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Contents:

Editorial

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Editorial

The second issue of the Journal of Design Studio has one book review and seven research articles. Journal of Design Studio has been started to be listed in the EAAE Architectural Journal Database.

"Desineer: Experimental Space Production in VR Environment" by Eray Sahbaz, and Bilgehan Bakirhan is the first article in this issue. Through digital space experiments, the project seeks to investigate the various opportunities for space production. In this context, the Unreal game engine was used to create the experimental Virtual Reality (VR) application "Desineer."

The second research article, by Ipek Yildirim Coruk, is titled " Spatial Organization Approaches at the First-Year Design Studio ". The purpose of the article is to demonstrate how students approach the creation of space fiction while utilizing fundamental design components. Content analysis was employed as the method of data gathering, and the study was designed using a qualitative research approach. In this direction, an analysis was conducted on the steps and results that the students produced for the given challenge in the studio settings. The form analysis of the two-dimensional photo frames utilizing the design elements and the technique of transforming this analysis into the space organization have been revealed as a consequence of the analyses.

Selim Kartal, and Mehmet Inceoglu are the authors of the third research article which is entitled as "Evaluating Street Character Using the 3D Fractal Analysis Method: Lefkoşa". This article's goal is to use a three-dimensional analysis to expose the mathematical component hiding beneath the intricate architectural fabric's structure. Understanding the mathematical component underlying architectural character is critical for new designs and interventions in the existing urban fabric, as architectural character has changed over time due to the influence of different cultures. This makes architectural character essential for maintaining urban integrity and sustainability.

The article which is entitled "Examination of the Interaction Process between Architecture Students and Supervisors in the Thesis Studio" written by Rahman Tafahomi. The purpose of this study is to expose philosophical contradictions in various schools of thought by critically analyzing the supervision procedure currently in place for the undergraduate thesis project in the architecture program. Even for the thesis projects, architectural programs have embraced the apprenticeship model of teaching, sometimes known as learning by doing. New schools of thought and education, however, demand greater independence and adaptability from their pupils.

Deniz Hasırcı, Yasemin Albayrak Kutlay, Zeynep Edes, Muge Caliskanelli, M. Haluk Tatari, and Silvia Rolla were the authors of the article which was entitled as "Highlighting Community and Identity through an Online Interior Architecture Studio Project: Ambassador's Residence Project". Encouraging a sense of community and connection during a period of disengagement was one of the initial goals. There were several strategies to accomplish this, the first being having the kids work in two-person teams. Utilizing the benefits of online learning to the fullest was the second step. In this way, the studio was open to both domestic and foreign visitors for talks and criticisms.

The research article was written by Neslihan Kulozu Uzunboy, Serkan Sipahi, and Gulay Kucuk and is entitled as " Assessment of the Erzurum Kudaka (Old Tekel) Building in Light of Modern Architectural Principles Using the Example of Villa Savoye ". The study examines, with the aid of paintings, the New Architecture concepts proposed by Le Courbusier, Villa Savoye, the Tekel building, and KUDAKA with its current transformation. Following the examination, the principles advanced in the Tekel building were examined, and the principles upheld in the building's current state were examined. In conclusion, the KUDAKA (Old Tekel) Building, one of the earliest examples of modern architecture, reveals the effects and changes brought about by Erzurum's New Architecture, which is still influencing the entire world.

The author of the study "Assessing Game Design Experience: Insights from Educators in Design Studio Environments " is Emirhan Coskun. In contrast to the structure of traditional education, which places more emphasis on knowledge than on doing, the author explains that well-designed digital games or digital game-based learning environments gain a more powerful and potential structure in terms of education because they offer positioned learning experiences with transferable information and instant feedback. This study has identified focusing on the game design experience and educators' approaches and perceptions towards digital game-based learning environments as a research problem in order to see the perspectives of educators and to understand how to create a common framework.

Guliz Ozorhon and Goksu Sarman's final research piece in this issue is titled "The Architectural Design Studio: A Case in the Intersection of the Conventional and the New." The study illustrated the relevance and effectiveness of classic studio instruments such as juries, context-subject, and critiques. It was also mentioned that while some of the new tools (OB) still needed to be utilized to their fullest extent, the studio experience was enhanced by their addition (QD). The study's findings also showed that students preferred in-person, interactive interactions in the studio. The learning area was one of the most important parts of the process because it gave the students a sense of belonging and motivation.

Book review by Orhan Hacihasanoglu on "Spaces of Republic in Sivas, 1930-1980 (Sivas' ta Cumhuriyetin Mekanları, 1930-1980)", edited by Uğur Tuztaşı and Pınar Koç, published by YEM Publication: 2021, is the book review that finishes this issue.

Desineer: Experimental Space Production in VR Environment

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Abstract: Architecture students and professionals had the opportunity to produce experimental spaces with the power of computer technologies, apart from traditional methods in space production. Technologies such as parametric design, Building Information Modelling (BIM), visual coding, and virtual reality hold new horizons for space production and the architecture itself. Despite all their potentials, they are still mainly used to support the design process or to present a project. The use of these tools is limited only to the effort to produce different and "impressive" forms based on aesthetic concerns. The study aims to examine the different possibilities of space production through digital space experiments. In this context, an experimental Virtual Reality (VR) application named "Desineer" was developed with Unreal game engine. The program has an easy interface where users can directly grab, drag, place and shape mesh objects. The Hands have played an important role in production throughout human history. Desineer eliminates the intermediary tools such as keyboard and mouse, with the help of VR technology, allowing the production of digital space directly by hands. By using the program, experiments were conducted on the manual production of digital space at Dumlupınar University Faculty of Architecture for students to gain new experiences. Within the scope of the study, first, discussions were held on space and the production of it for the students to develop their own ideas and perspectives, albeit fundamentally. Later, poems on different themes belonging to various poets were given to the students. The students read these poems and think about how the poems made them think and feel. Finally, the students produced improvised spaces based on these ideas and emotions using Desineer. It was observed that the workshop contributed students to the development of different perspectives on the production of space.

Keywords: Virtual Reality, Space, Production of Space, Digital Space, Production of Digital Space.

1. Introduction
1.1.   Production of Space
Although there are different definitions in the dictionary, space is a concept that is in constant motion and that is impossible to define with certainty. Definitions tried to be brought to the concept of space in the historical process played an important role in shaping the architectural understandings of that period. Perhaps for this reason, space has been one of the most discussed concepts of both philosophy and architecture. Aristotle imagines space as the environment in which we experience things (Lefebvre, 2009). According to him, the subject perceives the categories through space. Moving from Aristotle in modern philosophy, Kant describes space as the imaginary of premonitions based on external intuitions

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(Ülger, 2016). Thus, space can be thought of as a priori, insulated from the subject and things. In other words, space enters the domain of the absolute. It is now object versus subject (Lefebvre, 2009). Heidegger, on the other hand, thought of space as a place of interaction and experience and positioned it within the concept of "existence". In this respect, the world we live in expresses an unpredictable universe containing many possibilities (Ülger, 2016)..

Modern architecture has embarked on a search for an objective space based on the Cartesian philosophy, in the hope that it will put an end to the debates and eliminate ambiguity. Modernists have seen space as a mathematical concept based on the Euclidean coordinate system (Koçyiğit & Gorbon, 2012; Tanyeli, 2017). Although they think that by doing this, they remove all ambiguities (Vidler, 2000) and define the concept of space in an unchanging way forever, the Modernist Mathematical Precision Ideal in architecture has also been demolished as the problem and solution metaphors lost their validity over time (Tanyeli, 2017). This experience has clearly shown that it is not possible to construct an unchanging architecture over time by bringing objective definitions and methods to architecture.

Leach (2013) says that the architectural plan, like all other techniques in architecture, is a fiction that has been historically shaped by architectural historians. According to him, it is not a gift of architecture that architects think planimetrically. Tanyeli (2017) also claims that space production in terms of design can be traced back to the second half of the 15th century at the earliest. According to him, what has had an economic equivalent for centuries is space itself as a product. In this process, the production of the space is the production of the building rather than the design in the modern sense. In Heidegger's words, it is "Building and Dwelling" (Sharr, 2010). It is not in vain that Heidegger associates' space with the subject. For example, aren't the huts made by children out of pillows a kind of space production? These places are improvised and do not have any pre-drawn blueprints. The space is almost like an extension or even a continuation of the child's body. It exists with the subject that builds it. Similarly, reed huts or mud houses built by the locals are also a kind of building and dwelling action. That experience based structures are often produced without a blueprint.

The transformation of space into an abstract concept by being cut off from time with modernism (Koçyiğit & Gorbon, 2012) paved the way for the systematization of design work by placing it in an academic framework. Thus, the production of space has been reduced to a project-based uniform method. The study aims to create new paradigms on the production of space by questioning the channels other than project-based space production. However, it is not a method suggestion. It is just one of the questions about the endless possibilities of space production.

1.2.   From Space to Digital Space
Philosophical and scientific understandings, technology and production techniques that change over time are constantly undermining the concepts in architecture as in many other fields. Even the concepts that were previously thought to be the most agreed upon are becoming increasingly groundless. The concept of space has also begun to become obscure and disembodied (Vidler, 2000). The fact that computer technologies and digitization play a more active role in architecture cause the space to shift from concrete to abstract -reality to digital-. With the spread of the Internet and the introduction of social media into our lives, people are increasingly building virtual lives parallel to their real lives and allocating more time to these virtual lives. As a result, the boundaries between real space and digital space are increasingly blurred. Digital space, with its new perspective to architecture, has affected the existing design understanding and made the physical space flexible enough to turn it upside down. Because it is more flexible and variable, compared to physical space, it has fewer limiting elements.

2. Production Methods of Digital Space
The use of information technologies in architectural education has mainly been limited

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to supporting project-based space design, in other words, computer-aided design (CAD). Integrating tools such as computational design, parametric design and virtual design environments in universities has been no significant yet (Gül et al., 2013) and their stimulating potential for space production methods has not been used sufficiently.

2.1.   Computer Aided Design (CAD)

Since the 1970s, the concept of digital design has developed rapidly and has undergone many structural changes until today's technology. Firstly, one-dimensional, text-based digital designs were replaced by visual interfaces that were developed as two-dimensional and graphical databases later. The beginning of the design method called computer-aided architectural design (CAAD) dates to these dates. The idea of computer-aided design (CAD) first emerged in 1963 with the program called "Sketchpad" created by Ivan Sutherland in his doctoral thesis. The fact that the program has parametric variables has also allowed the idea of parametric design to develop. Later, computer aided design tools have been widely used in terms of architectural presentation techniques in the 1980s. However, in those years, it served more as a way of expressing designs rather than using it to support design.

2.2.   Parametric Design

Kolarevic (Kolarevic, 2003) stated that digital technologies and parametric design have an increasing importance in contemporary architectural practice. Unlike traditional methods, parametric design tools have serious potential in design, production and building construction in architecture. These technologies offer architects new design and production approaches and provide powerful tools for the creation and analysis of architectural forms (Kolarevic, 2003).

Aish and Woodbury (2005) emphasize that parametric design is an approach that includes the interaction of parameters at different levels to affect the design process and results. Unlike traditional design, parametric design is an approach where design decisions are based on mathematical parameters and can be changed.

Parametric tools allow the design to become more flexible, adaptive, and optimizable. The multi-level interaction potential of parametric design allows architectural projects to be more sophisticated, optimized, and sustainable. Therefore, parametric design is an approach that is becoming increasingly common and important in architecture.

Menges and Ahlquist (2011) focused on how algorithms and computational methods can be integrated into the design process and how they can optimize the design in their work on the philosophical foundations and theories of computer aided design thought. Computation and algorithmic design is an important approach in architectural practice that transforms design processes and enables design to achieve more complex and optimized results.

Parametric design, on the other hand, is a design process in which a problem created using certain variables is defined and many alternative results can be produced by changing the variables. Parametric design systems are based on algorithms and act as tools in original-variable product design. Designs created using codes and functions open new avenues for non-project-based space production. Parametric design allows the design to be renewed and updated by changing the parameters at any time of the design stages (Varlı, 2013). It has a significant potential in the production of experimental spaces, as it allows different variations to be tried easily. The fact that the parametric design allows different variations to be tried easily has a significant potential in experimental space production (Eltaweel & Su, 2017).

2.3.   Virtual Reality (VR)

Digital technological developments also affect our understanding of creating contemporary spaces by influencing today's architectural infrastructure. Manipulations using virtual reality and cognitive technologies play an important role in the formation of today's technological age (Rashid & Couture, 2002). Virtual reality was initially used for the presentation of projects with panoramic pictures or videos. With the discovery that game

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engines can be used to produce simultaneous realistic images, the use of this technology has advanced in architecture as well as in many other fields. Today, with the further development of game engines, factors such as illumination, shading and reflection can easily be animated simultaneously by computers. Realistic 3D images can now be easily obtained with the support of powerful graphics cards. Although its use in architecture remains mainly at the level of project presentation, virtual reality technology has serious potentials for questioning the identity of the architect and the methods of space production. In addition to contributing to overcoming the material and physical restrictions in the real world, this technology also provides many conveniences in learning by trial and error and by doing and living (Dede, 1995).

3. Desineer: Production of Experimental Space in Digital Environment

As in many fields, the developments in technology have paved the way for a radical change and transformation process in architecture. Tanyeli (2017) underlines that architectural concepts need to be redefined and redefined every time in a changing world.

Redefining the concepts also means that questioning and redefining the methods and tools used in the production of these concepts.

3.1. Desineer

Desineer is a VR-supported experimental application developed to examine the different possibilities of space production in line with this purpose. The name of the program was produced by distorting the word "design", which is the English equivalent of design, as a reference to the reduction of space production to project design today. The program was developed using the Unreal game engine. Its interface consists of a virtual environment reminiscent of 3D game spaces (Figure 1).

3.2. The Interface of The Desineer

By pressing the button tagged as 2 of the Oculus right hand grip, it is possible to switch between the types of objects to be added. Currently, there are 8 simple geometric shapes that can be added to the program: cube, cylinder, sphere, triangular prism, pyramid, cone, torus, and plane. Which shape will be added to the scene appears as an icon on the left side of the screen. By pressing the 2nd button of the left-hand grip, it is possible to switch between operations
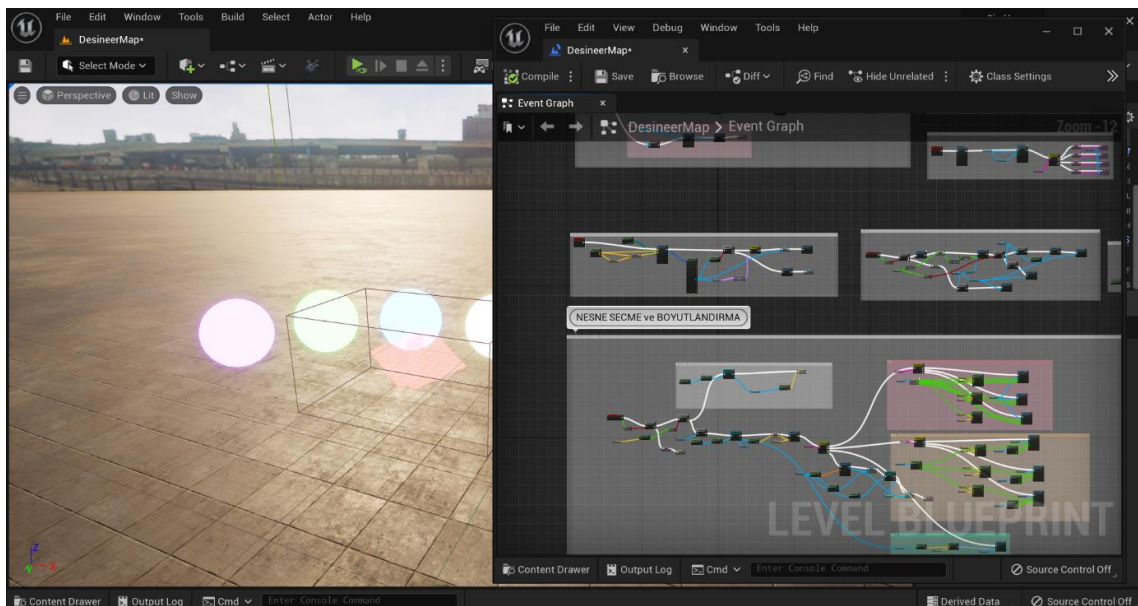
Figure 1: *A screen capture from the development process.*

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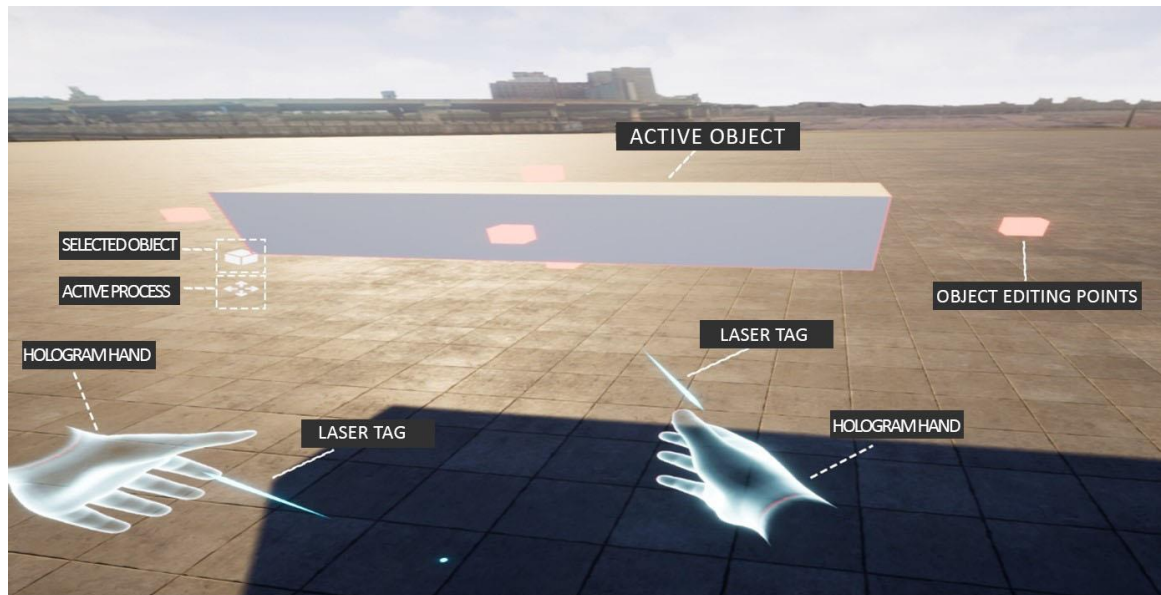
Figure 2: A screen capture from Desineer.

(push-pull), moving, rotating, copying, etc. on active object. The selected operation can be also seen as an icon on the left side of the screen (Figure 2).

Desineer has interactive tools such as surfaces and meshes used for space production. In order not to limit the production of space as a visual and graphic-based activity, light sources, and sound (audio sources) elements have also been added to these tools. With using these tools, users can produce experimental spaces as they wish.

Tadao Ando says hands are extensions of our minds. There is a direct relationship between manual creation and production. With the help of VR technology, Desineer eliminates intermediaries such as keyboards and mouses in the production of digital spaces and allows the use of hands directly. Just as students can create mass experiments in a bird's-eye environment just like making models, they also can experience the space and continue to produce it simultaneously by descending to the human scale.

3.3. Space Production Experiments

An experimental workshop called "Digital Space Production" was carried out with the Desineer program at Dumlupınar University Faculty of Architecture to conduct experiments in which digital space is produced directly by

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Figure 3: *Digital space production studies with Desineer (Photo: Şahbaz & Bakırhan, 2022)*

hand with VR (Figure 3). Within the scope of the study, first, discussions were made on space and the production of space.

Students were asked to come up with different ideas about what the production of space could be apart from project design and building construction. Thus, it is aimed to develop their own ideas and perspectives on the subject, even at a basic level. Later, poems on different themes belonging to various famous poets were given to the students. By reading these poems, the students thought about what the poems made them think and feel. Finally, they were asked to produce improvised spaces on these ideas and emotions using the Desineer program. Some of the studies are briefly mentioned below.

