this job. In principle, these houses have similarities with Traditional Turkish House and architecture with those of the Western and Southern regions of Anatolian Turkey (Albrecht, 1994). Moreover, it is possible to find several differences related to its region.

Generally, the Traditional Turkish House on the island reflects Turkish culture and Islamic life. It is said that the form and functional organization of the Turkish house are the reflection of the social norms and family structure (Asatekin, 1994). With the conquest of the Ottoman Empire, most of the Cypriot people adopted the lifestyle of Ottomans. Thus, family structure, lifestyle, and religion are the major aspects that shaped interior spaces (Ozay, 1998).

Privacy is very important in the Muslim World. Thus, the eye of the stranger played a decisive role in the shaping of a house. The first impression of a Traditional Turkish street is that of massive walls lining both sides, projecting upper floors and windows with wooden lattices (Kuban, 1986).

Rooms are the basic elements of a Traditional Turkish House. They were generally formed with multi-purpose central space, a periphery for seating, closed utility areas such as cupboards, chests, bedding and the heating at the sidewall (Fig.1). The rooms of a Traditional Turkish House can be explained as the smallest living unit (Kucukerman, 1991). In other words, there was no separation between the spaces, like living rooms, dining rooms or bedrooms. Each of them can serve these activities with proper arrangements as a flexible unit.

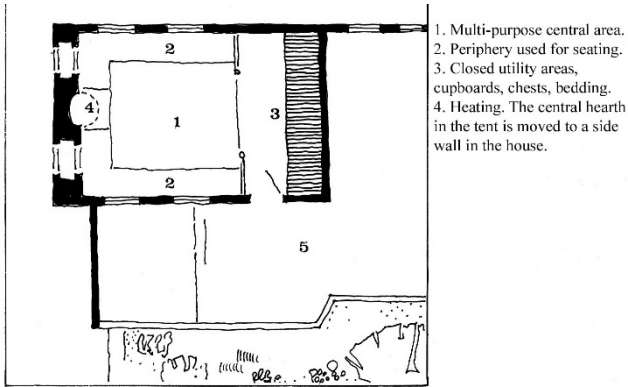


Figure 1. A typical room of a Traditional Turkish House.
(Kucukerman, 1991)

Generally, these rooms were organised around a courtyard or a common room that was called *Sofa*. It has varied names in Turkish terminology such as *Sergah*, *Sergi*, *Seyvan*, *Cardak*, *Divanhane*, and *Hayat*. It provides access to the other rooms. The function of the *Sofa* does not end with this. It also obtains seating areas, which were left over from the circulation areas (Kucukerman, 1991). Different organisations between *Sofa* and the rooms could create different plan schemes. Thus, the units, which accommodate the big family – father, mother, children, sons and daughters –, are combined under one roof (Fig.2).

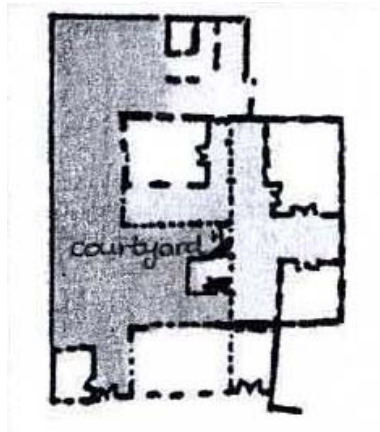


Figure 2. Plan of the Dervish Pasha Mansion in Nicosia.

In addition to the aspects such as lifestyle and religion that are mentioned above, some of the interior elements also affect the organisation of rooms

and interiors of the Traditional Turkish House of Cyprus. Built-in divans and cupboards, two rows of windows, and fireplaces flanked by small niches are some of the main characteristic elements of the rooms. When looking at the arrangement of these rooms, the horizontal bands, which are placed on the walls draw attention. They were generally used as shelves for storing and exhibiting something functional. Generally, the placement point of shelves would be an endpoint for doors and windows. Furthermore, these shelves look like imaginary line that separates the room into different parts. The lower part of the shelf was the available usage area. All of the frequently used interior elements were placed there. The upper of this line could not be used by a person. Because of this, the elements which were used very rarely were accommodated in this part namely the upper windows, and some storage. Mostly, these shelves reflected their importance with decoration and colours (Ozay 2002).

The flexible character of the room made the inbuilt cupboards very important elements that cannot be given up. For example, this room could be used as a bedroom at night and in the daytime, the quilts, and cushions was stored in this built-in furniture. Generally, in Turkish, these cupboards are known as *Yukluk*. Sometimes, they could be used to exhibit valuable accessories.

These houses and rooms were generally well decorated with woodwork, carving or dovetailing – mostly geometrical in character in the classical examples. The decorations of the rooms concentrated on the doors of the cupboards, ceilings, and fireplace areas (Kuban, 1995). The ceilings were developed parallel to the function of the space. Generally, the usage areas were well ornamented. On the other hand, under the service areas, pure ceilings were preferred. Unlike the ceilings, the floor coverings were mostly formed with naked materials such as carpet, rug, or matting. They spread onto the wood or stone floors. In Cyprus with the effect of the hot climate, the stone was the most preferable floor covering. Generally, on this covering, soft floorings were laid. Only bare materials give an opportunity for flexibility (Ozay, 1998).

Sedir is another piece of built-in furniture, which encircled the room. It is explained as a seating area that is increased from the floor surface. Generally, it was installed in front of the window for obtaining the visual relationship between the exterior and interior (Fig.3).



Figure 3. The relation between *Sedir* and windows.

There was another concept called *Sekialti* (passageway) – *Sekiustu* (basic living area), which affects the room and its organisation. *Sekialti / Sekiustu* was the level differences between the room and common area (*Sofa*). *Sekialti* provides a transition from room to *Sofa* and provides a separation between the room and *Sofa*.

A window is an important element of the Turkish room. It was the only way for women to create a relationship between the exterior. There were variable types that change parallel to the functions and building methods (vertically sliding sash window, vertically hinged casement, and combination window). At Traditional Turkish House perhaps the most interesting window type is the upper light.

Doors have another meaning for Traditional Turkish House. This is because they were the connections between the exterior and private interiors. The entrances of the rooms were generally simple. They were selected according to the importance of the room. They were mostly created with a combination of small wood pieces in a pattern. Every wood piece was named an *Ayna* in Turkish.

Main Room (*Bas Oda, Selamlık*) was different from the other rooms. It can be explained as a reception room (Fig.4). This room was arranged and decorated with particular care. The main function of the room was to provide meeting places for the man and his visitors. Sometimes, Main Room was used as a kind of office. Because at that time there were no such spaces as public offices and

working spaces of our day. The arrangement of these rooms generally reflected the relationship between the head of the family, guests, and servants. Mostly, it was the biggest room in the house. Thus, the area was enough for organising the appropriate activities.



Figure 4. A view from the main room of Dervish Pasha Mansion in Nicosia.

Besides these, one of the important elements of these buildings was the projections of the upper stories, which is known as *Cikma*, or *Cumba* in Turkish and Bay Window in English (Albrecht, 1994). In this period traditional construction techniques and local materials were used. Generally, “Baghdadi” and Himish” were the important construction techniques of those houses. They are both timber-framed structures. In Baghdadi type, the timber frame is filled with wooden strips, whereas in Himish structures the timber frame is filled with stone or adobe. Himish type construction method was mostly used for the walls. On the other hand, the light structure of the Baghdadi makes it possible to use it for the ceilings and bay windows more than for the wall structures. Consequently, the thick adobe or stone walls, pitched roofs and high ceilings are some of the significant features of the Traditional Turkish House that enhance the indoor-environmental quality (Ozay, 2004). Dervish Pasha Mansion in Nicosia is a very typical example of the Traditional Turkish House in Cyprus (Fig.2&4). During its restoration, the interior of this building was reorganised by similar interior elements and organisation principles of the Ottoman Period.

3.2. British Period (1878-1930 & 1930-1960)

After nearly four hundred years of Ottoman sovereignty, the British were another effectual civilization period in Cyprus. British Empire would be a pioneer

that began to apply new materials and techniques to Cyprus's architecture. Also, they brought a new culture, rules and regulations to the island, which became effective in the shaping of interiors. Besides domestic architecture, other functions such as governmental, educational, commercial and office buildings were built at that time.

In the eighteenth and nineteenth centuries, there was a revival of the architectural style of ancient Greece and Rome. This Neo-Classical style was used in public buildings and domestic architecture. Doorways had flat stone imitations of Roman columns and these were called pilasters. Above the door was a balcony of decorative ironwork supported by ornamental brackets. This style was placed in Victorian period of British. Therefore, it reached the island by the British Society in 1878 (Salvator, 1983). In addition, the decorative floor covering is one of the characteristic interior elements of that time. It forms by the encaustic tiles laid in a geometric pattern.

The dominance of the British Empire can be inspected into two parts. The first one was between 1878 and 1930. During this time span, the behaviours of the government were very respectful to the societies of the island. Naturally, art and architecture were also developed parallel to this understanding. Mostly the existing architectural styles and understandings continued with little differences under the effect of the British. On the other hand, the second period (1930-1960) developed very contrary to the first, because the British Empire was victorious, after the I. World War. After this, they tried to show the power of the Empire in every labour of the island. At the same time, there were some developments in the architecture of the world. New materials, technologies and also new functional understandings increased parallel to the changing lifestyle. Thus, with the European identity, the British Empire started to use these novelties on the island (Özay, 2005). Thus, the transformation of residences from traditional to modern has begun on the island.

3.2.1. I. British Period (1878-1930)

During the first British period, the properties of the Traditional Turkish house continued with some changes. Especially, the plan schemes of the houses were almost the same as the Ottoman Period's Traditional Turkish type house plans (Fig.5). The building materials were mostly provided from traditional sources far beyond the nearest environment. The yellow-stone and adobe were the most widespread building materials of this period (Özay, 2005).

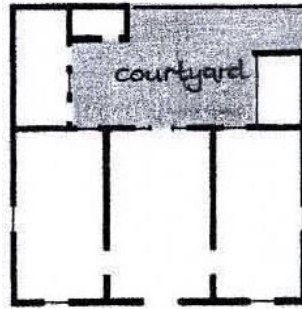


Figure 5. A plan scheme from the I. British Period.

The evident difference that appeared at that time was the changing of the fixed elements of Ottoman culture. They showed variation according to the different cultures and lifestyles of the British. The main fixed seating element, *Sedir* was replaced with the movable armchairs (Fig.6). Moreover, the unchangeable interior elements showed different characters according to these changeable elements. The evident difference in the unchangeable elements was the changing of the proportioning. Generally, this principle can be observed in the windows of the British period (Ozay, 1998).



Figure 6. An interior view from the I. British Period.

The building materials were selected from traditional ones. Yellow sandstone and adobe were the characteristic building materials of that time. Moreover, marble and wood were used as floor-covering materials (Dagli, 1990). The use of iron also increased during this period. It is possible to observe the iron Art Deco window frames. The changing lifestyle also provided new spaces for houses. For example, the idea of the balcony house came in during this time span. It can be said that the bay window of the Ottoman Period gave its place to the balcony, which is a semi-open space.

3.2.2. II. British Period (1930-1960)

As explained above, British Empire started to show its power on the island at this time span. Inevitably these effects were directly reflected in the architecture of Cyprus. Generally, colonial-type buildings were constructed. They have eclectic characters. It was possible to observe similar examples in other colonies of the British Empire.

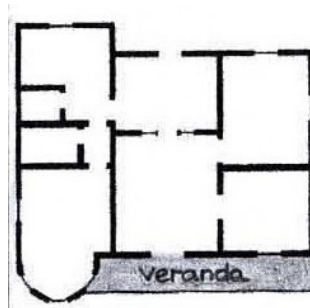


Figure 7. A plan scheme from the II. British Period.

The new cultural life, its benefits, activities and technological developments showed themselves very clearly during this time (Fig.7). With the new materials and structures, such as concrete and reinforced concrete, different peculiarities were added to the interior spaces. The variability of interior spaces, their elements and stylistic effects increased with the influence of the world and cultural changes (Fig.8). In other words, with the British, Cypriot architecture starts to lose its old traditional identity and the Colonial influences starts to dominate the local culture through paving the way for modernity to take over.



Figure 8. An interior view from the II. British Period.

3.3. *Modern Period (1960-2000)*

Between 1960 and 2000 various design tendencies and stylistic effects became effective on the residential interiors (Fig.9). Mostly, until the 1980s, it is possible to observe the different stages of modern architecture. Thus, it is the period of the modern movement and generally, the international style characteristics are reflected in the residential architecture and their interior spaces. The period after the 1980s can be defined as an after-modernism period, which can be observed the effects of eclecticism, high-tech, post-modernism, neo-vernacular and neo-colonial in addition to the modern movement (Ozay, 2005). In parallel with the effects of modernization and globalization, rapid changes began to be seen in the interior spaces. It has been possible to use different technologies, materials and variable types of interior elements such as furniture, accessories, lighting fixtures and etc. under the influence of these. The changes are not restricted by only the technological advances and materials but also the users' lifestyles and preferences are changing rapidly under the forces of globalisation. Instead of the long-term styles, the design tendencies and fashions are more effective. The duration of these tendencies and fashions is very short. Also, various styles, tendencies and fashions started to be used in combination at the same time. Thus, this plurality created eclectic interiors.



Figure 9. Toros House in Kyrenia, 1987 by Ahmet V. Behaeddin.
(Private Archive of Ahmet V. Behaeddin)

Different from these variable interior elements and the products of eclectic interior spaces, houses are generally arranged, according to similar organisation principles. In other words, the changing cultural benefits, activities, traditions and norms of a society are effective in the arrangement of the interiors. Also, it is

possible to find some clues by making a comparison with the effective previous periods and their cultural effects (Fig.10) (Ozay, 2002).



Figure 10. An eclectic interior from the Modern Period.

The increasing population of the cities brought a shortage of accommodation necessities in North Cyprus. In order to meet these needs, the mass housing production sector has been developed quickly. Generally, these constructed buildings show the standard architectural principle. They have nearly the same sizes and functional spaces. Thus, the plan schemes, space qualities and interior arrangements show that they look like each other. On the other hand, there are some differences between the mass houses and the others that are designed by an architect for individuals according to the customers' preferences. These variations can be seen in the size of the interior spaces, the number of rooms and material quality. For example, the interior spaces can be larger and there might be additional rooms. The general approach and functions are nearly the same for both of them. Mostly, a typical living unit is formed with general functions, such as a living & dining room, two or more bedrooms, a kitchen, a bathroom and a toilet (Fig.11). Therefore, these standard functional spaces are the result of the effective cultures, lifestyles, materials, technologies and the economic conditions of the changing world (Ozay, 1998).

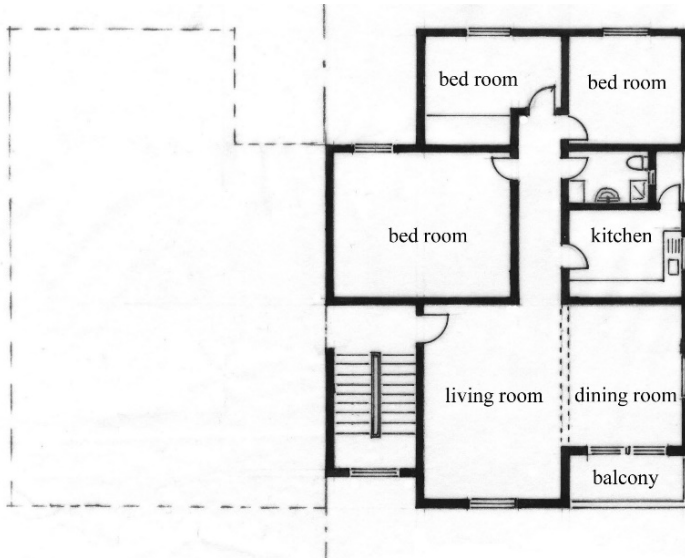


Figure 11. A typical house plan from the Modern Period.

3.4. Effects of Globalisation on the Interiors of North Cyprus

As mentioned before, with the modern world and its conditions, the structures of most countries have begun to change. In order to specific cultures of these countries, common beliefs, values, customs, behaviours and the fruits of these, began to share by the members of societies. Culture has no constant structure. It is related to human life and is affected by developments in the world and its dynamics. The high technologies of the 20th century provide deep changes in human life and its environment. Thus, the effects of this global world can be felt in every aspect of life. Interior spaces are important living organisms that give the general character of their users and users' civilizations.

On this basis, with related to the historical developments of North Cyprus, it is possible to get information about the characteristics of interior spaces and the effects of globalisation. As understood from the explanations above, Ottoman and British are the most significant periods that affected the culture of the society. In other words, they have contributed to the lifestyle and the shaping of interior spaces with their long sovereignties. Ottomans have nearly 400 years and the British have 100 years long dominance on the island. During the Ottoman period, Cyprus adopted the Ottoman culture in terms of lifestyle, religion, building techniques and materials. However, with the British Empire, a bridge was constructed between the island and the Western World. Especially,

the effects of Modernism began to reflect its features on the island during the 1950s. In the beginning, lots of good examples were designed according to the principles of this style. However, after the 1980s, rapid changes in the structure of society, building technologies and materials have affected the general character of the architecture and interior spaces. The cultural background and most of its aspects began to lose their dominance. Thus, they have been shaped mostly by the effects of global culture and its products.

4. Conclusion and Remarks

In North Cyprus houses, it is possible to see the effects of the Ottoman (Traditional Turkish House) and British (British Victorian) periods. In addition to these styles, it can be felt different effects in the interior spaces parallel the stylistic developments of the world. However, after the 1980s these tendencies appear generally as short-term tendencies or fashion rather than architectural styles. It is possible to say that in addition to the use of common architectural design tendencies, the interiors have mostly eclectic characteristics.

On the base of the above discussions, it is possible to summarize the transformation of residential interior spaces through history and define the changing and conserved features of these interior spaces. In the past, open kitchens are observed very rarely. Because of Turkish cooking traditions and other benefits, generally, this type of kitchen is not suitable. The smell and noises disturb the people, who seat in the living room. On the other hand, with modernisation some of the users especially working - women prefer open kitchens because they do have not too much time to spend in there. When they are working in kitchens they can also create relations between the other members and parts of their houses. Generally, there are two different organisational groups in our houses. The first one is arranged for the daily use-seating area. It is more related to the inner functions of the house. Also, there is a connection with the exterior, such as a window or a balcony. The other part is organised for dining activities or guests. Different from the previous times, today there are no separate guest rooms. Mostly the cubic mass houses form the architecture related to economic reasons. They have no identity. Thus, this reflects in the interior spaces.

As it is understood from the explanations and examples that are given above, the interior spaces of North Cyprus are under the effects of changing world. We are living on a small island. The communication between individuals is very strong. Any change that takes place in the world can expand all over

Cyprus in a very short time. Thus, the altering technological, economic and cultural aspects of the global world affect it easily. However, in addition to these at the same time, it is possible to feel the traces of Ottoman and British Cultures.

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CHAPTER XV

A DISCUSSION ON INTERIOR DESIGN OF SIRKECI STATION FROM OTTOMAN WESTERNIZATION PROCESS TO THE PRESENT

İ. Emre KAVUT¹ & Çağrı YALÇIN² & Elif ÖZDOĞLAR³

*¹Assoc. Prof. Dr. - Mimar Sinan Fine Arts University
e-mail: emre.kavut@msgsu.edu.tr
ORCID: 0000-0003-2672-4122*

*²Asst. Prof. Dr. - Kütahya Dumlupınar University
e-mail: cagri.yalcin@dpu.edu.tr
ORCID: 0000-0002-8408-9190*

*³Assoc. Prof. Dr. - Kütahya Dumlupınar University
e-mail: elif.ozdoglar@dpu.edu.tr
ORCID: 0000-0002-9997-9487*

1. Introduction

The beginning of Westernization Process in the Ottoman Empire is identified with various socio-political events in the sources. Generally, the sources accept the Tulip Era or the Tanzimat Edict as the starting point. In this discussion, Westernization has been taken into consideration since the Tulip Era, although it was interrupted by the Patrona Halil Rebellion, as in other studies on art and design in the literature. Within the scope of this study, the Westernization Process is analyzed and the relationship between westernization and architecture is evaluated. Sirkeci Train Station, which plays an important role in Westernization and is still in the heart of Istanbul due to its location, is chosen as a case study. While examining the architecture and interior design of the station building, the visuals related to the subject from the past to the present

is examined, and the place of the building in the architectural understanding of the period and its value added to today's design understanding is determined.

While the traditional structure was tried to be preserved in the Westernization Process of the Ottoman society, the revolutions were carried out in a state-centered manner (Çakmak, 2011, p.44). With the revolutions, not only the physical limits of social life, but also the chaotic confusion of intellectual concepts became clear and integrated into the existing traditional order with a modernist approach. The concept of freedom, which was one of the main debates of the Ottoman intellectuals, also evolved into a occidental understanding in this process (Aslan, 2009, p.8). Freedoms were the essence of the Westernization Process.

The first signs of reform and westernization in the Ottoman time were seen during the periods of Sultan Ahmet III (1703-1730), Sultan Mustafa III (1757-1774) and especially Sultan Selim III (1789-1807). (Koc&Koca, 2007, s.59) During the reign of Sultan Ahmet III, occidental-style furniture was entered the palace. During the reign of Composer Sultan Ottoman-Turkish music was reached its peak (Sarı, 2014, s.38). Another revolution in music was the closing of the Mehterhane and the establishment of the military band, Muzika-i Hümayun (Kılıç, 2019, p.551). The Mirliva of this school Necip Pasha and his students were presented the orchestra works on the night organized by the Muzika-i Hümayun on 1859 October 19th, a pantomime show was carried out, and female pianists Alexine and Adeline Poumicon was performed various works, including Rossini's "Sultan Anthem", in the presence of the Sultan (Ozturk Yilmaz, 2007, p.95). The fact that European-style performances by modern local institutions can be performed by women in western type spaces are the important examples of modernization and the level of freedom that is the essence of Westernization Process. Although Westernization is at the core of freedoms, women's rights have developed earlier in many aspects in the Ottoman Empire from the Tulip Era until its collapse and in Modern Turkey created by Mustafa Kemal Atatürk compared to the world and Europe. One of the most important mark of this is the travel books written by European women. For example, Lady Montegue, the wife of an ambassador, states in her writings that Ottoman women were the freest women in Europe (Solnon, 2017, p.213). In this context, Westernization enabled women to gain their freedom before the West. Among the political moves that paved the way for this in the process were the closure of the slave market in 1847 during the reign of Sultan Abdülmecid (Mansel, 2011, p.354), education, inheritance and marriage reforms (Kurnaz, 1991, p.23-56),

women's employment in the positions of men who cannot continue their jobs or lost their lives due to wars, women's establishment of various societies and the laws and rules regulating all these can be counted. In 1897, there were 112 female workers in the Istanbul Match Factory, in the early 1900s, women began their careers in the police force, and in 1914, in the telephone office. (Kurnaz, 1991, p.23-56) The issue of women's freedom was also supported by male intellectuals. For example, Şinasi gave works that oppose the values that corrupt traditional women (Mansel, 2011, p.370) and his work named Poet Marriage was played in the palace theater that opened in January 1859 and the Sultan also participated in the show on 13 October 1859. (Ozturk Yilmaz, 2007, p.64) The transformation of Servet-i Fünun (Rukancı&Anameriç, 2009, p.155), one of the first illustrated publications of Turkish publishing life, into a trend and the creation of educated modern and extroverted women typologies in the products of this movement (Kanter, 2009, p.2) contributed to the formation of the image of modern women. The reflection of the modernization movements carried out through women in the universal society has been wide-ranging. Women's freedom has made Istanbul and Anatolia a center of attraction for women traveling alone or with their families. Sultan Mahmud II's reforms were a top-down revolution, because of this they also caused some troubles. One of them is that after the 1829 treaty, it became difficult to provide cheap food from Wallachia and Moldavia to Constantinople, and British products began to be sold in 1838 (Mansel, 2011, p.345). This situation, in the first place, made it difficult to supply products in the domestic market and caused the prices to rise, and then it led to the circulation of goods produced by British companies in the domestic market. British and other European companies, which were satisfied with the trade with the Ottoman Empire, started to take part in building and construction activities in the following processes, and this accelerated Westernization Process. Also Sultan Mahmud II abolished the Istanbul dungeons in 1831, converted a part of the İbrahim Pasha Palace into a Prison-i Umumi, and with the penal laws of 1840, 1851 and 1858 adopted during the Tanzimat Period, prison sentence was accepted and an adaptation reform to the modern legal order was carried out (Yıldız, 2015, p.94). Although foreign nationals were allowed to acquire property in accordance with the Reform Edict, this was enacted by the law enacted on 18 June 1867 (7 Sefer 1284). Within the scope of this law, foreigners in the Ottoman lands, except for the Hijaz Region, were equated with the Muslim society (Marmara, 2020, p.60). In this way, the multicultural dynamic structure in the Ottoman lands began to be reflected more intensely on the architecture.

Although Sirkeci region has been a historical trade center since the Byzantine period, the settlement of non-Muslims was not supervised until the Tanzimat. Since the 17th century, Galata continued to grow with non-Muslims coming from abroad and foreign origins who moved their business from Sirkeci and Golden Horn to there (Kızıldere & Sozen, 2005, p.90). Sirkeci, which became a business center again in the 19th century, has a special location with its proximity to the Pera-Galata Region, the tourism center of Istanbul, and another business center, Karaköy. Istanbul, where 875,000 people lived in 1885: Suriçi Istanbul, Pera and Galata to the north of the Golden Horn, and Üsküdar to the Anatolian side, offered its users intense dynamism in three axes (Solnon, 2017, p.434). In 19th century in Istanbul, among the buildings related to trade were 1840 Şark, 1850 Hocapula, 1870 Krepen, 1870 Mirror, 1885 Aleppo Passages, Beyoğlu Santa Maria and Karaköy Ömer Abed Hans, Ottoman Bank 's Karaköy and Yenıcamı branches, Eminönü Deutsche Orient Bank. (Aliođlu, 2012 p.47) All these developments necessitated the development of public transportation in Istanbul, which is a historical, touristic and commercial center. In addition, the political and economic situation of the Ottoman Empire necessitated the strengthening of the logistical contact of the capital with Europe and the distant Ottoman geography and the diversification of passenger transportation. For this reason, public transportation alternatives have been accelerated both at sea and on land. Sirkeci Terminal was designated as a terminal point and Sirkeci Station was built in order to connect nations or various regions of the nation to each other for logistics requirements and passenger transportation. The building, which still functions today, is still among the most important elements that make up the cultural codes of the city with its original identity.

2. Westernization and Modernization Process and Architecture in Ottoman Era

The modernization process accelerated with the multinational unsaturated market structure of the Ottoman Empire, its modern and international commercial attitude, its warm approach to international business partnerships, the expanded scope of the right to own property, and its modern understanding of law and jurisdiction. These developments allows foreign companies to open branches, conduct studies, import and develop international projects in the Ottoman Empire. Non-Muslims have structured many buildings for housing, investment, business and charitable purposes thanks to the property right granted to them. In these building activities, the Ottoman culture and the core cultures of non-

Muslims were intertwined. The new styles and construction activity produced by the westernized architecture have attracted foreign artists and designers to the country.

Antoine Ignace Melling, who is an active name in landscape design as well as architecture, is one of the first designers to make his name known in Saray. Working especially with Hatice Sultan, Melling designed furniture for the interiors of the residences. He took over the works of Beşiktaş Palace, a Neo-Classical mansion, from Selim (Solnon, 2017, p.323). The rapidly increasing number of foreign and non-Muslim architects, designers, decorators and engineers following Melling played an important role in shaping occidental Istanbul. Among the non-Turkish architects in the 19th century who have been working actively since the 1730s, architects such as Sarkis Balyan from the Balyan family, Ohannes Serveryan, Vasilaki, Amasyan Efendi, Architect Yanko, Chief Engineer Bertier Dikran Kalfa came to the fore. Among the foreign architects were names such as Fossati, Vallauray, d'Aronco, Jasmund, Bello, Mongeri, Cuno and Ritter. (Halıcı, 2020, p.596) In the period between 1839-80, the Christian population increased in Istanbul for the first and last time after 1453 (Mansel, 2011, p.380).

Non-Muslim designers who became brands in building and construction, foreign architects who came to work in İstanbul, Turkish architects, engineers and masters trained by them accelerated the effectiveness of Westernization in the context of design. The blending of European styles and traditional understandings led to the birth of a new style called Ottoman Baroque. Ottoman Baroque Sultan Mahmud (1730-1754) has a new and original attitude that has the value of a manifesto created by Architect Simeon Kalfa in Nuruosmaniye Mosque. Sultan Mustafa III, who was accepted as one of the first innovators and came after him. also supported contemporary building styles as an art-friendly Sultan. (Solnon, 2017 p.320)

One of the reasons that necessitated the search for a different style in the restructuring of Istanbul is the Fire of 1831. With this fire, the search for a more durable building material and system that can replace the use of traditional wood materials has begun. Because the first trials were carried out in modern embassies that were built after this fire (Mansel, 2011, p.357). In terms of style, European styles; Baroque, Empiric and Neoclassical styles were first in the 19th century as the main styles of Ottoman architecture (Kasalı, 2014, 124). In the Neo Renaissance, it was sometimes included in these styles with its simplicity. In addition, Moorish, Neo-Moorish and orientalist approaches popular in Europe

are intertwined with European approaches. In a similar situation, after the fire of 1845 in İzmir province, general urban planning principles were started to be applied in the Armenian quarter and a new plan consisting of right-angled and wide streets was designed (Solnon, 2017, p.431).

Ortaky Mosque, built in 1853 by the Balyans for Sultan Abdülmecid, has an imperial feature. In this structure, traditional Ottoman mosque architecture and empirical practices were used together (Halıcı, 2020, 601). Traditional arts have created original, harmonic and canonical new visuals by integrating with Western understandings. Plataresco decorations, Art Nouveau or Bella Epoque interior designs were also used in Abdülmecid's mansions that is a traditional building type, built in Küçüksu and Ihlamur in 1856 and 1857. (Solnon, 2017, p.425). Between 1861 and 1876, in the Reign of Abdülaziz, he was amazed by the quality of life he saw as the first Ottoman sultan who visited the Western Europe, and he turned to the application of European culture in the Ottoman Empire, ensuring the furnitures such as tables, armchairs and sofas were and dining tables were created thus, European style became widespread (Kasalı, 2014, p.119). Ottoman elites used imported Paris 14th century and 15th century Louis style Baulle furniture and gilded lacquered furniture imitating Martin polished furniture frequently during the interior design of their houses, they used imported Paris 14th century and 15th century Louis style Baulle furniture and gilded lacquered furniture imitating Martin polished furniture frequently (Solnon, 2017, p.427). Among the stores opened in Istanbul, especially Aubon Marche, H. Decugis and Backer stores also played an important role for purchasing goods for the palace (Baytar, 2015, 4).

Unlike Topkapı Palace, Dolmabahçe Palace in 1856, Beylerbeyi in 1865 and Çırağan Palace in 1872 were built with plan types resembling long rectangular or L-shaped massive European Royal Palaces. In the composite decoration method applied by the Balyan family in Dolmabahçe and Beylerbeyi, Neo-Renaissance, which is simpler and more homogeneous, was also preferred for the marble façade and the imposing gates (Solnon, 2017, p.423). Charles Sechan, the decorator of the Paris Opera, who was invited by Sultan Abdülmecid for the interior design of Dolmabahçe between 1851 and 1856, also imported the furniture preferred by the elite, and used Bohemian Crystal giant chandeliers and gilded mirror Baccarat and European style fireplaces in interior designs. However, the core values have not been completely abandoned, The Palace was decorated with tile and orientalist paintings and the portraits of members of the dynasty by Sultan Abdülhamit (Solnon, 2017, p.427). In the remodeling of

architectural structures in the Westernization Process of the Ottoman Empire; Western understandings have been influential in urban planning, both public and civil architectural structures, interior spaces, and in the arrangement of gardens and parks. The echo produced by the fame of the French gardens in the Ottoman Empire played a leading role in giving the first examples of landscape architecture, was providing the birth of a new movement. Sabuncakis Çiçek is one of the important businesses that opened in Pera and has survived to today. The shop opened in Beyoğlu in 1874 produced flowers for both the public and official authorities (Marmara, 2020, p.86). Iştirati Sabuncakis, who immigrated from Crete to Lesbos and then to Istanbul in the 1870s, started an apprenticeship with one of the two florists in the city and opened his first branch in Aynalı Pasaj in Beyoğlu in 1874. Sabuncakis, the oldest known flower company in Turkey, has been serving for 149 years (Url-1). The company, which played a role in the decoration of state ceremonies, streets and avenues in the Ottoman Empire in Istanbul, Atatürk asked this family member Yorgaki Efendi, who represented the company at that time, to open a shop to beautify Ankara according to the news of Hürriyet newspaper dated 01.11.2009. Through this shop, the gardening works of structures such as Çubuk Dam, Genç Park, and 19 Mayıs Stadium were commissioned by the Sabuncakis family (Url-2).

2.1. Westernization and Modernization Process in Hospitality and Tourism and Architecture

Until the Industrial Revolution, travels around the world were generally carried out for religious and commercial purposes (Hacıoğlu, 2006: 3). The first travel agency that was established by Thomas Cook in 1840 can be seen as the professional starting point for touristic travel. The journeys that attracted the attention of the aristocratic segment at the beginning of the century were Transatlantic trips between Europe and USA and Orient Express trips between Paris-Venice and Istanbul (Güleryüz, 2020, 1435). Many travelogues have emerged as a result of the trips to Anatolia, especially the capital Istanbul, and countless authors have discussed the Ottoman world, which they find exotic and magical, in their works (Agirbas, 2019, s.217).

Istanbul was a religious center From the users of the Uzbek Dervish Lodge where at the Bukhara embassy, to the Russian pilgrims on the way to Jerusalem, who stop by Istanbul before Easter (Mansel, 2011, p.353). Merchants were in demand in Anatolia and capital city for their buying and selling goods. In addition, Beyoğlu, Sirkeci and Karaköy were important business and shopping centers of Istanbul. Thanks to the newly developing

travel culture, the 19th century was a period when women had the opportunity to go on trips to the East with their families or alone (Agirbas, 2019, p.195). In this context, Istanbul has a heterogeneous visitor structure in religious, commercial and touristic terms. In this period, the first of the hotels opened to respond to the increasing tourist demand in Istanbul was Hotel d'Angleterre, which was opened in 1841 on Kumbaracı Hill, under the name Hotel Royal (Turan et al., 2016, p.405). Apart from the guests staying in these hotels, they also served the people of Istanbul in the process of Westernization with their halls that host invitations and events, and the cafes, restaurants and clubs they housed. For example, in addition to the concerts and dance teas at the Pera Palace and Tokatlıyan Hotels, the gardens are also places to go to listen to music (Öztürk Yılmaz, 2007, p.137). The company founded by Mıgırdiç Tokatlıyan has operated in the fields of pastry shops, hotels, restaurants and coffee shops. The Tokatlıyan hotel, which was opened in 1897, is another important Levantine investment. Tokatlıyan entered the Hotel Management industry in 1909 and opened one of the first hotel restaurants in Istanbul by bringing his restaurant experience to the hotel structure (Marmara, 2020, p.79). This hotel and restaurant soon became one of the important structures that contributed to the Westernizing tourism understanding of the Ottoman Empire. The planning of the hotel, which is the face of Westernized Istanbul on postcards with its original architecture and gained brand value in a short time, has been organized with a European understanding.

During this period, Grand Hotel d'Orient, Hotel de Bysance, Hotel de Pera on Grand Rue de Pera in 1849, Hotel de France in 1851, Hotel London, Hotel d'Europe in 1860, Hotel de Paris in 1862, 1864 The openings of Hotel de Vienne in Istanbul, Hotel de Constantinople in 1875, Grand Hotel National and Hotel Bristol in 1896 followed each other (Turan et al., 2016, 405).

2.2. Westernization and Modernism Process in Transportation and Architecture

After the Tanzimat Edict, the government was given importance to street, so the streets became alive during the whole day. While trams on land and ferries at sea are used in public transportation in the city, cars, automobiles and phaetons are frequently mentioned in the novels of the period in transportation, summer resorts and excursions. (Karabulut, 2010, p.114) Visiting the neighboring harems, participating in wedding festivities, going to the famous recreation areas of Istanbul such as Kâğıthane and Göksuyi visiting the hot springs in Bursa and

going to the baths as the most known place to socialize were the main sources of entertainment for Ottoman women. In addition to this, crossing the Bosphorus in boats, living and taking a stroll in the talikas with their feraces, shopping in the markets of Pera contributed to the fun and even socialization of women. (Agirbas, 2019, p. 212) However, a separate area surrounded by curtains was prepared for women to sit in events such as the Theater and in the use of public transport, thus ensuring that they are kept away from the society and out of sight. (Kocabaş Atılgan, 2016, Thesis, p.38) However, Istanbul still had an important role in the travel books from the eyes of women. After the travelers who followed Lady Montagu, Elizabeth Craven's work *A Journey Through the Crimea to Constantinople* in 1786, Miss Julia Pardoe's travel book *The City of the Sultan and Domestic Manners of the Turks*, in 1836, Lady Emelia Bthyna Hornby's *Constantinople During The Crimean War*, 1863, Lucy Mary Jane Garnett's *The Women of Turkey and Their Folk-lore*, 1890, Annie Jane Tennant Harvey *Turkish Harems and Circassian Homes*, 1871, Mary Adelaide Walker's *Eastern Life and Scenery with Excursions in Asia Minor Mytilene Crete and Roumania*, 1886) are just a few of the numerous travel books that reveal the Ottoman woman in all its dimensions (Agirbas, 2019, p.196).

In terms of maritime, the first steamship Swift was bought in the early 1830s by Sultan Mahmud, in the Bosphorus in Istanbul (Solnon, 2017, p.431). In April 1851, the cabotage right within the borders of Istanbul was taken from the foreigners and left to the Şirket-i Hayriye. (Ozbay Kınacı, 2021, p.74) Şirket -i Hayriye was the first Ottoman maritime transport joint stock company established in 1851 (Solnon, 2017, p.434). Bridges should be mentioned as important building types in terms of transportation. The commercial and touristic environment has gained vitality through the bridges. Hayratiye Bridge was constructed in 1836 and a second bridge was constructed between Galata and Yeni Mosque in 1845 (Solnon, 2017, p.434). Hayratiye Bridge, also known as Cisir-i Atik, provided the connection between Azapkapısı and Unkapanı. (Ozbay Kınacı, 2021, p.144) The Galata Bridge, which overlooks the Valide Sultan Mosque, which came into use in 1845, and has shops and restaurants at the bottom, was expanded in 1863, 1878 and 1912 (Mansel, 2011, p.353). Another bridge built in 1863 was the wooden bridge between Ayvansaray and Piri Pasha, called the Jewish Bridge (Ozbay Kınacı, 2021, p.75).

However, the most effective both international and national public transportation method of the era was the railways. The idea of a railway started to be discussed in the Ottoman Empire in the 1830s, but its construction was

only started in the 1850s (Karataser & Ozturk, 2018, p.52). The first steel rails were used in England in the 1857s (Guleryuz, 2021, p.103). In order to explain the importance of the railways in the Ottoman Empire, can be mentioned that the one-room, three-sofa section on the side of the palace called “serdab”, which is a music venue in the reigns of Selim III and Mahmud II, was demolished during the reign of Abdulaziz because the train track passed. (Ozturk Yilmaz, 2007,63). With the thought that it could prevent the disintegration of the state due to the strong logistics facilities that provides, priority was given to cities in the Arabian peninsula such as Aleppo, Baghdad, Damascus and Medina in the construction of the railway, and all lines, except the Hijaz line, were built by foreign companies (Goktas, 2020, 9)

The road between Taksim and Pangaltı was built in 1864, and in the following years, the horse-drawn tram line extending from this road to Şişli was put into service (Cinar Altincekic et al., 2014, 135). Concession was given to Konstantin Karapano Efendi’s Dersaadet Tramway Company in 1869 for the first horse-drawn tram, and Azapkapı Beşiktaş and Eminönü Aksaray in 1871, Aksaray-Yedikule and Beşiktaş-Ortaköy in 1872 and Aksaray-Topkapı horse-drawn trams in 1873 (Engin, 2011, p.48-51) (Karataser & Ozturk, 2018, p.52) (Ozbay Kınacı, 2021, p.155) (Baraçlı, 2012, p.24). Since 1872, the horse-drawn tram running between Yedikule where the vegetable garden in the west of the city, and Pera, in the north, has a weaker service in Muslim neighborhoods (Mansel, 2011, p.352).

The Eastern Railways going up to Yeşilköy in the 1860s, the Anatolian line extending to Pendik in the 1870s, the horse-drawn trams in 1871, the Baghdad Railway in Üsküdar, the Railways administration in 1872, in 1873 the two steam engines operating and Galata Tünel and Dersaadet Tramway Company, which connects Istanbul to Beyoğlu in 1875 were put into use. Tunnel (Mansel, 2011, p.390), which was built by Eugene Henri Gavand in 1871-1874, is the second underground line of Europe after London. Yüksek Kaldırım, which is a narrow and steep slope and used by approximately 40,000 people a day, is the only route from Karaköy to Pera (Ozbay Kınacı, 2021, p.150). This short-distance, belt-operated subway, Tünel, between Galata and Grande Rue de Pera was opened on January 17, 1875, on the first day of the Feast of Sacrifice in the reign of Sultan Abdülaziz. In this era, the railway company was British (Mansel, 2011 p.390) The tunnel, whose construction progressed slowly due to disagreements with the property owners; It was built by Gavand’s company, headquartered in London and founded in 1872, whose name is “The Metropolitan Railway of

Constantinople, from Galata to Pera” (Ozbay Kınacı, 2021, p.151). For the first two years, only animals, cars and goods were transported, and the management and maintenance of the Tunnel was transferred to IETT in 1939 (Marmara, 2020, p.90).

Railways quickly spread throughout the country. Egyptian Governor Abbas Pasha gave the British the privilege to build a railway between Alexandria and Cairo in 1851 without the permission of the government. For this reason, Bab-ı Ali opposed the construction, but upon the insistence of the British Foreign Minister Lord Palmerston, the 211 km line was completed in 1856. In continental Europe, the Ottoman railway line was started by the British from Constanta (Guleryuz, 2021, p.103). While a British Company took the concession of the one hundred and thirty kilometers long İzmir-Aydın railway opened in 1866 from the Ottoman Empire, in 1858, Alsancak Train Station was built of cut stone, in a place known as Punta where in the north and facing the sea. A second railway line connecting the city to the town of Turgutlu required the construction of a station, this time in the center of the city (Solnon, 2017, p.431). Between the years 1856-1922 in the land of Ottoman Empire; A total of 8,619 km of domestic lines were built as Rumeli Railways, Anatolian-Baghdad Railways, İzmir -Kasaba and its extension, İzmir -Aydın and its extension, Damascus-Hama and its extension, Yafa-Quds, Bursa-Mudanya Ankara-Yahşihan (Yavuz, 2005, 7).

3. The Interior Design of Sirkeci Station and the Importance of Sirkeci Station to the Present

The new architectural style of the commercial center of Sirkeci-Eminönü settlement was the First National Architecture. The part of the city between Eminönü Sirkeci commercial center and Üsküdar-Kadıköy gained a new face with the structures of the First National Architecture Style (Kızıldere & Sözen, 2005, 94). Before the emergence of this style, original combinations and compositions in the east-west synthesis enriched the architecture. For example, Vlora Han in Eminönü is an example from outside Pera and Galata, making the extraordinary structure unique in details (Halıcı, 2020, 616). Sirkeci Train Station has a unique structure like Vlora Han. It is possible to observe that the traditional styles of Byzantium, Ottoman and Europe, the orientalist approach that was popular in Europe at that time, and the Moorish and Neo-Moorish details coming from the distant geography of the Ottoman Empire and its neighbors are intertwined in the interior design of this building. (Url-4)



Pic.1: Sirkeci Statiton in Ottoman Era with it's clocktowers
<https://www.raillynews.com/2021/11/today-in-history/>



Pic.2: Sirkeci Statiton Today with it's clocktowers
https://www.wikiwand.com/en/Sirkeci_railway_station

Sirkeci Station has not only a functional but also a symbolic meaning as an architectural structure that will connect the capital of the Ottoman Empire to Europe and the Far Ottoman Geography, as the starting point of a railway network. For this reason, the building has an important mission in the westernization process. Istanbul became the showcase of Ottoman Westernization with the change in its urban silhouette. In this context, Sirkeci Train Station, which is the first structure that passengers coming to Istanbul will encounter, is one of the places that are the face of the Ottoman Empire. In addition, with the opening of Sirkeci Station, trade in the region has become even more active. (Salbacak, 2019 p.36)



Pic 3. Interior Space of Sirkeci Statiton

<https://thumbs.dreamstime.com/b/istanbul-turkey-july-sirkeci-railway-station-turkish-sirkeci-tren-gari-istanbul-turkey-sirkeci-railway-station-istanbul-turkey-212514800.jpg>

Constructed by German/Prussian Architect August Carl Friedrich Jasmund (Jachmund), Sirkeci Train Station is the first building the designer undertook to construct in Istanbul. He was born on September 15, 1859, as the second son of the Prussian royal treasurer, August Jasmund, in the town of Sagard on the Rügen Island, which is Germany's largest island in the Baltic Sea as of today (Yavuz, 2004, p.184). While Jasmund designing Station building, he inspired the fact that the building is located where the West ends and the East begins (Samanoglu, 2012, p.117). The project, which was decided to be implemented as a result of the project competition held after the purchase of the Rumelia Railways by the Germans in 1887, is positioned in the east-west direction and has an axial-symmetrical plan. This plan was inspired by the French baroque palaces and in Europe; and was affected the station buildings such as Wunstorf (1844-48), Bielitz (1854), Hannover Central, (1876-79), Düsseldorf (1890) Damascus (1908), Medina (1908), Izmit (1900-10) and Aleppo. (Demirarslan, 2015, s.43) (Yavuz, 2008, p.196).

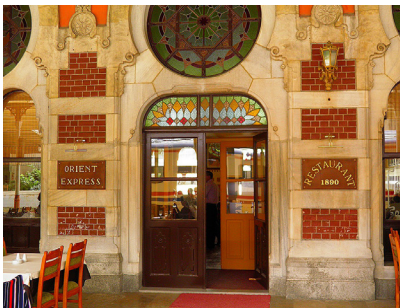
Sirkeci Train Station, which was started to be built in 1888, was built as a single storey considering the structural costs and its construction was completed in 1890 (Yavuz, 2008, p.196). One of the most important reasons why it was chosen among the plans presented in the competition is the economical solution it offers. Then, the famous "Orient Express", the first train operating on the Istanbul-Vienna line, which was connected to the European lines, departed from Sirkeci Station on 12 August 1888 (Ozkan Altinoz, 2014, p.845) (Guleryuz, 2021, p.104). This train, also known as the Orient Express, opened the doors

of the East, which had been a mystery to Europe for centuries. The train, which is the subject of Agatha Christie's novel, *Murder on the Orient Express*, has formed an architectural basis for many written and visual art products.

In 1892, Pera Palace, one of the famous hotels of the region, was built and put into service for Orient Express passengers under the leadership of Wagon-Lits company. It can be said that Jasmund's plan preference was influenced by the general characteristics of the Bad Oeynhausen-IV Spa Building in terms of mass form and material usage (Yavuz, 2008, p.196). Medina Station Building shows similar features with Sirkeci and Damascus Stations in terms of style and periodical features. Sirkeci Station; The Hejaz Railway Headquarters Building displays almost all the features of the National Architectural style, while the facade carries Gothic style-like window layout, the front and side facades of the building, lotus palmette passionflower forms, wide and long horseshoe arched window tops, and an ornate Orientalist facade style decorated with plasters and baroque traces. The symmetrical towers rising along the entrance axis and reaching to the last floor also make the axis decisive, just like Sirkeci Station (Irgin Uzun & El Abidin, 2017, p.585). Since the building was close to the seaside in those days, it was possible to go down to the sea with terraces. (Samanoglu, 2012, p.117) The style used by Jasmund in Sirkeci Train Station can be briefly described as the style of eastern eclecticism. This usage style is the footsteps of the First National Architecture. Already one of the important representatives of the First National Architecture, Kemaleddin, after graduating from *Hendese-i Mülkiye* in 1891, worked as an assistant to Jasmund (Kartal & Kartal, 2020, p.323). Granite, marble and stones brought from Marseille Aden and brick bands were used on the facade of the building (Samanoglu, 2012, p.117). Pink and black marbles were preferred for the large window arches. The most striking elements of the facade arrangement are the Maghreb-inspired pointed horseshoe and Bursa-style arches, framing a large rose window placed over twin round-arched windows. The central section, accentuated by a crown door rising over two floors, is made of cast iron and wood and covered with a slate-shaped monastery vaulted roof (Yavuz, 2005, p.13). There are four inscriptions on the built structure, and the one in the north of the inscriptions bears the seal of the Sultan in an engraved form (Ozkan Altinoz, 2014, p.845). The wings extending on both sides of the large box office hall in the middle, where Sirkeci Train Station is planned symmetrically, are reserved for the first and second class waiting halls and the luggage office. (Yavuz, 2005, p.13).

The fact that passengers wait in separate sections in the waiting hall is an indication that there is a hierarchy in the interior. The building, which is illuminated

by electricity today, was illuminated by 300 gas lanterns at that time. Large tile stoves used for heating in waiting rooms were brought from Austria (Samanoglu, 2012, p.117). At that time, imported stoves of Austrian and Swedish origin were preferred in the heating field. Today, modern heating-cooling systems are used in the air conditioning of the building. The middle hall has a spacious environment with a ceiling height of two floors. The ceiling height in the waiting rooms is lower than the middle hall. The box office hall in the middle is covered with a wooden ceiling in the form of a truncated pyramid with a cast iron structure, the colorful stained glass of the rose windows on the doors and windows that open all these spaces to the platform or the sea adds a unique ambiance to the space (Yavuz, 2005, p.13). Large windows extending to this floor are also important in terms of ventilation and daylight. On the upper floors of the blocks at the two ends, there are four apartments of two each, and on the upper floor of the middle block there are the offices of the station directorate (Yavuz, 2005, p.13). The current color of the building is not its original color. Sirkeci Station, Edirne Karaağaç Station, Mudanya Station, Izmit Old Train Station and Ankara Gazi Train Station are among the important station structures that are out of use; Except for Sirkeci Station, these stations serve with their new functions today (Yıldız, 2013, p.52). Along with the station, restaurants and beer gardens have also been opened. The Gar Restaurant, which was opened together with Sirkeci Station, was taken over by Alaattin Seyhan in 1995 and renamed as Orient Express Restaurant. (Url-5) There are wooden dining tables together with the bar in the garden of the restaurant, which is still in service, and there are wooden dining tables, servants, wine racks, kitchen and WC in the interior. The flooring is wooden parquet and the walls feature photos, posters and images of the restaurant's history.



Pic.4 Entrance of Orient Express Restaurant in Sirkeci Station
<https://www.orientexpressrestaurant.net/>



Pic.5 Interior Space of the Orient Express Restaurant in Sirkeci Station
<https://www.orientexpressrestaurant.net/>

Sirkeci Station was integrated with Marmaray Sirkeci Station, one of the important public transportation vehicle of Istanbul, in 2013 and its transportation structural function was changed (Guzelci et al., 2019, p.68). Today, there is the Istanbul Railways Museum in one of the small halls of the station. In the museum, which is located on an area of 145 square meters, more than 400 cultural assets used in railways, trains and stations are exhibited. The original layout plans and drawings of the Rumeli Railways and TCDD's Thrace line are also in this museum. In addition, the locomotive belonging to one of the suburban trains, which is the symbol of the transition to the first electric train operation in Turkey in 1955, is on display. (Url-3) The original stained glass and ceilings are preserved in the interior design of the museum. There is wear and tear on the walls in yellow tones. Natural light from the floor-to-ceiling windows is blocked by thick red curtains. Artificial lighting is provided by a six-armed chandelier. Gray stone material was used in the flooring. There are wooden original decorative wall coverings on the walls. Products are exhibited in glass display stands with wooden structures and on original shelves on the walls. Small halls outside the museum host various events periodically.



Pic.6 Interior Space of the museum in Sirkeci Station

https://tr.wikipedia.org/wiki/TCDD_Sirkeci_Gar_Demiryolu_Müzesi

Sirkeci Station and the social spaces in it have hosted many famous guests throughout history. On August 28, 1908, a group of architects and engineers, including Architect Kemaleddin, gathered in the garden of Sirkeci Train Station and formed a Committee of Muvakkate to open an engineer and architect society (Kartal & Kartal, 2020, p.325). The King - Crane Delegation, known to the public as the American Delegation, came to Istanbul Sirkeci Station by train via Ruse-Sofia on the night of 3 June 1919 (Turker, 2018, 189). The Austro-

Hungarian Emperor Charles and the Empress entered Turkey from Edirne by a special train at half past eleven on 19 May 1918. Sirkeci Station, the streets of Sirkeci Tramway Street, the bridge, Tophane and Beşiktaş were decorated with flags and victory arches were made in places for the parade decorated with flowers and precious carpets (Ozcelik, 2012, p.54).

4. Conclusion

Ottoman Baroque was born out of the use of styles such as Neo Classical, Neo Renaissance, Baroque and Empire. Orientalism is another design approach that shaped 19th century architecture. Moorish and Neo-Moorish details coming from the Ottoman's neighbors in warm geographies integrated with orientalism and revealed different ambiances. Istanbul architecture, which can be considered eclectic in general, paved the way for the birth of the First National Architecture movement. Istanbul was a business center between the distant geographies of Europe and the Ottoman Empire in the 19th century, perceived as an attractive and safe touristic destination especially for women, hundreds of years of historical urban fabric, vibrant art and design life, a wide variety of entertainment venues and It has become a center of attraction with its shop designs. As a result of this, many accommodation facilities were opened in the Galata-Pera Region, the interior design of which was planned in accordance with the Western accommodation understanding. All these developments have necessitated national and international public transportation in Istanbul.

The building, which shows the superiority of Jasmund's ornamental side and is his original signature, and which is an eclectic of eastern and western styles, became one of the symbols of Westernization and the Modern Ottoman Empire in the period it was built. In the design language of the building, some elements seen in Arab-Moorish architecture, rose windows, one of the symbols of Gothic architecture, European style details and orientalist touches are among the most original examples that reflect the east-west synthesis. These surface designs also make the interior magnificent and bring this eclectic style into the building. The windows, which provide the balance of occupancy-emptiness in the interior design of the station and are a source of daylight in the lighting design, have also been an ornamental element on the exterior. The floor height in the entrance hall offered a spacious environment to the space. Classification in passenger waiting halls was composed of a hierarchical order in the interior. It was a multifunctional organization with a ticket office, offices, restaurants, beer garden and lodgings. The interiors were designed in a way that is suitable

for heavy passenger circulation and long waiting times. With the opening of Marmaray in 2013, this section has completed its function. A part of the building, which reflects the cultural codes of the region in a multi-faceted way, still maintains its function and serves as a door between Europe and Asia with its relationship with Marmaray Sirkeci Station.

Sirkeci Station, one of the important cultural heritages of Istanbul, maintains its vitality with its restaurant and museum. In restaurant, stained glass adds a noble and extraordinary look to the space. The space, which has few and simple lines and is furnished with functional, classic furniture, has a quality, elegant, timeless and functional appearance in general. Ensuring the continuity of the restaurant is important for the building to save one of its original functions more and meaningful for the memory of the city. Today, museums offer a wide variety of experiences with virtual reality, augmented reality and other technological possibilities. The interior of the museum, which is located in the building, is designed with the understanding of classical museology. By enlarging the museum area and staying true to the original structure, transforming the spaces into experience spaces can ensure the longevity of the museum and the growth of the visitor mass. The Westernization process of the Ottoman Empire made the country and its people ready for the revolutions of the Republic of Turkey. In this period, mixed architectural styles with strong aesthetic aspects were born and symbolic structures were produced. It is important to preserve the symbolic structures of the multicultural design environment and transfer them to future generations.

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CHAPTER XVI

EVALUATION OF THE RELATIONSHIP BETWEEN INTERIOR SPACE, FORM AND DESIGN TYPOLOGIES OF ANATOLIAN SELJUK AND OTTOMAN MOSQUES AND ENERGY EFFICIENCY: THE CASE OF KONYA

Neriman Gül ÇELEBİ ¹ & Ümit ARPACIOĞLU ²

¹Ph.D. Student - Mimar Sinan Fine Arts University

E-mail: ngcelebi@gmail.com

ORCID: 0000-0003-0478-0449

²Assoc. Prof. Dr. - Mimar Sinan Fine Arts University

E-mail: umit.arpacioglu@msgsu.edu.tr

ORCID: 0000-0001-8858-7499

1. INTRODUCTION

Konya and its surroundings are one of the oldest settlements with traces dating back to the Neolithic period. It is one of Anatolia's most important major centers of Turkish-Islamic culture and art. It has been an architectural center throughout its history. It has great importance in terms of its location and geographical features on the caravan routes in Anatolia. The city has preserved its importance for many years as the capital of the Anatolian Seljuk Civilization. At the same time, the city has many historical and cultural heritages as it is one of the important state centers of the Ottoman Empire (Baykara, 2002). The first monumental structures with administrative and socio-cultural functions, such as palaces, mansions, mosques, and madrasas, brought an exemplary typology suitable for the Anatolian-Turkish city model to Konya. Monumental religious buildings in Konya are cultural heritage, especially in the Seljuk and Ottoman periods. In this respect, it is important to make comparative typological analyzes of these buildings, which form the architectural identity of

the city, and to document them from the building scale to the detail scale (Anıktar et al., 2020). In this respect, Konya which is one of the important intersection points of the Silk Road and a reference to monumental architectural works was chosen as the study area. It is aimed to create an inventory of the monumental religious buildings in the city, to reveal the plan, interior space, section, and facade typologies of the Anatolian Seljuk and Ottoman mosques, to reveal the construction technique and material properties, and to analyze the structures in terms of energy efficiency. In Figure 1, there is a visual of Alaeddin Hill and its surroundings, one of the important points of Konya.