Study #1:
The subject of the study is the poem entitled "The Interrogation of The Good" by Bertolt Brecht. The poet questions human virtues through the concepts of good and bad in his poetry. What makes a person good or bad? Is being different from the bad enough to be good? Is it a virtue to be a good person? So, what is the thing we call virtue? In the work, there is a thin
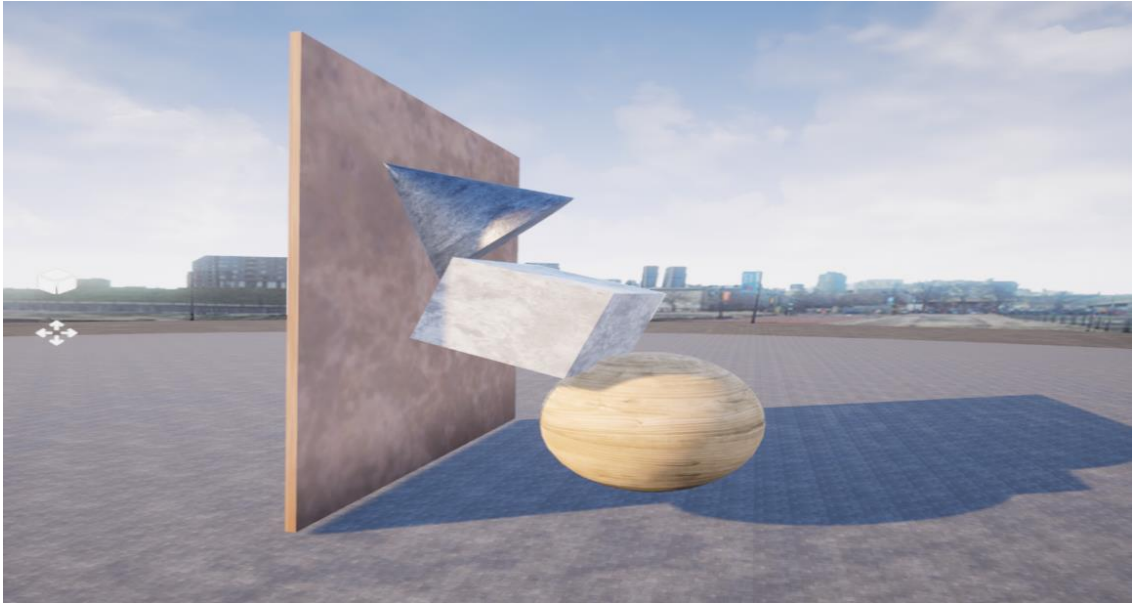
Figure 4: *Screen capture from Study #1*

wall and three geometric figures standing on top of each other (Figure 4). It all seems to be in a very delicate balance. It is not clear whether the wall holds the objects or whether the objects prevent the wall from falling over.

Study #2:
The study is about Ahmet Haşim's "The Stair" poem. The poem describes life and death with the metaphor of a stair. In the poem, life is symbolized by slowly climbing the stairs and death is symbolized by the reaching end of the stair and seeing sunset. The desperation of slowly approaching death is strongly felt. There is a long passage that evokes a tunnel and illuminated shapes on the path that looks as if you're reaching out to touch it in the work (Figure 5). Each illuminated shape represents special experiences in the life.
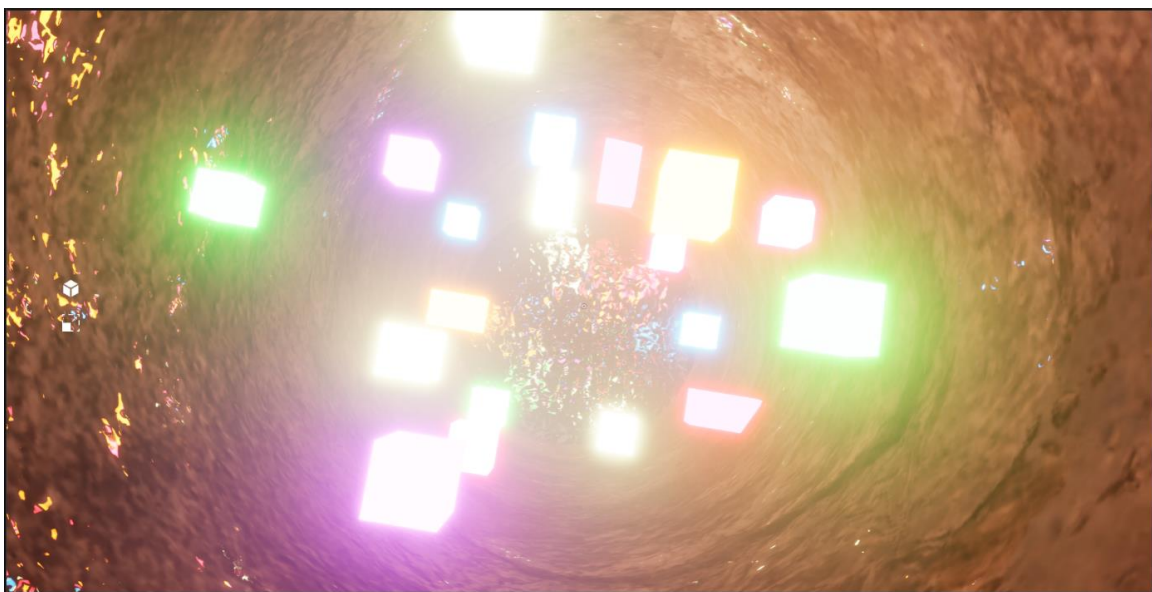
Figure 5: *Screen capture from Study #2*
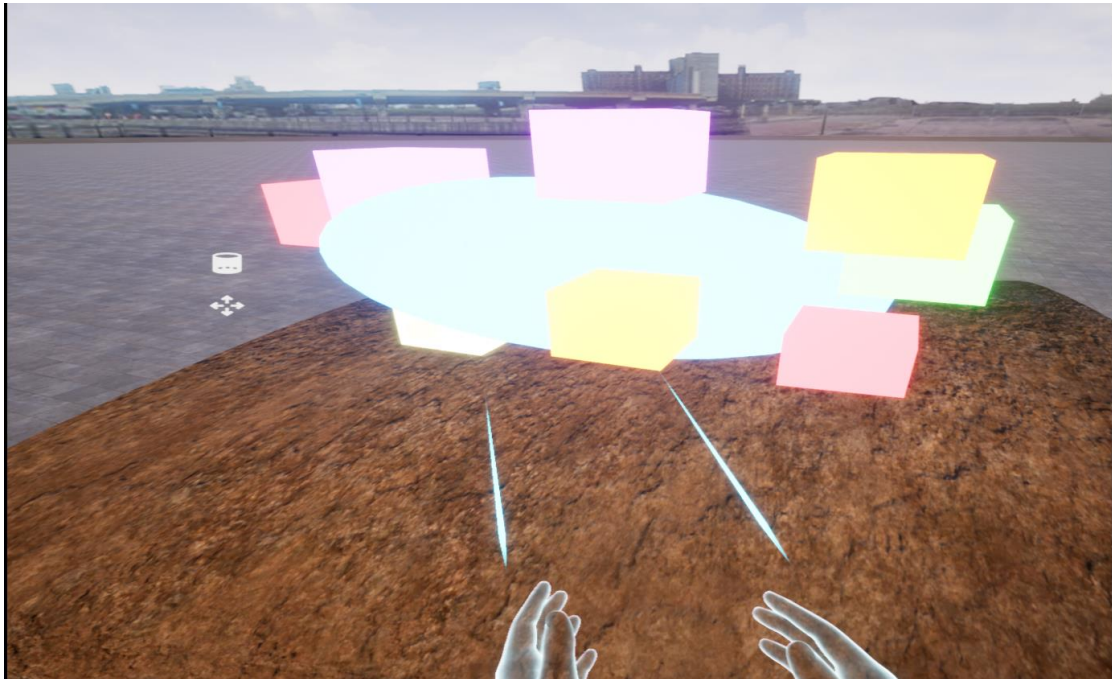
Figure 6: Screen capture from Study #3

Study #3:
The study is about Sezai Karakoç's poem entitled "Mona Rosa". In his poetry, the poet describes his desperate love for a woman with the metaphor of a rose. The poet named the rose, which he identified with the woman he loved, mona rosa. He identifies with the delicateness of the rose that he cannot reach her even though he is close enough to touch her. There is a deep sense of desperation in the poem. In the work, there is a blue shape resembling a balloon and surrounding masses which holding it (Figure 6). These objects stand on the far edge of a large rock. If someone touched, it seems the masses holding it will fall off and it will be rolling down the rock or flying away trough the sky.

Study #4:
The study is about Nazım Hikmet's poem entitled "Green-Eyed Giant". The poem is about a man who has great ideals and puts his ideals before everything, and a woman who does not understand the greatness of his thoughts. The woman has abandoned him and his ideals for a better life. Although the poet blames the woman for left himself alone, he seems to be caught between his desires and ideals. The scene consists of many masses in different materials, colors, and shapes (Figure 7). At first glance, it is not clear whether the scene is chaotic or organized. Are the colors on the objects their own colors or do the reflected lights cause illusion? Do the beams prevent the top cover from falling or rising up?

Heidegger says that producing works in art with purely aesthetic concerns will reduce them to the craft level (Bolt, 2014). Today, aesthetic concerns have also become dominant in architecture. Architects often prioritize the aesthetic dimension of the space when designing projects. Again, the architectural products are often evaluated in terms of aesthetic concerns. However, space is more than aesthetics, and just like in art, keeping only the aesthetic dimension in the production of space reduces architecture to the level of craftsmanship. Based on this, the experience dimension of the space was tried to be examined in the experiments. What is tried to be produced is the search for the space that triggers our feelings, rather than the space in the sense of building -reduced to aesthetics-. The students tried to abstract the effect and feelings of the poem they read on them in the spaces they produced.

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Figure 7: *Screen capture from Study #4*

Although project workshops in architectural education are mostly based on the logic of individual work, the complex nature of contemporary practices necessitates collaborative teamwork (Crosbie, 1995). Architects often need to work collaboratively not only with their colleagues but also with engineers, contractors, and clients. Desineer also allows students to produce experimental spaces as a team with the support of "Multiplayer" support. Thus, it enables the communication and interoperability of the stakeholders based on mutual information exchange in the production of space.

4. CONCLUSION

Wittgenstein states that none of our experiences are "a priori". According to him, everything we observe could be different, and everything we can represent could also be different (Hadot, 2009). Every produced space could have been produced in a lot of different ways. Contrary to what Kant and his followers claim, space has not got a priori order (Vidler, 2000). The absence of an ideal definition—in other words, its intangibility—constitutes a dilemma when it comes to its production. And maybe this dilemma itself opens a door to endless possibilities in the production of space.

According to Heidegger, if an artist knows in advance what he will do while making a work, what emerges is not art (Bolt, 2014). Art is the challenges experienced in the process of the emergence of a work, and the work becomes an artwork when it has finally produced. Likewise, it is the encounters that shape the space in its production and experience by the user, and architecturally, space emerges with this process. In other words, it is this process that shapes the space and offers different possibilities in the production of the space.

With the workshop, it has been tried to open the door to the said possibilities that have no limits on what the concept we call "space" can be and how it can be produced. In this direction, students made different experiments on digital space production with Desineer individually or as a team. In the study, students produced both completely abstract and hybrid (abstract + concrete) spaces by using light and sound in space production as well as three-dimensional objects. In fact, these works are not very different from a child's pillow house tryouts. Or the locals' houses which were made from reeds or mud. Just as a child experiences the space, he/she creates with his/her whole body when he/she builds a house from pillows, the students

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also had the opportunity to directly experience the digital space they produced via virtual reality environment. These experiences helped the students to develop questions about the different possibilities of space production and the role of the architects in it.

In the discussions held at the beginning of the study, the students generally brought more concrete definitions to the space, and many of them directly associated it with the constructions. After the experience, it was observed that the students were no longer as sure of their views about the space as they used to be, and that there were much more question marks in their minds about what the space is.

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Spatial Organization Approaches at the First-Year Design Studio

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Abstract: The space, that the raw material of design studio contents in disciplines related to spatial design, is a delimited space in the simplest terms. The totality of relations created in this delimited volume is associated with certain organizational form, such as central, linear, clustered, gridal and radial. This study aimed to investigate those organizational forms based on student process outputs of 17 students, completed the Design Studio-I course during the 2022-2023 Fall Semester at the Department of Interior Architecture and Environmental Design at Fenerbahce University. Also it is aimed to created a space fiction by using basic design elements and to reveal student approaches in this process. The study was designed with qualitative research method and content analysis was used as the data collection technique. In this direction, the process stages and outputs performed by the students for the given problem in the studio environments were analyzed. As a result of the analyzes, the form analysis of the two-dimensional photo frames by using the design elements and the transformation process of this analysis into the space organization has been revealed. Thus, an application for the way of benefiting from design elements in the process of space organization has been showed.

Keywords: Spatial design education, Design studio, Space, Spatial organization forms.

Introduction
First-year design studios provide the students with an environment, where they can do their first exercises in spatial design, and it may include abstract or concrete spatial work. Accordingly, students have their first experiences with space, and learn spatial relations and spatial organizations. Upon a review of the previous studies investigating the students' spatial organization approaches in design studio environments, Hasgül and Birer (2019) established the aforementioned relationship on the basis of Bauhaus posters. In that study, students were expected to analyze the stylistic relationships in the designated posters, followed by reinterpretation upon synthesis of the form relationships in the posters. Therefore, different spatial interpretation styles of students were investigated in the resulting products. In another study, Özsırkıntı Kasap and Türkmen (2018) investigated formal organization relations/form production approaches of students using basic geometric forms and design principles during the transition from two-dimensional surface to three-dimensional volumetric studies in basic design education. Furthermore, Özsırkıntı et al. (2019) also aimed to explore the spatial organization approaches of the students at basic design education studio environment. Here, the geometrical decisions – based on defining the organic forms also associated with the biomimicry discipline– and the three-dimensional volume expression of those decisions were investigated.

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This study has created in order to contribute to the relevant literature on the subject rather than the deficiencies in the existing studies or the search for answers to the problems in the literature. Like other studies, this study was conducted in the first-year design studio environment. The motivation of the study is to create a space structure by using basic design elements in the design studios in the first year and to reveal the student approaches in this process.

Accordingly, the students were asked in the studio setting to take a photograph with a focal point from a defined area and this frame was limited to 25*25 cm. In this process, the photo framing is expected to be determined by the student himself. Because this determination also prepares the ground for the student to question what the composition is, to determine the elements that will form the composition and to discuss the relationship between the elements. Subsequently, the totality of formal relations that constituted the focal point over the relevant frame were expressed in the 2nd dimension by using the design elements of point, line, and surface (plane). In other words, the language of relationship in the photographs was analyzed and reflected by design elements. During the study, this type of relationship was transformed into volumetric relationships in the third dimension, and abstract spatial outputs have been revealed. At this point, the aim of the study is to reveal the process experienced in the studio environment and the outputs of this process, the ways in which the basic design elements were utilized in the space fiction and the spatial organization tendencies of the students.

Whereby, the abstract spatial formation approaches of the students were reviewed by means of formal analysis of the existing relations over the two-dimensional photo framing taken from a defined and concrete space. The study is thought to be a contribute to the literature because it exemplifies the way design elements are utilized for form analysis and space organization formation. This analysis study, which is carried out by using design elements, is important in terms of determining the form analysis and space organization tendencies of the students, comprehending the design elements, developing their spatial abilities in terms of providing analysis, synthesis and three-dimensional relationships through these elements, providing awareness about the organization of space and providing rational data on this subject by ensuring the traceability of the process.

Theoretical Framework
Space, as defined by Hasol (2010), is a gap that separates people from the environment to a certain extent and allows them to continue their activities. Namely, it is a three-dimensional setting, which includes the arrangements for the movement and behavior of the individual and is based on coexistence of width, depth, height, distance, and spacing. Space is a conceptual existence that is perceived not only by our physical existence or actions, but by all the senses as well. It is composed of a combination of the sensory and aesthetic characteristics of all the elements it contains. Therefore, it is not only defined in formal and dimensional terms, but also considered within broader contents (Özkan, 2017).

The notion of space connects the cultural and the mental, the historical and the social. It is a complex process with regard to discovery, production, and creation. This is based on the material embodiment of the process elements (Lefebvre, 2014). Architectural/interior design education is associated with visual-spatial skills and competencies along with the aforementioned space notion. Students are introduced to both design and visual representation tools during the first year of that education. This process, in which the student starts to design, is characterized by how the students think while designing, how they can use their visual spatial skills, and how they can take further steps to ensure development. Thus, a first-year design studio student has to understand both the design process, and the space, which is the essence of that process, while assuming increasingly complex design tasks (Acar, Soysal Acar, & Ünver, 2019). In doing so, different methods are used.

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During the first-year design studio, the design process is envisaged through abstract works, and thus it encompasses formal concerns along with their conceptual framework. In that regard, the space, which is expressed as gap with a function and vest new identities to architectural/interior design education, also allows for inquiries that would shape the search for form in design studio environment. In addition, the first-year design studio plays an important role in the development of spatial skills and three-dimensional expression ability, which would allow the students to consciously observe the physical environment and to produce reflexes in line with those observations. As well as the above objectives, the first-year design studio students can produce solutions to formal and fictional problems in the design process (Özsırkıntı Kasap, Türkmen, & Basarik Aytekin, 2019). In this study, these solution proposals are examined by considering Ching spatial organization approaches such as centralized, linear, radial, clustered and gridal approaches.
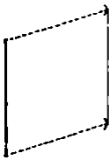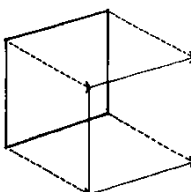
In order to produce these solutions, the topics included in the design studios in the first year are generally the headings that form the basis of design and space organization such as design elements, design principles, visual perception principles. Within the scope of the study, among these headings, design elements are focused. Although design elements are handled in different ways in different sources, in this study design elements are handle as point, line, plane, volume, light, color and texture (Güngör, 2005). But, only point, line, plane and volume (Table 1) have used in the analysis process.

A point determines a position in space. Conceptually, it has no length, breadth and depth. It is therefore static, directionless and central. The point is the smallest element that the eye can perceive. It is a feature that does not specify any direction, has no dimensions, and does not have a visual value on its own. (Gürer, 1990). When it is stretched the point becomes a line. The line has a length, but it does not have a width and height/depth. As a design element, the line is a visual value that does not have a surface and volume effect on its own, but follows thin, long and certain paths according to its location (Tepecik & Toktaş, 2014). While the point is stationary by nature, when the line describes the course of the point in motion, it can visually express direction, motion, and growth. When a line is extended (in a direction other than its own), it becomes a plane, the plane has length and width, but no depth. The plane, extended in a direction other than its own direction, becomes volume. Conceptually, volume is three-dimensional. Length, width, and depth (Ching, 2011). Points make up the line, lines make up the plane, planes make up the volüme (Atalayer, 1994). This elements harnessed for spatial organization in this study.

The physical explanation of color is made as 'absorbing some wavelengths depending on the properties of the objects and reflecting some of them' (Seylan, 2005). Texture is a special quality that a surface has due to its three-dimensional structure. Texture is mostly used to describe the roughness and smoothness of a surface (Ching, 2011).

The processes of architectural and interior design education that require visual spatial

Table 1: *Design elements (Ching, 2011).*

Point	Line	Plane	Volume

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awareness and skills are among the basic topics in the field of spatial design. Therefore, visual-spatial competencies and skills that students are expected to acquire and develop during education are significant for the purposes of the relevant literature (Acar, Soysal Acar, & Ünver, 2019). Associated with spatial design, architecture and interior design students are expected to abstract the space they perceive into its components, and then transform those components into two- or three-dimensional forms of expression by means of visual expressions. Accordingly, the spatial patterns created with an aim to address the problems related to the spatial design can serve as an input to the spatial organization design (Hasgül & Birer, 2019). In this study, the separation of the space into its components and the subsequent creation of three-dimensional spaces were realized by using design elements.
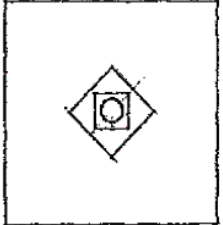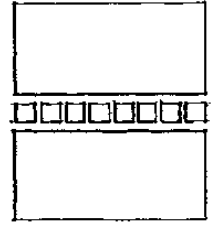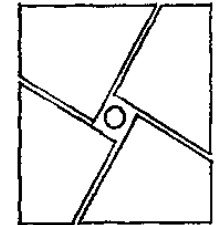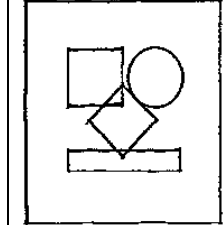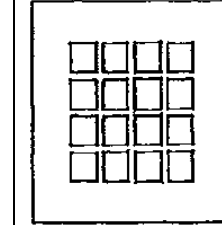
"In the first-year design studio studies aims to promote creativity based on abstract and conceptual thinking and induces presenting a product both in theoretical and organizational terms based on basic concepts. In the context thereof, the process of creating a new holistic result, which the students have created for a defined problem, constitutes an important opening in terms of introducing the grounds for architectural spatial design after the first year (Hasgül & Birer, 2019, s. 39-40). Furthermore, form relations, which organize the ideas superficially produced in the volumetric scale and make the spatial approaches on the plane traceable, allow the intuitive, analytical, and spatial preferences of the students to be represented in a three-dimensional environment (Türkmen, 2020, s. 233)."