Figure 1. Alaeddin Hill and Its Surroundings (Photograph by the authors, 2019)

Mosques represent the central area where people gather for their daily and weekly worship. It is regarded as an educational, cultural, and social space for the activities of Muslims. Compared to other building types, they are used simultaneously in a specific region and time zone and are characterized by having a unique intermittent operation plan. This has an impact on the energy demand depending on the climatic zones during the heating and cooling periods of the mosque structure (Al-Homoud vd., 2005). Mosque structures include a large prayer hall that is used intermittently during congregational prayers, five times a day. The occupancy rates of mosques vary in Friday noon prayers and daily times (Azmi & Kandar, 2019). Each of the five daily prayers usually lasts 30-45 minutes and the weekly Friday prayer including before and after lasts about 2 hours. In this context, the comfort of the user in a religious structure is important. In these buildings, which are designed with a sense of sacred worship

and represent a place with a unique function and operation, it should be possible to worship in a comfortable area. Worshipers should be able to feel a sense of peace and tranquility. In this respect, providing comfort conditions in the interior of religious mosque buildings within the scope of energy efficiency is an issue that should be carefully evaluated.

The climate-related design features of mosques affect the interior comfort conditions in the interior and the thermal performance of the building (Abdou vd, 2005). Therefore, the energy efficiency of the mosques depends on the overall thermal performance of the building components such as walls, roofs, and windows working together as a system (Al-Homoud vd., 2009). Especially in terms of energy efficiency, the heating and cooling load of the mosque is important because more energy is consumed to provide comfort conditions in a mosque with poor thermal performance.

In the study of Al-Homoud et al., indoor comfort conditions were analyzed for three mosque structures located in the hot humid climate zone of Damman, Saudi Arabia. The relationship between these conditions and the consumed energy levels was evaluated. It was determined that only one of the mosques had a thermal insulation layer in the envelope. It was reported that two uninsulated mosques had higher levels of energy consumption and dissatisfaction in terms of thermal comfort. In conclusion, the importance of integrating a thermal insulation layer was emphasized (Al-Homoud vd., 2009).

In a study conducted to determine the factors affecting energy efficiency in mosque structures (Azmi vd., 2021), the contemporary literature on energy use in mosques was analyzed. In line with the findings, it has been divided into two categories: design parameters of mosque structures and design and operation strategies of heating/cooling systems. A further classification of the literature is based on the Köppen climate classification because climatic factors play an important role in building and HVAC design. As a result of the study, it was determined that the design of the building envelope (thermal design) and climatic factors are the most important factors in the energy use of mosques. It has been concluded that heating/cooling systems constitute a large amount of the energy consumed in mosque buildings. The zoning of the prayer hall and the design of the heating/cooling system according to the high and low occupancy of the mosque can significantly reduce energy requirements. At the same time, studies aiming to reduce energy consumption and studies aiming to increase energy efficiency were compared in the study. Findings from various studies have shown that energy use can be reduced by half by optimizing the design and

operational strategies of mosque structures. Also, the literature review showed that there is not enough research on energy-efficient mosque design.

Al-ajmi handled thermal comfort in air-conditioned mosques in a dry desert climate. Six mosques located in the hot-dry climate zone of Kuwait were analyzed in terms of thermal conditions. Field measurements include indoor air temperature, relative humidity, air velocity, and operative temperature. In addition, a survey was conducted with the worshippers to investigate the factors affecting the thermal comfort conditions. In line with the real and projected average votes, the indoor air temperature has been determined as 26.1 °C and 23.3 °C. The study suggested that mosque structures in Kuwait should be designed to maintain an indoor temperature of 26.1 °C to provide important energy savings (Al-ajmi, 2010). In addition, various studies show that older buildings have lower energy loads due to their compact urban layout and the use of materials with thermal mass convenient for climatic conditions (Azmi vd., 2021).

This study is prepared within the scope of the Scientific Research Project (BAP). Monumental mosque structures built in Konya during the Anatolian Seljuk and Ottoman Periods are handled. These are the Sahip Ata Mosque, which was built in the 13th century in the Anatolian Seljuk Period, and the Kapu Mosque, which was built in the 19th century in the Ottoman Period. First of all, using the analyzing technique in the literature, information about the mosque structures belong the Seljuk and Ottoman periods, and Konya city are collected. The buildings are visualized with the drone and their features are documented with photographs. Drawings in the electronic environment are taken from the Konya Regional Directorate of Foundations and colored, and their current situation is based on on-site determinations and their relations with their immediate surroundings. are processed on the drawings. The plan, section, facade, roof cover, and interior space elements are explained and design typologies are determined in the light of the information in the literature, drawings, and visuals. At the same time, the construction technique and material properties are explained. Mosques' architectural design features were documented are modeled in the Design Builder simulation program. Models specific to mosque structures that have characteristic features are developed in the DesignBuilder simulation program, taking into account the users, occupancy rate, and usage times. According to the simulation results, the heating-cooling and total energy loads of the mosques are analyzed. An evaluation is explained according to the findings.

There is not enough research in the literature about the basic design and energy performance of mosques. In this respect, this study is a pioneering study in terms of future studies for cities and structures that have historical and architectural value. It is expected that it will create potential research scopes for future research. In this study, the relationship between the design parameters and construction techniques of monumental architectural structures and today's energy needs is explained. In this context, it is aimed that this study will inspire and guide designers to design energy-efficient places of worship with a sense of sacred worship.

2. ANATOLIAN SELJUK AND OTTOMAN ARCHITECTURE

In this section, Anatolian Seljuk and Ottoman architectural properties are explained by categorized as plan and facade typology, top cover properties, and interior space properties.

Plan and Facade Typology

In the early period of Anatolian Seljuk architecture, it is not possible to say about complete perfection in terms of the building's dimensions, space, and facade properties. The minarets are in the form of towers placed in a corner. The scope of space layout, Seljuk architecture has an "inward-oriented" centrally planned structure depending on the traditional establishment of Asian architecture. There is an iwan and needed spaces around the inner courtyard. Anatolian Seljuk architecture has unique characteristics in terms of building types, materials, design, and decoration. These properties can be defined as a successful synthesis created in Anatolia as a result of the effects of pre-Islamic Turkish art and the art of Karakhanid, Ghaznavid, and Great Seljuks (Karpuz, 2001). Anatolian Seljuks opened a new horizon in the field of architecture with their building types, stone monumental architecture, and decorations in 13th century Anatolia. The single-domed masjids built in this period are on a smaller scale among the monumental structures of the Seljuks. However, since the masjids developed with their different designs, these structures have a special importance in order to understand the Seljuk architecture and adornment (Özakın, 1998).

The classical period of Ottoman architecture is defined by the structures of Mimar Sinan. It is accepted that the stylistic potential of the period reached its highest level with Mimar Sinan. The main feature of the Ottoman architectural

style is the central space fact. In Islamic mosque architecture, there is no other tradition that develops in parallel with this, except for small masjids. All architectural elements were used to reveal the design that would provide this central space (Kuban, 2002). Ottoman architecture has a homogeneous character in mosques and other building types. After the 15th century, stone was mostly used as a single building material. The use of spolia material, which is frequently seen in the Early Period Ottoman architecture, has decreased relatively in Ottoman architecture since the 16th century. This is another element that supports the homogeneous building character (Gönül, 2019, s.3). The content of this architecture consists of geometric shapes such as cube, prism, sphere and cylinder.

Top Cover Properties

In the Seljuk Period, curvilinear surfaces were created by rounding the corners of the square or rectangular plan. The Anatolian architecture of the 11th-14th centuries is a formation period of architecture. Anatolian Seljuk architecture developed in an environment influenced by the construction techniques of southeastern countries such as Iranian and Syria, as well as local craftsmans. Edged squinches, muqarnas plane triangles, and curvilinear triangles seen in Iranian architecture were used in the transition elements to the dome cover in the early period (Turan, 2018). The plane-triangle transition element in Anatolian Seljuk architecture emerged in the 13th century. These triangular transition elements started to apply as a Turkish triangles belt consisting of plane triangles from the 14th century.

In Anatolian Seljuk structures, the dome is generally semicircular and starts from a wall or a low drum. The domes have radially arranged bond of stone and brickwork. A simple bond technique is seen under the influence of local construction techniques. Şekerfuruş Maşjid which has a brick dome is shown in Figure 2. This mosque was built during Anatolian Seljuk Period. Although all basic materials are found in Anatolia, the basic material of monumental architecture in all cultural layers is stone, followed by brick, wood, and adobe brick.

The mosques built since the first years of the Ottoman period are of the single-domed cubic plan type, which emerged in the Seljuk period and is the most widely built mosque form until today (Ayverdi & Yüksel, 1976). After the Ottomans tried the dome in small mosque structures, they spread it to the middle and iwan spaces and then built it to all the spaces of the mosque. The

dome has become a complementary part of the architectural system. Thus, the multi-domed grand mosque plan emerged.



Figure 2. Şekerfuruş Masjid, Brick Dome (Photograph by the authors, 2019)

The brick dome is a widespread technique for the entire Islamic world as well as the Byzantines. However, the fact that the dome overlapped on the walls by way of the squinch and the Turkish triangle and was used as the only building cover, and covering large areas is unique to the Ottoman Period. When the diameter of the dome increases, the height of the transition zones increases, and the space height also rises. For this reason, pendentives were used as a transition element in large-diameter domes, which are more widespread in Ottoman architecture. The top covering system in mosques is important in terms of both a structural element and a symbolic meaning. It is seen that the top covering system has developed depending on the periods in the mosque and masjid structures that have been examined from the Seljuk and Ottoman periods.

Interior Space Properties

In this section, the interior properties of the Anatolian Seljuk and Ottoman periods are explained in line with the monumental mosques and masjid structures examined within the scope of the Project. In the Anatolian Seljuk mosques in Konya, carving ornamentation is seen on the last jamaat space and the top cover elements. The adornments appear in the enceinte, on the dome, on the transition elements, arches, window and door edges, the minbar, the tribune in the mosque, and the mihrab. The decorations were applied on plaster, wood, and stone. The

wooden adornments can be seen on the mihrab, minbar, mosque's tribune, top cover, and door and window wings. Nail, carving, and perforation techniques were used. In general, geometric and floral motifs are seen. Gypsum plaster decoration, which is used in a small area in Seljuk mosques in Konya, is seen in mihrab, top cover elements, and windows.

In the 16th century, in the golden age of the Ottoman Empire in artistic terms, the development of dome architecture accelerated, the idea of centrality emerged and monumental examples in religious architecture began to build. It is seen that the Classical Period Ottoman Mosques in Konya were generally built with stones. At the same time, the most used materials are stone, brick, marble, and wood. In terms of decoration, stone, marble, brick, porcelain tile, enceinte, wood, and gypsum plaster ornaments are seen. In Figure 3, Aziziye Mosque's interior space is shown. Aziziye Mosque was built during the Ottoman Period. Decorations are seen in the mosque's interior space.



Figure 3. Aziziye Mosque Interior Space (Photograph by the authors, 2019)

3. SAHİP ATA MOSQUE BUILT IN THE ANATOLIAN SELJUK PERIOD

Sahip Ata Mosque was built by Sahib-i Ata Fahreddin Ali in 1285 during the reign of Keykavus. Its architect was Kelik Bin Abdullah. It was rebuilt in 1871 due to fire. The architect who rebuilt it is Muhidin Usta (Karamağaralı, 1982).

The qibla wall, mihrab, and monumental front gate of the old mosque have remained to the present day. The mosque is unique in terms of stone, brick, and

tile mosaic workmanship. The front gate of this structure is one of the most magnificent examples of Seljuk woodworking. The minarets on the left have been destroyed. Today's Mosque was built after the fire in 1871. It is a square-planned space with 12 wooden columns and is covered with a pitched roof. There is a dervish convent next to the mosque. Sahip Ata Mosque has the first double minaret front gate of Anatolia with stone, brick, and tile decorations (Karamağaralı, 1982). In Figure 4, photographs belonging to the Sahip Ata Mosque are shown.



Figure 4. Sahip Ata Mosque (Photographs by the authors, 2019)

3.1. Architectural Design Properties

Information on the design typology of the Sahip Ata Mosque is shown in Table 1, and information on construction techniques and material use is shown in Table 2.

Table 1: Sahip Ata Mosque Design Typology




Design Typology		
		
	Period	13th Century, Anatolian Seljuk Period
	Building Form	Square
	Plan Organization	Two Spaces
	Top Cover	Pitched Roof
	Building Order	Detached Order
	Entrance-Garden/Street Relation	Entrance from the garden
	Total Area of Mosque m ²	1200.10 m ²

Table 2: Sahip Ata Mosque Construction Techniques and Material Properties

Construction Techniques and Materials		
		
WALL	Bond Technique	Masonry Wall
	Material	Stone+Brick
	Openings	Window ratios are 1/1.5
FLOORING	Material	Wood flooring
ROOF COVER	Bond Technique	*
	Material	Wooden Construction-Tile
	Openings	There are no openings
MINARET	Bond Technique	Masonry
	Material	The Minaret pedestal is brick, the truck is stone, porcelain, and brick; the minaret balcony is brick

3.2. *Sahip Ata Mosque Interior Space Properties*

In the context of interior design, the door and window features, wall, ceiling, and floor finishing materials, decorations, and ornaments used in the interior, mihrab, and minbar elements are examined. In Figure 5, Sahip Ata Mosque's interior space is shown.



Figure 5. Sahip Ata Mosque Interior Space (Photograph by authors, 2019)

- *Door*

The mosque has two main entrance doors. According to the analysis, as it is understood from the materials, spolia was used in the crown door and wooden material was used in the doors. The wooden entrance door has two leafs. Each leaf consists of three separate decoration panels. There are carvings on the doors.

- *Window*

The window material is wood and windows bars are iron material. Window sills are sloped. Window ratios are 1/1.5.

- *Mihrab*

The mihrab was built of mosaic tile in the middle of the qibla wall, and it is original. The mihrab is also muqarnas and is one of the rare works with fine workmanship.

- *Minbar*

The minbar is not original, it was added to the mosque later. Minbar was made of wood, has rectangular ornaments and gold-colored painting. The color of the wood is dark brown.

- *Ceiling*

The mosque has a pitched roof and a flat wooden ceiling in the interior space. The roof construction is wooden.


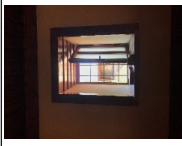
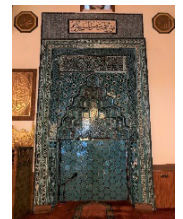
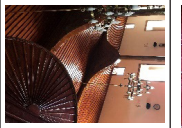

- *Floor Covering*

The floor of the mosque is wooden. All of the mosque floors are covered with carpet. Carpet colors are intensely red and intermediate stripes are in blue tones.

- *Interior Wall Finishing Material*

The inner layer of the mosque wall is plastered and painted with white wall paint. Table 3 shows the interior photographs of Sahip Ata Mosque.

Table 3. Sahip Ata Mosque Interior Space (Photographs by the authors, 2019)

Door	Window	Mihrab	Ceiling	Floor
				

4. KAPU MOSQUE BUILT IN THE OTTOMAN PERIOD

Kapu Mosque is located in the city center of Konya, in the bazaar, on Tevfikiye Street. It was built in 1658 by Pir Hüseyin Çelebi. The first construction, which is thought to have a brick masonry bond dome, was destroyed for unknown reasons. It was rebuilt in 1811 by Abdurrahman Efendi. In the fire of Konya Bazaar in 1868, it was completely burned along with the stores around it. The mosque was rebuilt using stone materials by the grandson of Abdurrahman Efendi and with the help of the people of Konya (Konyalı, 2007; Muşmal & Çetinaslan, 2009).

Kapu Mosque is the largest mosque built in Konya during the Ottoman period and has the characteristics of classical Ottoman mosque architecture. The mosque is made of stones mass on a square plan and the top is covered with eight domes of different diameters. The top cover of the mosque is a pitched roof from the outside. There are entrance doors in the east, west, and north directions. Kapu Mosque has been restored many times in recent years. These repairs were made mostly for the improvement of the decorations of the building (Kapu Camii- KONYA, n.d.; Muşmal & Çetinaslan, 2009). In Figure 6, photographs belonging to the Kapu Mosque are shown.



Figure 6. Kapu Mosque (Photographs by the authors, 2019)

4.1. Architectural Design Properties

Kapu Mosque design typology is shown in Table 4, and construction techniques and material properties are shown in Table 5.

Table 4: Kapu Mosque Design Typology

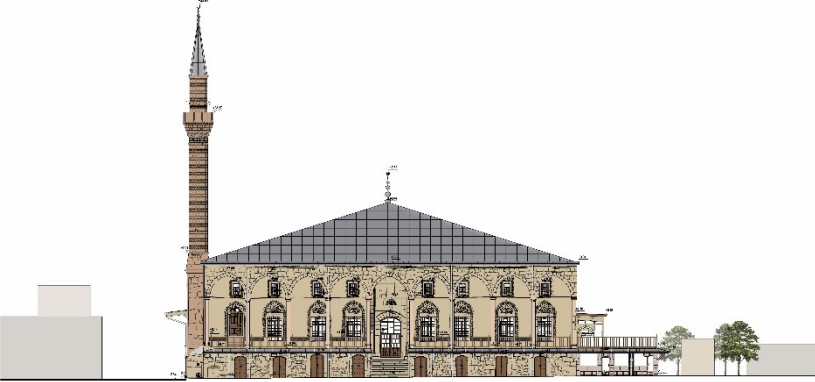
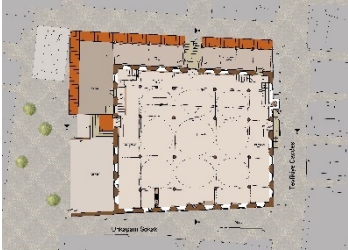
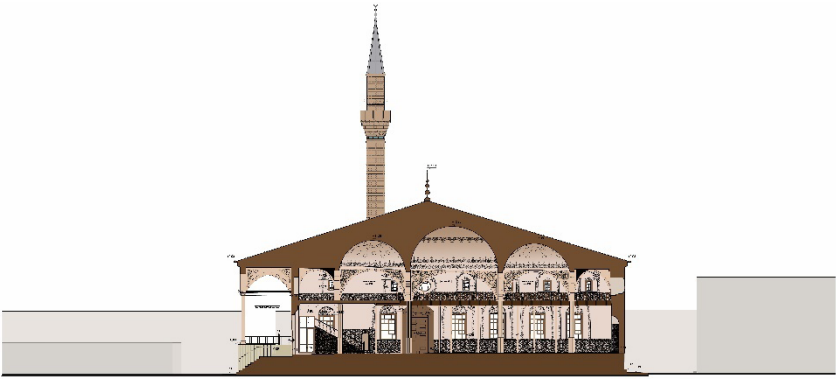
Design Typology		
		
	Period	19th Century, Ottoman Period
	Building Form	Rectangle
	Plan Organization	Two Spaces
	Top Cover	Hybrid Roof (Domed inside, pitched roof outside)
	Building Order	Detached Order
	Entrance-Garden/Street Relation	Entrance from the street
	Total Area of Mosque m ²	1183.53 m ²

Table 5: Kapu Mosque Construction Techniques and Material Properties

Construction Techniques and Materials		
		
WALL	Bond Technique	Masonry Wall
	Material	Stone
	Openings	Window ratios are square and 1/2
FLOORING	Material	Prayer hall wood flooring, courtyard and entrance staircase stone covering
ROOF COVER	Bond Technique	Dome in masonry technique
	Material	Dome is brick
	Openings	There are no openings
MINARET	Bond Technique	Masonry
	Material	The Minaret pedestal is stone, the truck is brick; the minaret balcony is brick

4.2. Kapu Mosque Interior Space Properties

In the context of interior design, the door and window features, wall, ceiling, and floor finishing materials, decorations, and ornaments used in the interior, mihrab, and minbar elements are examined. In the Figure, Kapu Mosque’s interior space is shown. Floral motifs that made carving technique are seen on the dome. In the center of the domes, there are also floral adornments (Muşmal & Çetinaslan, 2009). In Figure 7, Kapu Mosque’s interior space is shown.

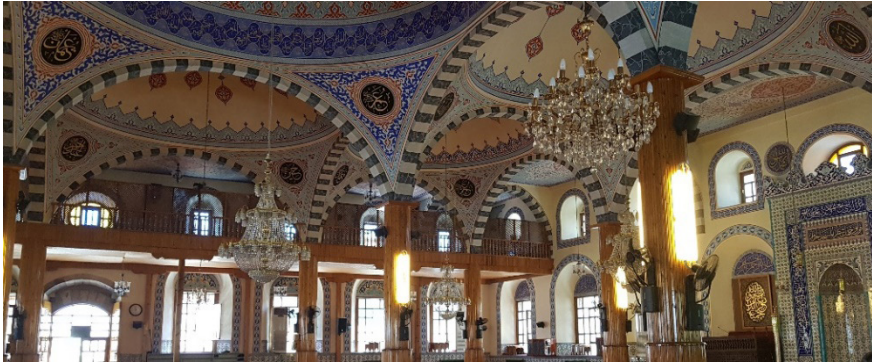


Figure 7. Kapu Mosque Interior Space (Photograph by authors, 2019)

- *Door*

The mosque has three main entrance doors on the north, east, and west facades. Doors are made of wood, and glass partitions in some areas of doors. There are carvings and reliefs on the doors.

- *Window*

The main frame of the windows is made of wood. Window bars are metal. The form of the windows is rectangular. Openings were built in the form of an arch in the interior.

- *Mihrab*

The mihrab of the mosque was built of stone material. Mosque was restored in 1998, the stone mihrab was renewed and the porcelain mihrab was built of today's size. The mihrab, located between two windows, was bordered by a rectangular frame. Floral motifs are seen on the porcelain adornments.

- *Minbar*

The minbar is located to the south of the mosque. It was made of wood.

- *Ceiling*

Brick material was used in the top cover of the interior. There are decorations and adornments on the domes. The ceiling of the interior space between the floor and the women's prayer hall is made of wood. The upper part of the walls was painted.



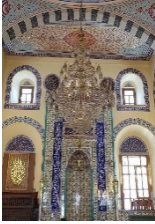

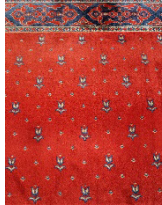
- *Floor Covering*

The floor of the prayer hall is wooden, and the courtyard and entrance staircase are covered stone.

- *Interior Wall Finishing Material*

Plaster and paint coatings are seen on the interior walls. Tile ceramic covering is seen on the wall up to the lower level of the window. The carpet, dominated by red, is used on the floor coverings in the interior. Yellow, white, and dark blue colors, patterns and tulip figures are used on the carpet. Table 6 shows the interior photographs of Kapu Mosque.

Table 6. Kapu Mosque Interior Space Properties (Photographs by authors, 2019)

Door	Windows	Mihrab	Ceiling	Floor
				

5. ANALYSIS OF SAHIP ATA MOSQUE AND KAPU MOSQUE IN TERMS OF ENERGY EFFICIENCY

The idea of utilizing renewable energy resources such as solar and wind in the history of humanity dates back to ancient times. Ancient Greeks knew that buildings and cities must work in harmony with their climate region if they are to provide human comfort sustainably (Heywood, 2015). The Ancient Greeks realized the importance of site and community planning for the heating and cooling of buildings. The ancient Greeks considered their solar design of buildings and cities to be modern. The Romans were also convinced of the value of solar heating, so much so that they protected solar access by law (Lechner, 2015). In this direction, it is important to research the design properties of monumental mosque structures, which are the elements of religious and cultural heritage and are effective in the formation of city identity, and their relationship with energy.

In this section, the Sahip Ata Mosque belonging to Anatolian Seljuk Civilization and Kapu Mosque belonging to Ottoman Civilization, are analyzed in terms of energy efficiency in light of the literature review and simulation results.

Passive design parameters that affect the energy performance of a building are handled;

- Location of building
- Distance between other buildings
- Building orientation and space design
- Building form
- Building envelope optical and thermophysical properties
- Solar control and natural ventilation layout (Lechner, 2015).

In terms of interior design, the design parameters that affect the energy performance of a building can be handled wall, ceiling, and floor finishing materials. For example, paint can affect the lighting energy of the building. While light and bright colors contribute to the lighting of the space by reflecting the light more, dark colors require more lighting (Petričević & Milkić, 2018).

Konya is located in the temperate-dry climate zone of Turkey. The period in which heating is important in temperate-dry climatic regions. It can be said that energy-efficient design parameters are also valid for a mosque structure. However, mosque structures have elements that direct their basic design such as qibla, qibla wall, mihrab, and minbar. In this respect, the orientation of mosque structures with a characteristic design approach is the direction of the qibla. The orientation of the Konya mosques (their qibla), which are handled within the scope of the study, is in the south direction. In terms of building form, the form of mosque buildings is square or rectangular, which should be in a temperate-dry climate zone. In addition, in monumental mosque structures, the volume of the building is an important factor within the scope of energy efficiency.

The distance between the buildings, the heights of the buildings and their locations according to each other affect solar radiation and wind factors. Therefore, passively benefiting from or being protected from the effects of sun and wind changes depending on the settlement texture and distance between buildings. In this respect, it is one of the parameters that directly affect the energy load of a building. The Sahip Ata and Kapu Mosque have a detached order feature. Other design features affecting the energy loads of mosques are shown in table 7 for comparative analysis.

Table 7. Sahip Ata Mosque and Kapu Mosque Architectural Design Properties

Mosque Name		Sahip Ata Mosque	Kapu Mosque
Total Area of Mosque m ²		1200,10 m ²	1183.53 m ²
Mosque height (h)		h: 10.42 m	h: 16.60 m
Material		Stone+Brick	Stone
Wall Thickness		100 cm	100 cm
Window-Wall Ratio (%)	South	11.41	9.87
	North	8.91	45.50
	East	12.95	9.87
	West	9.47	12.16

The energy loads of the mosques are analyzed with the Design Builder simulation program. The energy modeling of Sahip Ata Mosque is shown in Figure 8, and the heating-cooling and total energy loads per m² are shown in Graph 1. The Kapu Mosque energy modeling is shown in Figure 9, and the heating-cooling and total energy loads per m² are shown in Graph 2.

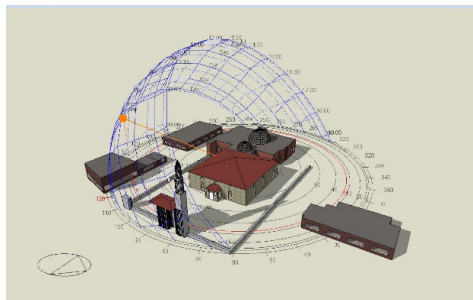
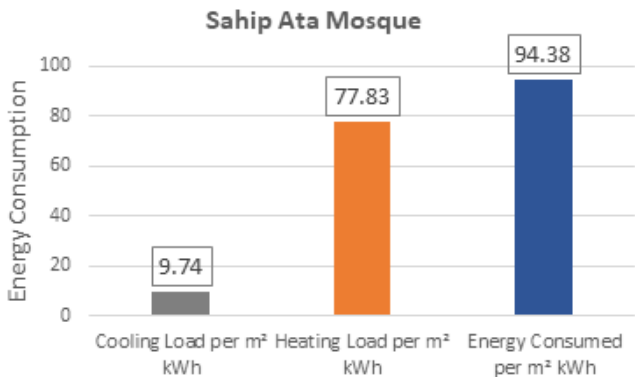


Figure 8. Sahip Ata Mosque Energy Model



Graphic 1. Sahip Ata Mosque Energy Consumption

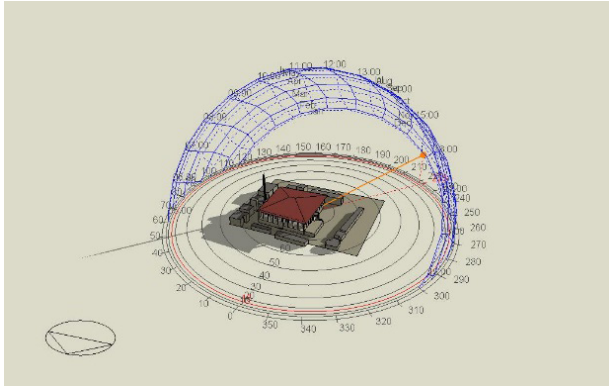
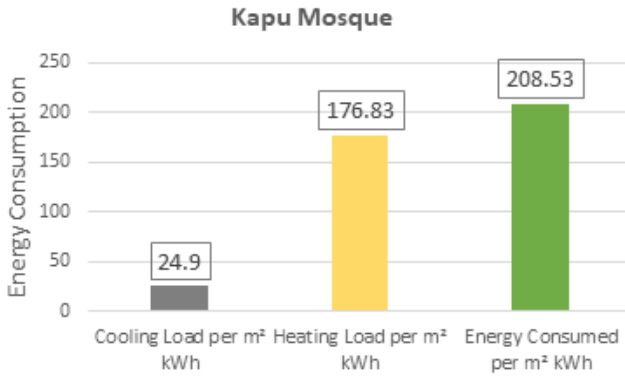


Figure 9. Kapu Mosque Energy Model



Graphic 2. Kapu Mosque Energy Consumption

As shown in Graph 1, the annual cooling load per m² of Sahip Ata Mosque is 9.74 kWh, the heating load is 77.83 kWh, and the total energy consumed per m² is 94.38 kWh. According to the data in Graph 2, the annual cooling load per m² of Kapu Mosque is 24.90 kWh, the heating load is 176.83 kWh, and the total energy consumption per m² is 208.53 kWh.