The creation of the whole upon bringing the objects together is a consequence of the search for order in the spatial setup. Ching's classification of spatial organization is considered in this context in explaining the organizational chart, layout, and form of architectural space. This fiction constitutes a classification based on reading the search for form in spatial design through diverse compositional schemes (Hasgül & Birer, 2019). Association of spaces with each other by virtue of spatial organization approaches in design provides ways to create form and space patterns (Özkan, 2017). Ching suggested five approaches (Table 2), namely central, linear, radial, clustered and gridal organization as regards the spatial organization approaches.

Centralized Organization: Central forms refer to organizational relations that mark a point in space or indicate the center of a defined space (Yollu, 2006). Centralized organization is a composition of several secondary spaces around a central, large, and dominant space (Ching, 2011). This organizational approach is associated with spatial hierarchy. So, the most important space is located in the centre and surrounded by secondary ones (Eskandari, 2011).

Table 2: *Spatial organization approaches (Ching, 2011).*

Centralized Organization	Lineer Organization	Radial Organization	Clustered Organizastion	Gridal Organization

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Linear Organization is established by introducing associations between directly related or different linear spaces. This organization is formed by the bringing together spaces that are similar in terms of size, function, and form. Symbolically or functionally important spaces in linear organization are underscored by distinctive sizes compared to others (Yollu, 2006). Although linear organization is usually made of repetitions of similar elements, they can also occur differently in terms of size, form, and function (Özkan, 2017).

Radial Organization is created by the radial extension of the linear spatial organization (Ching, 2011). This organization is marked with a dominant, central point from which a number of linear organizations radially extend outward. The radial arms may be distinct from each other to meet the requirements of function and context (Yollu, 2006). The radial spatial organization combines the elements of both central and linear spatial organization. Accordingly, there is a central and dominant point, where a large number of linear elements are positioned radially outwards. While the centralized organization form gives a rise to an introverted schema, the radial organization creates an extroverted schema due to the outward-extended elements (Özkan, 2017). In brief, the radial organization approach has formed by the combination of central and linear organization relations.

Clustered Organization is characterized by the repetition of spaces that share a common, visual feature, including a similar function, form, or orientation (Yollu, 2006). This organization is associated with groups created on the basis of a common relationship, shared visual character, or proximity (Ching, 2011). Clustered organizations use the proximity of those spaces to associate their spaces with each other. Those organizations often consist of spatial repetitions with similar functions, shared visual character, such as shape or orientation (Ching, 2011). In this organizational approach, since the pattern of elements is not rigid and limited, it is flexible and open to change.

Gridal organization includes spaces and forms, the spatial positions, and relations of which are organized by a three-dimensional grid pattern (Yollu, 2006). That organization is created with spaces organized within a structural grid or a different framework (Ching, 2011).

In order for these organizations to occur, design elements and principles, which are the main components of design education, are utilized. In the study setup, it was expected to use design elements in the process of revealing the spatial interpretation forms of the students and to create a three-dimensional space organization from these analyzes. With the study created in this direction, the analysis process and spatial interpretation approaches experienced by the students were revealed. Although the design elements are grouped as points, lines, surfaces, volumes, colors, lights, textures, in this study points, lines and surfaces are as primarily used. Since the exercises for color and texture, which are among the design elements, were also included in the intermediate stages of the study, these elements were reflected with in the use of color or texture in the final products.

Method
This study was designed with qualitative research method. Content analysis technique was used for assessing the obtain data. Content analysis is a systematic and empirical method intended for the analysis of document type of data. This method can also be used to analyze audio-visual materials, although it is generally used for the purposes of written data analyses (Burton, 2000) (Groat & Wang, 2013).

Accordingly, in the study, it is aimed to make form analysis by using basic design elements and to transform these analyzes into three-dimensional space fictions. In this study, as a data source, the student studies of the design studio in the department of Interior Architecture and Environmental Design of Fenerbahce University in the fall semester have discussed. While analyzing the data, the student study steps showing the analyzes provided by the use of each design element have sampled and revealed with the process outputs. The

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participation of the students in the process was ensured by performing the relevant steps for the given problem. The analysis of the data was obtained both by how the two-dimensional relationship language in the photo frames was analyzed by using the design elements and by classifying the resulting products to which of the spatial organization approaches could be included.
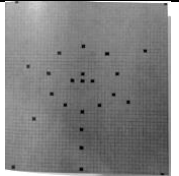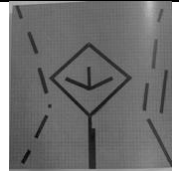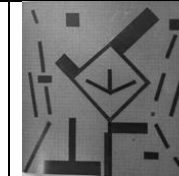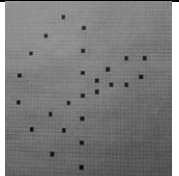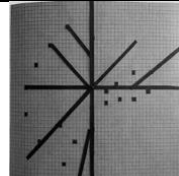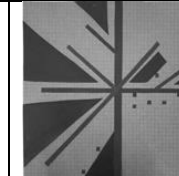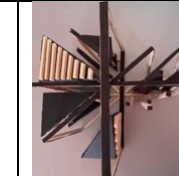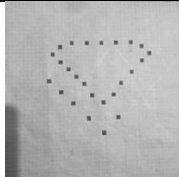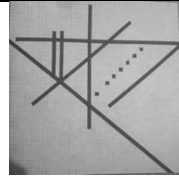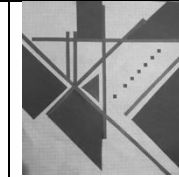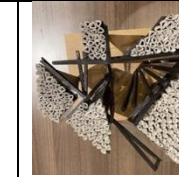
In summary, this study was conducted with 17 students, who successfully completed the design studio course at Department of Interior Architecture and Environmental Design, Fenerbahce University, during the fall semester of 2022-2023 In the study, students were expected to analyze the form relations that form the starting points they are based on through design elements and to create a three-dimensional space organization as a result of these analyzes. In the course thereof, the work began with a 25*25cm photograph frame taken
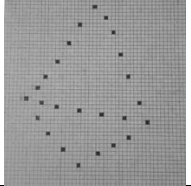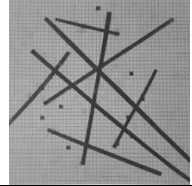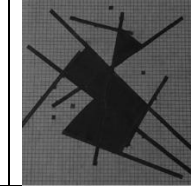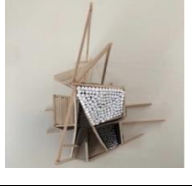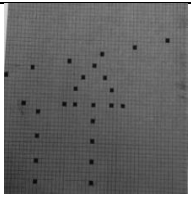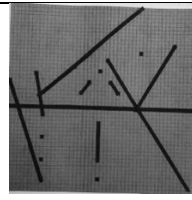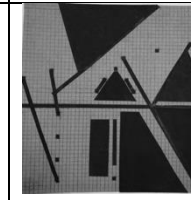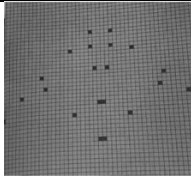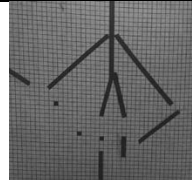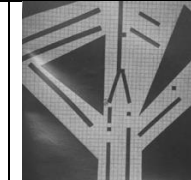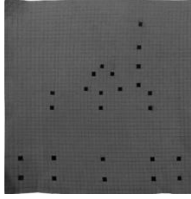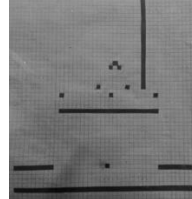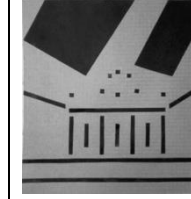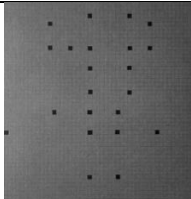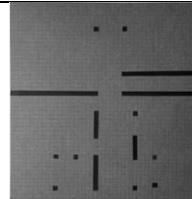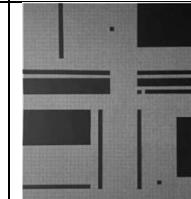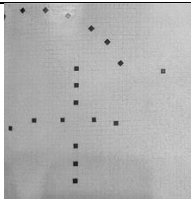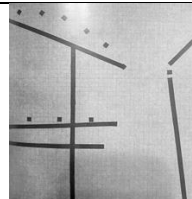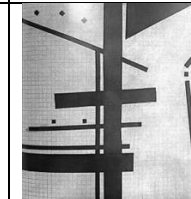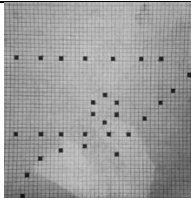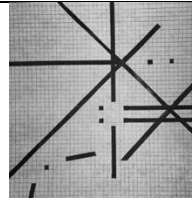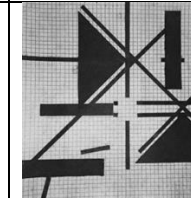
from a defined space and with a defined focal point. During the next step, the students were anticipated to analyze the relational code of the focal point in the photograph through the design elements of point, line, and surface, and to present a two-dimensional composition based on that analysis. Thereafter, the counterpart of the said relations in that composition was sought in the third dimension and abstract spatial volumes were presented. The spatial organization approaches in the final products of the study have grouped by using the spatial organization classification of Ching (2011) in order to reveal the spatial organization tendencies of the students.
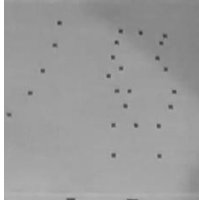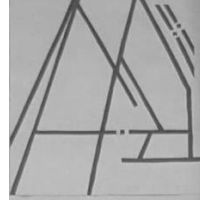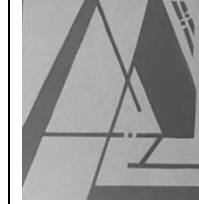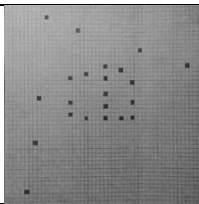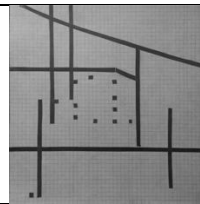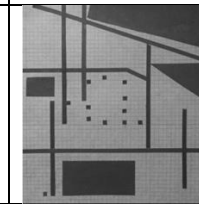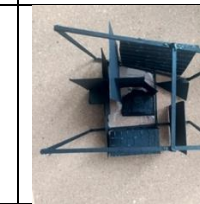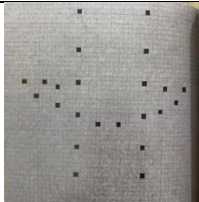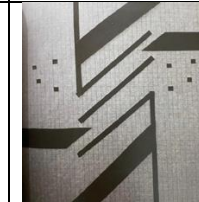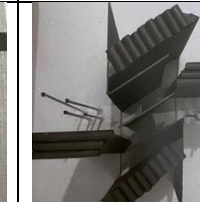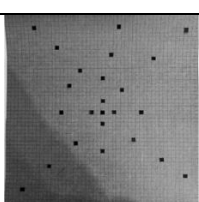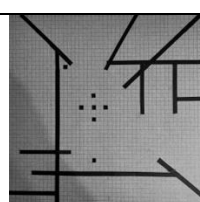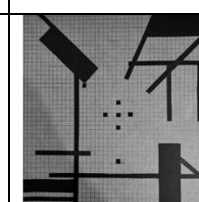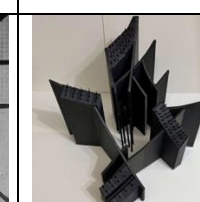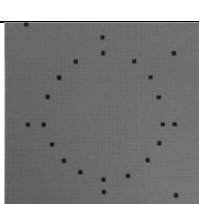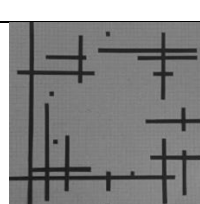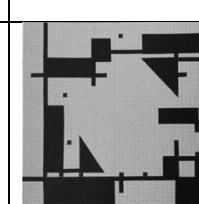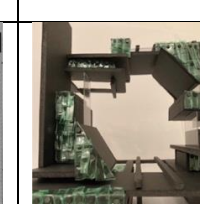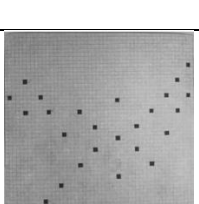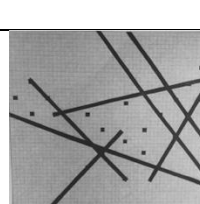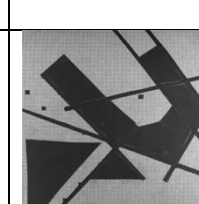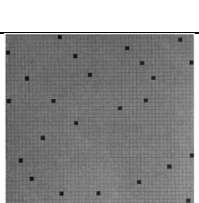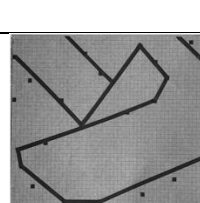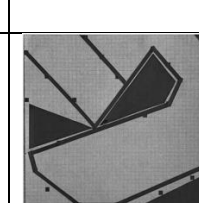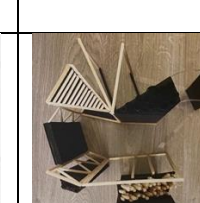
The Studio Process
The analyzes made by the students using the design elements and the student process studies resulting from these analyzes are included in Table 3.

Table 3: Student works

	Photo	Analysis with Point	Analysis with Line	Analysis with Plane	Spatial Volume
1					
2					
3					

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4					
5					
6					
7					
8					
9					
10					

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1 1				
12				
13				
14				
15				
16				
17				

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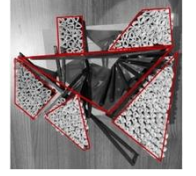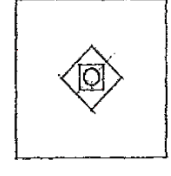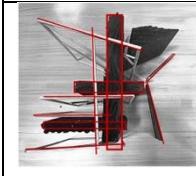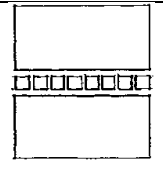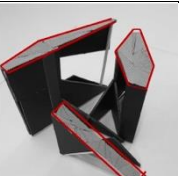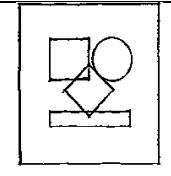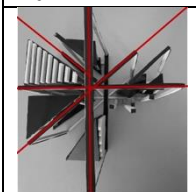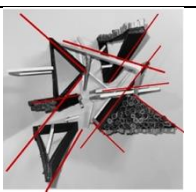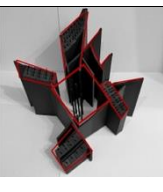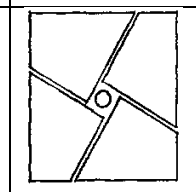
Accordingly, the way in which the form relations in the photo frames are interpreted by making use of the design elements is expressed in the Table 3. In the problem process that started with taking photographs with a defined focal point, the composition, form language and relationships that make up this focal point have redefined with design elements such as point, line and surface. In the ongoing stages of the study, this form language has been expressed in three dimensions The resulting products express the process of analyzing the different formal relationships in the students' photographs and the spatial volumes they create as a result of this process.

In the analysis process, which started with the point from the design elements, the focal point and the elements in the composition were expressed with the squares represented as points. In the second stage, the composition is improved by including the line from the design elements, provided that the position of the points is maintained. Then, surface values have added to the composition formed by points and lines, provided that the position of the points and lines was preserved. In this process, the relationships that form analyzes and composition have been expressed with fullness in some studies and emptiness in some studies. Since the work was carried out on a gridal background, circular values or elements were expressed as angular.

In this process, formal organization approaches have shaped as central, linear, radial or clustered (Table 4). This diversity was created by the photographs taken at the beginning and the way the students interpreted the relationships in these photographs. Accordingly, Table 4-1, 4-2, 4-3, 4-4, 4-5 refer to the central organization, while Table 4-10, 4-11, 4-12 refer to the radial organization, Table 4-6, 4-7 refer to the linear organization, and finally Table 4-8, 4-9 refers to the clustered organization.

Table 4: *Spatial organization approaches*

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Discussion and Conclusion

This study, which is based on the student studies put forward during the studio work that lasts for a semester, includes the examination of the ways in which students benefit from design elements while analyzing two-dimensional relationships and the three-dimensional spatial organization approaches that emerge at the end of this process. In this direction, data and student tendencies for the process of creating a space organization through design elements were revealed. The findings created through student studies exemplify how the form relations in the photographic frames, which are considered as a starting point through design elements, can be analyzed step by step by making use of design elements and the way a spatial organization emerges as a result.

In the three-dimensional spaces created with this study, which was created to be an example of the way of benefiting from design elements in the process of form analysis and space fiction, tendencies towards central, linear, radial and clustered organization are seen. With the study, the way of benefiting from design elements and spatial organization approaches in the transformation process experienced when moving from two dimensions to the third dimension were examined.

In this context with the designed course was intended to ensure that students comprehended different domains, including perception, analysis, combination (synthesis), and assessment during the first-year design studio design process. It was considered that the foregoing analysis-synthesis processes for spatial organization relations during the first year of spatial design education would contribute to students in terms of spatial relations, organizational relations, and the expression of two-dimensional spatial relations in the third dimensional settings. On the other hand, the study is a basic exercise in recognizing and benefiting from design elements and defining a composition and its constituent elements in the third dimension. In the simplest terms, it reveals the form analysis by making use of design elements and the

transformation process of this analysis into space organization with its stages.

The study presents a different perspective by contributing to the relevant subject and providing diversity in the literature on spatial organization with the data it reveals about the way design elements are used in the space fiction. The steps revealed by this transformation study, which covers one semester, constitute the results of the study as well as the data. This result is thought to be a contribute in terms of providing methods or perspectives for both design elements and spatial organization approaches in design studios.

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Evaluating Street Character Using the 3D Fractal Analysis Method: Lefkoşa

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Abstract: The aim of this article is to reveal the mathematical dimension behind the complex structure of architectural fabric through a three-dimensional analysis. Given that the architectural character, which has evolved under the influence of various cultures over time, is crucial for urban integrity and sustainability, understanding the mathematical dimension underlying this character is of great importance for new designs and interventions in existing urban fabric. Therefore, streets in the Arabahmet neighbourhood of Lefkoşa Suriçi, which best represents the traditional fabric, were examined using a three-dimensional fractal analysis method. The analyses indicate that, in general, the fractal dimension values of the residential fabric-created streets are above 2.52, demonstrating a high level of character and complexity in these streets. Additionally, the fractal dimension values of these streets are close to each other, supporting the spatial and mass consistency of different streets within the same neighbourhood.

Keywords: Cube-counting method, 3D fractal analysis, Fractal dimension, Fractal geometry, Lefkoşa.

1. Introduction

In 1975, the term 'fractal,' derived from the Latin word 'fractus' by Benoît Mandelbrot, typically refers to a geometric object created through an iterative process. Often, the resulting shape can be divided into smaller parts, each resembling the original shape. Fractals possess infinite detail, and some exhibit a self-similar structure at different levels of magnification (Terzidis 2006; 2009). Considering that smooth lines and planes exist only in ideal mathematics, it can be argued that virtually everything in our natural surroundings exhibits a fractal structure. They can be found everywhere, from coastlines to boundaries, clouds to mountains, trees to plants, and even in architecture (Lorenz, 2003).