Building envelope optical and thermophysical properties are effective in determining the amount of heat transfer through the opaque and transparent components of the building envelope and indoor air temperature and building energy demand. The Sahip Ata Mosque has a pitched roof and the Kapu Mosque has a hybrid roof. In terms of building materials, Kapu Mosque’s building material is stone and Sahip Ata Mosque’s building materials are stone and brick.

The wall thickness of both mosques is 100 cm. As shown in Table 7, the opening ratios of the structures are different depending on the directions. It should be noted that openings in the south direction provide direct solar radiation gain, but multi-directional openings, especially in the north direction, cause heat losses. The opening ratio in the south direction of the Sahip Ata Mosque is 11.41% and the opening ratio in the south direction of the Kapu Mosque is 9.87%. As shown in the table, the opening ratio of Kapu Mosque in the north direction is quite high. Considering the differences in openings ratios in other directions, it can be said that the openings depending on the directions are the reasons for the differences between the energy loads of the mosques.

It should be noted that the thermal conductivity of the building envelope opaque and transparent components are also important factors that can affect the energy loads of the buildings. The thermal conductivity of the wall varies depending on the building material properties and the wall thickness. Windows, which are the transparent component of the building envelope, are also important in terms of conductivity. Period differences between the Sahip Ata and Kapu Mosque, the type of stone material used, the different thermal conductivity values of the stone and the brick, and the type of glass used in the openings should be handled as factors affecting the thermal conductivity of the wall. In this respect, thermal conductivity should be evaluated as the parameter that affects the energy needs of mosques.

Sahip Ata Mosque and Kapu Mosque interior floor coverings and wall paints can have an effect on energy loads. However, it should be indicated that the envelope properties significantly affect the energy performance of a monumental mosque structure. Design properties such as building materials, wall thicknesses, top cover, directional openings, and thermal conductivity are the properties that make a difference between the energy loads of the mosques. In addition, building volume should be handled and evaluated as an important factor. The total areas of the analyzed mosques are close to each other. However, when the heights are considered, the height of the Sahip Ata Mosque is 10.42 m, and the height of the Kapu Mosque is 16.60 m. In this respect, it can be said that more positive results are obtained in terms of energy efficiency for both mosques although the differences between the energy loads. As a result, the parameters affecting the energy load of mosque buildings can be handled as the envelope design and the size of the structures in line with the analyzed mosques. It can be said that the analyzed mosques are energy efficient in terms of the annual energy loads and total energy loads per m².

6. CONCLUSION AND EVALUATION

In this study, monumental mosque structures in Konya, one of the important intersection points of the Silk Road, built in the Anatolian Seljuk and Ottoman Periods are researched in terms of energy efficiency. Sahip Ata Mosque belonging to Anatolian Seljuk Civilization and Kapu Mosque belonging to Ottoman Civilization are handled. The plan, section, facade, and interior properties of monumental mosque structures have been documented. The energy consumption of the mosques is analyzed using the Design Builder simulation program. It is of great importance in terms of religious and cultural heritage to create an inventory of these mosques, to determine their place in the historical process and their current situation, as well as to analyze them in terms of energy efficiency.

In terms of material, the use of materials with a thermal mass that is traditional and suitable for climatic conditions is a sustainable approach that will affect the energy needs of a building. Traditional design properties and construction techniques are seen in the examined mosques. At the same time, it is concluded that building volume is an important parameter for these building types in terms of energy efficiency. The Design Builder simulation program calculates the energy loads per m^2 . It has been determined that this is inadequate for buildings where volume is an important factor, such as monumental mosques, and that volume-related analysis results are required.

As a result, it can be said that monumental mosque structures are valuable and important structures in terms of energy efficiency in line with the energy loads consumed per m^2 . Considering the deficiency of studies in the field of monumental mosque structures and energy efficiency, it is expected that this study will create potential research scopes for future research. Documenting and analyzing cultural historical heritage in terms of energy efficiency is a pioneering work and will throw light on future studies.

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CHAPTER XVII

NATURE-INSPIRED INTERIORS: INVESTIGATING THE MOVEMENTS EMERGING AFTER ECLECTICISM

Uluç ALGAN¹ & Lâi DALAY²

¹M.Sc. - Mimar Sinan Fine Arts University

e-mail: ulucalgan@gmail.com

ORCID: 0000-0001-5748-8615

²Res. Asst., M.Sc. - Istanbul Technical University

e-mail: laldalay@hotmail.com, dalay19@itu.edu.tr

ORCID: 0000-0001-7419-3552

1. INTRODUCTION

Nature had always been a source of inspiration for humans throughout history. Along the evolutionary process of human beings, they have tended to develop design solutions based on problem-solving and have produced living spaces inspired by environmental conditions and materials. The objective of this study is to analyze the bond established with nature in modern living conditions through the movements that emerged after Eclecticism and their reflections in the historical context of interior space. By doing so, this research aims to provide a deeper understanding of the human-nature relationship in interior design and offer insights for contemporary designers seeking to incorporate natural elements into their work.

The period after the Industrial Revolution, or Eclecticism (1760-1830) as art and architectural historians call it, which is the focus of this study, is a period in which the relationship and dynamics between nature and interior space changed. Eclecticism in architecture stands out with its characterization of 19th-century architecture as a return to the past movement based on the revival of styles that existed in the past. Therefore, the retrospective aspects of the

human relationship with nature through design were also re-emerged and seen in the interiors of the period. Within the environment created by the conditions brought about by the era, this backtracking was emphasized in the literature with the lack of cultural traditions.

Post-eclecticist movements in interior design are characterized by a return to the use of traditional and natural materials, as well as a focus on symbolic associations with natural figures. These movements aim to create an emotional connection between the interior space and its users, by using natural motifs and patterns to create a sense of harmony and balance in the space. In a way, the post-eclectic approach to interior design reflects a new way of thinking that emphasizes the importance of emotional connection and overall experience in design. Moreover, this approach involves careful consideration of the natural environment and a focus on creating a sense of balance and harmony through the use of natural materials and forms.

One of the key elements of post-eclectic design is the use of symbolic relationships with natural figures. This can include the use of motifs such as leaves, flowers, and animals, as well as patterns and textures that mimic natural materials such as wood and stone. This approach is grounded in the idea that natural forms and patterns have an innate beauty and harmony, and that incorporating these elements into interior design can create a sense of calm and tranquility in the space. In addition to using natural motifs and patterns, post-eclectic interior design also emphasizes the use of traditional materials such as wood, stone, and clay. These materials are often left in their natural state, with minimal processing or finishing to maintain their inherent beauty and authenticity.

Post-eclectic interior design is characterized by a focus on emotional resonance and holistic experience, as well as the use of symbolic relationships with natural figures. This approach emphasizes the use of natural materials and traditional techniques, to create a sense of harmony and balance in the space. Thus, in this study, the bond established with nature in the developing modern living conditions is analyzed through the analysis of the movements that emerged after Eclecticism. In this regard, the concept of eclecticism, which will be explained in detail elaborately in the following sections of the study, and the movements that developed after eclecticism are presented. Further, the reflections of these movements in the historical context are investigated from the viewpoint of interior space. In the following first section, the effect of nature on interior design is analyzed through the Arts and Crafts, Art Nouveau, and

Art Deco movements that opposed 19th-century Eclecticism. Focusing on the separation between man and nature in 19th-century eclecticist designs and the emergence and development of this unity with the Arts and Crafts movement.

2. THE PERIOD THAT PREPARED THE EMERGENCE OF 20TH-CENTURY MOVEMENTS: 19TH-CENTURY ECLECTICISM

The period between approximately the 1760s and 1830s is called the “Industrial Revolution” Period by economic historians and the Eclecticism Period by historians of art and architecture. In this period, the mechanization of production systems led to a huge increase in industrial production. Eclecticism in architecture, especially in the period between the 1820s and 1890s, formed the character of the 19th-century architecture as a kind of return to the past movement based on the revival of styles that existed in the past. Art and architectural historians in the 19th century tried to explain this situation with the lack of cultural tradition in their communities (Erkmen, 1998). The fact that eclecticist behavior has replaced original creativity in artistic and architectural activities is attributed to the divergence of feelings and thoughts in society. The reflection of the separation between emotion and thought in architecture was the eclecticist movement that emerged in the 19th century (Özer, 1964).

Between the classical world of the 18th century and the modern world of the 19th century, the artist, in his designs of this period, reconsidered the forms that existed in the past by remaining faithful to the original. During this period, one of the biggest topics of discussion was which building would be constructed in which style. The 19th century’s design character was determined by the revival of historical styles such as Neo-Grecian, Neo-Gothic, Neo-Renaissance, revivalist styles inspired by the East which can be characterized as Exoticism, and the eclecticist understanding that brought these styles together (Hasol, 2019).

When architectural production was still creative, dynamic, and innovative in the periods following the Renaissance with the Mannerism and Baroque styles, in the 19th century, architecture was dominated by revitalizing and eclectic tendencies, and stylistic confusion were seen in the design of buildings. In the 19th century, the Industrial Revolution enabled the revival of historical styles by enabling the ornaments produced by the masters in ancient times to be copied easily and cheaply with new machines in factories and the production of materials similar to expensive materials using cheap materials. In this period, when the curiosity towards historical styles brought romanticism to the agenda,

the style became a behavior to be chosen according to the architect's desire. In 19th-century architecture, the aim was to design monumental buildings by imitating historical architectural activities without considering current conditions (Richards and Mock, 1966).

The furnishings of some of the movements that re-emerged during this period are shown below. Turned columns characterize much of Elizabethan Revival Furniture (1). The illustrated example, known to have been designed by Richard Bridgens around 1815, is made of painted oak with gilt detailing and heraldry on the back. On the other hand, the re-emerging Renaissance style (2) was applied to domestic forms such as sofas. This 1847 design features carved fruits, leaves, and grotesque animal heads. The third example is a Rococo Revival ornamental cabinet which is part of the collection of an important furniture manufacturer. This 1850s New York carved rosewood cabinet example features mirror panels, Rococo reliefs on the top, and carved animal feet on the legs (Figure 1) (Beazley, 2003).

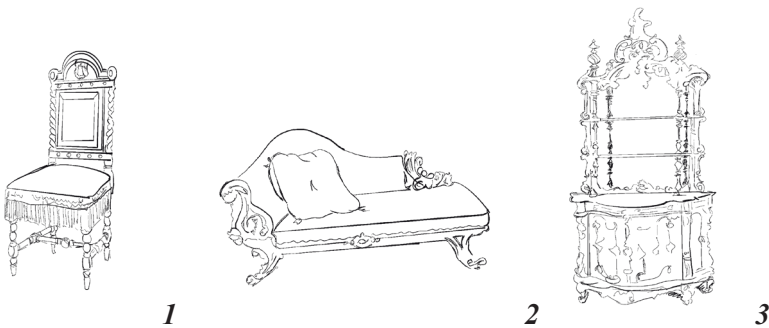


Figure 1: 1-Elizabethan Revival Furniture / 2-Renaissance Revival Furniture/ 3-Rococo Revival Furniture (Illustrated by the author from Beazley, 2003).

The Church of the Madeleine (Figure 2) in Paris, designed by Pierre Vignon, is one of the striking precedents of the 19th-century architecture with its Neo-Classical character and the incongruity of the interior and exterior (Ilgin, 1991). To resurrect Greek Art, the Greek temple form, which had almost no interior space and was designed to be viewed only from the outside like a theater decor or sculpture, was applied to the church, which should live with an interior space. In the domed church, which was almost forced into the Greek temple, there is a great incompatibility between the interior and the exterior form. Thus, in this example, it is seen that the connection between form and function is disregarded for the sake of resurrecting the past (Tökmeci, 2013).

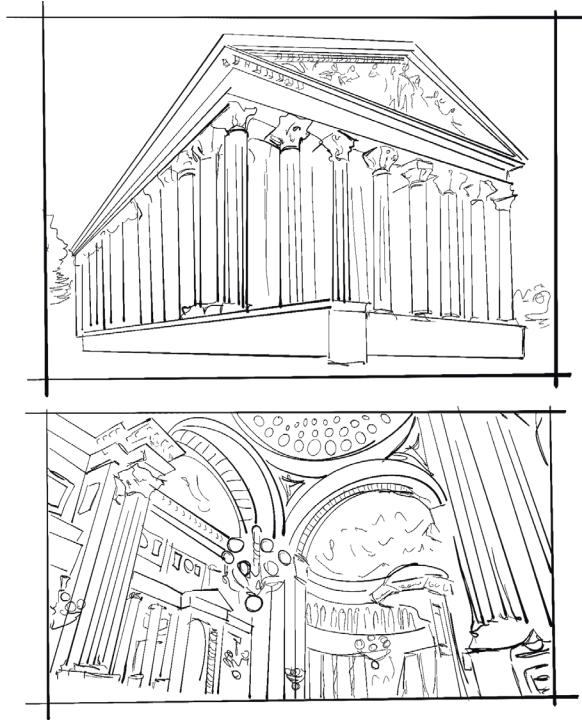


Figure 2: The Church of the Madeleine (Illustrated by the author from URL-1).

Spontaneous and conscious reactions emerged against the purely ornamental imitative examples of the 19th-century eclecticism. 19th-century iron bridges such as the Coalbrookdale Bridge and undecorated engineering structures such as the Eiffel Tower are examples of spontaneous responses, while Arts and Crafts, Art Nouveau, Deutscher Werkbund and Art Deco are examples of conscious responses.

On the whole, the period between the 1760s and 1830s marks a significant change in economic and artistic developments. When the Industrial Revolution led to a great increase in industrial production, the period of Eclecticism in art and architecture witnessed the revival of historical styles and a move away from original creativity. Eclecticism, a style that brings together elements of different architectural styles, has been criticized for reasons such as moving away from naturalness in its designs and repeating the past, and as a result of these criticisms, various movements against eclecticism have emerged. It is an approach that usually emphasizes the use of man-made materials, and examples of this style do not make a connection with nature. Among the conscious reactions to eclecticism, movements such as Arts and Crafts and Art Nouveau

emphasized the use of natural materials and elements of nature. By emphasizing the use of natural materials and natural elements, these movements aimed to establish a more organic connection with nature. Such movements as Arts and Crafts and Art Nouveau emphasize the use of natural materials and an organic connection with nature. For example, the Arts and Crafts movement emphasized the use of natural materials and the value of craftsmanship as a reaction to the mass production and mechanization trends created by the industrial revolution. By emphasizing the use of natural materials, this movement sought to establish a connection with nature in architectural designs. Similarly, the Art Nouveau movement was inspired by the organic forms of nature in its designs. While this movement emphasized the beauty and organic forms of nature in its designs, it also aimed to offer an understanding compatible with the modern industrial world. These movements challenged the purely ornamental and imitative aspects of Eclecticism by emphasizing the use of natural materials and an organic connection with nature. Despite criticism of eclecticism, this period in history left a significant impact on art and architecture, shaping the design character of the 19th century.

3. SPONTANEOUS REACTIONS TOWARDS 19TH-CENTURY ECLECTICISM

The excessively ornate and decorative facade-oriented architecture of the 19th century, which was far removed from actual data and imitative, particularly towards the end of the century, led to reactions and efforts to break free from this attitude due to the damage it caused to the relationship between function, structure, and form (Erkmen, 1998). In addition to the new materials and technological innovations related to these materials that started to be used in building designs as a result of industrialization, the buildings designed for the real needs of the industrial period are discussed as spontaneous developments in this section.

The first examples of this spontaneous development in line with actual conditions and possibilities were the iron bridges built in the late 18th century (Özer, 2018). The iron bridges of the 19th century were the expression of a true creation, responding to an actual function with an actual material (Özer, 1967). Built in 1779 by Abraham Darby in Coalbrookdale, the arched iron bridge was the first example of the use of iron in construction, followed by railway bridges designed by Telford, Stephenson, and Brunel, paving the way for the development

of iron used in the 19th century (Tokmeci, 2013). This bridge determined the use of iron as a new building material (Roth, 2019). After the Coalbrookdale Bridge was built, the first design with an iron load-bearing structure, cast iron, formed the skeletal structure of many industrial structures. An important turning point in the use of cast iron was the Brighton Royal Pavilion designed by John Nash. The structure of the building in question is made of cast iron. By 1855, with a method developed by Henry Bessemer, steel could be mass-produced, and the use of cast iron gradually decreased (Richards and Mock, 1966).

Spontaneous reactions to eclecticism continued in the 19th century with international exhibitions organized under the leadership of England and France, aiming to introduce the art and technology of different nations to the world. These exhibitions also played an important role in the interactions between Western and non-Western cultures and enabled the emergence of new architectural constructions. The Crystal Palace designed for the London exhibition, built with the most advanced technology of the period, and the Galerie des Machines designed by Dutert and Contamin for the 1889 Paris exhibition are examples of large-scale exhibition structures. Built-in 1851 and covering an area of approximately 70 thousand square meters, Crystal Palace is considered to be the first modern building. Crystal Palace also stands out in the history of architecture as the first prefabricated and cast-iron building. The progress in construction technology that emerged with the design of the Crystal Palace building, which was completed in as little as 16 weeks, was further emphasized by the Eiffel Tower, designed by civil engineer Gustave Eiffel in 1889 (Özer, 2018).

The new understanding of architectural design that emerged with Crystal Palace was also seen in architectural activities in the United States in the following period. In 1871, after the great Chicago fire, engineers rebuilt Chicago, creating the first modern city, where simple structures were built that emphasized the relationship between form and function. The Chicago School, a rationalist architectural movement that emerged in Chicago in the last quarter of the 19th century, when the first skyscrapers with skeletons were built, used steel construction and modern technique in architectural activities (Hasol, 2019). The Chicago School was long-lasting and lasted from the 1880s to the 1920s. Arts and Crafts, Art Nouveau, and Art Deco movements had an impact on the Chicago School. Using new industrial techniques in architectural activities, the Chicago School opposed the eclecticism that existed at the time of its emergence.

The architects of the Chicago School, who were opposed to the idea of shrouding the building in a cover specific to past ages, envisioned designing

their works as a reflection of contemporary needs and possibilities and created the first examples of skyscrapers (Sözen and Tanyeli, 2010). Realized in the 19th century for the first time by engineers who worked with new materials such as steel instead of traditional materials, these works had a different architectural character from the eclectic designs of the period and were a spontaneous reaction against eclecticism.

4. THE CONSCIOUS REACTIONS TO 19TH-CENTURY ECLECTICISM: ARTS AND CRAFTS, ART NOUVEAU, ART DECO

4.1. *Arts and Crafts*

The 19th-century Arts and Crafts movement, one of the first conscious responses to the 19th-century Eclecticism, emerged in England under the leadership of John Ruskin and William Morris against the Victorian era with its heavy ornamentalist design approach in the second quarter of the 19th century and the negative effects of industrialization (Aslanoğlu, 1982). Arts and Crafts, which existed between 1880 and 1910, is a movement that can be evaluated within 19th-century romanticism with its designs that rejected the machine and what it brought with it and the forms of the past. One of the aims of the Arts and Crafts movement, which advocated the revival of handicraft techniques, was to prevent the cultural destruction of design activities caused by industrialization by producing high-quality products. The designs of Arts and Crafts aimed to completely shape the environment they were in with the understanding of “Gesamtkunstwerk”, which means a holistic work of art (Algan, 2022).

The Arts and Crafts movement, which made its name by feeding on the ideas of artist and critic John Ruskin, developed with William Morris putting these ideas into practice. Ruskin advocated a return to the artisanal tradition of the Middle Ages and production by hand instead of by machine. When Ruskin’s writings on nature and art are examined, it draws attention that the point he attaches importance to is the relationship between nature and art and human (Triggs, 2009). William Morris rejected both capitalism and machine production.

Arts and Crafts, due to its opposition to the machine, did not revive industrial art, but craft in a manner befitting the artist. In line with the handcrafted production of the Arts and Crafts movement, designs were produced in small numbers in terms of time and money and could only appeal to a wealthy segment. This result was contrary to the ideals of Morris, who rejected not only the machine but also capitalism. Aslanoğlu (1973) states that Morris eventually

accepted machines, but he compared humans to animals that were being crushed under the machines they had created and found the real fault in the social system.

The nature-inspired interweaving lines and forms of Morris' prints inspired designers in England and America. Founded by designer Arthur Heygate Mackmurdo in 1882, the Century Guild operated for a short period and was guided by Morris' understanding of bringing fine art into the sphere of everyday life. "The Century Guild" designed and exhibited textiles, furniture, and wallpapers that combined nature-based ornamentation, such as that used by Morris in his designs, with the subtle forms and striking colors of Japan. Century Guild took part in the Liverpool International Exhibition in 1886 with Mackmurdo's slender forms and Japanese-inspired furniture. Sullivan believed that decoration should relate to forms from nature and drew inspiration for his designs from a variety of sources including oriental art, Ruskin, and Darwinism. The nature-based forms and Japanese influence of the surface patterns designed by William Morris were among the inspirations of the Art Nouveau movement, which emerged in the 20th century as a conscious reaction against eclecticism (Massey, 2020).

The Arts and Crafts movement was the precursor of the Art Nouveau style with the importance it attached to craftsmanship, pattern quality, individual creation, and production in its designs (Batur, 1995).

4.2. Art Nouveau

The name "Art Nouveau" was not used until 1895, when Samuel Siegfried Bing opened L'Art Nouveau, a store specializing in modern design, located at 22 Rue de Provence. Art Nouveau first emerged in England and then quickly spread to France, Belgium, and Central Europe. Another conscious reaction to the 19th-century eclecticism, this new style was called "Liberty" in England, "Secession" in Austria, "Jugendstil" in Germany, "Modern Style" in America, "Stile Florale" in Italy, "Art Nouveau" in France and Belgium, "Nieuwe Kunst" in the Netherlands and "Modernismo" in Spain (Batur, 1995; Martin, 1969). Influenced by the manifestos of Morris and Ruskin, the pioneers of the Arts and Crafts movement, Art Nouveau emerged in industrialized European countries such as England as a conscious reaction against 19th-century Eclecticism and continued its existence until the beginning of the 20th century. Art Nouveau, which rejected the forms of the past in art and architecture, was popularized with the "World Exhibition" called l'Exposition Universelle, which opened in Paris in 1900. Through this exhibition, the Art Nouveau movement was introduced to

various cultures. Japanese art also had a great influence on the Art Nouveau style (Schmutzler, 1978; Colquhoun, 2002).

Nature-based abstractions seen in Art Nouveau designs and the concept of “Gesamtkunstwerk” are important features of the movement. The use of asymmetry in Art Nouveau designs, and the use of natural forms such as flowers and the female figure come from Japanese Art and Rococo. The fact that religious themes are not preferred in their designs has been one of the points that distinguishes this style from the works of the Arts and Crafts movement in England (Martin, 1969; Aslanoğlu, 1982). Art Nouveau was mainly inspired by non-European cultures such as Japanese, Chinese, and Islamic cultures.

Art Nouveau was introduced to Japanese Art through the Vienna World Exhibition in 1873, and the elements of linearity and asymmetry combined with the floral ornamentation of Japanese Graphic Art influenced the artists who went to the Vienna World Exhibition. Art Nouveau’s design approach includes many elements learned from Japanese Art. Contrary to the understanding of revitalizing the old styles that existed in the 19th century, this movement has shown progress toward being new and contemporary. The problems of industrialization and large economies lay behind the emergence of the style. The needs and demands of the new classes and strata that emerged in European countries contributed significantly to the formation of the style. Art Nouveau also benefited from the opportunities of industrialization and economic development, such as printing, publishing, and transportation technology. With the development and diversification of communication and transportation facilities in the period when the style emerged, Art Nouveau examples were seen not only in developed countries but also in other countries with cultural or economic ties to these countries. Thus, in the history of art and architecture, Art Nouveau has become a style that fits the definition of an international art movement (Algan, 2022).

As the 20th century began, the sense of freedom promised to artists by the Art Nouveau movement was a very important factor in the spread of the style all over the world. After Art Nouveau began to spread around the world, it was inevitably influenced by the unique cultural heritage of each country. In the last quarter of the 19th century, with the appearance of the Art Nouveau movement, an artistic environment emerged in which there was an opportunity to go beyond the classical line that had been dominant since Ancient Greece and Rome.

When we look at the development of the Art Nouveau movement, two different periods are encountered. The first stage was seen in England, Belgium,

France, Italy, and Germany. The designs of this period are dominated by floral, curved lines and asymmetrical order. Flowers in the bud, sunflowers, vines, lilies, swans, peacocks, and female figures are stylized and used in the designs. In the second period of the style, in Scotland and Austria, curved lines were flattened and geometrically shaped designs were seen (Aslanoğlu, 1982; Batur, 1995). The tendency towards simplification in the Art Nouveau style developed in line with the designs and discourses of Charles Rennie Mackintosh and his group from the Glasgow school, Van de Velde from the Belgian school, and especially Otto Wagner and Josef Hoffmann from the Vienna school (Algan, 2022)

The main source of inspiration for the designs of the Art Nouveau movement was nature. Art Nouveau, in search of a new expression of art, stood out as the first-century movement to turn to Nature for inspiration. The popularization of research in geology and especially biology has contributed to the use of nature as a source of inspiration. As seen in the Arts and Crafts movement, the motifs in nature have turned into architecture in the designs of the Art Nouveau movement. Art Nouveau artists discovered and interpreted nature and transformed it into architecture. Artists did not exhibit an imitative understanding while carrying the elements of nature into architecture and mostly continued their searches in a stylized manner. As a result of this design approach, diversity emerged in the examples of the Art Nouveau movement (Yenigün, 2011). The most common floral motifs used in the style are poppy seed, rose, daylily, iris, orchid, cyclamen, fuchsia, lilac, and sea plants, when the use of animals includes a wide range of insects, dragonflies, bees, peacocks, night butterfly (Yenigün, 2011).

Art Nouveau had a democratic principle that emerged in the intellectual environment with the slogan “Art for everyone, art for everything” as a continuation of the Arts and Crafts movement in industrialized countries at the end of the 19th century against the banalization of industry, was replaced by Art Deco in the early 20th century.

4.3. Art Deco

A common 20th-century style in art and architecture, Art Deco was a style that reigned between 1920 and 1930 and was seen in architecture, applied arts, and interior design. Art Deco designs emphasize ornamentation and decoration. Geometric ornamentation and ornamental elements are predominantly used in their designs. These elements can be original, or they can be obtained by simplifying and geometrizing some elements of old styles (Sözen and Tanyeli,

2010). The designs of this movement are also considered as a continuation of the Art Nouveau style in terms of the use of quality workmanship, fine materials, and free decoration (Polatkan and Özer, 2006). Art Deco designs, unlike Art Nouveau, symbolized the modern spirit with their industrial designs (Hasol, 1996). Art Deco is a universally accepted term that encompasses many decorative styles that developed between the two World Wars. The term is an abbreviation of “Les Art Decos” from the 1925 “L’Exposition Internationale des Arts et Industriels Modernes” (International Exhibition of Modern Decorative and Industrial Arts) in Paris. This exhibition is a triumph in the introduction and popularization of the Art Deco style (Bayer, 1992; Arwas, 1976).

Vienna and Glasgow are two important cities in the development of the Art Deco style. Los Angeles, Miami, and Paris stand out as the three most important centers of the Art Deco movement. Although historical references such as Assyrian, Aztec, and Egyptian were used in Art Deco designs, bright colors, materials such as steel pipes, plastic, colored and frosted glass, dynamism, and geometric lines were the defining features of the style (Ilgin, 1991).

As the name suggests, Art Deco is a style defined by its decorative features. Art Deco, which spread almost all over the world in the interwar period, originated from the simple, geometric, analytical, and industrial concept of the geometric Art Nouveau based in Vienna-Glasgow (Erzen, 2005; Batur, 1993). Vienna’s Secession-era buildings of the early 1900s were pioneering examples of Art Deco architecture, with a balanced use of both linear elements and decorative details in the design. In 1925, some important overlaps were observed between the designs of the movement called Art Deco and the designs of other styles and movements that emerged in the period between 1900 and 1925. Overall, both Art Nouveau and Art Deco movements tried to reflect the elements of nature in their designs, but there were differences in these approaches (Algan, 2022).