Urban texture results from numerous consecutive construction activities by individuals and communities over many years (Ben-Hamouche, 2009). Consequently, cities develop complex structures. The complexity of urban structures demonstrates that they are not composed solely of 0, 1, 2, and 3-dimensional objects, but also include objects that need to be expressed with rational numbers. Consequently, it has been observed that urban spaces exhibit fractal properties, especially in spontaneously developing cities, which tend to have high fractal values. Therefore, utilizing fractal dimension analysis to examine cities within the context of the complex structure we inhabit will lead to a better understanding of urban construction (Kaya and Bölen, 2006). This method allows for the mathematical dimension

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of an existing urban texture to be calculated, and assessments can be made based on the resulting numerical values.

When reviewing research conducted in the field of architecture in the literature, it is evident that fractal dimension analysis has been employed in various contexts, ranging from urban scale to street scale, building scale, and even for design exploration. Since the introduction of fractals by Mandelbrot, numerous researchers have used this method to understand the mathematical dimension of the built environment. Prominent studies from these research efforts are summarized below.

Fractal dimension analysis has recently been used in many studies to examine the complex structure of urban textures. In one study, İlhan and Ediz (2019). explored the temporal and spatial development of urban texture through fractal dimension values. This research interprets changes in the physical texture concretely through numerical data. In another study, Kaya and Bölen (2006) compared the complex structures of two spaces with different characters, traditional and modern, using fractal dimension analysis. Additionally, Atak Doğan and Çağdaş (2017) investigated fractal dimension calculations based on site plans, street silhouettes, building facades, and details to explore fractal consistency between different scales.

Apart from urban scale studies, fractal dimension analysis has also been used to evaluate different characteristics of street textures. Cooper (2003) analysed the physical characteristics that constitute street silhouettes by considering both the built environment and natural forms, conducting analyses based on horizon lines extracted from photographs. This study demonstrates how to calculate the fractal dimension of street silhouettes. Additionally, Cooper (2005) and Oppong et al. (2017) conducted a study on fractal dimension calculations for street edges, demonstrating how to calculate the fractal dimension for street edges and how to relate the obtained numerical values to the character of a place.

The analysis of architectural scale, initiated by Bovill's (1996) study of Amasya, has subsequently been tested in the plans and elevations of many famous modern architects' residences. Wen and Kao (2005) compared the works of Frank Lloyd Wright, Le Corbusier, and Mies Van Der Rohe from different periods. Ostwald and Vaughan (2008) evaluated Eileen Gray's designs, while Vaughan and Ostwald (2008) conducted an analysis of Kazuyo Sejima's residences. Later, Ostwald et al. (2009) measured and compared the fractal dimension of residential designs by various modern architects, including Le Corbusier, Eileen Gray, Peter Eisenman, and Kazuyo Sejma. These studies compared the complexity levels of both different architectural works and the works of the same architect from different periods.

Fractal analysis studies have also been conducted beyond residential architecture. Ediz and Ostwald (2012) used fractal dimension analysis to examine the complexity of visual layers on the facades of the Süleymaniye Mosque, one of Architect Sinan's works. This study focused on measuring and evaluating the relationship between form, ornamentation, and materials rather than interpreting Sinan's architectural work. A similar study was conducted by Ostwald and Ediz (2015) for the Kılıç Ali Paşa Mosque, following the methodological settings used in their previous study on the Süleymaniye Mosque. They used this approach to test the visual complexity of the structure and compare it to the previously analysed Süleymaniye Mosque. Additionally, Rian et al. (2007) evaluated the visual complexity of the Kandariya Mahadou Temple, Samper and Herrera (2014) analysed French Gothic Cathedrals, Shishin and Ismail (2016) assessed the visual complexity of Poi-Kalyan and Bibi-Khanym Mosques. Furthermore, fractal dimension analysis has been used in the studies of Ediz and Çağdaş (2005) for generating data for a three-dimensional generative system and in the research of Abdelsalam and Ibrahim (2019) for Al-Sultan Hassan Medrese.

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Despite the increasing applications of fractal analysis at various scales, it is notable that most of these studies have been limited to two dimensions. While a few three-dimensional fractal analysis studies exist, they remain relatively scarce. Among these studies, Qin et al. (2015) used the three-dimensional box-counting method to examine the form of a city in two different periods. In a similar study, Liu and Chen (2022) analysed different urban areas in Shenyang, northeast China, using the three-dimensional box-counting method.

Fractal analysis, a frequently used method to emphasize the mathematical dimension behind an architectural structure or texture, is encountering applications at different scales. However, there is a shortage of three-dimensional fractal analysis studies in the fields of architecture and planning due to both modelling difficulties in the built environment and the lack of technical tools for analysis. In the reviewed studies, two-dimensional fractal analysis employed remotely sensed imagery or digital maps. In building scale studies, plans, elevations, and sections were used, while urban scale studies utilized the box-counting method based on site plans. In three-dimensional studies, remote sensing was used to extract building forms and heights for analysis. Additionally, the three-dimensional box-counting method was employed. This study differs from other three-dimensional studies in

that it involves detailed modelling of individual architectural structures and street textures and utilizes the cube-counting method for three-dimensional fractal analysis. The developed model can be used as a tool for examining different residential textures in traditional contexts in Lefkoşa.

This study is organized into five sections. After the first section, the second section provides information on the relationship between fractal dimension and two-dimensional and three-dimensional fractal analysis. Section 3 introduces the methodology and study area. Section 4 presents findings and discussions, while Section 5 summarizes the study's conclusions.

2. Fractal Dimension

Although fractal structures are often defined by their characteristics such as self-similarity and complexity, most of the time, the only way to describe fractal structures is through fractal dimensions (Lorenz, 2009). Fractal dimension is the dimension of an object that has a non-integer value, unlike integer dimensions, due to the irregularity and level of detail of the object. This value takes on a range between one and two for two-dimensional objects ($1<D<2$) and a range between two and three for three-dimensional objects ($2<D<3$) (Rian et. all, 2007) (See Figure 1). In two-dimensional images, this value varies between 1 and 2,
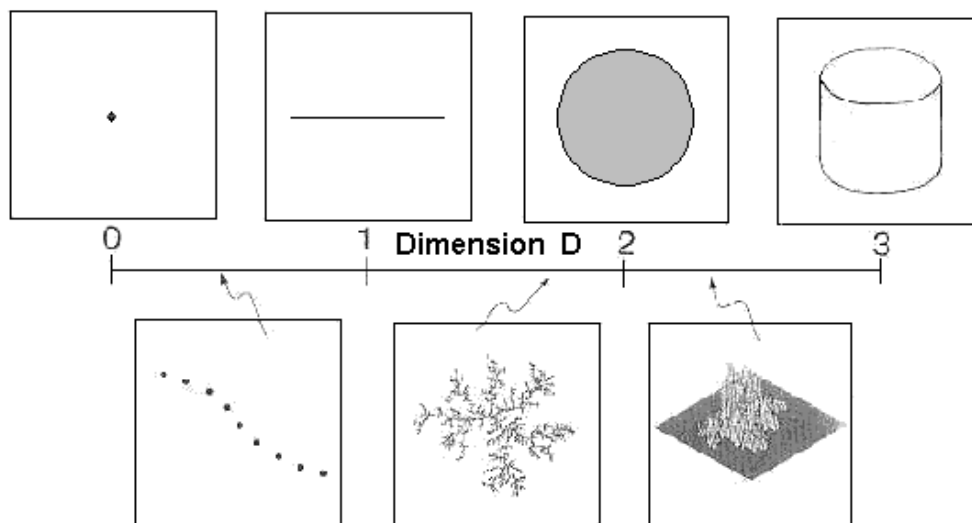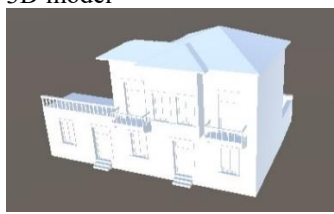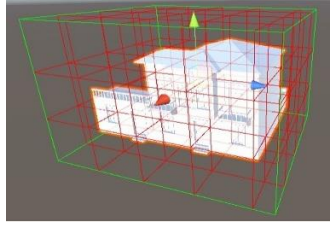
Figure 1: *Fractal Dimension Relationship (Batty and Longley, 1994)*

approaching 1 representing low complexity levels (Shishin and Ismail, 2016), and approaching 2 representing high complexity levels (Vaughan and Ostwald, 2009;2010). In the case of three-dimensional fractals, as the value approaches 2, it represents low complexity levels, and as it approaches 3, it represents high complexity levels

Table 1: *A Comparison of Two-Dimensional and Three-Dimensional Fractal Analysis*

	Two-Dimensional Fractal Analysis	Three-Dimensional Fractal Analysis
Fractal value range	1<FD<2	2<FD<3
Data type	2-dimensional images and drawings	3D model
Calculation method	By box counting method	By cube counting method
Scale	From building scale to urban scale	Building and street scale (Under development for larger scales)
Requirements	Editing and Analysis tool ImageJ vb.	Modelling and Analysis tool blender unity
Assessment method	Information about the architectural structure or texture is produced through a single facade, silhouette, and site plan.	Information is produced through a three-dimensional scale representation of the architectural structure or texture.
Information obtained	Limited	Comprehensive

3. Material and Method
3.1.Method

This study presents a quantitative and qualitative approach based on three-dimensional fractal analysis, rooted in mathematics, along with a review of the literature in the pre-analysis phase. Furthermore, in the discussion section of the study, an approach transitioning between quantitative and qualitative aspects is employed by associating mathematical data with the physical characteristics of architectural products. Two different software programs were utilized for modelling and analysis. The "Blender" software was used for modelling, while the "Unity" game engine was used for analysis. Within the scope of the study, the houses comprising the street are considered as a whole. In this context, the entire street is modelled and analysed in three dimensions. The flowchart of the 3D fractal analysis process is provided in Figure 2.

The model that conducts three-dimensional fractal analysis of architectural texture within the scope of the study is based on the cube counting method. In the cube counting method, the fractal dimension of the model to be calculated is covered with an initial volume. This initial volume is determined by taking the outermost points of the model in the entire coordinate system as references. Once the initial volume is determined, it is obtained by adding 20% (1/5) of the short edge length to all edges of the model's outer boundaries. After the initial volume is created, the short edge (height) is divided into thirds (1/3) to determine the initial cube size. The division process continues until all volume cubes are covered. After this process is completed, the first cycle becomes ready for calculation. The number of cubes in the lower row of the initial volume (in the x direction) is defined as (1/S1). Then, cubes containing details (NS1) are identified. After this stage, a scaling factor is applied when
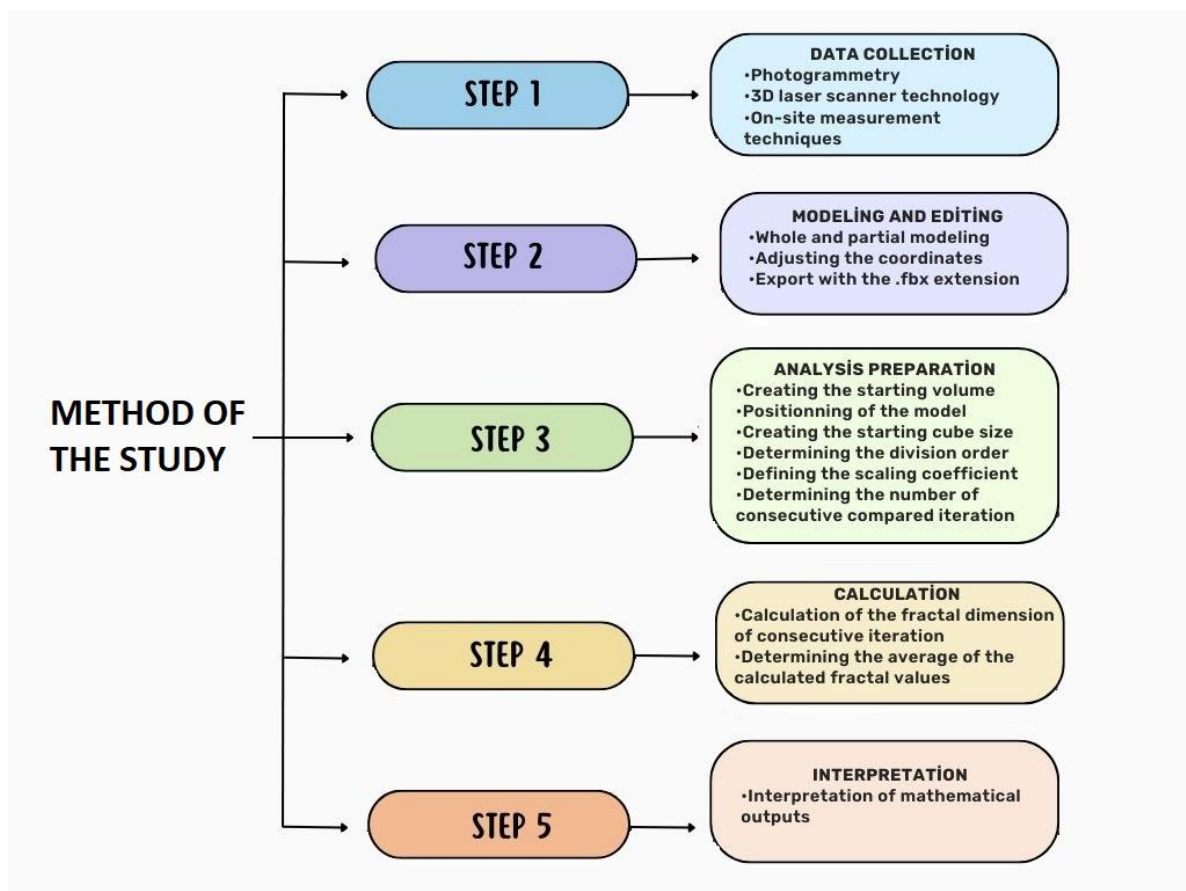
Figure 2: *Method of the study*

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moving on to the next cycle (2:1). With this ratio, when the cube is divided by 2 in the x, y, and z axes, 8 cubes are formed within one unit cube. After the reduction process is completed, the number of cubes (1/S2) and the number of cubes containing details (NS2) are defined.

Finally, the fractal dimension is calculated by comparing the formulas of two consecutive cycles. The average of these calculated fractal dimensions is taken to determine the average fractal dimension for the model (Figure 3). The formula for this calculation is as follows:
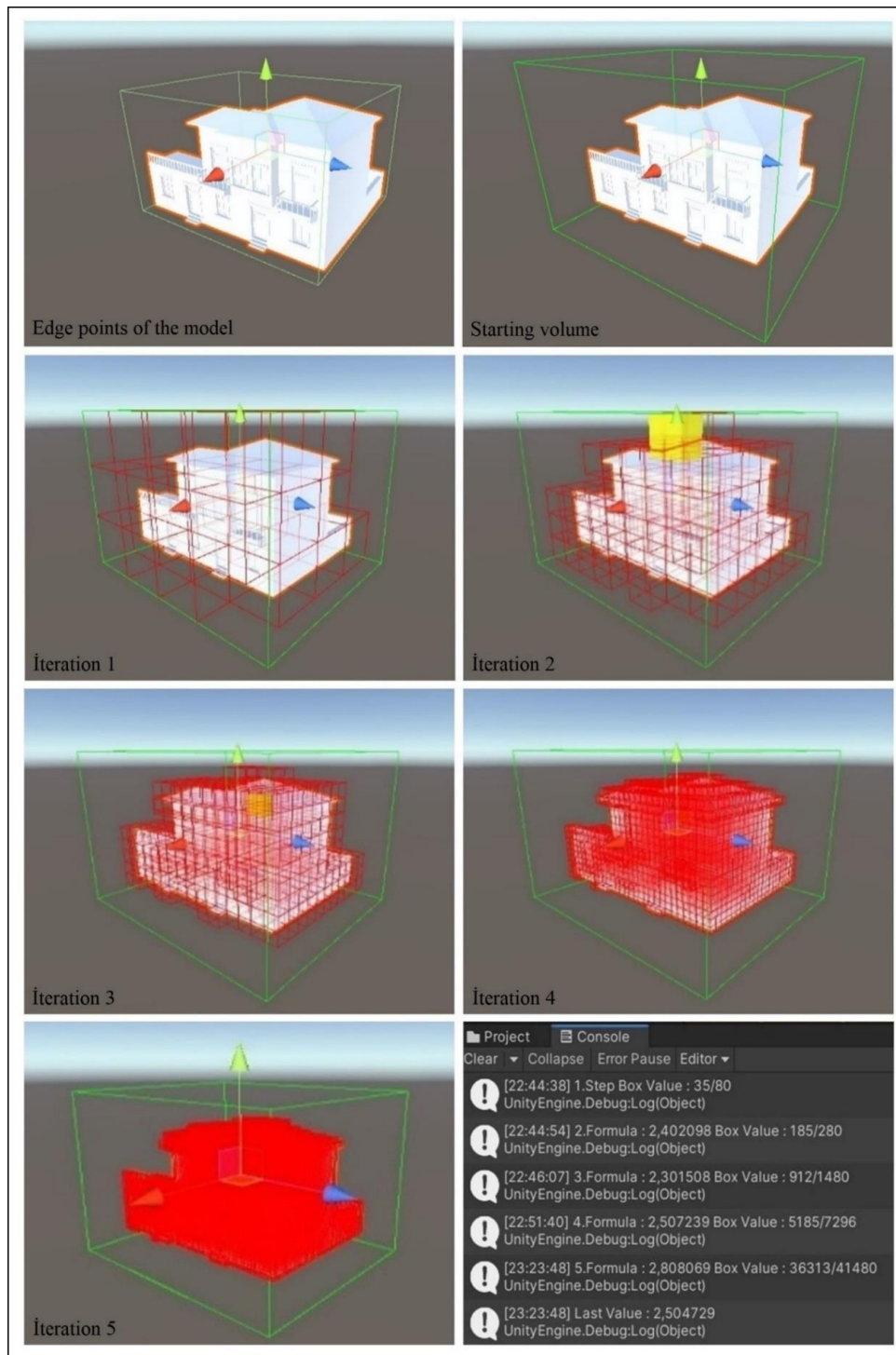
Figure 3: Three-dimensional fractal analysis process (fractal analysis process in Unity program)

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$$D = (logN_{s2} - logN_{s1}) / (log1/S_{2-} log1/S_1) \qquad (1)$$

In this equation;
D: Fractal dimension according to cube counting method
NS1 = Number of cubes containing details in the first iteration
NS2 = Number of cubes containing details in the next iteration
1/S1 = Number of cubes at the base of the volume in the first iteration (in the x direction)
1/S2 = Number of cubes at the base of the volume in the next iteration (in the x direction)

3.1. Material

Lefkoşa, which is a classic example of a city divided in many ways (Bakshi, 2012), has its origins dating back to the Byzantine period. During this period, the coastal cities of the island suffered significant damage due to Arab attacks, and as a result, the capital of that time, Salamis, was greatly affected. It was decided that the coastal cities were inadequately secure,

leading to the relocation of the capital to Lefkoşa, located in the inland areas of the island. From that point onwards, Lefkoşa gained importance and became the capital of the island (Gürkan, 1989; Akçay, 2006). Previously a small town, Lefkoşa (Gürkan, 1989) transformed into a settlement resembling the medieval metropolises of the Western world during the Lusignan period, inhabited by nobles, merchants, and clergy (HadjiChristos, 2005). During the Venetian rule, Lefkoşa, which had expanded significantly (Demi, 1997), had its city walls reconstructed within a 3-mile radius, with St. Sophia Cathedral as the central point, reducing the city's circumference from 9 miles to 3 miles (Gürkan, 1989).

Upon taking control of the island from the Venetians, the Ottomans quickly began to develop and populate the capital, Lefkoşa. New housing was constructed on the vacant land within the city walls to accommodate the increasing population density. During this period, the city started to see the emergence of
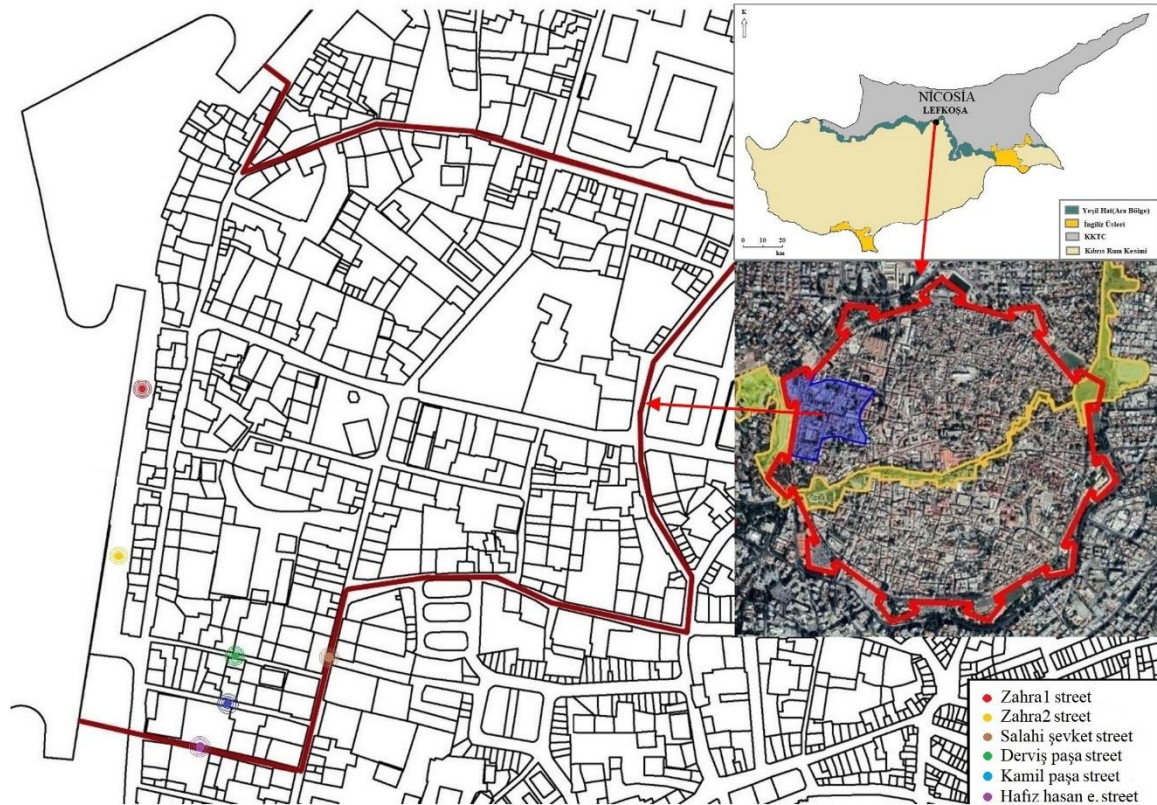
Figure 4: Arabahmet neighbourhood texture and the location of selected streets.

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houses with bay windows and attached layouts, narrow winding streets surrounded by residential buildings, and in some places, dead-end alleys. With the onset of the British colonial era following the Ottoman rule, administrators encouraged the construction of houses outside the city walls, prompting the population to move beyond the walls. This led to the formation of new residential areas outside the city walls. As a result of these developments, the city began to expand beyond the walls it had been confined within since 1567 (Gürkan, 1989).

In 1960, with the establishment of the Republic of Cyprus, the British colonial era came to an end, and the island gained its independence. Ethnic conflicts between Turkish Cypriots and Greek Cypriots resulted in the division of Lefkoşa in 1963, marked by the Green Line. This Green Line separated the northern and southern parts of Lefkoşa, spatially restricting the two communities. Just like on the island as a whole, this spatial division that began to take shape in Lefkoşa became permanent in 1974, playing a significant role in the city's current spatial configuration (Gürdallı and Koldaş, 2017).

While new residential areas were emerging outside the walls of Lefkoşa, there was also an acceleration in the demolition of old houses to make way for reinforced concrete structures. As a result of these demolitions, the traditional street layout of Lefkoşa underwent a significant transformation. Many characteristic Lefkoşa houses did not survive the demolitions. However, some neighbourhoods, partly due to their proximity to the green line, escaped complete destruction. One of these neighbourhood was Arabahmet. Arabahmet, one of the neighbourhoods that best reflects the
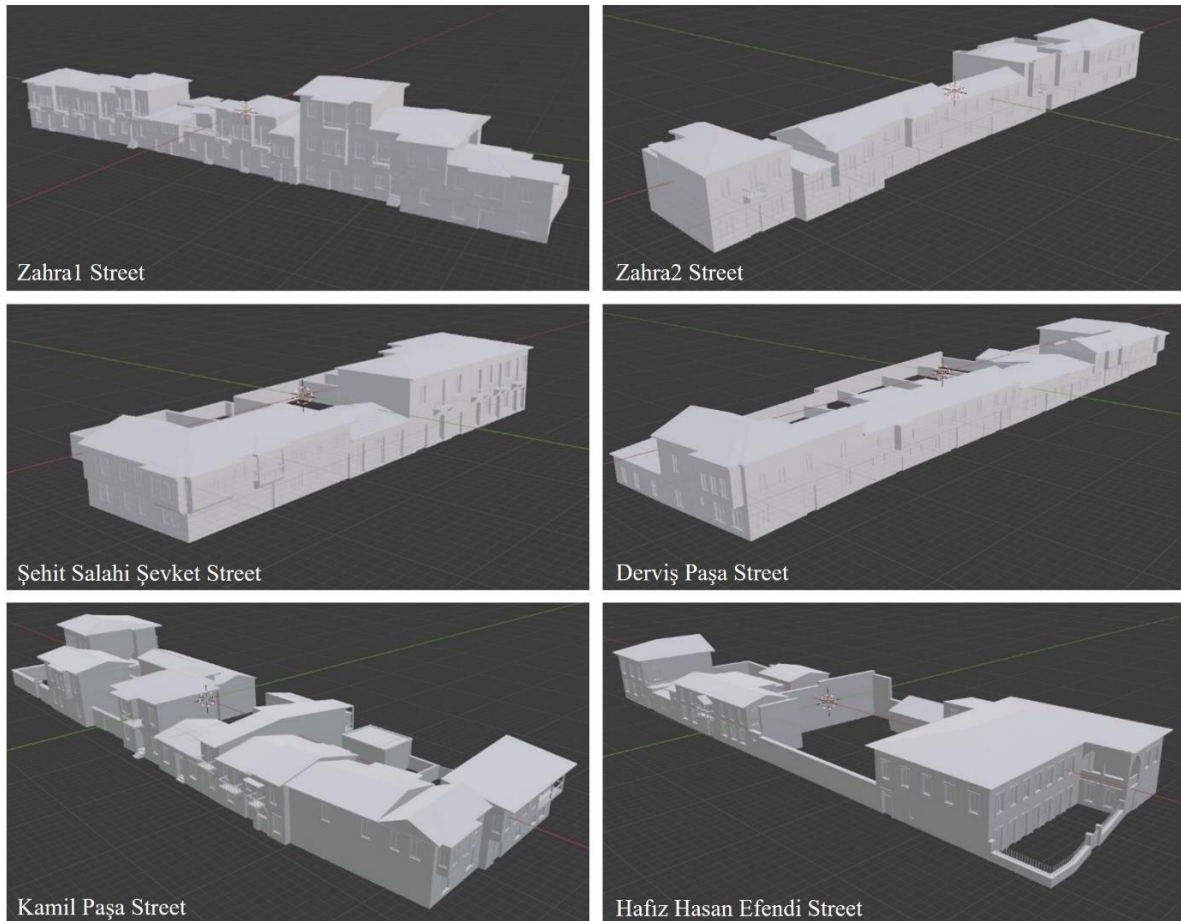
Figure 5: *Three-dimensional models of streets (visuals of streets modelled in 3D with the Blender program)*

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traditional texture of the inner walls of Lefkoşa, was primarily used for residential purposes and featured a dense characteristic housing fabric bearing traces of various cultures. Even today, the neighbourhood, which is home to many historic houses, remains a place where Turkish, Armenian, Latin, and various other ethnic groups have lived together. It is possible to see the historic housing fabric on many streets of Arabahmet neighbourhood. Among these streets, Zahra1, Zahra2, Salahi Şevket, Derviş Paşa, Kâmil Paşa, and Hafız Hasan Efendi Street were selected for three-dimensional fractal analysis (see Figure 5).

4. FINDINGS AND DISCUSSIONS

The streets selected for analysis in the Arabahmet neighbourhood generally consist of two-story houses with courtyards and without courtyards. In addition to two-story houses, there are also a few single-story and three-story houses. Another characteristic of the houses on these streets is their bay windows. The mass movement created by the bay windows spilling onto the street can be observed in many street textures. Furthermore, the positioning of houses lined up side by side along a street, as well as

the balconies and wide eaves that many houses have, contribute to a mass movement that spills onto the street. Thanks to these and many other features, these houses constitute the unique texture of the streets. The row houses on Zahra1 and Zahra2 streets create a visually more complex street texture compared to others. Hafız Hasan Efendi Street, with its larger courtyards, has a sparse texture formed by a small number of houses. In this regard, in the three-dimensional fractal analysis calculation, it is expected that Zahra1 and Zahra2 streets, which have a complex structure, will have a higher fractal dimension compared to other streets, while Hafız Hasan Efendi Street will have a lower dimension compared to others. Although some streets may exhibit certain differences compared to others, if the analysis results among the existing street textures show proximity, it will prove the spatial and mass consistency as well as continuity of the streets located within the same neighbourhood. The fractal dimension analysis results and graphical distribution of the six street textures created by courtyard and non-courtyard houses in the Arabahmet neighbourhood are provided below (See Figures 6, 7, 8, 9, 10, 11, 12, and Tables 2, 3).
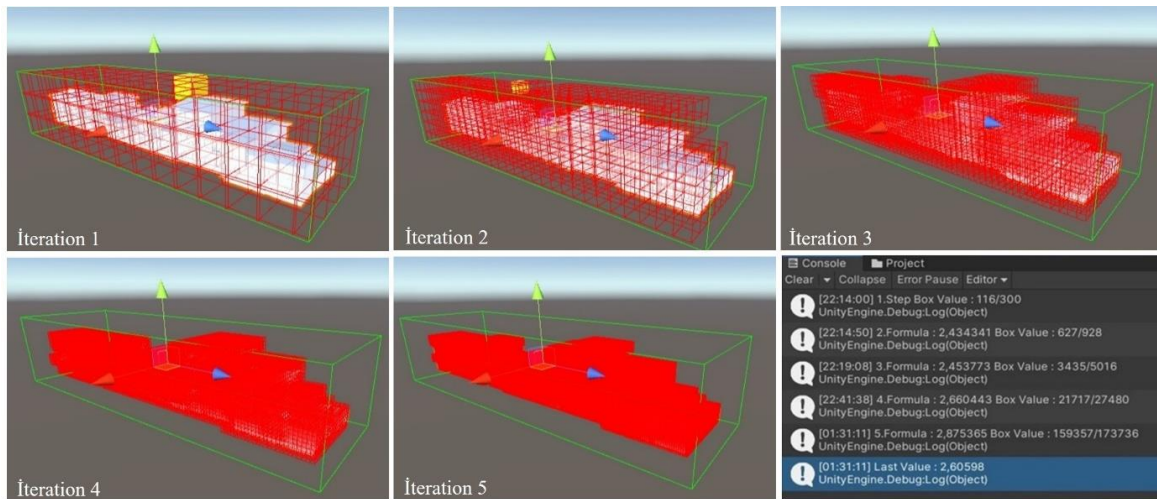
Figure 6: *Analysis process of the housing texture on Zahra1 street*

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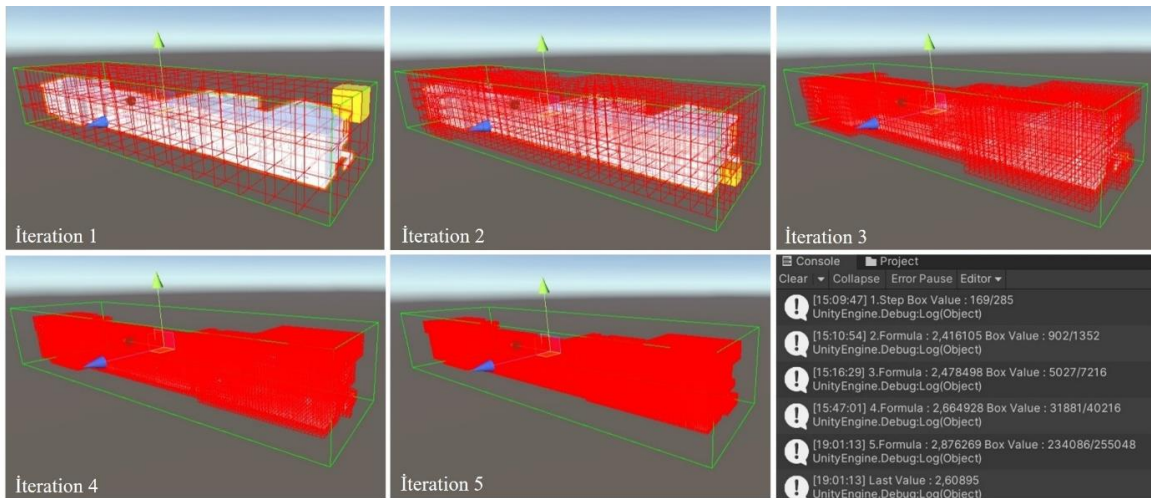
Figure 7: *Analysis process of the housing texture on Zahra2 street*
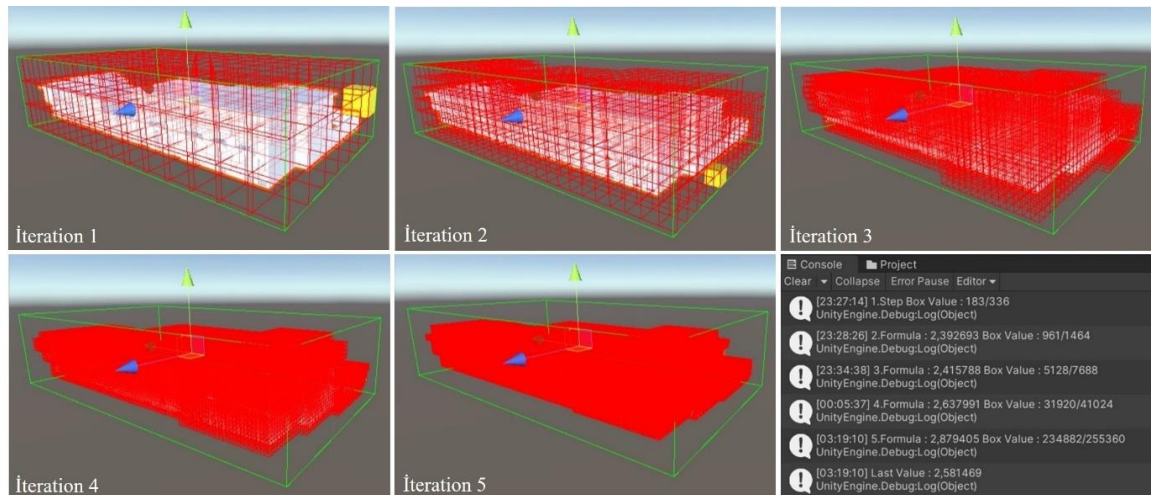
Figure 8: *Analysis process of the housing texture in Şehit Salahi Şevket street*
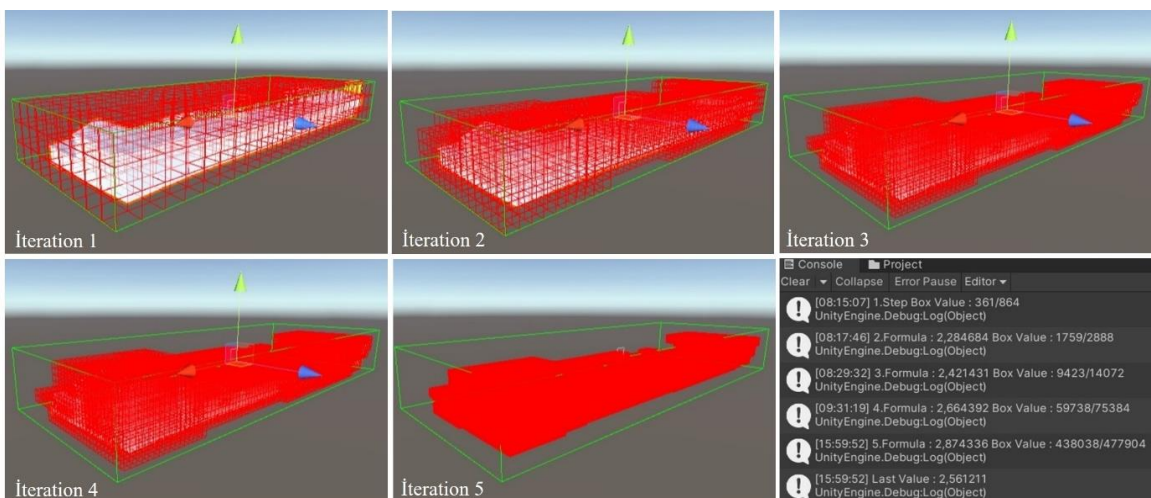
Figure 9: *Analysis process of the housing texture on Derviş Paşa Street*

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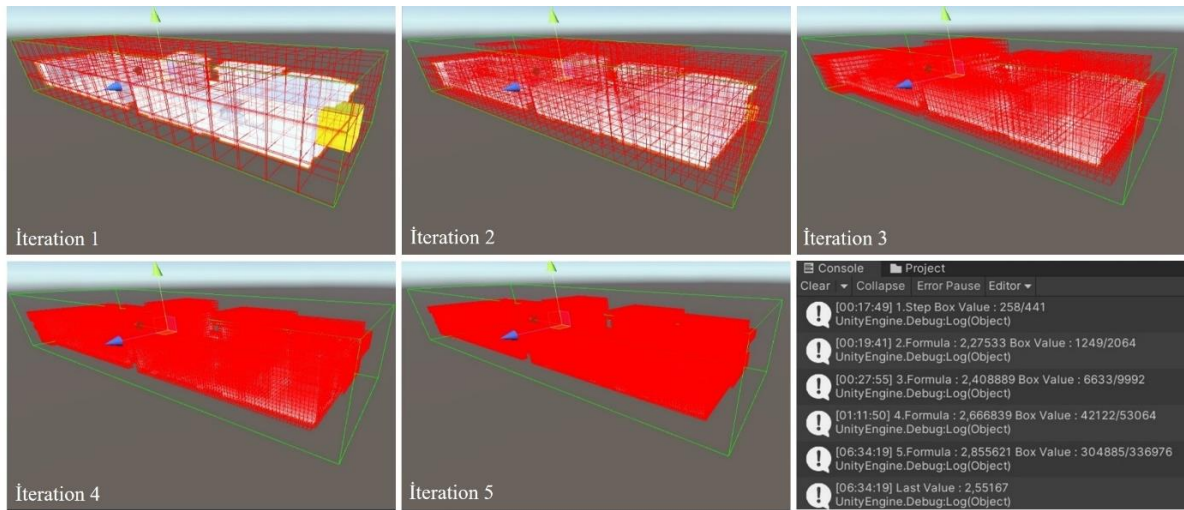
Figure 10: *Analysis process of the housing texture on Kamil Pasha Street*
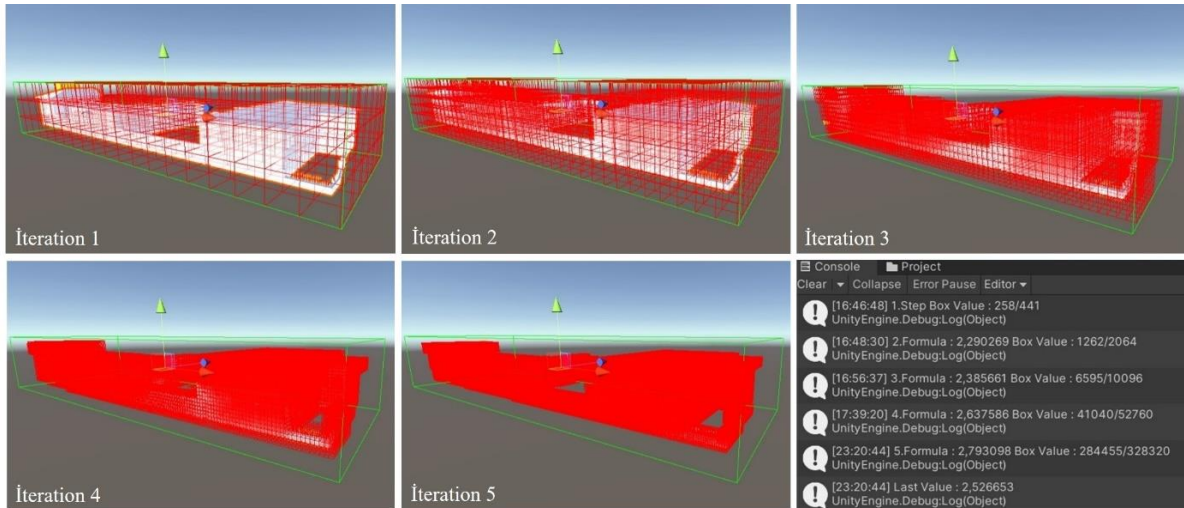
Figure 11: *Analysis process of the housing texture on Hafiz Hasan Efendi Street*