5. URBANIZATION AND HUMAN ALIENATION FROM NATURE

From the 19th century onwards, the development period of the Industrial Revolution, starting in Europe, brought about significant transformations across the globe. Paving the way for politics, economy, social structure, architecture, and artistic movements, this period made itself noticeable in the 20th century. The development stages of this process are very important to contextualize the modern world we are living in and the human alienation from nature. With industrialization, the cities which became crowded by becoming industrial and commercial centers began to break away from nature rapidly with components

consisting of new elements such as dwellings for workers, new infrastructure, and road systems. During this accelerated change and transformation, the increase in the number of people has led to an increase in the number of people moving away from nature. As a result of urbanization, individuals who live a life intertwined with nature, especially in rural areas, and who make a living through agriculture and animal husbandry, have started to be in a position to dominate nature rather than seeing themselves as a part of nature (Yiğitbaşoğlu, 1998). Besides the changes in the built environment, industrialization and the development of new technologies and materials have led to the development of the concept of modern people and a change in the attitude of man towards nature. Detachment from nature has occurred not only in the form of people moving from the rural to the urban center but also as a reduction in biodiversity in urbanized areas. Accordingly, the ability of people to both appreciate and benefit from nature has become gradually more distant (Dalay and Aytaç, 2022; Turner et al, 2004).

As people left their lives in villages and rural areas to find work and settled in the city, it can be identified as a cycle in which the need for instinctive contact with nature arose. Therefore, the lack of sufficient space to establish contact with nature in the environment in which we live is a problem. While considering humanity in the process of evolution, the fact that nature has been the habitat of humans for ninety percent of human history, that humans were hunter-gatherers and established a strong bond with other living things (Wilson, 2009) underlines the magnitude of this disconnect. However, natural conditions are sensory-rich and full of diversity in terms of pattern, texture, light, and color. Genetically programmed creatures living in nature react instinctively to environmental factors, and in this context, humans are no different from other creatures living in nature (Heerwagen and Gregory, 2008).

In parallel with the developments in modern technology and materials, changes in the built environment have led to the emergence of the concept of “modern man”. Thus, this situation has brought about a change in the attitude of human beings toward nature. Maintaining healthy living conditions of people and protecting the diversity of natural life, especially in the urban environment, is recognized as important. Although these facts are known, it is obvious that the measures taken in this direction are insufficient. Yet, as the human extremes affect the natural order and nature of the world’s chemistry, they are causing the loss of natural biodiversity and threatening themselves for the future (Kellert, 2005). Where civilization has given way to nature, damage to nature has become

a debt to be paid. Contemporary urban approaches to protect the physical and mental health of human beings and to ensure their connection with the natural environment have turned into a struggle for a healthy future (Kellert, 2012). The gradual weakening of the human connection with nature in the urban environment and the accompanying approach based on controlling nature has manifested itself in a wide range of fields ranging from agriculture, medicine, manufacturing, education, business, urban planning, and architecture (Kellert, 2018). Meanwhile, the distancing that occurred between nature and architecture did not last long, and it reasserted itself with the use of organic forms, especially at the end of the 19th century and the beginning of the 20th century (Salingaros, 2015).

Overall, the Industrial Revolution and the subsequent urbanization and technological advancements have led to a significant disconnect between humans and nature. As people moved from rural areas to urban centers, the lack of space and contact with nature became a problem. The changes in the built environment and the emergence of the concept of modern man have also contributed to this disconnect. Despite the importance of maintaining healthy living conditions and protecting the diversity of natural life, the measures taken in this direction have been insufficient. The distancing between humans and nature has affected various fields, including agriculture, medicine, manufacturing, education, business, urban planning, and architecture. However, there has been a recent resurgence in the use of organic forms in architecture, indicating a renewed interest in the connection between humans and nature. It is important to continue to strive for a healthy future by promoting a stronger connection between humans and the natural environment.

In the following part of the study, the bond established with nature in the developing modern living conditions is read through the projections of human and nature relations on interior space. The concept of eclecticism, which was explained in detail in the first parts of the study, and the movements that developed after it, were analyzed in terms of interior space with their reflections on the historical process.

6. PROJECTIONS OF HUMAN AND NATURE RELATIONS ON INTERIOR SPACE

Throughout history, human beings have had a complex relationship with nature, reflected in a variety of cultural, social, and economic practices. These relationships are also reflected in interiors, where people spend significant amounts of time and create environments that reflect their values, beliefs,

and attitudes towards nature. Understanding the projections of human-nature relations in the context of interiors can provide insights into how people perceive, interact with, and shape their environments. This part of the study examines the historical ways in which human-nature relations have been reflected in interiors and the implications of these reflections for environmental sustainability and human well-being.

The human experience of nature in a man-made environment is often symbolic or indirect. Whether in the design of buildings or landscapes, there is a symbolic representation of nature and the reactions and satisfaction of people who interact with nature in this environment take shape through the representation of nature in the built environment. Such symbolic reflection of nature can be exemplified by both structural and decorative forms such as columns and ornaments that take their reference from nature in the interior space, as well as furniture, fabrics, and paintings that represent nature on a smaller scale. Yet the representation of nature in space is not always very clear. On closer inspection, the reflection can sometimes be hidden in orders or patterns inspired by the details of nature (Kellert, 2005).

During the Industrial Revolution, with the introduction of new materials, technology, and production techniques, the relationship between nature and architecture was shattered. The fact that production could be realized in factories both cheaper and faster, the demands of the bourgeoisie, and the curiosity for historical styles led to the emergence of 19th-century Eclecticism (Richards and Mock, 1966; Ünlü, 2017). This period, also known as the Victorian period, became characterized by the poor quality but cheapening of goods due to mass production, the emergence of revivalist movements, and the adaptation of the elements of these movements to modern furniture like skin.

It is possible to represent nature in space by changing and manipulating it in a way through visual, textual, or semiotic expression. Considering the transfer of nature to space from this perspective; architecture determines nature in the built environment and nature determines architecture. This interwoven and dynamic relationship between architecture and nature can be characterized as the enclosure of nature and the defining role of forms and shapes inspired by nature on architectural forms starting from the 19th century. Examining the buildings of this century, The Crystal Palace (Figure 3) in London in 1851 is one of the buildings of central importance. “The image of nature framed and assimilated by architecture” in a way summarizes the relationship between this building and nature (Ursprung, 2007).

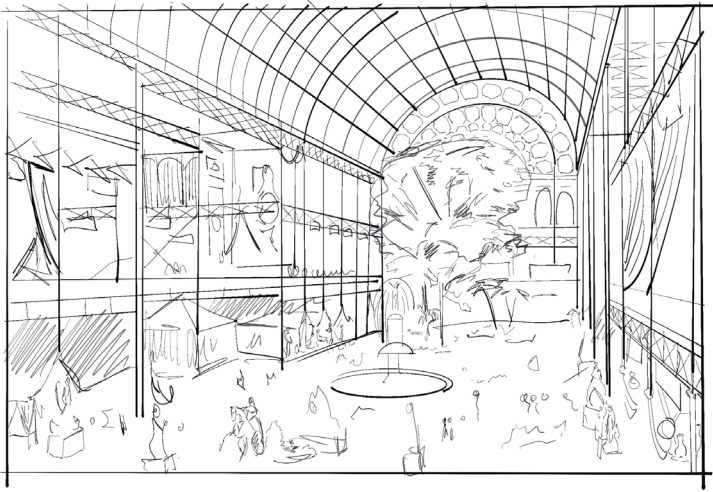


Figure 3: The Crystal Palace, Sir Joseph Paxton (1851)
(Illustrated by the author from URL-3).

From naturalism to art and then to socialism, John Ruskin's journey has been one of the most important life stories of the 19th century. Among his early writings, in which he dealt with nature and art, the relationship formed with humans has been the most important aspect (Triggs, 2009). As a reaction to the 19th century Eclecticism, the Victorian era, and the negativities that came with industrialization, and under the leadership of John Ruskin and William Morris, the Arts and Crafts movement emerged (Aslanoglu, 1982). The movement, occurring between 1880 and 1910, refused the machine and its benefits with a romantic understanding, desiring to return to the old, simpler life that was intertwined with nature. Both Morris and Ruskin targeted design with a holistic understanding called "Gesamtkunstwerk" and argued that the design should be realized with handmade products instead of machinery (Aslanoglu, 1983; Aslanoglu, 1973).

Meanwhile, the "Red House" (Figure 4), designed by William Morris and Philip Speakman Webb between 1859 and 1860, was the architectural representation of the Arts and Crafts movement. Morris commissioned the architect Philip Speakman Webb, an important representative of the Arts and Crafts movement, to build his own house, known as the "Red House", in the town of Bexleyheath in the London borough of Bexley. Morris was also involved in the design process of his own house. Although the interior design of the building, which is influenced by Anglo-Saxon public house architecture,

includes Neo-Gothic elements typical of the Middle Ages, the mass is handled with a contemporary approach.

Emphasizing the Gesamtkunstwerk approach, traditional architectural techniques, and hand craftsmanship, the building also paved the way for the architectural activities that would emerge afterward by prioritizing function again in architecture (Özer, 1964; Aslanoğlu, 1983). The materials used in the building, which has a simple architectural language, are left bare in an understanding that breaks the molds of 19th-century Eclecticism. The 1859 building, consisting of two floors, clad in red brick, with a combined hipped roof and an “L” shaped plan, is the manifesto of the Arts and Crafts movement. Reflecting the Gesamtkunstwerk approach, the building, built as the private residence of William Morris and Jane Morris, was designed with an understanding that attaches importance to traditional architecture and craftsmanship. The Red House, with its Neo-Gothic details, references medieval architecture, while its exposed brick exterior and asymmetrical design refer to rural vernacular architecture, exhibiting a style against the understanding of the industrial age. The use of pointed arches and the irregular distribution of the volume on the plan are characteristics of the Neo-Gothic style (Algan, 2022).

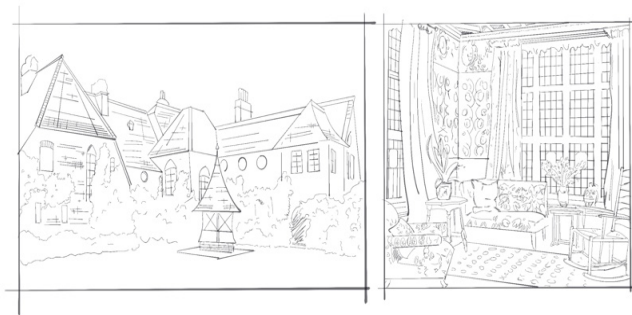


Figure 4: Exterior View of the Red House (Left), Interior View of the Red House, Billiard Room (Right) 1860. Bexleyheath, London (Illustrated by the author from Triggs, 2009).

Upon finalizing the construction of the Red House, William Morris and his friends founded Morris & Co. (Morris, Marshall, and Faulkner), a decoration firm in 1861. The company, where hand-craftsmanship was prioritized, also stood out with its wallpapers and fabric designs, in which the patterns featured nature-inspired illustrations (Triggs, 2009; Colquhoun, 2002). The warm colors and conventionalized realism on the natural theme

make this one of the most charming of Morris's designs. Morris focused on two-dimensional design for textiles, wallpapers, books, and typography. Textile designs by Morris were often based on nature-themed motifs, Morris had great respect for natural subjects, plants, flowers, and birds (Pile, 2009). In this sense, "Strawberry-Thief" (Figure 5) is an example of these nature-themed designs.

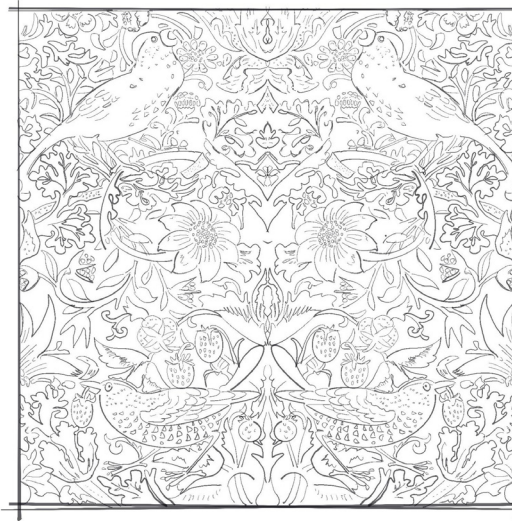


Figure 5: Strawberry-Thief Illustration, William Morris (1883 Design), Morris & Co. (Production) (Illustrated by the author from Triggs, 2009).

Rather than imitating old styles, the Arts and Crafts movement, which preferred handcraftsmanship instead of machinery in designs and adopted to take its inspiration from nature and context instead of imitating old styles, prepared an architectural base for the Art Nouveau Style. Developing as a continuation of the Arts and Crafts movement, the Art Nouveau movement began to be recognized by the masses with the World Exhibition (l'Exposition Universelle), launched in Paris in 1900. Declining to repeat the past, Art Nouveau drew its inspiration from nature, new materials such as iron and wrought iron, technological developments, and non-European cultures such as Japanese, Chinese, and oriental culture. Pioneer artists of the Art Nouveau movement were influenced by the combination of floral motifs and asymmetrical linearity in Japanese graphic art, especially at the Vienna World Exhibition (Figure 6) (Batur, 1995).

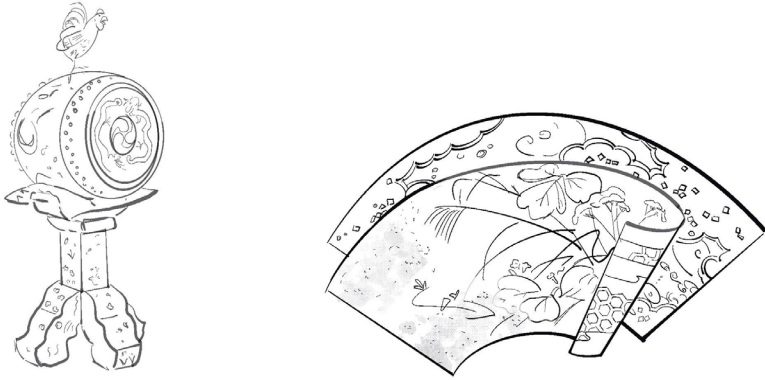


Figure 6: Exhibited Works at the Vienna World Exhibition. “O-daikon” (Kodenji Hayashi, 1873), a barrel drum played at temples, theater orchestras, and festivals (Left), and “Autumnal Grass and Moon” Drawing and Fan-shaped Wall Decoration (Ikeda Taishin, 1873). (Illustrated by the author from URL-4).

Embracing a totalitarian design approach like Arts and Crafts and the use of nature-based abstractions are also among the other prominent features of the Art Nouveau movement. The movement, which adopted the understanding of “art for everyone” and “art in everything”, suggested that all design elements, from street lamps to stations to interior furnishings (Figure 7) should also be thoughtfully designed (Batur, 1995).

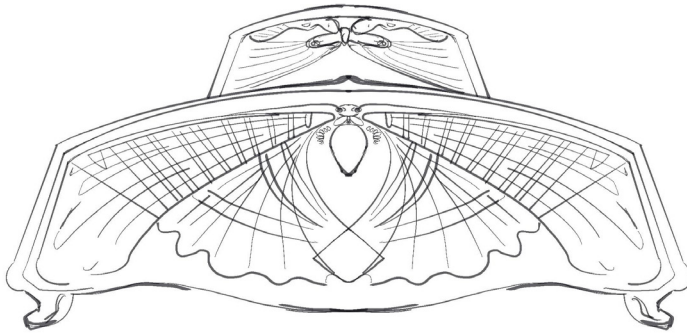


Figure 7: Interior Furnishing Example: “The Dawn and Dusk bed,” Butterfly Figure Bed Design, Emile Gallé (1904) (Illustrated by the author from URL-5).

The Art Nouveau design style includes decorative elements inspired by natural forms such as flowers, vines, shells, feathers, and wings and abstract forms derived from these sources. The dominant themes of Art Nouveau are curvilinear and flowing forms that resemble those found in nature; the S-curve or “whip” curve is among the most prominent motifs. In particular, Tiffany’s glasswork

was highly respected, surpassing the works of famous French glassworkers such as Gallé and Lalique. His lamps were designed as clusters of small glass shades held by metal bases resembling the stems of plants, and nature-inspired elements such as peacock feathers and insect wings were also used. Tiffany also designed mosaics, rugs, and furniture. Although his popularity faded after the First World War, the revival of interest in the Art Nouveau era cemented Tiffany's place as an important figure of the movement. The "Waterlily" table lamp (Figure 8), produced between 1904-15, is an example of Tiffany's work and is now held in a private collection (Pile, 2009).



Figure 8: Louis Comfort Tiffany, "Waterlily" table lamp, 1904-15, Private collection (Illustrated by the author from Pile, 2009).

With two different phases, the Art Nouveau movement appeared in designs. Within the first phase, in which floral and rhythmic curved forms and asymmetrical lines were displayed, flowers such as ivy, sunflower, lily, peacock, and long-haired female figures with a form resembling a whip were commonly used (Batur, 1995; Aslanoğlu, 1982). From the late 19th century onwards, leading figures such as Antonio Gaudí and Hector Guimard used unique one-off forms which refer to nature and which had been pushed to the background as a result of standardization (Ursprung, 2007). Meanwhile, Victor Horta was the pioneer in Europe in the use of iron in non-functional decoration with curved forms (Figure 9) (Pevsner, 1960).

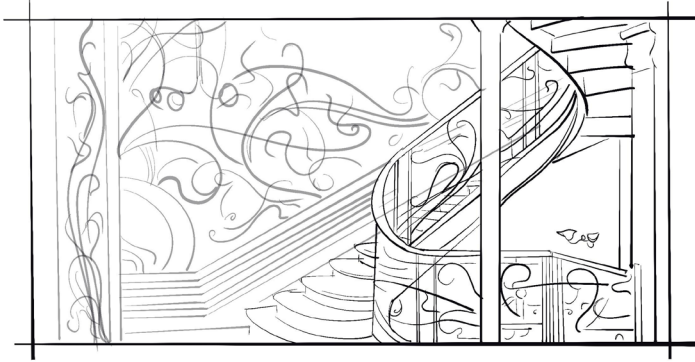


Figure 9: Hôtel Tassel, 1893, Victor Horta (Illustrated by the author from URL-6).

The room of Mrs. Johanna Friedmann in the Friedmann villa in the Vienna suburb of Hinterbrühl, designed by Olbrich (Figure 10) in the Art Nouveau style, is an example of the influence of nature in interior design. Both the style of the drawing and the design depicted are characteristic of the Secession movement, the Art Nouveau style in Vienna, with its influences from nature (Pile, 2009).

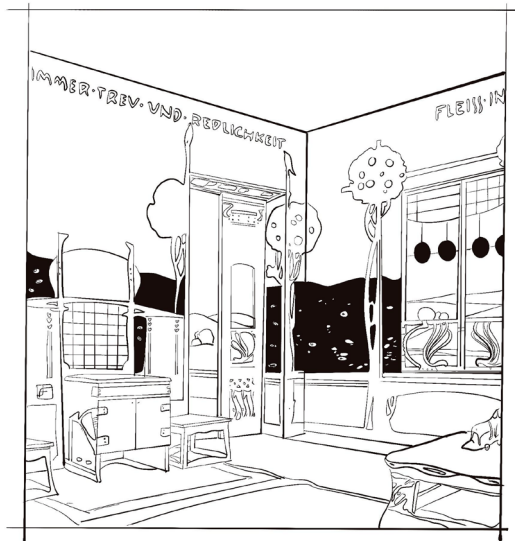


Figure 10: Joseph Olbrich, a room in the Villa Friedmann, Vienna, Austria, 1898 (Illustrated by the author from URL-2).

Following the first phase in which the stylized flowing lines of natural elements appeared, rhythmic curves began to transform into more geometric shapes in the second phase. The Glasgow School of Art, designed by Charles Rennie Mackintosh in 1896, set an example in this stage (Batur, 1995; Aslanoglu,

1982). Regarding nature as a source of inspiration for his designs, Mackintosh aimed to encourage the students to be inspired by nature with his use of stylized rosebuds, seeds, and grass symbols (Figure 11) seen in the stained-glass windows on the doors of the school (Davidson, 1998).

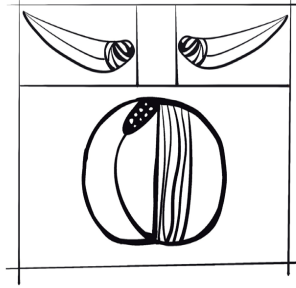


Figure 11: Glasgow School of Art, Motifs for Stained Glass on Doors, 1907-09, Charles Rennie Mackintosh (Illustrated by the author from Davidson, 1998).

The overlap between the 1925 Art Deco designs and the geometric Art Nouveau designs of Charles Rennie Mackintosh is as striking as the examples in Vienna. Mackintosh's designs such as the reading room in the Glasgow School of Art and the reception and music room in the House for an Art Lover are examples of this relationship and overlap (Tinniswood, 2002). In House for an Art Lover, in the reception and music room, the contrast between organic and linear forms and the harmony that develops despite this contrast is visible (Figure 12). The combination of curved and linear forms has been attributed to a symbolic meaning by the designer. This design, in which curved female forms represent the female and bold and vertical lines represent the male, is strongly supported by the work of Margaret Macdonald Mackintosh (Davidson, 1998).

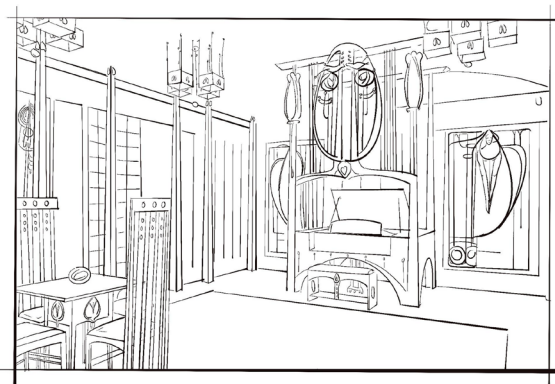


Figure 12: House for an Art Lover, Charles Rennie Mackintosh (1901), Reception and Music Room (Illustrated by the author from URL-8).

In Art Deco designs, natural and geometric forms such as people, animals, leaves, flowers, and fruits are used in a stylized manner. Motifs such as zigzags and waves in window designs and circular windows inspired by transatlantic are also prominent. Reliefs, mosaics, colored ceramics, and floral and geometric motifs seen in Art Deco-style buildings have been other determining elements of the style (Gülbahar, 1995). Geometric-stylized floral motifs were frequently used in Art Deco designs. In these motifs, the organic forms of flowers are combined with geometric lines and shapes. This approach allowed the organic forms of nature to be adapted to a modern style by playing with their shapes.

Art Deco buildings are characterized by simple, pure forms, geometric ornamentation, and the use of high-quality and expensive materials. Monumental examples of this style are the Rockefeller Center, Chrysler, and Empire State buildings in New York (Batur, 1993). In the formal world of Art Deco, designs in which the form rises by gradation are frequently encountered. In both the general form and interior design of the Chrysler building, the gradation characteristic of the Art Deco movement draws attention (Figure 13). The interior design of the building is also characterized by nature-based imagery, which was common in the designs of the Art Deco movement.



Figure 13: Chrysler Building Lobby and Elevator Doors, New York, 1929. (Illustrated by the author from Left: Url-9, Right: Hillier, and Escritt, 1997).

Later in the period, the nature-inspired designs of Arts and Crafts and Mackintosh, bearing traces of local folk architecture, were realized and reshaped under the name of “Organic Architecture” with the works of Frank Lloyd Wright (Özer, 1964). In this context, Wright emphasized the role of nature in design with the words “Study nature, love nature, stay close to nature. It will never let

you down.” His motto-based design approach, which he adopted by addressing the relationship between nature and architecture in a different way from past examples, also represents the transition to a modern design approach. Among the most well-known architectural productions of him, Falling Water House (Figure 14), which was built as a holiday house, is one of the most well-known architectural productions of the designer who carries out spatial productions with a design approach based on intuition. The design of the building, which belongs to the earth in such a way that it cannot be moved even an inch, reveals the integrity it establishes with the context. Natural factors incorporated into the design, such as the placement in the site, the waterfalls integrated into the building, and the elements used in the design take the structure from being a witness of nature to a position of an integrated experience with the space (Kellert, 2018).

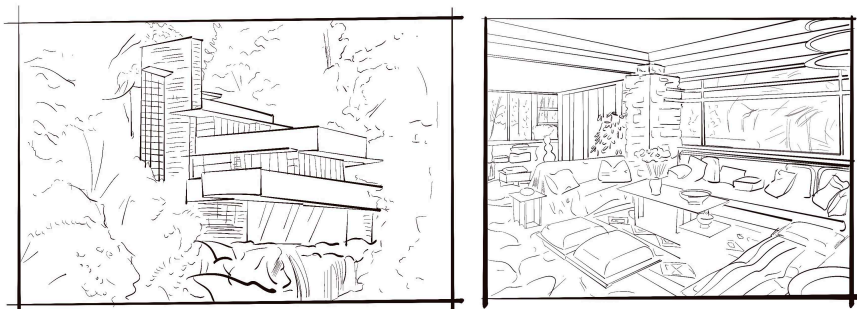


Figure 14: Falling Water House, Frank Lloyd Wright, Pennsylvania, ABD (1934-1937) (Illustrated by the author from URL-7).

More specifically, a fundamental idea behind Organic architecture is the idea that the built environment should reflect the natural world and the needs of the human body. This implies the use of natural materials such as wood, stone, and brick, as well as the design of spaces that are in harmony with human form and function. Frequently resulting in the use of curved forms and the creation of spaces that flow naturally from one to another, rather than relying on rigid grids or geometries. In terms of interiors, organic architecture has often emphasized natural light and ventilation as well as the use of natural materials such as wood, stone, and plants. The aim is to create spaces that feel open, airy, and connected to the outdoors. Furniture and décor are also generally designed with natural forms and materials in mind, creating a harmony and harmonious environment.

Towards the end of the 20th century, this relationship between humans and nature evolved into a different dimension with the process of conquering space,

which began in 1961 when Yuri Gagarin became the first man to go into space (Atasoy, 2015). Furthermore, photographs of the Earth taken from space were published for the first time in this period, which led people to realize that the Earth is fragile and vulnerable (Dalay, 2022)

In the interior spaces of this period, “space age” designs that reflect the spirit of the period, dominated by organic, curved forms with the widespread use of plastic and molds, were frequently encountered. Along with pop culture, designs in which colors and creating an atmosphere were prioritized over function, and furniture and space were intertwined, became the defining features of the interior selection of colors, furniture, and space. The emphasis on aesthetics rather than function in these designs reflected a broader cultural shift towards a more consumerist and individualistic mindset. Although there have been periods of disconnection and disregard for nature, there is a growing realization of the importance of incorporating natural elements into our living spaces in a way that is both aesthetic and sustainable. In the early twentieth century, interior design focused primarily on functionality and efficiency. The architectural design adopted a more minimalist approach and did not prioritize the use of natural materials. However, as the environmental movement gained momentum, designers began to incorporate more natural materials into their designs. This shift towards natural materials is driven by the desire to create a more environmentally friendly design.

At the end of the 20th century, the use of natural materials in interior design became more widespread, and this trend was driven by a growing interest in environmental issues and a desire to create more sustainable designs. Designers have started to use renewable and biodegradable materials such as wood, stone, and natural fibers. Furthermore, the relationship between humans and nature is reflected in the way spaces are designed. During this period, designers started to think of buildings and interiors as ecosystems and focused on creating designs in harmony with nature. This approach to the design included the inclusion of natural elements such as plants, natural light, and water features.

Additionally, during this period, technological and scientific developments have brought human beings to a position that makes them feel that they have control not only over the earth but also over space. At the beginning of the 21st century, the process that can be described as the search for alternative life and solutions for people who realize the damages they cause to the environment and nature continued with the search for solutions to questions such as how

to protect the natural environment from human impacts and how to make the planet and life sustainable (Atasoy, 2015; Çorakçı, 2016).

Therefore, the relationship between nature and human beings was reflected in interior design towards the end of the twentieth century through the use of natural materials and the incorporation of natural elements into space. This shift towards environmentally sensitive design has been fueled by a growing interest in environmental issues and the desire to create more sustainable designs.

7. CONCLUSION

The relationship between nature and interior design is a complex and evolving topic, especially within design movements that oppose eclecticism. Over the last decades, especially after the eclecticism movement, there has been a significant interest in incorporating nature and natural elements into interior design. This approach to interior design emphasizes sustainability and environmental friendliness and aims to establish a harmonious relationship between man-made and natural environments.

In post-eclectic interior design movements, the focus is on using natural motifs and materials to establish a symbolic relationship with the environment and to create an emotional connection within the space. This approach aims to create a sense of balance and harmony in the interior through the use of natural forms and patterns such as leaves, flowers, and animals. Furthermore, the use of traditional materials, particularly wood, stone, and clay, are emphasized in their natural state to preserve their natural beauty and authenticity. These design decisions emphasize emotional resonance and holistic experience, while also valuing the use of natural figures in interior design.

One way in which this relationship with nature can be explained is through biophilic design, a term coined by biologist Edward O. Wilson in 1984 to describe the human connection with nature. According to this concept, humans have an instinctive need to connect with nature, and incorporating natural elements into interior design can enhance well-being and improve the overall aesthetic experience.