Table 2: *Three-dimensional fractal analysis results of streets.*

Street		First Iteration	Second Iteration	Third Iteration	Fourt Iteration	Average of four Iteration
Zahra1 Street	Courtyard	2,434341	2,453773	2,660443	2,875365	**2,605980**
	Without Courtyard	2,408807	2,454739	2,671998	2,878294	**2,603459**
Zahra2 Street	Courtyard	2,416105	2,478498	2,664928	2,876269	**2,608950**
	Without Courtyard	2,269402	2,498857	2,691815	2,870593	**2,582667**
Salahi Şevket Street	Courtyard	2,392693	2,415788	2,637991	2,879405	**2,581469**
	Without Courtyard	2,448377	2,627051	2,738452	2,905627	**2,679877**
Derviş Paşa Street	Courtyard	2,284684	2,421431	2,664392	2,874336	**2,561211**
	Without Courtyard	2,481443	2,506240	2,698071	2,882273	**2,642007**
Kâmil Paşa Street	Courtyard	2,275330	2,408889	2,666839	2,855621	**2,551670**
	Without Courtyard	2,263792	2,460923	2,681286	2,870149	**2,569037**

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Hafız Hasan Efendi Street	Courtyard	2,290269	2,385661	2,637586	2,793098	**2,526653**
	Without Courtyard	2,332382	2,427597	2,683604	2,816236	**2,564955**

Table 3: *Fractal dimension relationship between streets.*

	Zahra1	Zahra2	Salahi Şevket	Derviş Paşa	Kamil Paşa	Hafız Hasan Efendi	**Range/ Gap**	**%**
Street (Courtyard)	2,606	2,609	2,581	2,561	2,552	2,527	**0,082**	**8,2**
Street (Without Courtyard)	2,603	2,583	2,680	2,642	2,569	2,565	**0,115**	**11,5**
Range/Gap	**0,003**	**0,026**	**0.099**	**0,081**	**0,017**	**0,038**		
%	0,3	2,6	9,9	8,1	1,7	3,8		
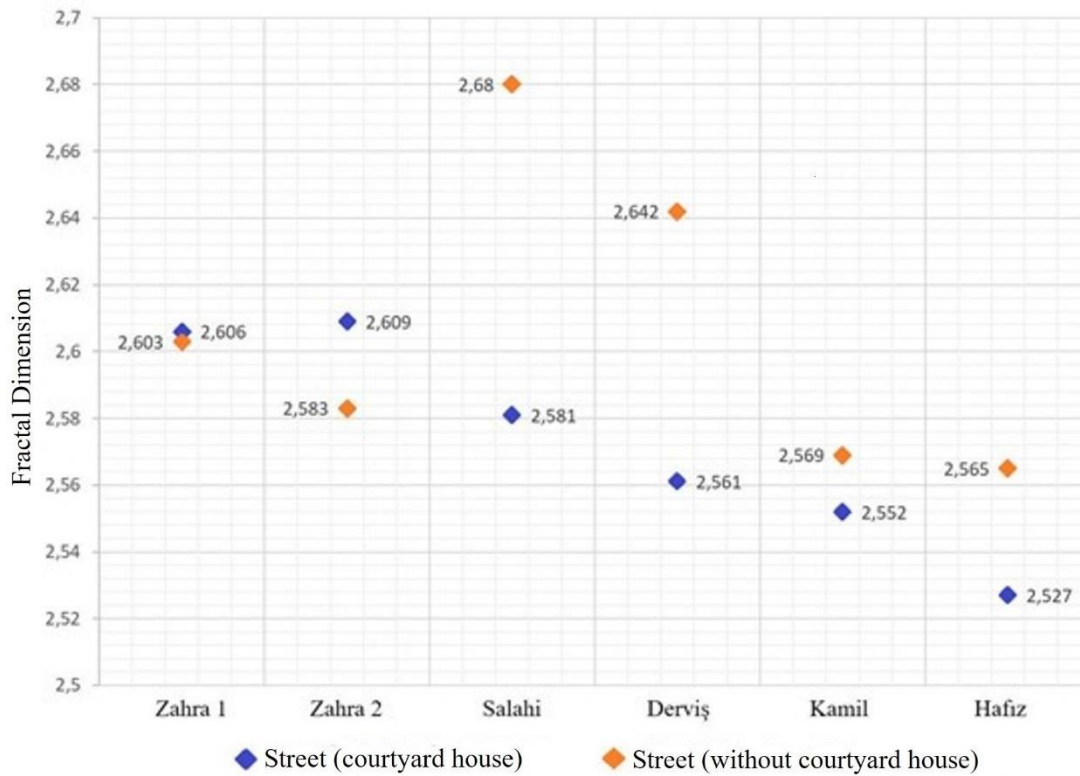
Figure 12: *Graph showing the fractal dimension of streets.*

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The fractal values of streets formed by houses with courtyards vary between 2.527 and 2.609 in the analysis of these streets after five cycles. In these street analyses, where the average is calculated after five cycles, Hafız Hasan Efendi Street has the lowest value, while Zahra2 Street has the highest value. In the analysis of streets formed by houses without courtyards, the lowest value is measured at 2.565 in Hafız Street, while the highest value is measured at 2.680 in Salahi Şevket Street. In the three-dimensional fractal analysis calculations, streets formed by houses with courtyards are ranked from low to high in terms of fractal dimension as follows: Hafız Hasan Efendi, Kâmil Paşa, Derviş Paşa, Salahi Şevket, Zahra1, and Zahra2. Streets formed by houses without courtyards are ranked as follows: Hafız Hasan Efendi, Kâmil Paşa, Zahra2, Zahra1, Derviş Paşa, and Salahi Şevket.

The street texture created by row houses on Zahra Street visually appears more complex compared to others. The high fractal value calculated on this street actually confirms the expectation that the fractal dimension of the street is higher than other streets. As a result of these analyses, the fractal dimensions of Zahra1 and Zahra2 streets are very close to each other, indicating a strong spatial and mass coherence relationship between the two sections on a single street. In addition, while the fractal dimension increases in other streets in calculations made without courtyards, it decreases in these two streets. In street analyses where houses are evaluated with their courtyards, the 8.2% difference between the highest and lowest fractal values among these six streets indicates the fractal dimension consistency among these streets. In fact, from the results obtained from fractal dimension calculations, it can be inferred that Zahra2 street has a high level of complexity, while Hafız Hasan Street has a lower level of complexity in streets formed by houses with courtyards.

In the analyses of streets formed by houses with and without courtyards, the smallest difference was obtained in Zahra1 Street. The reason for this is related to the fact that the courtyards of the houses on Zahra1 Street are within the outer boundaries of the corner houses located at both ends of the street, and most of the houses do not have courtyards, and those that do have small courtyards. Despite the increase in the ratio of houses with courtyards in Kâmil, Zahra2, and Hafız streets, they exhibit a similar fractal value range to Zahra1 street. The streets with the highest range of fractal values are Salahi Şevket and Derviş Paşa Streets. This difference can be related to the extension of courtyard walls from the rear facade of the houses to the outside in these streets. The similarity of analyses in different street textures indicates the similarity in the spatial and mass structure of streets located in the same neighbourhood.

5. Conclusion

The different streets located in the Arabahmet neighbourhood of Nicosia, which has preserved its traditional character within the city walls, were analysed using a three-dimensional fractal analysis method, and interpreted based on mathematical data while maintaining their traditional fabric. The fractal dimension of streets formed by courtyard houses varies between 2.527 and 2.609, while the streets formed by houses without courtyards range from 2.565 to 2.680. It is observed that the fractal dimensions of these streets are very close to each other, indicating a strong degree of consistency in the streets. The degree of closeness between the obtained fractal dimension results demonstrates the continuity of streets located in the same neighbourhood. The fractal dimensions obtained from street-scale analyses actually represent a numerical outcome of the complex fabric formed by housing units coming together over time. In this study, analyses that were previously reduced to two dimensions, such as site plans, floor plans, elevations, and silhouettes, were conducted through a scaled model of architectural fabric.

The developed model in this study was used solely to mathematically evaluate the physical properties of the fabric. The biggest advantage of the model is its ability to analyse the architectural product in a more comprehensive manner as a whole. In two-dimensional analysis studies, the facade facing the street or all facades are separately analysed, and an average

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value is attempted to be calculated for a single dwelling. However, in three-dimensional analysis, more features of the building are considered, such as heights, widths, roofs and eaves, if any, bay windows, balconies and consoles, windows and doors, stairs, garden walls, as well as all indentations and projections. Examining the structure with its third-dimensional features as a whole not only allows for a better understanding of its character but also provides more comprehensive information about the building compared to two-dimensional studies. Another advantage of the model is its effectiveness in revealing the mathematical data of the fabric created by each building or building group that makes up the architectural fabric. Therefore, this model provides an opportunity to concretely visualize hidden dimensions and mathematically define architectural products.

With the further development and use of this method on a larger scale, the relationship between different scales can be explored. Furthermore, it can be used to study third-dimensional changes in urban fabric. In addition to these, in urban research, in the initial stages of designing new structures, and in interventions to the existing fabric to ensure the continuity of the urban fabric, this method can be used as a tool to obtain objective data by relevant institutions. In conclusion, it is believed that this developed method will increasingly become widespread and contribute to the literature through three-dimensional analysis.

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Examination of the Interaction Process between Architecture Students and Supervisors in the Thesis Studio

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Abstract: This paper aims to criticize the current supervision process in the undergraduate thesis project in the architecture program to reveal philosophical contradiction exists in the schools of thought. The architecture programs have adopted an apprenticeship style of education as a tradition that is called learning by doing even in the thesis projects. However, new schools of education and thought are looking for more students' freedom and flexibility. A qualitative method with focus group workshops and group reporting techniques was applied in the research to discover the opinions of the thesis students about the supervisors and their own works and progress. Data was extracted from the reports of the students. The findings reveal that the students received guidance for the design process and outputs. However, they faced problems in keeping ownership of the thesis project idea, communication, interaction, and motivation with the supervisors. The power of the supervisors over the students resulted in changing the projects, crits, and outputs in the absence of clear guidelines in more personal manners. In conclusion, thesis projects include complicated processes that need clear guidelines and training for supervisors, even undergraduate theses in architecture departments. Despite the apprenticeship tradition in architecture education, new findings in education recommended a knowledge-based orientation for the supervision process.

Keywords: Architecture education, Interaction process, Students, Supervisors, Thesis project.

Introduction

A final-year undergraduate student is supposed to complete either a final-year project or a thesis project to fulfil the requirements of the program for graduation in a department of architecture. Asking for either a thesis project or a final project in the final year could reveal schools of thought in architecture education in terms of architectural training traditions, importantly Beaux Art, Polytechnique, Bauhaus, and Vkhutemas (Higher Artistic and Technical Workshops in the Soviet Union)" (Drexler, 1975; Draper, 1977; Garric, 2017; Tafahomi, 2023; Tafahomi & Chance, 2023). The selected approach in any curriculum leads the module runs by either the supervisors' activities or the design studio coordinator (s) and technical advisors (Tafahomi, 2021a). Consequently, architecture students based on this foundation take positions whether they need to select supervisor(s) or they could continue just with the guidelines of the studio's coordinator. Seemingly, the supervision process in undergraduate programs is based on the crit (Critique) as we do in all studios in terms of effective ways of interaction for education (Goldschmidt, Hochman, & Dafni, 2010; Parnell, Sara, Doidge , & Parsons, 2007).

However, there is evidence to demonstrate that the students did not evaluate the crits effectively as instructors do (McClean & Hourigan, 2013).

Similarities (Schon, 1987) and dissimilarities (Tafahomi, 2021a) between the supervisory and desk-crits activities in architecture education make this process more complicated for both students and staff. Particularly, both crits and supervision are widespread in the world with differences in the implementation, outputs, and outcomes in dissertations and theses (Borden & Ray, The dissertation: An architecture student's handbook, 2006). In fact, the crits in a design studio refer to an old tradition or even ritual activities (Owen, 2009; Neveu, 2009) in architecture education based on the Vitruvian approach (Proudfoot, 2000). In detail, for Vitruvius, there was a ternary logic for architecture assessments, including analysis, critics, and evaluation that represented the construction, functionality, and aesthetic aspects of the architectural projects, respectively (Tafahomi, 2022a). However, criticism has gotten more room in architecture education to fit into the design studios for leading the students based on the apprenticeship training style (Drexler, 1975; Draper, 1977; Garric, 2017; Parnell, Sara, Doidge , & Parsons, 2007). Schon (1987) advocated this style as a continuous dialogue between students and instructors in architecture design studios to improve and develop design projects based on "learning by doing" in terms of "reflection in action". It reveals another polarized aspect in the final year projects in terms of research-based projects or project-based projects.

However, there are different names for the final project of the students in architecture education. The studies listed a variety of names for the final projects (Ghonim & Eweda, 2019) such as "final year project, graduation project, or capstone project" (Tafahomi, 2021a, p. 5), final project, thesis project, and comprehensive design project (Tafahomi & Chance, 2023). These different names refer to the methodology of the final tasks based on project-based learning, research-based learning, and design-based learning that include their own epistemology to fulfil the task (Tafahomi,

2022a). Apparently, the word "doing" refers to a repeating process of drawing, redrawing, and developing the design ideas rooted deeply in the architecture education that kept the students in the design studios to reproduce the elite architect works to assimilate their knowledge (Draper, 1977; Drexler, 1975; Franz, 1994; Frayling, Research in art and design, 1993; Garric, 2017; Griffin, 2022). Nonetheless, a new critical point of view listed other ways of learning such as self-thinking, retrieval, and metacognition that imply other systems of learning in the education process such as imagination, listening, observation, critiques, implantation, revision (Marzano & Kendall, 2007; Marzanoand & Kendall, 2008).

There are some common trends for final-year projects with similarities and differentiations in departments and schools across the world. The first approach is to accomplish a final project in a capstone or final project that takes place in a studio with an emphasis on the task response as a project, prototype, or result which is common in Polytechnique style and engineering programs. The final project includes the same criteria for the evaluation of the technical aspects of the product based on detailed drawings. This kind of project take place in one semester under the leadership of the instructor of the module, which in many four-year architecture program could be observed. The final year project is a project-based activity based on a specific topic for designing a particular architecture project such as a hospital, kindergarten, school, or housing project in terms of a comprehensive project to show all lessons learned in the final product. This kind of project was developed based on the Beaux Art style of competition to develop a final design project based on specific topics. The project includes a concept, site analysis, design brief, and detailed illustration. For the evaluation of the final work of the students, two systems of evaluation are applied by the departments either a portfolio based on the exhibition for graduation, or a critical review based on the architect's visitors. The architectural thesis project is oriented toward the problem-solving process. A thesis project is

a more self-oriented project that is supposed that the students fulfil the requirement through systematic research activities on the site, context, typology of the buildings, and user specifications in an academic and scientific process. Table 1 presents some similarities and differences between the educational aspects of the three types of final projects.

In this regard, UR (the University of Rwanda) published lists of supervisor responsibilities (UR, 2015; 2018b), the guidelines referred to research activities, and some administrative responsibilities for both supervisors and students. The guidelines recommend systematic meetings between supervisors and students to discuss the studies, research, and progress during the preparation of the dissertation/thesis.

Table 1: *Comparative table of Final project, Year, and Thesis*

Educational Aspects	Final Project	Final Year Project	Thesis Project
Time	1 semester	2 semesters	2-3 semesters
Mode of Class	Studio	Studio	Workshops
Supervision	Instructor	Master of Studio	Supervisors
Guidelines	Instructor	Master of Studio	Thesis guideline
Projects	Thematic projects	Individual Projects	Individual Projects
Activities	Studio-based	Studio-based	Site and Context-based
Methods	Prototype	Design project	Problem solving project
Orientation	Tasks Reponse	Comprehensive Design	Design Objectives
Evaluator	Instructor	Master of Studio	Different Juries
Products	Report, Design Brief	Design Boards, Physical Models	Thesis, Design Boards, Physical Models
Presentation	Studio Pinup	Exhibition/ Portfolio	Thesis defense/Viva
Archive	No	Synopsis book of the year	Thesis in Library

Some universities and departments have developed guidelines for supervisors to harmonize activities. For example, studies listed significant factors in selecting supervisors and co-supervisors based on 1) professionalism such as familiarity with the topic, backgrounds, and experiences in the field, areas of interest, and publications, 2) attitudes such as helpfulness, leadership, supportiveness, and critical thinker, 3) personality such as calm, cool, polite, and friendly (Burkard et al., 2006; Gill & Burnard, 2008). Particularly, the study in architecture recommended punctuality, questioning, getting feedback, and drafting concepts in terms of good processes in supervising activities (Borden & Ray, The dissertation: An architecture student's handbook, 2006). Seemingly, individuals and departments could develop this list into a specific list based on their own purposes. Nonetheless, the job of the supervisor is to stay with the student(s) in the process of the preparation of the final project and presentation and graduation.

However, a major part of the guidelines has been designed for graduate and postgraduate programs rather than undergraduate (Gill & Burnard, 2008; UR, 2015; UR, 2018b). Perhaps, universities observed clarity in the supervision of undergraduate students who do not need any guidelines or specifications due to the level of education and the complexity of the project. However, some universities give the responsibility to each department to draw, specialize, and fit into the supervisory guidelines with department character and substance.

The students normally select their own supervisor based on a more self-constructed list of criteria (Borden & Ray, The dissertation: An architecture student's handbook, 2006) although sometimes the department intervenes in the selection process due to a high demand for special cases or a workload balance among the academic staff regarding the general regulation of the University of Rwanda (UR, 2018a). However, it is common to observe that

the students are not satisfied with the outputs of discussion, comment, and progress. To discover the reason behind of dysfunctionality of the supervision in the department, the research questions are designed based on what is the expectations of the students from the supervisors. In addition, what they have achieved in the process of supervision. Moreover, what are the expectations of the students from supervisors and themselves? And what they have done in the performance of the supervisory process?

The main objective of this research is to discover the perception of the thesis students in the supervisory process to see how the activities were effective from their perspective. This objective takes place through a comparative table of notes about both expectations and observations of the students about students and supervisors in the supervisory process. Through this process, the research expects to discover the anticipation of the students in architecture thesis projects from supervisors to evaluate the level of achievements in thesis projects. Seemingly, the results of this research could lead the similar cases in other architecture departments to fit either the thesis or final project based on findings of this research.

Studies on supervisory trends in architecture thesis
Gill and Burnard classified the activities of the supervisor into administrative and academic activities based on negotiations between supervisors and students about expectations in the thesis project (Gill & Burnard, 2008). They described a good relationship between supervisors and students in terms of problem searching, exchanging, and exploring ideas, whereas bad relationships will result in frailer, anxiety, and depression. However, the supervisory process is not a personal relationship, it is a professional activity based on the process and procedure in the academic context (Tafahomi, 2021a). In addition, supervisors and students need a certain level of agreement on some general issues on the project to develop the common core idea; otherwise, it results in a set of unnecessary disagreements, arguments, and challenges (Phillips & Pugh,

1994). Thomson emphasized an openness in supervisory activities between both students and supervisors (Thompson, Kirkman, Watson, & Stevrart, 2005). For this reason, the study highlighted differences between the responsiveness and unresponsiveness characteristics of students and supervisors in communication when cross-cultural factors are engaged (Burkard, et al., 2006). Moreover, studies listed significant factors in selecting supervisors and co-supervisors based on 1) professionalism such as familiarity with the topic, backgrounds and experiences in the field, areas of interest, and publications, 2) attitudes such as helpfulness, leadership, supportiveness, and critical thinker, 3) personality such as calm, cool, polite, and friendly (Burkard, et al., 2006; Gill & Burnard, 2008). Furthermore, the study listed some expected characteristics by PhD students for a good supervisor that refers to availability, positivity, supportiveness, and knowledge-ability of supervisors (Gill & Burnard, 2008).

The study mentioned that the worst characteristic of a supervisor could be a dogma belief in certain methods, approaches, or points of view (Gill & Burnard, 2008). For this reason, the study highlighted the positive effects of training the supervisors on supervision activities (Ockerman, Mason, & Chen-Hayes, 2013), self-awareness of supervisors (Baker, Exum, & Tyler, 2002), and enhancement of the educational values in supervisors (Ronnerstad, Orlinsky, Parks, & Davis, 1997), and flexibility in the behavioral patterns (Watkins, 1995). However, another study pointed out that more than 90 per cent of the supervisors did not receive proper training for the supervision of students in the thesis process (Duan & Roehlke, 2001). The study detailed that the self-image of the supervisor includes a significant contribution to the supervision process such as self-love or self-critics (Ybrandt & Armelius, 2009).

Architecture education specifications for evaluating students' projects
Architecture studios have been led by the master of the atelier of the design studio or coordinator (Tafahomi, 2021b). This traditional

and powerful position of the master of the atelier was rooted in the "Acadâemie d'architecture" style of education in the 17th century in France that was designed to train elite architects for the ideological buildings among noble students (Griffin, 2022) and this tradition was continued by Beaux Art (Garric, 2017) based on Hegelian philosophy (Tafahomi, 2023). hile the architecture program changed occasionally, the design studio culture almost did not touch deeply (Draper, 1977; Drexler, 1975; Garric, 2017; Tafahomi & Chance, 2023). The style of master-led approach through crits could be observed in the worldwide schools of architecture (Parnell, Sara, Doidge , & Parsons, 2007; Tafahomi, 2021a; Tafahomi & Chance, 2023) which trained elite architects such as Frank Lloyd Wright and Le Corbusier were examples of this style (Proudfoot, 2000).

Nonetheless, the roles of the coordinator, supervisor, and jury have been different due to the style and approach in the architecture education referencing to the school of thought in architecture schools. The study highlighted that from Beaux Art to Polytechnique and then Bauhaus and finally then the new movement with the immigration of Gropius and Mies van der Rohe to Harvard and Illinois Institute Technology respectively, the role of the studio's coordinator gradually reduced and the role of the supervisors increased (Tafahomi & Chance, 2023). In this respect, the role of the design studio's coordinator was drawn by studies to provide the course syllabi and structure of courses, design handouts and thesis guidelines for both supervisors and students, arrange meetings between supervisors and students, recommend mediums for project development and illustration, and inviting juries for evaluation with reviewing and crits on the student's projects (Parnell, Sara, Doidge , & Parsons, 2007; Tafahomi, 2021a; 2021b).

In fact, crits have been key aspects of architecture education in the whole program in terms of a standard form of reviewing (Parnell, Sara, Doidge , & Parsons, 2007) based on an apprenticeship tradition (Garric, 2017; Littmann, 2000; Madanovic, Persisting Beaux-

Arts practices in architectural education: History and theory teaching at the Auckland school of architecture, 1927–1969, 2018). However, there are differences between comments in desk-crits and the presentation of the students for juries. The desk-crits is related more to the drawing and analyzing of the different stages of the design based on the uncompleted tasks mainly based on the graphical techniques and analysis (Crowe & Laseau, 2011; Laseau, Graphic thinking for architects and designers, 2000). Seemingly, there is no difference between the systems of evaluation of the first-year projects in comparison with the final-year project (Tafahomi, 2021a), just scales, complexity, and research activities (Tafahomi, 2022a). There are studies that classified the architectural crits into two important aspects including "aesthetic" and "building performance evaluation" (Preiser, Davis, Salama, & Hardy, 2015) based on the Vitruvian approach. Seemingly, the first part is more related to the philosophical, epistemological, and style of the reviewer and the second part refers to the function, program, and design standards for the evaluation.

The Vitruvian approach was restructured by Franz (Franz, 1994) and Frayling (Frayling, Research in art and design, 1993). While they did not apply the same words such as firmness, commodity, and delight in terms of architectural aspects and analysis, criticism, and evaluation to measure the quality of the design aspects (Proudfoot, 2000), they focused on the definition of research activity and relationships with other disciplines (Tafahomi, 2022a). Franz (Franz, 1994) theorized trends of research in architecture into three major clusters based on the themes and topics, including philosophical, conceptual, and technical orientations. Apparently, the approach of Franz included similarities with the Vitruvian approach to the architectural project. The philosophical orientation was well matched to the aesthetic aspect of the Vitruvian approach that referred to the epistemological and ontological self-

thought of the researcher-designer in an architecture project. The conceptual orientation was related to social, cultural, and user aspects of the project that referred to the functionality. The technical orientation looked for technical drawing, presentation, and communication of the project for implementation that targeted the construction of an architectural project. Proudfoot (2000) drew a parallel connection between each Vitruvian aspect of design with a method of analysis, including analysis for construction, criticism for functionality, and evaluation of the aesthetic. In a similar way, Frayling used three titles for research, including In,

Through, and For art and design to lead the research activities in studies, processes, and outputs that referred to theory, design process, and technology, respectively (Frayling, Research in art and design, 1993). However, Till criticized this classification and recommended another ternary approach including research on process, performance, and productInvalid source specified. in architecture projects based on Vitruvius classification in terms of construction, functionality, and aesthetics. Figures 1 and 2 attempt to illustrate the relationships between those aspects.
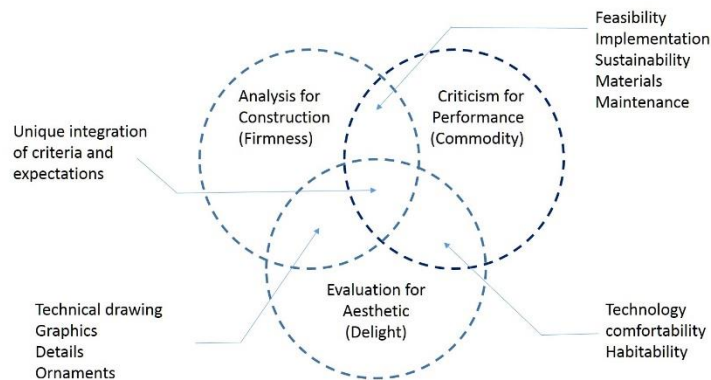
Figure 1: *Vitruvian approach into architecture process and evaluation*
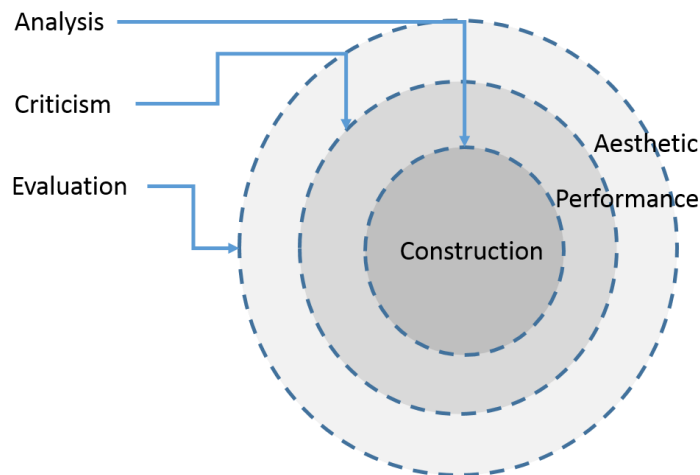
Figure 2: *Overlying of the Vitruvian approach based on scale of activity*

Apparently, criticism of the functionality of design projects has been more common at the current times (Parnell, Sara, Doidge , & Parsons, 2007) than analysis and evaluation for construction and aesthetics. For example, the studies highlighted that the criticism activity in architecture was oriented toward building performance (Proudfoot, 2000; Till, 2008). Therefore, the functionality of buildings was the main target of crits based on the environmental-psychological studies and research on users' feedback and maintenance of the building in terms of habitability than other aspects (Mallory-Hill, Preiser, & Watson, 2012; Preiser & Schramm, 1997; Preiser & Vischer, 2005) where these aspects were more adapted to the criticism for assessment than techniques. This gap was also mentioned by another study to highlight a deterioration process in architecture for criticism, analysis, and evaluation in the theoretical framework of educational segments (Preiser W. , Davis, Salama, & Hardy, 2015; Tafahomi, 2021b). Particularly, Webster (Webster, 2022) defines analysis, critics, and evaluation in terms of evaluation through the reasoning for judgement, detailed examination, and values and worth, respectively. Figure 3 attempts to illustrate these aspects of the criticism.

Apparently, the new movement in architecture education and project led attention to functional aspects in the design process to take into account the criticism as a whole to lead both aesthetic and construction aspects based on qualities such as sustainability, habitability, and contextual aspects that referred to the environmental, psychological, and qualitative factors in design (Franz, 1994; Groat & Wang, Architectural research methods, 2002). However, these new factors in the design have created a bulk of the knowledge that needs a continuous process of understanding, applying, and analyzing. Nonetheless, a question comes into mind that a new area of knowledge needs appropriate methods, techniques, and approaches due to being new, what about those orthodox instructors in architecture departments that advocated, "We teach as we have been taught" (Tafahomi, 2022a)?

Philosophical paradoxes in architecture education

Many orthodox approaches in education were changed in the 20th century based on John Dewey's (1859-1952) theory in education based on pragmatism (Tafahomi & Chance, 2023). Despite the commonplace Dewey's theory based on Jean Piaget (1896-1980) and Lev Vygotsky (1896-1934), based on inquiry-based learning and a progressive education model that
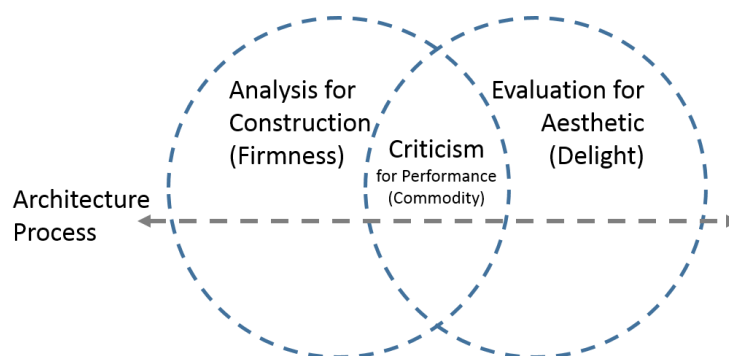
Figure 3: Criticism in terms of a connection between analysis and evaluation

advocated freedom of students in the process of learning by reducing the curriculum obligation, rote-learning, and standard teaching model (Hargraves, 2021). In addition, Walter Gropius (1883-1969) paid attention to some Marxist and socialist reflections in architecture education in Bauhaus (Tafahomi, 2023). Gropius manifested this approach in terms of new ideas in architecture education based on time and location (Gropius, 1970). Bauhaus applied this approach by changing the orthodox style of architecture atelier to introduce workshops, studios, and additional courses in relevant topics, such as art, philosophy, technology, and research (Lerner, 2005; Marttila, 2018; Tafahomi, 2023). Therefore, a thesis in this approach is a portfolio of the processes of progress.

Importantly, both philosophical and epistemological points of view changed in education, communication, and language as a tool for interaction. Thomas Kuhn (1922-1996) under the influence of Karl Popper (1902-1994) constructed the theory of knowledge in science based on an agreement between the scientific society rather than real outputs of science (Kuhn, 1962). In this theory, the progress of any body of knowledge is constructed based on a general acceptance by the scientific society rather than data, methods, and results. For this reason, he advocated that the progress of knowledge is neither linear nor progressive than a "paradigm shift" in beliefs and acceptances (Tafahomi & Chance, 2023). Wang (Wang, 2009) used the paradigm shift to explain the different styles of design in the history of architectural design neither progress nor development rather than as trends, such as neoclassicism, modernism, and postmodernism. Through new movements of questioning and skepticism in science, Foucault (1926-1984) revealed that there is a discontinuity in the history of meanings, thoughts, and human activities that makes an obvious disintegration in science (Foucault, 1972). He took into account the power in terms of the source of beliefs, expressions, and communications to advocate meaning beyond human interactions in the whole of history (Dreyfus & Rabinow, 1982). Foucault applied discourse term for the explanation meaning of things. Foucault did not innovate the relationships between the power and discourses, hermeneutic philosophers such as Heidegger, Wittgenstein, and even Foucault agreed, "Subjects are not sources of discourses", but on other aspects, importantly "the power of the subject" (Dreyfus & Rabinow, 1982, p. 69). Foucault highlighted that "knowledge and power imply one another" and continue, support, and regenerate each other (Foucault, 1995). In his later work, Foucault mentioned that power defines the truth, and truth is formed in the power practices (Foucault, 1980).

Foucault realized that achieving the discourse was a complicated task due to the absence of the essential foundations in the mind of subjects. For this reason, words and sentences could replace or repeat to express a single meaning and even many sentences could explain the same meaning (Foucault, 1972). He constructed his theory on the "power of sentences to act" based on John Searle's theory that emphasized not only the meaning of the words but also the power of sentences to push people to act (Searle, 1969). Apparently, the theory of power in the work of Foucault resulted in a higher level of authority in the supervisory process than in scientific and knowledge-based activities. Dreyfus and Rabinow (Dreyfus & Rabinow, 1982, p. 110) argued that challenges of the Foucauldian concept of power are rooted in the genealogy of Nietzsche (1844-1900) who explained that rules and obligation are nothing than virtual activities that is constructed through "civic regulations, ethical codes, international laws to control norms and procedures" of a small group of powerful people to dictate orders on the general public. Despite the student-centred and constructivism theories in education, in architecture education, this authoritarian specification still is criticized by studies in relation to the apprenticeship tradition in architectural education (Littmann, 2000; Madanovic, Persisting Beaux-Arts practices in architectural education: History and theory teaching at the Auckland school of architecture, 1927–1969, 2018; Tafahomi, 2022a; Tafahomi & Chance, 2023).

In the same alignment, Jacque Derrida (1930-2004) constructed the deconstruction theory to explain this uncertainly in the expression of methods of science. He argued that the meaning of words, sentences, and languages is more than what is assumed to be known in a clear way. He explained words include both implicit and explicit meanings based on the chains of relative meanings and the contextual transformation in history that just deconstruction methods could reveal the common meaning to clarify the meaning of the word for users to understand correctly (Derrida, 2013). Derrida exemplified the word "marriage" to illustrate chains of related words such as wife, husband, child, family, home, and so on interrelationships that were related to explain the meaning of a single word. The word of the supervisor and supervision could be listed by some important items such as supervisor, supervisee, academic, administration, thesis project, topics, output, process, comment, critique, production, revision, edit, judgement, evaluation, analysis, and so on. Apparently, if some parts of the chain of the meaning are not clear, the supervision process faces dysfunctionality. In other words, if some parts of the meaning are absent in a discourse, who is going to interpret the whole? Here is the Lacanian theory on the signifier that could be restructured in a new format that exposes "signifiers signify significances" (Borch-Jacobsen, 1991; Zizek, 2007).

A theoretical framework
An undergraduate thesis in architecture is a self-driven project that is supposed to illustrate the knowledge, skills, and abilities of students in a comprehensive way of design, process, outputs, and approach. The theses were supposed to be led by supervisors in both academic and administrative aspects. Academic and administrative duties need communication and interaction between students and supervisors to construct their relationships in a professional way. Therefore, the supervisors and juries used the crits as tools for communication, interaction, and leading the thesis projects as common activities in architecture departments. The crits in architectural education have become a unique language for assessment and evaluation of students' projects based on apprenticeship studio culture that theorized in terms of learning by doing that referred to the practical activities. The gap of balance in analysis, critics, and evaluation of students' project through both summative and formative assessments were obvious. For this reason, apparently, departments of architecture need clear guidelines for leading theses based on either approved guidelines or an agreement-consensus among lecturers. The lack of an agreement resulted in personalizing, changing, or confusing theses with studio projects. In addition, the power of the supervisor based on both administrative and academic positions could influence the scientific and knowledge-based interactions on the topic and process. Design processes, outputs, relationships, and discussion were mentioned by studies on supervision activities. However, the transformative generation of knowledge proposed more flexibility, creativity, and new ideas in terms of collaboration between students and supervisors.

Methods and materials
The section included methodology, research design, research process, data, time and location, and context of the research.

Methodology: Both quantitative and qualitative methods (Marshall & Rossman, 2006; Neuman L. W., 2006) have been applied in educational research importantly questionnaire, observation, focus group, and interview (Cohen, Manion, & Morrison, 2007; Creswell, 2012; Creswell & Creswell, 2018; Netshitangani & Machaisa, 2021). While a major part of the quantitative techniques was constructed on the numeric variables that are extracted from scaled questionnaires (Creswell, 2012; Tafahomi, 2021a), open-ended questionnaires are oriented with interpretations of the answers (Marshall & Rossman, 2006; Neuman L. W., 2006) based on the content analysis technique (Elo, et al., Qualitative content analysis: A focus on trustworthiness, 2014; Krippendorff, Content analysis: An introduction to its methodology, 2003; Mayring, Qualitative content analysis, 2000; Schreier, 2012). Studies also referred to the

focus group approach based on interviews, questionnaires, and storytelling activities (Edmunds, 1999; Elo, et al., Qualitative content analysis: A focus on trustworthiness, 2014; Langford & McDonagh, 2003; Tafahomi & Chance, 2023). It was supposed the participants in this group activity realized their courage to express themselves (Given, 2008) based on lived-experiences (Denzin & Lincoln, 2018) to discover the general beliefs of participants (LeCompte, Dorothy, & Aguilera-Black, 2012). To analyze the content of the answers by the focus group, studies used both analysis and interpretation of the texts. The analysis referred to the repeated words and sentences in terms of themes and topics, and the interpretation referred to the meaning of the words and sentences (Denzin & Lincoln, 2018; Dreyfus & Rabinow, 1982; Krippendorff, Content analysis: An introduction to its methodology, 2003; Given, 2008; Mugerauer, 1995; Mugerauer, 2014).

Research design: This research applied the focus group and self-reporting of the students to document their own observations and evaluation of the supervisory activities (Edmunds, 1999; Elo, et al., Qualitative content analysis: A focus on trustworthiness, 2014; Langford & McDonagh, 2003; Tafahomi & Chance, 2023). Despite the similarity of the method to both structured questionnaires and observation, this research applied the self-reporting of the supervisees to explain their own understanding of thesis processes (Denzin & Lincoln, 2018; Given, 2008). It was supposed that the students share their ideas about the thesis processes based on a comparative analytical report for both expectations and observations (LeCompte, Dorothy, & Aguilera-Black, 2012). The technique of data collection was constructed based on the group work of the students to report a common understanding of the supervisory processes in their discussion meetings. Two clusters of information were achieved in the research including reports of the students for the student-supervisor and expected-observed outputs to analyze themes, topics, and words (Denzin & Lincoln, 2018; Krippendorff, Content analysis: An introduction to its methodology, 2003; Given,

2008; Mugerauer, 1995; Tafahomi & Chance, 2023).

Research process: To find out the ideas of the students about the supervisory processes, a workshop was designed to ask the students to sit together and write down their common observations and ideas on paper sheets. The students were grouped to share their experiences with supervisory processes, activities, and achievements based on similar supervisors and panels of juries. It was supposed that the students explained their own expectations and observations in the process of supervisory through evidence-based outputs. In the workshop, first, the researcher asked the students to tell their own stories about the activities and the positive and negative aspects of the supervisory activities. This exercise clarified that the students had different experiences during the time of supervisees' activities.

For this reason, the researcher asked the students to classify the whole activities in two dimensions including expected and observed processes to document interactions, activities, and results of the supervisory processes. Some detailed spaces also were discussed such as the design process, communication, presentation, and personal attitude of the supervisors. While the same criteria could be applied to the students, the students pointed out punctuality, productivity, techniques of presentation, and life conditions as significant items in the thesis design development that could be common for the students.

Data and sampling specifications: Data were collected from the report sheets of the groups of thesis students. Four report sheets were collected based on the number of groups of students. While all the students had co-supervisors from the department and practitioners, the focus of the research was on the main supervisor. The data was based on the writing texts that were analyzed based on the themes, topics, and key issues raised by the students.