In conclusion, this research has shed light on the relationship between humans and nature in interior design, with a particular focus on post-eclecticist movements that emerged in the 19th century. The study has revealed how post-eclecticist interior design prioritizes holistic experiences, and symbolic relationships with natural figures by using natural motifs, patterns, and traditional

materials. The implications of these findings are significant, as designers can draw inspiration from historical design movements and incorporate natural materials and motifs to create spaces that foster a connection to nature. This approach could contribute to a more sustainable design approach that promotes a harmonious and balanced relationship between humans and nature within the built environment. Furthermore, this research highlights the importance of considering the historical context of design movements and their potential for adaptation to contemporary design practices.

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CHAPTER XVIII

SIGNIFICANCE OF LIGHTING AND COLOUR DESIGN IN EDUCATIONAL STRUCTURES

Betül UÇ

*Asst. Prof. Dr. - Istanbul Ticaret Univerity
e-mail: betuluc@hotmail.com, buc@ticaret.edu.tr
ORCID: 0000-0002-7300-4841*

1. INTRODUCTION

Playing an important role in perceiving dimensional characteristics of a space and also in visual comfort, lighting is an important parameter allowing a learning and teaching process in an educational structure to take place in a more productive and vigorous process. A correct lighting provides a productive educational environment also for students and teachers. Due to education continuing all day in classrooms, there must be adequate and evenly distributed natural lighting in spaces and this is an important matter in terms of energy consumption. When inadequate, natural lighting should be augmented with correctly designed artificial lighting. Lighting closed spaces with daylight has physiological and psychological effects on humans. If spaces do not receive sufficient amount of daylight, negative effects such as lack of energy, increased need for sleep, difficulty in visual perception, inefficiency, lack of motivation, difficulty in learning, frequent illness and headaches are experienced.

Spaces of various functions and dimensions that are used in the same and different time intervals in educational buildings such as classrooms, computer rooms, circulation areas, administrative offices, activity workshops (painting, ceramics, etc.), laboratories and libraries have different lighting requirements. Having desirable visual comfort conditions in such spaces is important for higher learning performance, increased productivity and protection of eye health. In an education process, the contribution of visual perception to learning is more

than the contribution of the other sense organs. Therefore, a correct lighting can be achieved by a purposeful illumination. In other words, fulfilment of visual comfort conditions based on the function of the activity taking place in the interiors of an educational structure can be achieved by satisfying the necessary conditions for the quantity and quality of lighting.

Writing and reading activities taking place in classrooms are the most important factor that needs to be considered during the planning of lighting. While writing activity is directly associated with the illumination level of the horizontal plane from a close distance, reading and understanding the figures and words on a blackboard is directly associated with the vertical illumination level. In both cases, the eye must adapt to a transition from a horizontal plane to a vertical plane (Kazanasmaz, 2015, p.78). Lighting should support this adaptation and prevent luminosity distributions that would cause glares. Figure 1 shows horizontal and vertical plane surfaces in a common classroom.

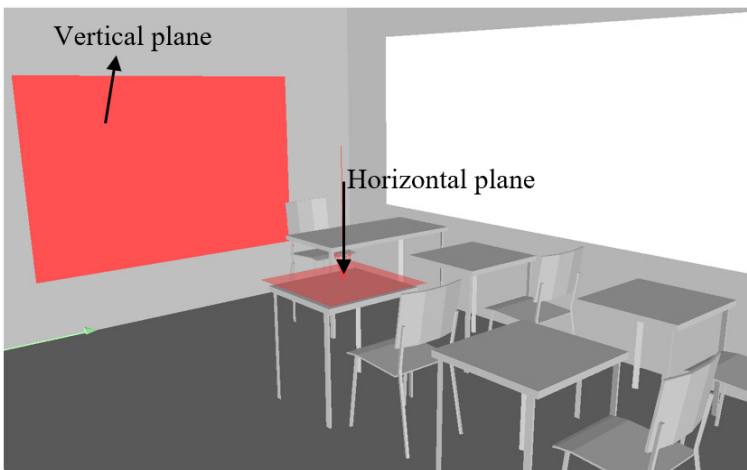


Figure 1: Representation of the Horizontal and Vertical Plane in the Volume.

In an educational structure, a high-quality design is achieved by an efficient use of daylight. Studies have shown that students are more successful in both examinations and individual matters in classrooms that utilize daylight than in those that do not utilize daylight adequately (Yener Köknel et al., 2009, p.107).

Another major parameter affecting the learning process in educational structures is the colours used on interior surfaces. According to scientific studies, colours are known to have impact on mental development, creativity,

productivity, and learning. Since formal education is carried out in a classroom, that is in a certain closed space, designing an interior space in consideration of colour, material and size of the space can have positive effects on individuals. If colours are used properly, both students and teachers will be more productive. Meticulously designed classrooms may improve sense of aesthetics, love for the school, and achievement in students.

2. LIGHTING DESIGN IN EDUCATIONAL STRUCTURES

The International Commission on Illumination defines lighting as “applying light to enable the environment and objects to be seen properly”.

Lighting is divided into two; natural and artificial (daylight and lamp light).

Natural lighting is a combination of sunlight and sky light in various proportions. It changes continuously depending on seasons, climates and hours of the day. The major characteristic that differentiates daylight from artificial light is its changeable and nonmonotonic nature. While the density of, and colours appearing from, daylight offer abundant variations even during the day, we see an unlimited assortment of light in the location when we take into account the seasonal differences in a year. With these characteristics, daylight displays a vibrant and dynamic nature. This feature suits human nature very well.

Artificial lighting is a type of illumination that is made by consuming energy in situations where daylight illumination is insufficient. It was invented because humans needed to see and work every hour of the day and everywhere. Artificial lighting is enabled by lamps. Light from lamps is obtained to be used everywhere desired, to the extent desired, in the nature desired, and whenever desired. Contrary to natural light, artificial light is created intentionally in a structure. It should be aimed that the designs made to increase the quality of education and space in schools comply with standards and regulations.

2.1. Natural Lighting Design in Educational Structures

The purpose of a natural lighting design in educational structures is to create a suitable visual environment for the users of the space, to increase learning performance and productivity, and to achieve a minimum use of artificial energy. Daylight enters closed spaces through various openings such as windows, glass walls, glass doors, and dormers (Figure 2).

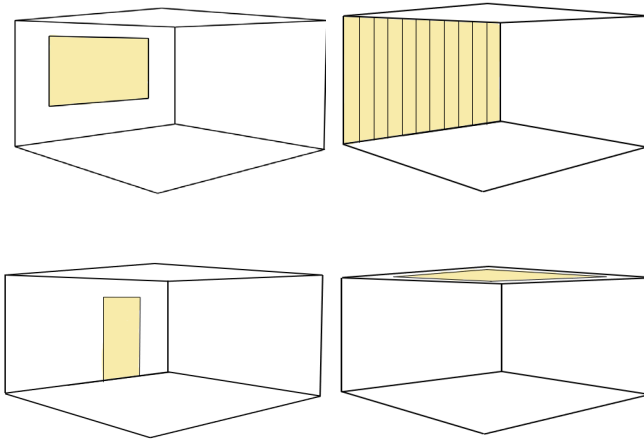


Figure 2: Daylight Enters Enclosed Spaces Through Various Openings.

The amount and distribution of the illumination from daylight in interior spaces depend on many factors. These factors can be listed as the geographical location and the climatic conditions associated with it, the architectural design of the structure such as niches and projections, the geometric shape, measures and interior surface colours of the space, the number of windows and walls in the space, the number of windows on the walls and their positions, the dimensions, shape and direction of windows, the types of their glass and frames, and man-made and natural obstacles. In addition to these factors, the dimensions, shapes and colours of internal architectural elements and their positions in the space may also play a role in the amount and distribution of natural light. Since daylight shows differences depending on a number of variances, the performance of illumination also differs depending on these factors.

Various standards have been published for the factors affecting the luminance of daylight and the methods of calculating illumination from natural light.

Ever-changing nature of daylight, more clearly, the illumination from natural light being changeable every day of the year and throughout the day and this change showing differences also depending on the geographical conditions, makes it necessary to make some concessions in calculating luminancy.

The parameters affecting the performance of natural illumination include daylight factor, daylight distribution, daylight autonomy, transparency rate, and other daylight parameters.

Daylight Factor (D)

CIE defines daylight factor as “the factor showing the ratio of that part of the illuminance at a point on a given plane which is received directly or indirectly from a sky of assumed or known luminance distribution, to the illuminance on a horizontal plane due to an unobstructed hemisphere of this sky”. In simplified daylight calculation methods, daylight factor is calculated by taking CIE (International Commission on Illumination) standard for an overcast sky as defined by CIE as reference and daylight utilization is assessed according to this factor (Uç, 2022, p.2).

The daylight factor varies from country to country. Spaces where it is less than 2% are generally considered as not illuminated sufficiently. In this case, the space needs to be supported by artificial light. Spaces for which the daylight factor is calculated to be between 2% and 5% are spaces where natural lighting is sufficient (IESNA, 2011).

Daylight Distribution (U_0)

Luminance distribution ($U_0; E_{\min} / E_{\text{mean}}$) is defined as the ratio of the lowest illumination level on a surface (E_{\min}) to the mean illumination level (E_{mean}) (BS EN 12464-1, 2011). For this reason, an evenly distributed illumination needs to be created in spaces where the same types of functions are carried out such as classrooms, laboratories and gymnasiums. If the luminance distribution is lower than the desired value, there will be lighting differences in the space. The standards recommend a daylight distribution regularity between 0.3 and 0.4.

Daylight Autonomy (DA)

Daylight autonomy refers to the percentage of the time in which targeted daylight illumination level is achieved (or exceeded) on a point taken as reference to the time of using a space throughout a year (IES, 2013).

Transparency Rate

There are various definitions for transparency rate in the literature. One of these is the ratio of a window area to the gross wall area. This ratio corresponds to the ratio of an approximate glass area to the wall area measured from inside the space. A second transparency rate definition is the ratio of a window area to the floor area. A third definition is the ratio of the sum of net glass areas of the windows on the entire walls to the total area of interior surfaces (Uç, 2022, p.58). The standards recommend a window area / wall area ratio not

less than 20%. The window area / floor area ratio is recommended to be not less than 7%.

Daylight factor, daylight distribution, daylight autonomy, and transparency rate values that affect natural illumination performance are shown in Table 1.

Table 1: Natural Lighting Conditions Recommended for Educational Buildings (EN 12464-1, 2011; IESNA,2011)

Classrooms	Daylight Distribution	Daylight Factor	Transparency Rate	Daylight Autonomy
Classroom	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Laboratories	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Computer rooms	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Technical drawing classes	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Music classes	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Painting workshops	$\geq 0,3$	$\geq \% 2$	$\geq \%20 - \geq \%50$	$\geq \%50$
Library	$\geq 0,3$	$\geq \text{min. } \% 2$	$\geq \%20$	$\geq \%30$
Auditorium	$\geq 0,2$	$\geq \%1$	$\geq \%10$	

In a natural lighting design, windows should be situated in a way to utilize daylight at a maximum level. External obstacles that would hinder daylight entering the space should be avoided. The reflection factor of internal surfaces should be appropriately selected. A furnishing - window relationship should be established taking luminance distribution into consideration. To avoid a silhouette effect and glare, windows should be situated behind the students. The light should be allowed into the space mostly from the left side to prevent shades on desks. To perceive objects in their real (original) colours in educational structures where the activity of seeing is very important, daylight should be utilized at a maximum level in such spaces.

Utilizing daylight in places illuminated by daylight should also involve avoidance of glare that may be caused by daylight and discomfort that may be caused by high luminosity contrasts. In cases where glare is highly unfavourable, measures should be taken by using sun protection gears such as roller shutters and blinds.

2.2. Artificial Lighting Design in Educational Structures

Although educational structures are mostly used during the day, they should be supported by correctly designed artificial illumination when daylight remains insufficient. There are various layout proposals for spaces in educational structures such as classrooms, workshops and laboratories and lighting should be designed accordingly (Figure 3).

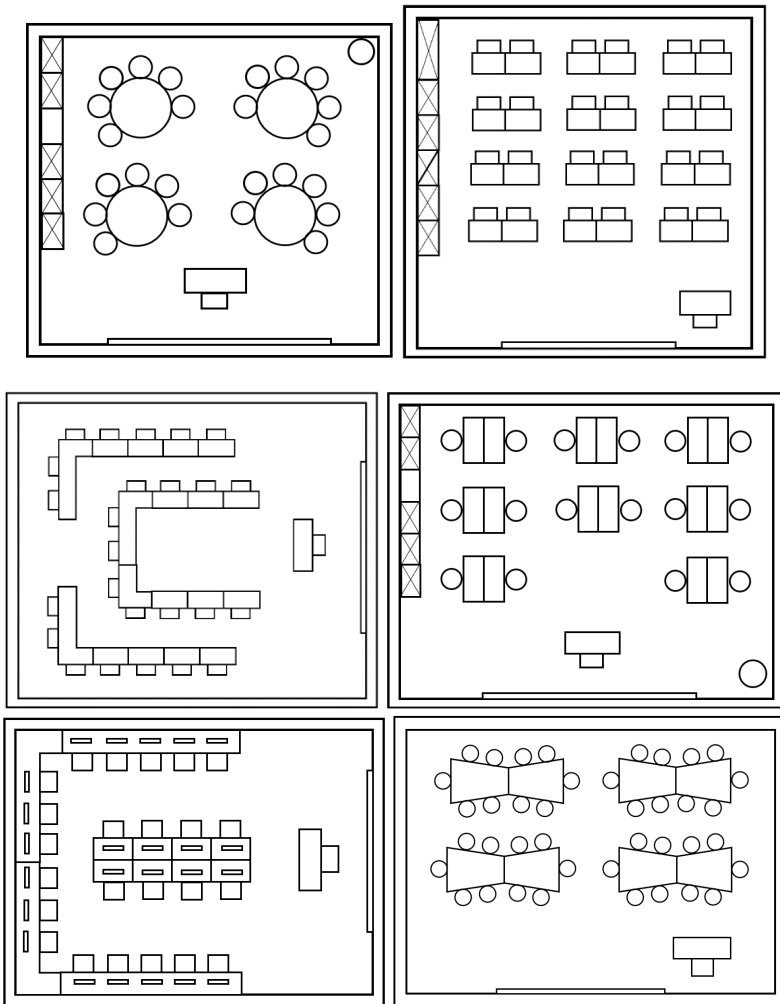


Figure 3: Different layout suggestion for classrooms

To avoid glares, lighting appliances should not be placed parallel to the direction of the eyebeam.

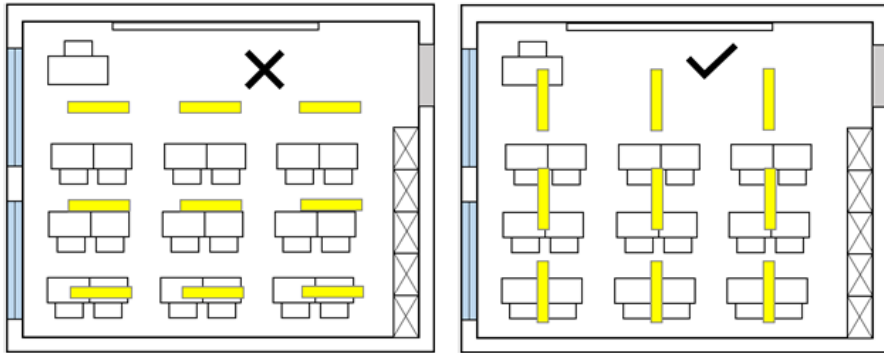


Figure 4: The position of the lighting device in the volume

The minimum values required for the parameters affecting the performance of artificial illumination, level of illumination, glare, proper luminance distribution and colour reflectance are given in Table 2.

Illuminance (E)

Luminous flux received by a small part surrounding a point on a surface divided by the area of that tiny surface part is called the ‘Illuminance (E; lm/m^2)’ (IES, 2013). Its unit is lux (lx). The need for illuminance has different values depending on user characteristics and the work being carried out.

Glare (UGR)

Glare is the unpleasant sensation produced by bright areas within the visual field, such as lit surfaces, parts of the luminaires, windows and/or roof lights. Glare shall be limited to avoid errors, fatigue and accidents. Glare can be experienced either as discomfort glare or as disability glare. (BS EN 12464-1, 2011)

Dazzling sensation depends on the luminance distribution within the visual field, and for this reason, is associated with the position of the person in the place and his/her eyebeam. Glare may be caused by either direct or indirect light.

Direct dazzling occurs when looking at the source of light directly, and as a result of this, eye health is harmed.

Indirect dazzling occurs as a result of a reflection of light from a reflective surface and the work being done is affected negatively (BS EN 12464-1, 2011).

Luminance Distribution (U_0)

When examining luminance distribution in closed spaces, two different luminance distributions are considered, general lighting and local lighting. Evenly-spread general lighting should be used in areas where the same functions are being carried out in a classroom (sections where students sit, etc.). Local lighting is more beneficial in sections such as in front of the blackboard and the stage of a conference hall where the instructor stands, to attract students' attention to these sections.

Most standards providing information on lighting do not specify a numeric value for an even distribution of illumination. However, values between 0.60 and 0.80 are generally recommended for an even luminance distribution on a horizontal working plane in educational structure units (Çelik & Ünver, 2017, p.6).

Colour Rendering (R_a)

This refers to the ability of a light source to render colours accurately. The most widely adopted method of indicating colour rendering performance of lamps is the CIE colour rendering index (C.R.I.) (CIBSE, 2009). To provide an objective indication of the colour rendering properties of a light source the general colour rendering index R_a is used. The maximum value of R_a is 100.

The higher the color rendering index, the closer the surface illuminated by the light source appears to be to its original color. The color rendering of daylight is accepted as 100%, other artificial light sources may contain different values. Numerical values and determinations of color rendering values are given in Table 2 (CIBSE, 2009).

Table 2: Color Rendering Index (CIBSE, 2009)

Colour Rendering Group	C.I.E. Colour Rendering Index (R_a)
1 (Very good)	
1A	$R_a > 90$
1B	$80 < R_a < 90$
2 (Good)	
2A	$70 < R_a < 80$
2B	$60 < R_a < 70$
3 (Middle)	$40 < R_a < 60$
4 (Bad)	$20 < R_a < 40$

Lamps from group 1A have a colour rendering index greater than 90 and would be used where accurate colour rendering is required. Lamps from group 1B are widely used for interiors where colour is important but not critical. Lamps from group 3 will not render colours accurately but on the other hand do not produce a marked distortion of colours either. Lamps from group 4 are likely to produce a marked distortion of some colours (Figure 5).



Figure 5: Appearance of objects depending on different color rendering index (Url-1).

In Table 3, the illuminance level, distribution of illuminance, glare and color rendering values that affect artificial lighting performance are given.

Table 3. Natural Lighting Conditions Recommended for Educational Buildings (CIBSE, 2009; IES, 2013; BS EN 12464-1, 2011)

Classrooms	Illuminance (lx)	Luminance Distribution (U_o)	Glare (UGR)	Colour Rendering (R_a)
Classroom	500	0,60	19	80
Evening lessons	500	0,60		
Laboratories	500	0,80		
Whiteboards	500	0,70		
Computer rooms	300	0,60		
Technical drawing rooms	750	0,70		
Teachers rooms	300	0,60		
Library	500	0,60		
Conference hall	500	0,60		
Art rooms	750	0,70		
Circulation areas	100	0,40	25	80
Sports halls	300	0,60	22	80

To fully satisfy the conditions for a perfect artificial illumination pattern as well as for visual comfort, values such as the colour of a lamp light, the direction of light, shade features, and light reflectance factors of interior surfaces need to be specified. Light sources with a spectrum similar to that of the daylight in terms of light colour (3300-5000 K, warm) should be used in classrooms.

As a lighting style, direct, semi-direct or diffuse lighting should be preferred. If a direct lighting style is chosen, direct light coming to the eye should be prevented and the appliances should not be placed parallel to the eyebeam. Additionally, lighting appliances should be placed according to the furnishing layout. A lighting source with low energy consumption should be selected.

It will generally be appropriate to create a diffuse light area in classrooms to achieve an illumination without shades or with soft and light shades (Aydın, Sözen, 2016, p.52). Sharp shades that will prevent three-dimensional vision should be avoided.

The reflectance factors of interior surfaces and furnishings in classrooms are as follows: 0.20-0.50 on floors, 0.40-0.60 on walls, 0.60-0.70 on windows and walls with luminance, 0.70-0.90 on the ceiling, at least 0.20 on the blackboard, and 0.30-0.50 on the desks. If these values are obtained, an ideal lighting can be achieved (IES, 2013; BS EN 12464-1, 2011).

3. THE CONCEPT OF COLOR

Defined as the sensation forming in our minds after light is reflected from all objects around us and reaches our eyes, colour is a physical occurrence. Colour comes into existence in the presence of light. Light is a physical phenomenon that accommodates all the colours in a colour spectrum (Becer, 2008, p.142).

The impact of colours on humans has long been known and humans expressed their experiences and feelings by reflecting them on colours. Although feelings such as sadness, joy and excitement are in the nature of humans, the culture to which one belongs sets the stage for reflecting these feelings in different ways. For this reason, colours have been used in different cultures to have different meanings (Çalışkan & Kılıç, 2014, p.69). The effects of colours are not only limited to communities but can reach universal dimensions. Therefore, knowing the impressions of colours is highly important in directing humans and achieving social unity (Özer, 2012, p.272). When used properly, colours express many things as in their cultural and practical functions and send various messages to the individual.

The effect of colours on human psychology and physiology has been scientifically verified. Colours have perceptual (psychological, illusionary, aesthetic), functional and symbolic effects on humans. For this reason, colour is used for various purposes in the design of locations such as separating functions, emphasizing the scale, finding directions, security, making spaces more prominent and emphasized, creating focal points, attracting attention to style and material, etc. (Read, et al.,1999, p.420).

Depending on their psychological behaviours on humans, colours are divided into cold and warm colours. Warm colours with high wavelengths are yellow, red and orange, and cold colours with low wavelengths are blue, purple and green (Uçar, 2019, p.37), (Figure 6).

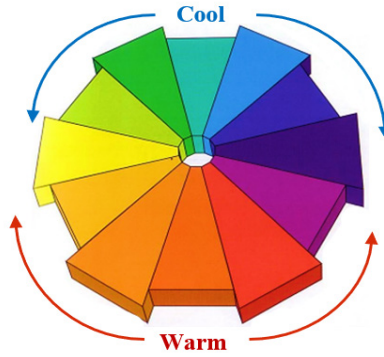


Figure 6: Cool and Warm Colors

Since warm colours are perceived more readily, they are said to be more visible in visual terms, and thus, we feel them closer to us; similarly, cold colours create a feeling of distancing (Becer, 2008, p.143). (Figure 7).

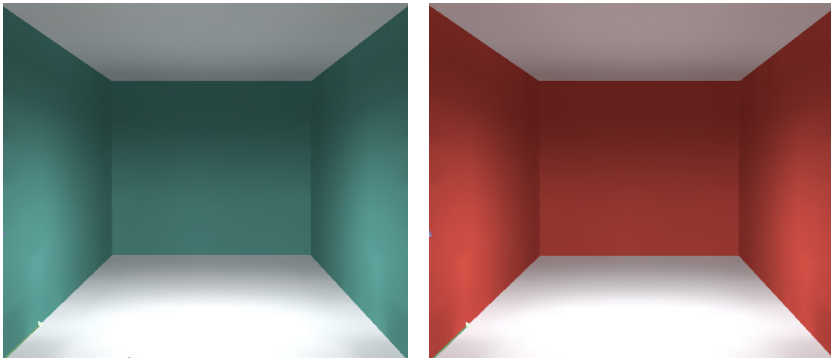


Figure 7: Spatial Effect of Warm or Cool Colors

Apart from their symbolic meanings, colours are also used functionally to give the desired impression to educational spaces. For example, by using a warm colour with a familiarizing effect on the short side of a wide and long hallway and a cold colour with a distancing effect on its long side, the space can be made to be perceived shorter and wider.

Warm colours are known to cheer up people, increase their physical power, energy and dynamism, and accelerate their metabolism. However, excessive use of warm colours also has negative effects such as too much excitement, tiredness, violence, aggression and difficulty in concentration. Cold colours are known to have relaxing, refreshing, reassuring and calming effects on individuals. Besides warm and cold colours, light and dark colours can be used to create a difference in spatial perception. For example, dark tones of green may give negative feelings such as fear, sadness and anxiety.

Colours have perceptual, functional and symbolic effects on humans. For this reason, creating a focal point, making any desired element in the space prominent, and attracting attention to the form affect the ratio and scale, impair symmetry, give aesthetic value, and are used to reinforce various meanings and purposes in separation of functions from each other, etc.

3.1. Effect of Colour Choice in Classrooms on Education

Since formal education is carried out in a classroom, that is in a certain closed space, designing an interior space in consideration of colour, material and size of the space can have positive effects on the users of that space. According to scientific studies, colours have psychological and physiological effects on students and teachers in an educational process, and contribute to their productivity, creativity, cognitive development, and learning. In this context, since the time it takes to perceive and respond is critical in an education and learning process, educational sections need to have adequate lighting, comfort and colour harmony.

Baker (1986: 80) stressed in their study the importance of interior space environmental factors consisting of ambient factors (temperature, sound, odour, etc.), design factors (plan, colour, material, furnishing layout, etc.), and social factors (age, gender, education, etc.) in confining spaces and making them meaningful with respect to their functions. Proper and correct use of environmental factors may have positive effects on the quality of the location, perceptive-behavioural performance of users, the time of staying in the space, spatial orientation, and direction-finding performance of users.

Trent (1995: 36) emphasizes that the function of a location and the age group of the children who will use that location should be taken into consideration when deciding on the colours that will be used in educational structures and classrooms. They point out that because particularly the children in lower grades are very active, classrooms and school environment should be arranged in line with this characteristic and that using warm and bright colours on surfaces and furnishings will create a positive effect.

In educational structures, the spaces where educational and teaching activities take place most are classrooms. Therefore, students spend most of their time in classrooms during the time they are in school. In this context, when making a colour design, colours that are friendly and relaxing and that promote motivation and creativity should be used. Colours used in educational structures may show their effect also physiologically. For example, there are field studies showing that bright colours used in school buildings trigger hyperactivity (Koyuncu & Arabacıoğlu, 2019, p.73).

Colour Design in Preschool Education:

Meticulous design of classrooms is an important matter to be considered in terms of improving sense of aesthetics, love for their school, and increasing achievement in students. Studies have shown that differences can be made in spatial perception by using warm or cold colours, and light or dark tones. For this reason, use of cold colours (blue-green) alone in classrooms affects activities negatively and impairs motivation. In preschool education, in order to avoid affecting children's interest in the lesson negatively in terms of time, it is beneficial to use warm and vivid colours (red-orange in light tones), which arouse excitement, happiness and energy, in classrooms. A balanced combination of warm and cold colours is important also in activity workshops in this age group where learning colours is important (Figure 8).



Figure 8: Suggestion for the Use of Color in Pre-School Education Spaces (Url-2)



Figure 9: Suggestion for the Use of Color in Pre-School Education Spaces (Url-3).

Colour Design in Primary and Secondary Education:

Since the children at this age lose their attention quickly, they are in more need of an increase in their attention and concentration. To meet the physical conditions supporting child development in primary schools, scientific data need to be used in colour selection. In a classroom environment, increasing students' attention and concentration is needed more than increasing their energy. To this end, blue-green-straw yellow (beige) colours in light tones on surfaces in the classrooms are suitable for this age group (Figure 10).



Figure 10: Suggestion for Using Color in Primary and Secondary Schools (Url-4, Url -5).

Colour Design in High Schools:

Once they enter adolescence, children make a transition from warm colours to cold colours. Although warm colours increasing their excitement, energy and adrenalin are still part of their lives in this age period, children in this age group are expected to have more attention, focus and harder work in their

lessons, rather than being energetic. The psychological relaxation, resting and creativity enhancement as well as freedom and peace effects created by straw yellow (beige) and light tones of blue and green will lead to calm and increased productivity in learning in this age group (Figure 11).



Figure 11: Classroom Color Design in High Schools (Url-6).

Since students keep their attention on the same point for a long time in classrooms, the surface of the wall on which the blackboard stands should be painted with a colour different from the other surfaces, preferably with a medium-dark colour (with a reflectance factor between 0.30 and 0.35).

One of the most important components affecting colour selection in interior design is the material used on the surfaces. The type, texture, surface reflectance factor (light-dark), and light reflectance rate of the selected material, that is, its brightness or opacity, make a difference in perceiving the colour. It is mentioned as an example of this that “if a bright satin and a high-pile velvet are woven with the same silk, satin will have a bright and light effect and velvet a deep and warm effect”. A different material despite being in the same colour and a different texture despite being of the same material will cause the colour of that object to be perceived in a different way (Rasmussen, 1994, p.86).

Since formal education is carried out in a classroom, that is in a certain closed space, designing an interior space in consideration of colour, material and size of the space can have positive effects on individuals.

4. CONCLUSION

In conclusion, from the earliest ages of humanity, colours have been perceived differently and used to have different meanings in every culture. While colours had similar meanings in some cultures, they had entirely opposite meanings in others. Nevertheless, colours seem to have assumed symbolic meanings in cultures in the historical process and they were used as a guide for the preferences of people in their lives. Alongside their cultural dimensions,

given the universal meanings they have and their psychological and physiological impacts on individuals, colours also have directional and unifying functions.

If colours are used properly in classrooms, the aesthetic senses of students and the productivity of both students and teachers will improve. Although colours are first considered as a design parameter focusing on visual quality, they also leave physiological and psychological effects improving morale comfort in spaces. Studies have shown that effective use of colours in educational processes improves students' motivation and attention.

Due to parameters such as perfect vision conditions, colour differentiation, and correct colour learning, a properly designed lighting system should be employed in educational structures. The values specified in standards should be taken as the basis for a general illumination level in the spaces in educational structures. To avoid glare, lighting appliances should be placed parallel to the eyebeam of students. To concentrate students' focus on the teacher and blackboard, local illumination specific to this section should be designed. It is recommended to illuminate the area where the teacher stands with a warm coloured light with an average luminance between 600 and 750 lx. Educational structures should be illuminated with a light having a proper spectrum. Having plenty of daylight in these spaces is one of the best solutions, but since daylight will remain insufficient in overcast atmosphere conditions, lamps with a spectrum similar to that of daylight should be chosen.

For targeted achievement and increased productivity in education, visual perception should be flawless and spaces should be designed according to pre-established criteria.

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CHAPTER XIX

INVESTIGATION OF SUSTAINABILITY CRITERIA OF LEED CERTIFIED PRESCHOOL EDUCATION BUILDINGS

Filiz TAVŞAN¹ & Zeynep YANILMAZ²

¹Assoc. Prof. Dr. - Karadeniz Technical University

e-mail: ftavsan@hotmail.com

ORCID: 0000-0002-0674-2844

²Res. Asst. - Karadeniz Technical University

e-mail: zeynepyanilmaz@ktu.edu.tr

ORCID: 0000-0002-5686-3548

1. INTRODUCTION

Today, with the effect of population growth, rapid urbanization and technological developments, consumption habits of people have changed and fast consumption behavior has become widespread. With this unavoidable increase in consumption, the rate of depletion of natural resources has also increased. This situation causes many environmental problems such as global warming, climate change, decrease in animal and plant population, soil and water pollution. These environmental problems experienced throughout the world have been effective in creating a social awareness. In this direction, the environmental protection movement has started in almost every sector from the state to the individual scale (Kurdođlu, 2007; Yudelson, 2007).

Organizations such as International Union for Conservation of Nature (IUCN), Global Tomorrow Coalition (GTC) and World Resources Institute (WRI); environmental management has brought sustainability to the agenda as a desirable goal of development and international cooperation. The concept of “sustainability” was first defined in the Brundtland Report prepared by the World Commission on Environment and Development in 1987 as “meeting the

needs of the present without depriving the ability of future generations to meet their needs” and has been widely used since that date (Hägglund & Samuelsson, 2009; Sev, 2009). In this context, it is possible to reach a wide variety of definitions related to the concept of sustainability. It is included in the Oxford English dictionary with the meaning of “the use of natural products and energy in a way that does not harm the environment” (Oxford Learner’s Dictionaries). It is defined in the Cambridge English dictionary as “the ability to continue for a certain period of time” (Cambridge Dictionary). Button (1988), defined sustainability as an ecological term as “the capacity to maintain the continuous flow of everything that each part of a system needs for a healthy existence”. Sustainability is also defined as a moral principle that is widely accepted within the environmental movement and whose content is constantly redefined in the political process (Tekeli, 2001).

In order for future generations to adopt the sustainability awareness, this concept must be conveyed to children, who constitute the building blocks of society, in an accurate and effective manner. Early childhood years, which are accepted as an important period of life, have an important place in the development of the individual. However, spaces experienced in childhood constitute an important reference in the adventure of children’s perceptions of their environment in later ages (Çukur & Güller Delice, 2011; Toran, 2016). Therefore, pre-school education buildings have an important role in bringing sustainability awareness to children.

To reduce the damage to the environment and energy consumption in the construction sector, which is an important application area of sustainability, the concept of green buildings has been created and countries have developed certification systems evaluated with different criteria to support and control this concept (Tavşan & Yanılmaz, 2019). With the emergence of sustainable architecture, the evaluation of all buildings designed from city scale to building scale within the framework of sustainability criteria has brought environmental protection studies to an important dimension. The common purpose of all these criteria is to reduce the damage to the environment and increase user comfort. Criteria such as efficient use of energy, water and resources, reducing waste, ensuring health and safety conditions are the common criteria of many certificates. Among these certificates, LEED stands out in terms of awareness and is widely used in countries that do not have their own certificate systems, including our country (Sev, 2009; Somalı ve Ilıcalı, 2009).

The aim of this study, which covers LEED-certified pre-school education buildings, is to determine the sustainability criteria of education buildings located in different geographies in line with the credit scores they receive. Educational buildings examined in this direction; evaluated based on their location, level of certification they hold, version and credit scores.

2. SUSTAINABILITY IN PRESCHOOL EDUCATION BUILDINGS

Pre-school education; it is the education carried out in the 0-6 age period, where the physical, psychological and socio-cultural development of children takes place, and the interaction with the stimulating environment is high thanks to their exploration and creativity impulses. In the pre-school period, the richer the environment in which the individual is in terms of stimuli, the faster the child develops and learns (MEB, 2013). In designing an effective preschool education environment, the developmental needs of children and the cultural elements they live in should be taken into consideration (Smith & Connolly, 1986). A well-prepared preschool education environment supports children's academic skills such as motivation, perception and attention, and also contributes to children's becoming individuals who can control movement by supporting discovery-based learning (Bower, Hales, Tate, Rubin, Benjamin & Ward, 2008; Brown, Pfeiffer, McIver, Dowda, Addy & Pate, 2009).

It is very important for children to include the concepts of environmental awareness and sustainability in their lives in the pre-school period, which has a great impact on the construction of the future lives of individuals. Some constraints brought by today's urban life have separated our living spaces from nature. Therefore, children living in isolation from the natural environment in city life grow up far from the awareness that they are a part of the world they live in. For this reason, it is extremely important to design educational buildings built in urban areas within the framework of sustainability principles, both in terms of improving living conditions and instilling environmental awareness in children (Ford, 2007; Kahyaoğlu & Yetişir, 2015).

The quality of pre-school education buildings, which are the places where children face the educational life outside the family for the first time, is an important factor supporting the education process. Buildings that embody the principles of sustainability serve as a workshop for children who are open to discovering and experiencing through environmentally sensitive systems. It is predicted that children who receive education in such buildings will be

individuals with a high level of awareness about the natural and artificial environment and respectful to nature in their future lives (Smith, 2001; Dinçer, 2005). Designing pre-school education buildings as sustainable buildings; It is very important in terms of the environmental impact it will create due to being large-scale buildings and its ability to shape long-term changes in children's behavior at an early age (Kayıhan & Tönük, 2011; Tonguç, 2012).

3. LEED CERTIFICATION

LEED certification was developed in the United States in 1998 by the American Green Building Council (USGBC), which was established in 1993, in order to promote sustainability-oriented practices in the building industry. The main objectives of the certification program are to develop a holistic building design method by establishing generally accepted measurement standards to define green building, to establish environmental leadership in the construction industry, to promote green competition and to increase consumer awareness of the benefits of green building (USGBC, 2023).

USGBC has now certified more than 14,000 projects in the United States and 30 countries around the world. A completely transparent technical evaluation and certification process is carried out in the LEED system. The system, which is completely based on certification, is open to the public and is supported by more than 10,000 USGBC member institutions and organizations (USGBC, 2023).

The LEED program, which was first developed for new buildings, later covered different building types with new versions developed. There are 6 different types of LEED developed for different building types. These; LEED-NC (New Buildings), LEED ID+C (New Interiors), LEED O+M (Existing Buildings and Spaces), LEED ND (Neighborhood Development), LEED Cities and Communities ve LEED-H (Homes). The LEED certification system is regularly renewed and the requirements are strengthened. The first version is LEED v.01. Then, LEED v2.1 in 2002 and LEED v2.2 in 2005 were issued. V3 versions were created in 2009 and the current version type v4 versions were created in 2014. Evaluation is made out of 110 points. Buildings can obtain four different certification levels based on their total score from LEED's sustainability criteria. These; LEED certifications are 40-49 points Certified, 50-59 points Silver, 60-79 points Gold and 80-110

points Platinum (USGBC, 2023). LEED certification evaluation criteria are as follows;

- Location and Transportation (0/16)
- Sustainable Sites (0/10)
- Water Efficiency (0/11)
- Energy and Atmosphere (0/33)
- Materials and Resources (0/13)
- Indoor Environmental Quality (0/16)
- Integrative Process (0/1)
- Innovation (0/6)
- Regional Priority (0/4)

With the location and transportation criteria, it is aimed to reduce the environmental pollution that will arise from the location of the project site and the amount of CO₂ released for transportation to this location. In the sustainable sites criterion, it is aimed to organize the interventions to the nature and ecosystem around the building in a way that will cause minimal damage. In the water efficiency criterion, it is aimed to reduce water consumption inside and outside the building, to use alternative water resources and to protect natural water resources. With the energy and atmosphere criteria, it is aimed to carry out studies that will reduce energy consumption and minimize the damage to the atmosphere, such as reducing CO₂ emissions by saving energy consumption of buildings, encouraging the use of renewable energy. Minimization of buried energy based on material and resources criteria and life cycle analysis approach; It is aimed to reduce waste during construction and building use, reuse or recycle recyclable wastes. In the indoor quality criteria, it is aimed to increase the indoor air quality, to reduce the carcinogens that can be found in the interior, to provide thermal, visual, acoustic and lighting comfort, daylight and scenery for the building users. Integrative process credit is intended to support high-performance, cost-effective, equitable project outcomes through an early analysis of the interrelationships among systems. Innovation credit is intended to encourage projects to achieve exceptional or innovative performance to benefit human and environmental health and equity. Regional priority credit is intended to provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities. Each of these loans consists of more detailed sub-criteria (USGBC, 2023).

4. MATERIAL AND METHOD

The study was designed with a descriptive design in order to determine the sustainability criteria with the highest credits in sustainable preschool education buildings. LEED certificate has been determined as the limiting factor in the study because it has a world-renowned international identity. In this direction, the theoretical universe of the research consisted of all pre-school education buildings that received LEED certificate around the world. In order to determine the current situation, all of the certified sustainable preschool education buildings were examined using the scanning method. The data of the projects applying for the LEED certification program are stored on the USGBC official website. Therefore, the official website of USGBC, which has open access to the projects, constituted the data source of the research.

A total of 55 pre-school education buildings, whose certification process is ongoing and completed, have been identified on the USGBC official website. Among these schools, 24 have completed the certification process and have been included in the study to be examined in detail in terms of their sustainability criteria. Within the scope of the study, pre-school education buildings located in both single building scale and complex school settlements containing different education levels were examined. These determined pre-school education buildings analyzed under credit headings of sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation, regional priority, location and transportation, integrative process. Identity information of the examined schools is given in Table 1.

Table 1. Examined Pre-School Education Buildings

School Name	Location	Certification Date	Certification Level	Points
One Regent Kindergarten	China	2019	Gold	60
IBG School	China	2019	Gold	65
Ning 2017GY22 Project Kindergarten	China	2020	Gold	60
QING TANG Homeland Kindergarten	China	2021	Gold	66
IE Gabriel Garcia Marquez	Colombia	2018	Silver	54
HAEF Preschool and Kindergarten	Greece	2014	Platinum	83
IC Preschool and Middle School	Lebanon	2019	Gold	64
Beelieve Preschool of Life	Mexico	2020	Silver	54
Bahriye Ucok Kindergarten	Türkiye	2017	Platinum	80
Terakki Tepeören Kindergarten	Türkiye	2018	Gold	63
LJCDS Kindergarten Center	United States	2009	Gold	41
Manassas Park Elementary School & Pre-K	United States	2010	Gold	41
New Fulton Pre-K -5 Elementary School	United States	2010	Silver	37
Heeia Preschool	United States	2011	Silver	34
Alamosa Elementary Kindergarten Additio	United States	2011	Silver	38
Alvarado Elementary Kindergarten Additio	United States	2011	Silver	39
Collet Park Kindergarten	United States	2015	Silver	37

APS Adobe Acres Kindergarten Addition	United States	2015	Gold	60
Onate Elementary School Kindergarten	United States	2016	Gold	61
Abington Pre-K / Middle / High School	United States	2019	Silver	51
Environmental Nature Center Preschool	United States	2020	Platinum	86
Montessori of the Rio Grande	United States	2021	Silver	50
Beard Elementary School Pre-K Annex	United States	2022	Certified	49
Santa Monica Early Childhood Lab School	United States	2022	Platinum	80

5. FINDINGS

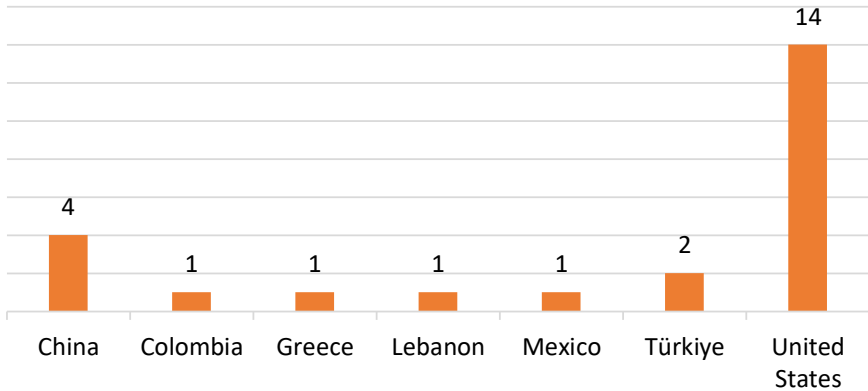
The LEED certification system has certified or examined for certification a total of 160321 buildings (USGBC, 2023). In the research conducted on pre-school education buildings, 55 buildings that have LEED certificate or are in the process of certification have been reached through the official website of USGBC. When the general number of buildings applying to the LEED certification system is compared with the number of pre-school education buildings, it is seen that the rate of green building certification of pre-school education buildings is low. Preschool education buildings whose certification process was completed between 2009 and 2022 are rated under different LEED versions (Table 2).

Table 2. LEED Version Distribution in Preschool Education Buildings

LEED Certified Version	Number of Schools That Received Certificates
V2 – LEED-NC 2.2	3
V2 – LEED 2007 Schools	4
V3 – LEED 2009 Schools	9
V3 – LEED 2009 NC	3
V4 – LEED BD+C: Schools	5
Total	24

When we look at the country distribution of the schools that have received LEED certificate, it is seen that the most schools are in the United States with 14 buildings. The emergence of the LEED certification system in the USA has a significant impact on this situation. After America, China is the country with the most LEED-certified preschool education building (Table 3).

Table 3. Distribution of Schools by Country



5.1. Effective Sustainability Criteria in Pre-School Education Buildings

Among the buildings examined, Heeia Preschool, LJCDS Kindergarten Center and Manassas Park Elementary School & Pre-K have LEED V2 – NC version 2.2. In this version, Heeia Preschool was certified at silver level, while LJCDS Kindergarten Center and Manassas Park Elementary School & Pre-K were certified at gold level. Criteria in LEED V2 – NC 2.2 version; sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor air quality and innovation. Schools with the V2 – LEED 2007 Schools version of the LEED certificate are Alamosa Elementary Kindergarten Additio, Alvarado Elementary Kindergarten Additio, Collet Park Kindergarten, and New Fulton Pre-K -5 Elementary School. All of these schools have been certified at the silver level. In this version, the certification criteria are the same as V2 – LEED-NC 2.2 (Table 4).

Table 4. Criterion Scores of LEED Version 2 Certified Schools

School Name	Certification Version	Certification Level	Sustainability Criteria					
			Sustainable Sites	Water Efficiency	Energy & Atmosphere	Material & Resources	Indoor Environmental Quality	Innovation
Heeia Preschool	V2 – LEED-NC 2.2	Silver	7/14	3/5	6/17	4/13	9/15	5/5
LJCDS Kindergarten Center		Gold	6/14	3/5	14/17	2/13	12/15	4/5
Manassas Park Elementary School & Pre-K		Gold	7/14	5/5	7/17	6/13	11/15	5/5
Alamosa Elementary Kindergarten Additio	V2 – LEED 2007 Schools	Silver	7/16	4/7	9/17	4/13	11/20	3/6
Alvarado Elementary Kindergarten Additio		Silver	7/16	3/7	5/17	4/13	16/20	4/6
Collet Park Kindergarten		Silver	10/16	4/7	5/17	2/13	13/20	3/6
New Fulton Pre-K -5 Elementary School		Silver	10/16	1/7	5/17	7/13	12/20	2/6
			0-40% of the total score	40-70% of the total score	70-100% of the total score			

When the educational buildings that have received the LEED V2 certificate are examined, it is seen that the “sustainable fields” criterion is met in all schools, and the “water efficiency” criterion is mainly met at a rate of 40-70% among schools. The “energy and atmosphere” criteria and the “materials and resources” criteria were generally met at a rate of 0-40%. The “indoor quality” criterion and the “innovation” criterion scored almost half, 40-70% and 70-100%. If we need to evaluate according to these ratios, the success rate of the “indoor environment quality” and “innovation” criteria is higher than the other criteria. The “materials and resources” criterion has the lowest success rate.

Pre-school education buildings with the V3 – LEED 2009 Schools version of the LEED certificate; One Regent Kindergarten, HAEF Preschool and Kindergarten, IC Preschool and Middle School, APS Adobe Acres Kindergarten Addition, Onate Elementary School Kindergarten, Terakki Tepeoren Kindergarten, Bahriye Uok Kindergarten, Abington Pre-K / Middle / High School ve IE Gabriel Garcia Marquez. Among these schools, Haef Preschool and Kindergarten

and Bahriye Ucok Kindergarten have platinum level, Abington Pre-K / Middle / High School and IE Gabriel Garcia Marquez have LEED certificates at silver level, and others have LEED certificates at gold level. In this version, in addition to the criteria of V2 – LEED-NC 2.2 version, “regional priority” criteria have been added. However, schools with V3 – LEED 2009 NC version; QING TANG Homeland Kindergarten, Environmental Nature Center Preschool ve Santa Monica Early Childhood Lab School. Environmental Nature Center Preschool and Santa Monica Early Childhood Lab School are certified platinum, while QING TANG Homeland Kindergarten is certified gold. The sustainability criteria of this version are the same as V3 – LEED 2009 Schools (Table 5).

Table 5. Criterion Scores of LEED Version 3 Certified Schools

School Name	Certification Version	Certification Level	Sustainability Criteria						
			Sustainable Sites	Water Efficiency	Energy & Atmosphere	Material & Resources	Indoor Environmental Quality	Innovation	Regional Priority
One Regent Kindergarten	V3 – LEED 2009 Schools	Gold	20/24	10/11	13/33	6/13	4/19	4/6	3/4
HAEF Preschool and Kindergarten		Platinum	23/24	11/11	14/33	9/13	16/19	6/6	4/4
IC Preschool and Middle School		Gold	18/24	8/11	7/33	7/13	16/19	4/6	4/4
APS Adobe Acres Kindergarten Addition		Gold	15/24	2/11	19/33	4/13	12/19	4/6	4/4
Onate Elementary School Kindergarten		Gold	10/24	2/11	20/33	7/13	15/19	4/6	3/4
Terakki Tepeoren Kindergarten		Gold	14/24	3/11	26/33	6/13	6/19	5/6	3/4
Bahriye Ucok Kindergarten		Platinum	21/24	8/11	29/33	7/13	6/19	5/6	4/4
Abington Pre-K / Middle / High School		Silver	11/24	8/11	12/33	6/13	9/19	2/6	3/4
IE Gabriel Garcia Marquez		Silver	14/24	10/11	9/33	5/13	6/19	6/6	4/4
QING TANG Homeland Kindergarten	V3 – LEED 2009 NC	Gold	22/26	10/10	9/35	6/14	11/15	5/6	4/4
Environmental Nature Center Preschool		Platinum	22/26	6/10	35/35	4/14	11/15	6/6	2/4
Santa Monica Early Childhood Lab School		Platinum	23/26	5/10	31/35	0/14	12/15	6/6	3/4
			0-40% of the total score	40-70% of the total score			70-100% of the total score		

When the educational buildings that have received the LEED V3 certificate are examined, it is seen that the criteria of “sustainable fields” and “regional priority” reach the highest level of success, with a score of 70-100%. Following this, the “innovation” criterion was scored in the range of 70-100% to a large extent. As with schools that have achieved LEED V2 certification, the “materials and resources” criterion in this version has the lowest achievement, scoring less than 70% of the total score.

Pre-school education buildings with the V4 – LEED BD+C: Schools version of the LEED certificate; IBG School, Ning 2017 GY22 Project Kindergarten, Believe Preschool of Life, Montessori of the Rio Grande and Beard Elementary School are Pre-K Annex. Among these schools, IBG School and Ning 2017 GY22 Project Kindergarten have gold level, Believe Preschool of Life and Montessori of the Rio Grande have silver level, Beard Elementary School Pre-K Annex has LEED certificate at certificate level. In this version, “location and transportation” and “integrative process” credits have been added in addition to the sustainability criteria of previous versions (Table 6).

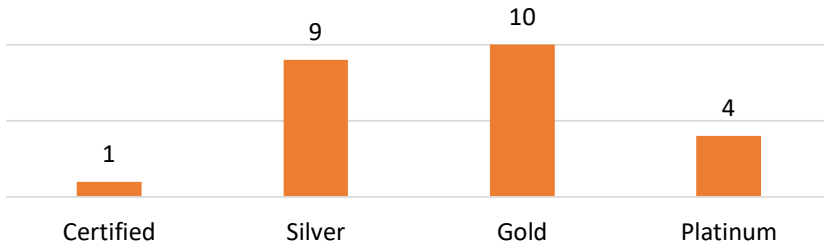
Table 6. Criterion Scores of LEED Version 4 Certified Schools

School Name	Certification Version	Certification Level	Sustainability Criteria								
			Sustainable Sites	Water Efficiency	Energy & Atmosphere	Material & Resources	Indoor Environmental Quality	Innovation	Regional Priority	Location & Transportation	Integrative Process
IBG School	V4 – LEED BD+C: Schools	Gold	10/12	5/12	14/31	7/13	7/16	6/6	4/4	11/20	1/1
Ning 2017 GY22 Project Kindergarten		Gold	8/12	8/12	12/31	4/13	7/16	5/6	4/4	11/20	1/1
Believe Preschool of Life		Silver	8/12	4/12	20/31	1/13	7/16	3/6	3/4	7/20	1/1
Montessori of the Rio Grande		Silver	6/12	1/12	18/31	2/13	11/16	4/6	4/4	3/20	1/1
Beard Elementary School Pre-K Annex		Certified	4/12	3/12	16/31	5/13	9/16	6/6	0/4	6/20	0/1
			0-40% of the total score			40-70% of the total score			70-100% of the total score		

When the educational buildings that have received LEED V4 certification are examined, it is seen that the criteria of “innovation”, “regional priority” and “integrative process” predominantly have a success score of 70-100%. An average success rate of 40-70% was achieved in all schools for the criterion of “indoor environment quality”. “Water efficiency”, “materials and resources” and “location and transportation” criteria are the least successful criteria with mostly 0-40% points. The success rate of “sustainable sites” and “energy and atmosphere” criteria is generally at an average level.

As a result of the analyzes made, it is seen that the pre-school education buildings that receive LEED certificate mostly have silver and gold certificates. There is only one school certified at the Certified level (Table 7).

Table 7. Certificate Levels of Schools



6. EVALUATION AND CONCLUSIONS

With the global climate crisis and the rapid depletion of natural resources, the concept of sustainability has gained an important place especially in the construction sector. The certification systems developed in order to evaluate and inspect the environmental impacts of both existing and newly constructed buildings have brought an important awareness and incentive regarding sustainability. In this context, the number of buildings rated with the LEED certificate, which is the most widely used worldwide, is increasing day by day.

Physical space and the immediate environment play an important role in education in the pre-school period, where solid foundations must be laid for individuals to gain environmental awareness. Therefore, pre-school education buildings are among the important building groups that contribute to the awareness of sustainability.

The schools that are the subject of the study are all pre-school education buildings that have been awarded LEED certification worldwide. These schools examined received certificates at different levels, including LEED V2, V3 and

V4 versions. In each new version of the LEED certificate, a new title or titles have been added to the sustainability criteria. Evaluation criteria of buildings are further elaborated in each new version developed. It is seen that the number of pre-school education buildings that have received certificates is quite low when compared to the number of all certified building groups. On the other hand, with the identification of 31 pre-school education buildings whose certification process continues, it is seen that the demands and developments in this field continue.

Sustainability criteria carried by the schools examined in the study classified under the headings of sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation, regional priority, location and transportation, integrative process. “Sustainable sites”, “water efficiency”, “energy and atmosphere”, “materials and resources”, “indoor environmental quality” and “innovation” criteria were examined within the scope of LEED Version 2, 3, 4 for a total of 24 schools. The “Regional priority” criterion was examined in 17 schools within the scope of LEED Version 3.4. “Location and transportation” and “integrative process” criteria were examined within the scope of LEED Version 4 for 5 schools. Accordingly, when the arithmetic averages of the scores obtained from the sustainability criteria are taken, it is seen that the “regional priority” and “integrative process” criteria provide the highest level of success with a rate of 80%. This is followed by the “innovation” criterion with a rate of 76%. “Materials and resources” criterion was determined as the criterion with the lowest score with a rate of 31% (Table 8).

Table 8. Total Ratio of Sustainability Criteria

Certification Version	Sustainable Criteria	Ratio
LEED Version 2, 3, 4	Sustainable Sites	62%
	Water Efficiency	52%
	Energy and Atmosphere	49%
	Materials and Resources	31%
	Indoor Environmental Quality	61%
	Innovation	76%
LEED Version 3, 4	Regional Priority	80%
LEED Version 4	Location and Transportation	37%
	Integrative Process	80%

According to the results obtained, it has been determined that there are significant differences in the context of the sustainability criteria in which the certificated preschool education buildings are evaluated. The rate of application of criteria such as “innovation”, “regional priority” and “integrative process” in buildings evaluated with current versions has increased gradually. On the other hand, it is very clear that there are important deficiencies in terms of criteria such as material, resource use, location, transportation. Material procurement, processing, building life cycle processes, waste management, efficient use of resources, environmental impacts of land, reduction of carbon footprint from transportation, etc. considerations are one of the most important application steps of the sustainable design approach. Therefore, more effective and in-depth studies should be carried out for the implementation of these criteria for buildings aiming to obtain green building certification.

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CHAPTER XX

THE HISTORICAL DESIGN PROCESS OF HOSPITAL SPACES IN TURKEY: FROM TRADITIONAL TO CONTEMPORARY

Elif ÖZGEN¹ & Bilge SAYIL ONARAN²

*¹Dr. RA. - İnönü University
e-mail: elif.ozgen@inonu.edu.tr
ORCID: 0000-0002-8081-2097*

*²Prof. Dr. - Hacettepe University
e-mail: bilgeso@hacettepe.edu.tr
ORCID: 0000-0001-9395-3596*

1. Introduction

Every culture is a product of human relations with nature. For this reason, illness as well as health is closely related to the cultural formation of society. As a reflection of social action forms, culture is a construction that includes art, law, morality, traditional values and habits as well as acquired knowledge and beliefs (Türkdoğan, 2016, p. 145). For the reasons mentioned, practices and spatial responses differ from each other both in the current and historical process in geographies with different cultures. It is observed that the framework of health spaces in Turkey has changed from a point where culture could be observed as more dominant in the historical process to the present day with innovations on a global scale.

In the history of the world, hospitals first emerged in nature, interpreted with the innovations of need and science and took their present form. Most of the early healthcare buildings relied on domestic ideology to express the benevolent part of its dual mission, appearing to be a “big house” that would provide poor, sick people with both protection and a surrogate family atmosphere. In the middle ages, hospitals began as institutions for the protection of society rather than for care of the ill (Adams, 2008, s. 55 - 56).

In the historical process, the concept of “Darüşşifa” has an important role in the geography of Turkey. In the 19th century, before the first hospitals were established, health services were provided in darüşşifas. Darüşşifas were built by charities as foundations, and they are mostly considered as a whole. Darüşşifa include structures such as madrasah, mosque and Turkish bath are located in social settlements that are called ‘külliye’. Ottoman Darüşşifa’s were built by sultans, valide sultans and hasekis to provide inpatient treatment for the poor. No money was taken from the patients and even the expenses of those who died in darüşşifa were covered. The healing spaces of the period were constructed in a way that would contribute to healing by utilizing opportunities such as water, music and interaction with nature.

The approach to health structures in Turkey has also undergone changes after the darüşşifas and has taken its current form. Over time, lands where the foundations were located and darüşşifas built were lost, and the appropriate conditions could not be provided due to income problems. In the meantime, hospitals were renamed as “Bimarhane” instead of “Darüşşifa”. During 1897, patients and mentally ill were separated in hospitals. Darüşşifas, which were the general hospitals of the Ottoman Empire, lost their splendor in the 18th and 19th centuries and became a place for the mentally ill. With this change, a tendency towards specialization began to be observed. In addition, bimarhane, which replaced darüşşifa, lost the meaning of hospital and was reinterpreted with the meaning of madhouse (mental hospital) (Yıldırım N., 14. Yüzyıldan Cumhuriyet’e Hastalıklar Hastaneler Kurumlar, 2014, pp. 272-362).

While most of the darüşşifas were reserved for the mentally ill and some were closed, new arrangements were made in military organization with the reform initiated by Selim III. Structural arrangements also affected the medical field and the first steps of modernization in hospitals were taken. The word “hospital” was first used in these military hospitals in Turkey (Yıldırım N., 14. Yüzyıldan Cumhuriyet’e Hastalıklar Hastaneler Kurumlar, 2014, p. 305). After the Second Constitutional Monarchy, important changes took place in the field of architecture in terms of culture with the understanding of nationalism, thus, the approach of hospital spaces are also considered as part of the change process during this period (Yıldırım, 2009). In addition, health institutions were served as subject to special administration or municipality.

With the Republic’s proclamation, health sciences developments have gained momentum. Mustafa Kemal Atatürk gave great importance to health services and supported their development despite insufficient facilities after the

War of Independence. On 2 May 1920, he established the Ministry of Health. In 1937, health services were provided to society under the name of Health Centres. Steps were taken for the socialization of health centers and after 1961, health centers were renamed “Health Centres”. One of the important breaks in the health sector was the “Full Day Law”, which was first implemented in 1977 under the Ecevit Government, and in 1987 under the Özal Government, when the first regulation on the “leasing” of public health facilities was introduced. During these periods, health service started to become one of the service sectors. Later, health structures became more comprehensive as “Numune” hospitals, which were seen as the city hospitals of their time (Aydın, 2006). In other words, health structures in the geography of Turkey have emerged and developed as a social structure focused on cooperation. Hospitals, the first modern examples of which we encounter in the post-Republican period, lost their user focus and social structure over time and started to show a tendency towards sectionalization. After the 70s; they changed direction regarding the political formation of the period.

Disciplines that could be seen as different from each other such as politics, architecture, literature, and art feed and influence each other. No reality is formed solely from its truth. Especially for a country like Turkey, which harbors different cultures and shows policy-based change, it is difficult to think of a development away from social reality. Information on the change in the perception of health structures and reasons that cause the change could be found in World history. Changes related to the need and fulfillment of the need are parallel to the history of medicine. Rapid adaptation has been realized in human beings trying to keep up with the changes due to the need for improvement. When the history of Turkish medicine and the development of health structures are analyzed; some gaps are encountered. It is thought that this situation may be due to the inadequacy of documentation and protection issues and the tendency to find temporary solutions to the needs of society. By the content of the study, the information on health buildings in the literature will be handled more spatially in the field of architecture and evaluated through plan types and changes.

3. Republic Period

Before the proclamation of the Republic, many political, social, and economic difficulties and changes were experienced. Changes related to health structures primarily include the handling and structuring of health services.

After the proclamation of the Republic on 29 October 1923, there were 25 hospitals, 3005 beds, 1000 doctors, and 120 pharmacists in the Republic of Turkey with a total population of 12.359.000. In the organization of the Ministry of Health, there were 554 physicians, 566 health officers, 139 midwives, and 4 nurses (Uzluk, 1954), (Açikel, 2009, pp. 10-13). On 17 May 1928, the Central Hygiene Institution was established with Law No. 1267. On 17 April 1930, Law No. 1593 on Public Hygiene was enacted and the conditions regarding the order of health-related institutions and organizations were rearranged. In the first years of the Republic, madrasahs were renamed as faculties, but the understanding did not change (Taneli & Şahin, 2013, pp. 142-143). In addition, following the opening of the Grand National Assembly of Turkey, the Ministry of Health was established on 3 May 1920 with Law No. 3. In this period, there was no opportunity for regular records on health and health structures, and the focus was more on healing the wounds of war and developing legislation (Bakanlık, 2023).

In the early years of the Republic, existing hospitals were renovated under the names of “Memleket Hospital” and “Numune Hospitals”, old buildings changed their functions and became hospitals or new buildings were constructed to meet the needs. During this period, the buildings that functioned in the field of health with the name of hospitals started the name Gureba hospitals in our country, for modern medical education; with the names of memleket, millet, devlet (state) hospitals and respectively, from east to west in almost every city of the country (Aydın D., 2013).

After the foundation of the Republic, the construction and management of hospitals were left to local organizations such as municipalities, special administrations, and foundations. In 1924, Numune hospitals were established in Ankara, Istanbul, Trabzon, Sivas, Erzurum, and Diyarbakır under the name of the province. The “Numune Hospital” in Ankara, designed by Robert Oerley and opened in 1933, was the most important of these hospitals. In 1954, with a law enacted, hospitals other than those in Ankara, Istanbul, and Izmir were transferred to the Ministry of Health (Özdilek & Akgün, 1970, pp. 5-21). These hospitals were Çankırı, Kayseri, Konya, Eskişehir, Niğde, Edirne, Çorlu, Kırklareli, Tekirdağ, Adapazarı, Balıkesir, İzmir, Bursa, Bilecik, Bandırma, Çanakkale, Haydarpaşa, Adana, Mersin, Antalya, Isparta, Maraş, Maraş, Erzincan, Malatya, Elazığ, Erzurum, Kastamonu, Ordu, Samsun, Zonguldak, Amasya, Trabzon, Bolu, Giresun, Tokat, Afyon, Uşak, Aydın, Manisa, Kütahya, Denizli, İzmir, Muğla, Gaziantep, Şanlıurfa, Diyarbakır, Siirt (Sarı & Kurt, 2009).

In 1899, Hamidiye Etfal Hospital, which was the first children's hospital opened in Turkey by Abdülhamid II, became a state hospital affiliated to the Ministry of Health and Social Welfare under the name of Şişli Children's Hospital in the years when the Republic was newly established (1922). The beds of Şişli Etfal Children's Hospital increased to 450 in 1961 and 550 in 1963. With the new building constructed in 1968, it was increased to 720 beds in 1976. Today, the hospital serves as a full-fledged training and research hospital with 1050 beds affiliated with the Ministry of Health; the first buildings were demolished and have not survived (Yıldırım, 2010, pp. 119-122). Zeynep Kamil Children's Hospital, the first hospital to provide free service to patients between 1860-62, was opened in 1882 under the name Gureba Hospital. It served as a military hospital during the war years, became a part of Haydarpaşa Military Hospital in 1918, was used as a mental and nervous hospital in 1920, was transferred to Istanbul Municipality in 1933, was converted into a maternity hospital in 1935, was organized as a 150-bed gynecology clinic in 1952 and a 200-bed pediatric clinic in 1958, and was opened for use in 1958. In 1982, the operation and management of the buildings were transferred to the Ministry of Health. Currently, it is a special branch training hospital as Pediatrics Training and Research Hospital (ZK, 2022). During this period, it is quite common to relocate the functional areas of the hospital structure and to create new units. In other words, this period includes both innovations and the change and redefinition of the existing structures in line with the needs.

The general hospital plan and façade approach, on the other hand, bears traces of the modernist Central European architecture, which was frequently encountered in other public buildings in the 1930s, with its rectangular window design, facade movements, and monumental appearance.

3.1. Post Republic Period

With the proclamation of the Republic and the emergence, organization, follow-up, and functioning of the institutions and organizations in health services, important developments were done. Although a standard and common architectural plan, and relationship with the city and organization have not yet been achieved, buildings for the needs have started to be built rapidly. After the proclamation of the Republic, in the 1940s, it is seen that health buildings have a common approach and design understanding. In this period, hospital plan types consist of quite simple forms. Mostly "T", "L", and "U" shaped plan types were used. Diagnostic departments such as outpatient clinics, laboratories, and x-rays

were located on the ground floor, while patient care units were located on the upper floors. The openings of the buildings were square or rectangular and the structure and its elements were cubic (Figure 1) (Özbay, 1996).

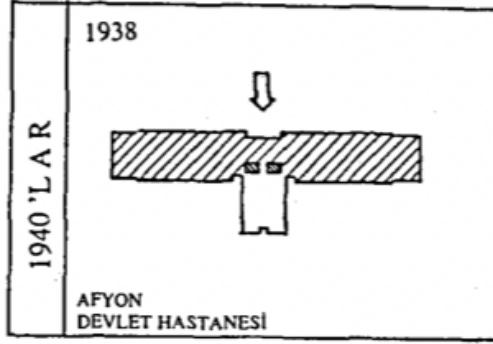


Figure 1: Example of a typical hospital plan of the 1940s, Afyon State Hospital (Özbay, 1996).

The Memleket Hospitals built in the early years of the Republic were found to be inadequate by the 1940s and were rebuilt or additional pavilions were built to cater to the infectious diseases of the period (Figure 2).



Figure 2: Izmit State Hospital (Planning - Construction period 1945-1952) (<https://kocaelidh.saglik.gov.tr/TR,115541/tarihce.html>, Access Date: 09.03.2023).

In the 1950s, there were no major spatial changes compared to the previous decade. Similarly, “T” and “L” shaped plan types were widely used. However, with the reflections of the modernist style in our country in this period, it is seen that band-shaped openings and grid constructions started to be applied on hospital facades (Figure 3).

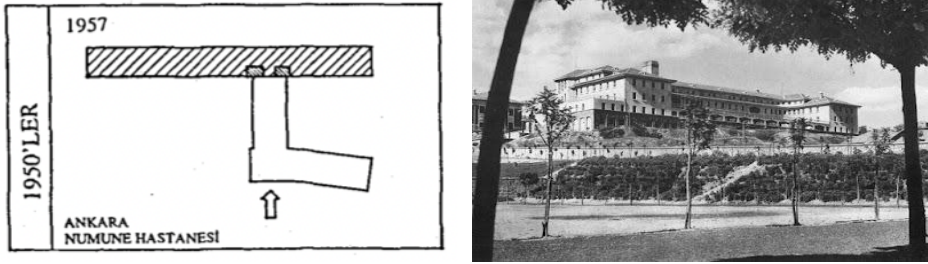


Figure 3: Typical hospital plan of the 1950s, plan and facade of Ankara Numune Hospital (Özbay, 1996), (<https://yavuziscen.blogspot.com/p/eski-ankara-fotograflar-10.html>, Access Date: 01.03.2023).

Patient rooms of the period were mostly used by many people together. Although few in number, directly connected wet rooms were provided for single-bed patient rooms, while in rooms with 3, 4, and 6 beds, multi-cabin toilets and showers in the corridor were arranged for the use of patients being cared for. In addition, when the hospital plans constructed during the Republican period are examined, it is seen that certain plan types emerged in hospital buildings with the industrialization process. In the 1960s, the approach of this period was referred to as the “hotel hospital type” (Terzioğlu, 1965, p. 73).

It would be appropriate to mention the developments that took place around the world during this period. One of the important breaking points in the world regarding the spaces of health institutions was experienced by a patient named Angelica Thieriot. As a result of a traumatic hospital experience in the United States, she attempted to transform the hospital environment into a healing environment for the user. Unlike the hospitals of his time, he founded Planetree in 1978, a non-profit organization that offers a user-centered design and service approach. The establishment has contributed to the development of a new era and perspective in the historical process. However, for the hospitals in Turkey, the realization of this approach for the sector and the space took place in the 2000s.

3.2. 1960s

In the 60s, innovations related to legal procedures are noteworthy. In this sense, Law No. 224 on the Socialisation of Health Services was enacted in 1961. Socialization in health started in 1963 and was extended to the whole country in 1983 (Bakanlık, 2023).

The plans of the 1940s and 1950s were developed in this period and gained a new interpretation. It is observed that there have been significant changes

in hospital plans, especially since the 1960s. With the increase in population, there was a need for an increase in hospital bed capacities, and hospitals with a higher number of beds came to the agenda. Polyclinic and diagnosis-treatment departments also grew, and thus, these units were tried to be met by building separate blocks. While the operating theater units were moved to the lower floors, the need for more space was encountered in terms of area and space. With the increase in the services provided in the hospital, hospital plans started to be designed as a more complex structure. The main plan changes made in this period were the removal of departments such as outpatient clinics, diagnostic treatment, and operating theatres under the patient care unit. Since these units occupy more space than patient care units, the use of terrace roofs was needed. The use of terrace roofs in hospital buildings increased and an additional installation floor was added to the hospital building plans (Kortan, 1986, p. 70; İşbilir, 1982, p. 6). In other words, the need for increased capacity in hospitals brought along the growth of other basic areas that make up the hospital.

In the organization scheme used in the previous twenty years, while the function areas located on the lower floor and the patient department units located on the upper floors met each other, in this period, a solution was sought with terrace roof applications for the space that meets the need for the upper floors. For this reason, the planning scheme was adapted to the conditions of the country, patient care units were solved with a square plan and consisted of three or more units connected to a single core (İşbilir, Uğurlu, Aygen, & Us, 1982). It is seen that the hospital plans and organizations of the period have a central block system approach (Figure 4).

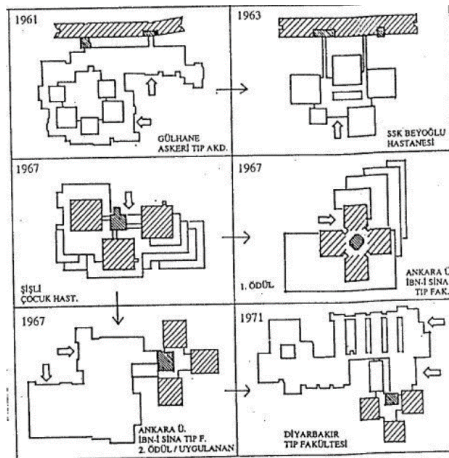


Figure 4: Hospital plans in the 1960s (Altan, 2003, s. 31).

The multi-part plan typology was the most proposed model in the project competitions of 60s. The tendency to lighten the masses by fragmenting them into appropriate dimensions, to seek low-rise solutions by spreading over the land, and to use interior and exterior courtyards instead of corridors became increasingly widespread among the architects of the period. Certain schemes created in this context were used and approved in project competitions for buildings belonging to different functional groups. Gülhane Askeri Tıp Akademisi Hastanesi (1962), Ege Üniversitesi Tıp Fakültesi Hastanesi (Figure 5), Beyoğlu İlk Yardım Hastanesi (Figure 6) are among the qualified examples produced in this design model. Brutalism, which occupied a very important place in the architectural world of 60s, was seen as a tendency that complemented and developed the fragmented plan typology already adopted in Turkey and became widespread.



Figure 5: Spot plan of Ege University Medical Faculty Hospital (Competition result 1961, construction 1963-1967) (Personal archive).

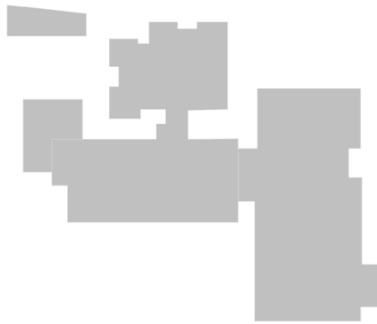


Figure 6: Beyoğlu First Aid Hospital spot plan (Competition result 1965, construction 1967-1969) (Personal archive).

3.3. 1970s

In the 1970s, the plan schemes with a central block system continued and high-rise blocks with patient rooms connected to the central vertical circulation

were located. Patient bed floor blocks were constructed using “I”, “T” and “L” plan types. Planning strategies, which appear as vertical and horizontal planning, differ according to the size of the built area (Figure 7) (Aksoy & Aydın, 2022, p. 231).

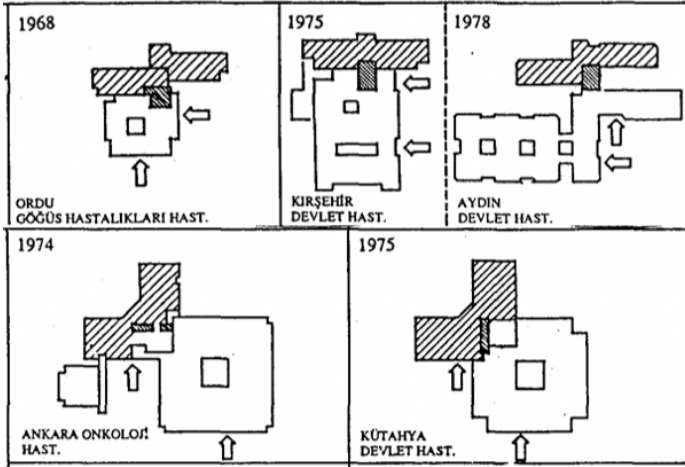


Figure 7: Hospital plans in the 1970s (Özbay, 1996).

In the 1970s, the location and material of the roofs were common features in hospital plans. In the meantime, tile roof type was popularized against the problems encountered during the construction process. Hospital buildings started to be designed as rectangular masses and blocks with courtyards. While the single core defining the low block includes medical treatments (units such as polyclinic, diagnosis, treatment, and operating theaters), high-rise patient care units appear as a characteristic feature of the period (Özbay, 1996, p. 11). The architectural competitions organized during the period were particularly influential in this situation. The competitions were organized by the Ministry of Public Works and Settlement, and the use of terrace roofs, which was preferred especially in ‘60s, was banned due to the Ministry’s problems in solving technical problems in the construction process within the scope of the application included in the design (Özbay, 1996).

In addition, another spatial characteristic of the period is that hospital buildings do not show any application or predisposition to communicate with the environment. Despite the criterion of suitability to topography and geography, which is sought among the conditions, especially in competition projects, it is seen that the buildings are solved within themselves and have a character far from establishing a connection with the city.

3.4. 1980s

In 1980 period, while the influence of young generation architects in the planning of hospital buildings increased, horizontal hospital plans also gained popularity (Özbay, 1996, p. 11). In addition, with understanding of a widespread, continuous, integrated, gradual, and integrated structure within the province; a structuring in the form of health houses, health centers, district, and provincial hospitals was introduced (Bakanlık, 2023).

In this period, influence of the young generation started to increase especially in competitions related to hospital architecture and design. Therefore, different approaches emerged and started to be accepted within the examples spatially constructed after the Republican period. The first example where the hospital plan scheme was handled horizontally is Bolu State Hospital, which was completed during this period (Figure 8).

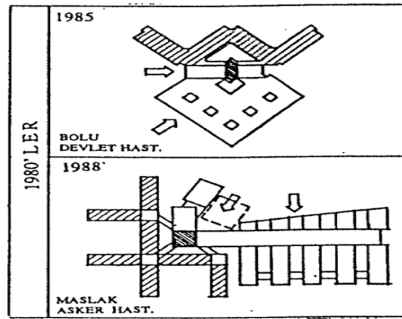


Figure 8: Bolu State Hospital plan (Özbay, 1996).

3.5. 1990s

In Turkey, modern hospital formation, which centers on the human needs, physically and spiritually, has been emerging since the end of 1990s. With the developing technology, hospital designs are becoming human-oriented with design approaches based on the provision of basic needs.

In 1990, a master plan for the health sector was prepared by the Devlet Planlama Teşkilatı (DPT) - State Planning Organisation and this “Sağlık Sektörü Master Plan Etüt Çalışması (Health Sector Master Plan Study)”, which was conducted by the Ministry of Health and the State Planning Organisation, in a sense marked the beginning of a process in which health reforms were discussed. In 1992, with Law No. 3816, the green card scheme was introduced for low-income citizens not covered by social security. Thus, people with weak

economic power to access health services were included in health insurance, albeit to a limited extent (Bakanlık, 2023).

In 1990 period, although the plan understanding of the 1970s continued, it was also a period in which new and original searches took place in hospital buildings. The difference or search between 1990 period from 1970s is seen especially in design of the units where patient care units are located (Figure 9). Another difference seen in the hospital buildings of this era is the increase in the search for third dimension in interior spaces of hospitals. In this period, hospital buildings do not only serve as a stack of programs; search for “light and rich” spaces started to find a place in the hospital planning of this period (Özbay, 1996, p. 11).

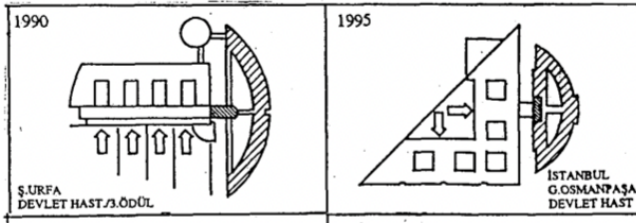


Figure 9: Hospital plans in the 1990s (Özbay, 1996).

In addition, this period is a period in which hospital competitions were held serially and the final products were implemented. Concerning the competitions and the winning design projects, Özbay (1994) states: “The jury members, who are representatives of the 1950-60s generation, still preserve the architectural habits of their period, especially under the discourses of cost and feasibility. A similar phenomenon has been observed in many competitions -type hospitals-opened in recent years. Many original attitudes were not even deemed worthy of discussion with views such as ‘fashion’ and ‘uneconomical’. On the contrary, ordinary products without a serious word have been rewarded.”

3.6. 2000s and Later

The health services and spaces that were improved with establishment of the Planetree organization in 1978, which is discussed under the heading of 70s, show its effect in Turkey in the late 1990s. By 2005, more than seventy health structures in the United States had been reorganized through the Planetree model. With this approach, hospital designs have transformed into structures that try to increase interaction with the outdoors. It has been found that interaction with nature, the use of water elements, and the use of healing gardens have

positive effects on the healing processes of patients (Berg, 2005). Rupture in the perspective of health services has led to the emergence of health structures that need to be defined as a social space with the patient at its center.

2000s are a period in which specialization in hospital buildings in terms of architecture and interior design is important both in practice and theory. Although international specialization in the field had started earlier, in Turkey, sectorisation and user-oriented approaches in terms of design have become more important. Receiving support from people and teams specialized in hospital design in the interior organization and interior design of hospital buildings is an indication of a positive change in the holistic perspective. As the discipline of interior architecture became widespread during the period, institutions and organizations in public and private sectors that provide professional services on the type of building by developing expertise, especially in health structures and hospital spaces started to gain recognition (Figure 10).



Figure 10: Zoom Tpu Architecture Office Memorial Hospital Project, 2014 (<https://www.zoom.com.tr/portfolio/memorial-hospital-ankara/>, Access Date: 10.03.2023).

Since 2003, Ministry has encouraged the standardization of hospitals and announced the necessity of obtaining an ISO 9001 certificate. After all hospitals in our country started to serve under the roof of the Social Security Institution (SSI), 393 hospitals were classified as A, B, C, D, and E class hospitals as of 31 January 2011 as private branches and other private hospitals apart from the state, SSK and other institutional hospitals (Taneli & Şahin, 2013, p. 81). The period between 2003 and 2008 is considered by the Ministry of Health as a period of significant changes in health. In early 2003, the “Health Transformation” program, which was prepared and announced to the public, was prepared by taking advantage of past experiences and experiences, especially socialization, recent health reform studies, and successful examples from around the world (Bakanlık, 2023). In addition, when The Ministry of Health made LEED certification compulsory for hospitals with a capacity of 200 beds or more at

the end of 2012, the use of LEED “green building certification” in hospitals in our country created a certain demand, especially in public hospitals. However, even in the USA, the creator of LEED, there are not hundreds of LEED-certified hospitals (Erten, 2016).

In 2000s, in addition to architectural and management changes, there are also innovations in terms of interior space. In this period, hospital buildings consisting of one and two-bed patient rooms started to serve. It can be said that especially private hospitals offer services in hotel comfort and compete to gain more patients. While the number of beds in patient rooms has decreased in terms of privacy, comfort, and health care, quality of the equipment in the room has also changed. In addition to change in the number of beds in patient rooms; furniture and equipment such as bedside tables, personal cabinets, chairs, and armchairs have started to take place in patient rooms. Besides, furnishing of the interior space also started to change, and patient beds, which were placed perpendicular to the window surface in ward layout, were modified and started to be placed parallel to window surface while room layout was switched. In rooms, a sitting element or long sitting unit that can be opened and become a bed for the companion, under-counter refrigerator, television, patient beds that can be adjusted to the position required by the sitting, lying actions or disease in terms of comfort of the patient, and movable dining table have taken their place as basic equipment. Although the mentioned changes have qualities that will increase both the functionality and sense of belonging between the user and space, it is thought that the practices of many private hospitals have opposite effect by utilizing ultra-luxurious and flashy applications instead of increasing human-space interaction.

Especially in recent period, the systems, management, and spatial changes of health structures contain innovations that society follows with curiosity. Not only architectural planning systems have changed, but also changes have emerged in many areas related to the health sector. The latest regulations have been presented to the service of society as integrated health campuses, health campuses, public-private partnership/cooperation, and city hospitals respectively (Pala, 2018).

Today, the approach to health structures is centered on construction of city hospitals. City hospitals are created by leasing hospitals built by the private sector for 25 years without using public funds; hospitals are operated by the public sector as “State Hospitals”; the builder also operates the commercial areas during the lease period and carries out all maintenance and repair of the

buildings. It is known that existing hospitals in the city where hospital is to be built are also evaluated (to be moved or to continue to serve), and those that have lost their function are closed or converted; it is known that hospitals have been built and will be built in many cities of the country with this method. However, for many cities, the question of how hospitals of this size will be integrated with urban transport is a question that has not yet been answered. When the City Hospitals project was initiated, The Ministry of Health commissioned an American project group to prepare a concept project. All campuses are generally designed according to the principles of this project. In this concept, common diagnostic and treatment units are located in the center of the building, while the bed blocks surround the periphery (Figure 11) (Özby, 2016).



Figure 11: Ankara City Hospital campus buildings and architectural organization (<https://www.turkiyokimiyadernegi.org.tr/upload/48/Dosyalar/tmp/201959174414.pdf>, Access Date: 11.03.2023).

In short, the changes that take place in every period carry a different image in the memory of society. Today's hospital architectural approach is the application of "city hospitals" by following a different break from the historical process in many ways. However, like every other type of building, society experiences a new experience within new system, and the space is designed by requirements of system. While some organizations and formations support the person to feel in the center, others cannot provide this situation although they are created to host human factor in the center. In short, although the understanding of health institutions in every period is centered on serving society, there is a possibility that its reflection on society may not be in the same way. The situation suggests that inputs such as money, labor, and labor force spent for the purpose may not contain the same targeted results as service delivery. Today, there are city

hospitals in our country, which are widely constructed with the idea that they make significant contributions to the health sector. However, in this sense, most of the city hospitals have not yet been experienced by user in a way that can have a social impact, as the building is in construction process.

4. Conclusion

In the historical process, especially competition projects have been analyzed, criticisms written on competitions have been read, and texts and visuals in newspapers, magazines, and mass media have been examined in detail. Within the framework of the information obtained, it is seen that after The Republican Period, especially regarding the hospital design projects, the attitudes, and approaches of the administrations of the projects were sometimes found “arbitrary” and “incomprehensible” and changes were made. It would not be wrong to say that this situation has continued to the present day and is among today’s problems. With the study analyzed in 10-year periods, it is seen that the hospital plans, for which solutions were sought with simple geometric forms as of the 1940s, became more complex over time and that each period had a similar approach.

In addition, in our country, it is observed that the effects of the worldwide ruptures are exported after a certain period due to need. It could be said that the shaping of health structures is also shaped by sharp changes that come with a delay both administratively and spatially.

Today, worldwide, the perspective on hospital buildings is that the building itself should be therapeutic. The change has taken place not only in planning and organization but also in people’s perceptions. Hospitals have ceased to be places where patients with health problems are treated and continue their lives from where they left off. Likewise, hospital buildings are trying to get rid of the cold and frightening structure that includes the patient-doctor relationship.

It is seen that the cultural traces, which take place in the historical process and constitute an important character in health structures, have lost their influence in many areas such as space design as we approach the present day. The perception of space (especially for hospital interiors) has become transparent and similar within similar limitations. It is seen that the location of the hospital, the use of local materials related to the location, and the cultural characteristics of the users have been lost for the interior and exterior spaces and the uniform modern hospital approach is preferred in our country. However, this situation can be evaluated as the de-identification of the space experienced by the hospital users

for the general spaces where the whole interacts. Spaces that are considered as a transition route without identity symbolize the points where communication is broken to the same extent. The definition of de-cultivation is also a result of this. In a non-communicative environment, it is not possible to talk about a fictional communication factor that can be interpreted badly or well (Gezgin & İralı, 2017, p. 107). At this point, for the design approach of the interior space, the question of whether universal realities and aesthetic understanding should be practiced with a guarantor approach in addition to the already mandatory technical conditions comes to mind.

As a result, while “City Hospitals” is a concept that has emerged in our country in recent years, it is of great importance to explore the reasons for the formation of hospital perception before starting to see its social effects. At this point, the study aims to contribute to the literature with the change in the perception of the hospital society with its causes and consequences in line with the ruptures experienced in Turkey and to create a source for future health service applications.

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