The context of the study: This study took place at the University of Rwanda; Department of Architecture located in Kigali, Rwanda. The department has one program with the title Bachelor of Architecture. The program is a five-year program that the last year is called either the thesis year or final year project with two continuous semesters for thesis I and II based on research and conceptualization, and architecture design development, respectively (DoA, 2012). The department was supposed to intake 25-35 students each year and the department currently accommodates 146 students. The curriculum expected thesis students to work under the leadership of the thesis committee, which in the absence of a sufficient number of staff just runs with the thesis coordinator. The students spent their time in the thesis studio under the leadership of the thesis coordinator to develop their thesis project and meet weekly with their supervisors. The students are supposed to report the results of their meetings with their supervisors.

Research limitations: the scope of this research was limited to the opinions of the thesis students about the thesis and supervision processes to discover the problem from the students' lens. While the opinions of the lecturer and supervisors could be another topic to research,

Table 2: *Evaluation of students about supervisors*

Titles	Explanation of the students about supervisors	
	Expectations	Observations
Group 1	Project Development: ownership of ideas (by students) and to help the students to find precedents projects	Ideas go to the supervisor's point of view and it was achieved.
	Communication; Effective communication by students and regular time of supervisor for students	Tight schedules led to poor communication and the supervisor only reacts when students communicate.
	Presentation; Supervisor helps students to arrange the presentation and the supervisor defend the student in front of the panel.	It was achieved but the supervisor acted as if he does not know you.
	Personal characters; Supervisor is expected to act kindly, friendly and participatory to the student.	He acted as a disrespectful employer which led to the resignation of the supervisory.
Group 2	Precedents at different stages of the design.	We got precedents but due to the low level of communication, we didn't get enough
	Design suggestions according to findings and project development	Design suggestions were given accordingly.
	High level of communication and interactions.	The level of communication was not good due to the unplanned schedule.
	Regular meetings with the supervisor.	Meeting with the supervisor was irregular and disturbed the result.
	We expected to be encouraged, and pushed mentally to move forward along the process.	There was more flexibility and discouragement due to outside life condition and the supervisor would consider it
Group 3	We expected our supervisors to give us guidance based on our ideas, as the project is ours.	Most of the time, the supervisors wanted us to go along with their thoughts which were different from the ideas and studies we made.
	We expected the supervisors to respect the schedule of the studio and guide us accordingly.	Through the meetings we had with the supervisors, it was clear that their critiques and expectations did not align with the studio schedule.
	We expected to work together with the supervisor in a positive environment and to have a sense of encouragement from them.	The supervisors were the first ones to drag us down.
Group 4	Meeting time regular basis.	It started well but it failed afterwards because of a lack of consistency that required outputs to be presented and his/her/our absences.
	The supervision period was expected to be until the end of the Thesis.	Some students have changed their supervision due to some misunderstandings.
	We expect effective communication and collaboration through inspiration from the supervisor.	It failed to some extent (misunderstanding and poor communication).
	We expected the supervisor to help us to make programs; a) choosing the topic and site location of the project, b) support us to make work on the site and precedent analysis,	a) During this period, we worked well/agreed effectively with the supervisors (expectations achieved).
	c) Programming and conceptualization, d) On project design development.	Some students' expectations were achieved others they did not.

the outputs of this research perhaps missed some of the parallel interactions in the comparison approach. In addition, this research has been done based on group work of the students through focus groups. Therefore, this research perhaps missed some individual explanations that could be taken into consideration through in-depth-interviews.

Results

The students wrote their expectations and observations in the thesis process in the A3 papers through a self-designed table. Each group included 5-6 students and they evaluated 2-3 supervisors due to the same experiences through sharing their stories in the group through conversations and note-taking. Table 2 shows the evaluation of the students of the supervisors.

According to table 2, there were some common points that the students highlighted for their expectations from supervisors importantly,

letting the students have the ownership of ideas for the thesis project, leading the thesis process, explanation of the thesis outputs, and increasing motivation through communication and collaboration. In addition, the students pointed out positive and negative aspects in terms of their observation of the supervisee processes. In the case of the positive aspects, the students mentioned three aspects, including they were guided in the right way to get precedents and resources for studies, design suggestions were received, and the design outputs were achieved. However, in the negative points of observation, the students mentioned the supervisors changed the students' ideas and recommended their own ideas, poor communication, and interaction, lack of guidance and consistency in the design process, supervisors changed their ideas many times, and different crits in different perspectives that were resulted in to change the supervisors. Even, some of the supervisors have been so rash in crits and dragged down the project of the students.

Table 3: Evaluation of the students about the students

Titles	Evaluation of the students about their activities	
	Expectations	Observations
Group 1	Punctuality deadlines; being able to deliver on time	It was not achieved 100%.
	Productivity; It was assumed to be a good master of the time.	Productivity was achieved by disregarding lateness.
	Computer devices; laptops were expected to perform better during the whole process.	Computer devices were crashing most of the time and this led to lateness.
	Life condition; They were expected to be good and allow smooth walking on the Thesis	Life conditions were not as expected.
Group 2	We expected to do an amazing project.	We lost consistency toward the expected project.
	Working on time	We were faced with disappointment for the outside disturbance.
	We expected high quality design and research.	We lost consistency due to different reasons as covid-19 and working online that could not support the design studio.
	We expected guidance in choosing the topic of research.	We were freely flexible to choose o our own without guidance.
	We expected to do high quality model	We did not achieve the desired quality of the model due to the time limit.
	We expected to work together as a team.	Time spent in the studio was reduced and collaboration was reduced.
Group 3	The students were expected to be active and involved in the studio activities	They were not active and not present in the studio.
	The students were expected to respect the studio schedule in terms of submissions (especially.	We did not respect the schedule, which resulted in spending more time at school than we were supposed to.
Group 4	Understanding of deliverables,	We clearly understood the requested deliverables.
	Being punctual for presentations and submissions	We started well with order and punctuality, but we totally failed afterwards. It went quite well. We failed to get ready and submit the requested materials on time.

In another datasheet, it was supposed that the students explain their own assessment of their own activities in terms of evaluation of students about students. The result is shown in Table 3.

Research Findings
The finding of the research identified that there is a strong link between expectations and observations of the students in the design processes and outputs. The students highlighted that they received such kinds of support in the thesis process. Apparently, some of the supervisors collaborated in the whole process of the thesis process and design outputs. However, on the opposite points, the students highlighted that they faced changing the idea of the thesis project and getting the ownership of the project by the supervisors. This attitude led the students to mention that there was no consistency in the guidance and crits. Obviously, changing the crits in the thesis process could refer to the design project development; however, changing

ownership of the ideas of the students implies the evaluation and aesthetic aspect of the project that resulted in changing the project. Obviously, the students had problems with communication, interaction, and getting motivation from the supervisors. Diagram 4 shows the relationships.

In the students' section, the students highlight contradictions in both the design process and design outputs. While the students mentioned they achieved the deliverables and design outputs, they displayed that they had problems following the design process and expectations of the supervisors and juries. This point reveals that the students have a problem understanding the thesis process. For this reason, despite their satisfaction with the design outputs and deliverables, they did not achieve the expectations of the supervisors and juries. The results also clarify that they did not meet punctuality, productivity, and teamwork
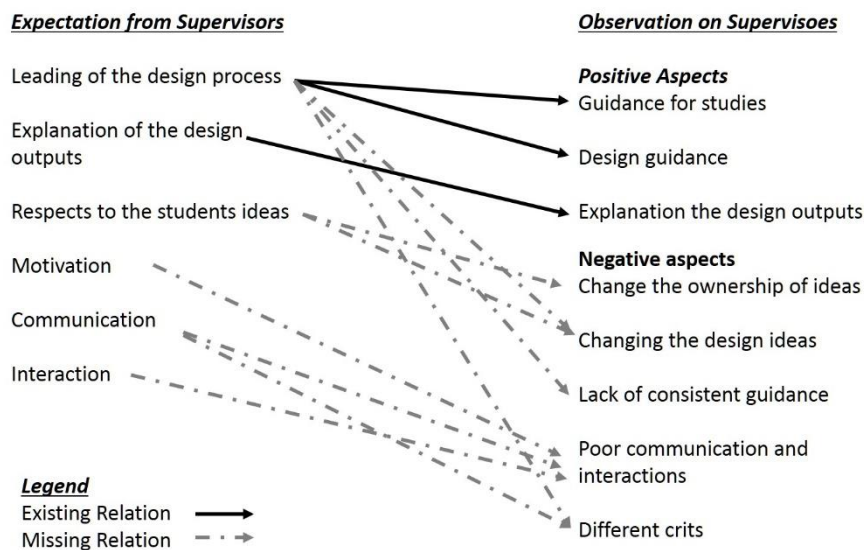
Figure 4: *Expectation and Observation on Supervisors*
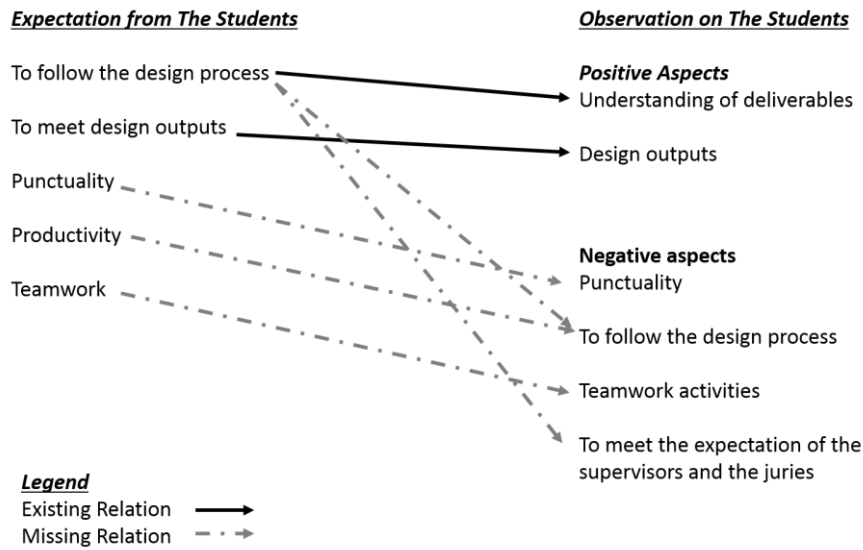
Figure 5: Expectation-observation on the Students

activities as studio culture. Diagram 5 shows the relationships.

Analysis of the Findings
Apparently, the results reveal some important aspects of the supervision process that were perceived by the students, such as the design process and outputs, power of the supervisors, meaning-interpretation of the process, communication and interaction, motivation, and crits.

According to findings, some of the students confirm that they get guidance for two critical aspects, including the design process and design outputs. However, the design outputs could not meet the expectations of the supervisors and juries. This result could refer to the unclear thesis guidelines in the department and thesis outputs in the minds of the supervisors and shows a common gap in design criteria for the final evaluation of thesis projects. This paradox puts the students in the position that while they have been satisfied with the design outputs, supervisors, and juries have not been.

The results demonstrate that the supervisors have the authority and power over the students to change the thesis project ideas and concepts, as they want. Despite the role of the supervisors

as leading the students in the process, the comments of the students reveal the supervisors were leading the projects more than the students were. Some of the students exposed that the supervisors used their position to change the projects in their own favor. This trend in the program refers to an old tradition in terms of apprenticeship that the master of atelier led both projects and students.

While the students did not point out any differentiation between analysis, crits, and evaluation with the exact words, the assessment of the students highlights that there were some differentiations and alignments between the three stages. First, the students mentioned that the supervisors introduced some precedent projects to lead them in the design process. This activity is aligned with the analysis stage which refers to the architectural elements and construction of the projects. This activity supported the students in the design process to get inspiration and an ideal model for their thesis project. Second, although the students claimed that the supervisors changed their ideas many times, this also shows that the students received crits from the supervisors even in misappropriate ways. Last, the students criticized that the supervisors were not fair in the presentation and evaluation times and they

commended them in a contradictive way. These aspects of the self-expression of the students about the activities in the supervisory processes show that there were different levels of comments and interactions in the department although stages aspects of analysis, crits, and evaluation were not covered in the supervision process consistently.

Discussion

The students revealed that the supervisors used their power to change the idea of the thesis project based on the power of the supervisors over students (Dreyfus & Rabinow, 1982). The disagreements in the thesis processes and thesis outputs resulted in changing supervisors or resigning from the position as a supervisor similar to the findings (Phillips & Pugh, 1994). Apparently, all the problems in the PhD levels (Gill & Burnard, 2008) were observed at an undergraduate level (Tafahomi & Chance, 2023), which referred to the similarity of the concept, meaning, and context (Foucault, 1980). The changing ideas of the students implied the old school of architecture education based on apprenticeships although it was criticized in terms of an unmodern style of education (Draper, 1977; Drexler, 1975; Garric, 2017; Griffin, 2022). This authoritarian approach to architecture education contradicted the idea of Gropius (1970) in terms of new ideas in architecture education, by adding new topics into courses such as art, philosophy, and research (Lerner, 2005; Marttila, 2018). Moreover, this level of power over the students contradicted the constructivism theory in education that recommended freedom of the students in the process of learning, reducing the curriculum obligation, and changing the standard teaching models (Hargraves, 2021).

The disagreement between students and supervisors highlighted a classical style in education in terms of a dogma style (Draper, 1977; Drexler, 1975; Garric, 2017; Gropius, 1970) to dictate knowledge and science, which was criticized by Popper and Kuhn (Kuhn, 1962). There was no unique agreement or consensus between staff and students in the supervisory process to achieve the expected results. There was a paradigm of

personalization, disagreement, and power. This paradigm was not a step forward due to the logic of Wang (2009), rather than it is just shifting backward. In addition, Derrida also pointed out the meaning of the words among users with different levels of explicit and implicit expressions (Derrida, 2013) that reflected different understandings of the thesis processes, outputs, communication, and interactions between supervisors and students (Tafahomi & Chance, 2023). This differentiation demonstrated the hypothesis of Dreyfus and Rabinow about the civic regulation of a small group of powerful people to control norms and procedures in a virtual way (Dreyfus & Rabinow, 1982) through the legitimization of power, laws, and orders.

Additionally, the power of the supervisors over the students resulted in changing the thesis projects, design processes, outputs, and ideas in theses that exemplified the theory of Foucault (1980) in terms of the legitimacy of knowledge through power. This self-understanding (Baker, Exum, & Tyler, 2002), arrangement, and application of the thesis process, outputs, and crits (McClean & Hourigan, 2013) highlighted a lack of proper training, guidelines, and agreement in both administrative and academic aspects among supervisors that highlighted by (Gill & Burnard, 2008). The current guidelines of the supervision activities did not help the students in the interaction, communication, and activities in the thesis process (UR, 2015; UR, 2018a; 2018b).

Although a few positive comments from the students on communication, interaction, and motivation, a major part of the students faced problems in establishing strong relationships with supervisors to exchange and explore new ideas (Gill & Burnard, 2008). This weakness in communication, interaction, and professional relationships exemplified the theory of Pillips and Pugh (1994) in terms of unnecessary disagreement and challenges and referred to the lack of sufficient guidelines and instructions in the department to systematize and methodize processes and procedures (Tafahomi, 2022b). In addition, the level of understanding, collaboration, and communication reflected the

theory of Derrida (2013) about missing aspects of meanings words, and ideas among users that resulted in disagreement and conflict. The comparison between the opinions of the students in the observations sections based on the thesis processes and outputs and the expectations of the supervisors demonstrated that the students relied on the coordinator's support over the supervisors through the essential materials, processes, and activities (Tafahomi, 2021a; 2021b).

Apparently, the relationship between the students and supervisors did not end with the whole process of the analysis, crits, and evaluation that was highlighted by the findings (Proudfoot, 2000; Tafahomi, 2022a) based on philosophical, epistemological, and methodological aspects in architecture education (Franz, 1994; Frayling, Research in art and design, 1993; Tafahomi, 2022a). The important challenge in the thesis processes took place in the aesthetics and performance resulting in changing the topics, projects, and supervisors (Tafahomi, 2023). This problem referred to the findings (Mallory-Hill, Preiser, & Watson, 2012; Preiser & Schramm, 1997; Preiser & Vischer, 2005) in terms of the habitability of buildings and performance than aesthetics. For this reason, the students claimed that the supervisors did not get their ideas and tried to change them. However, the evidence in architecture education pointed out that architecture education tended to be more prescriptive than descriptive (Haldane, 1998; Lawson, How designers think: The design process demystified, 2005) to imply the power of supervisors in the process rather than the creativity of the students.

The behaviors of instructors in the position of supervisors had great effects on the motivation of the students (Gorham & Christophel, 1992; Tafahomi, 2021d). While the students looked for motivation from the supervisors, the thesis students were demotivated by the relationships. It showed the low level of teamwork among the students based on the same supervisors and a restricted environment for the interchange of ideas (Takase, Niitani, Imai, & Okada, 2019), and the lack of communication, interaction, and

peer learning (Tafahomi, 2021c). The students faced dissatisfaction with the supervision process in the thesis process, which certainly included some level of anxiety and stress although those psychological aspects were not measured in the research similar to the findings by Gill and Burnard (Gill & Burnard, 2008).

Conclusion
The thesis students as senior students expect some key factors from supervisors, including respect for the ideas, support in the thesis process and outputs, supporting the students to get motivation for the projects, and systematic communication and interaction to lead the thesis project progress. A thesis project is a final architectural project that should represent the knowledge, skills, and ability of students. Therefore, a thesis student should provide the idea of a thesis project rather than dictating the project by supervisors. Students expect to be informed about the thesis process, such as phases, activities, and related materials for each step, and thesis outputs, such as deliverables for each presentation, pin-up, and discussion stages, such as maps, scales, reports, or physical models in both formative and summative exams that call progress presentations in architecture programs.

Students still have problems with a thesis project in architecture programs based on the student-supervisor relationships. Students are affected by the educational environment and, importantly relationships with supervisors. Positive communication and interaction between students and supervisors could lead students to get motivation for the educational environment. An open discussion with knowledge-based orientation between students and supervisors could lead students in a thesis project than a dogma approach, administrative authority, and power of the position of supervisors.

Students cannot get a good sense when they could not meet the expectations of supervisors and juries even if they do behave in an inconsistent way in comments and crits. Students express their regrets about their failure in the design processes and design outputs by

highlighting the feedback of supervisors and juries in both the progress presentations and the evaluation of the final exam. Despite that, the four years design studios are constructed by teamwork activities and the results of weak communication and interaction in the final year products demonstrate the low level of teamwork between supervisors and supervisees.

Apparently, the department faces a lack of guidance for the thesis project and consensus of agreement among the staff on the methods, approach, and process that affect the thesis processes, outputs, and outcomes. In the absence of clear guidelines, supervisors lead students in their own way of supervisory. However, through studies, we know that different schools of thought in architecture do different projects from a final year project, a mixture, or a thesis project. In fact, departments of architecture should make decisions on either a thesis-based project or a final-year project to clarify the responsibility of students, supervisors, juries, and coordinators.

Still, it could be observed that some of the architecture departments lead the students in the old school of thought in architecture based on apprenticeship training rather than academia, knowledge, and critical thinking. Despite that, the style of teaching is not a choice, sometimes is a system, context, and ideology. However, new generations of thoughts, philosophy, epistemology, and methodology, in the architecture domain and relevant fields of studies criticize, challenge, and falsify wrong approaches in architecture education. There is evidence to illustrate the power of students' movements to change the educational system in different parts of the world based on time and location.

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Highlighting Community and Identity through an Online Interior Architecture Studio Project:

Ambassador's Residence Project

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Abstract: Within the confines of the COVID-19 pandemic, design educators were required to revisit tried and true ways of teaching and create original ways to connect with their students. In this paper, the aim is to achieve the sense of global interiors community in online teaching regarding teaching methods as well as project topics. Moreover, various means by which an enhanced studio experience may be provided is investigated. The year-long project with a focus on "concept building", benefited from a variety of approaches and resources that is believed to enrich the overall experience. One of the first aims was to enable a sense of connection and community at a time of detachment. This was achieved in a number of ways; the first step was through requiring students to work in teams of two. The second step was to use the opportunities of online education to the full extent. In this sense, both national and international guests were invited to the studio for lectures and critiques. Lastly, on special days such as the IFI (International Federation of Interior Architects/Designers) World Interiors Day and juries, both national and international guests were invited to the studio to share experiences with students that were shared on international platforms. Through an ambassador's residence project, second-year interior architecture students were able to experience aspects of their profession in an international environment. An enriched experience both in terms of structure and content was aimed to be achieved and the projects reflected these aims. The selected projects portrayed in the paper answer the requirements in full, are parallel to the context, and reflect the key criteria of the project. A questionnaire was applied to the participating students to gather deeper insight into their studio experience. Limitations include the number of participant students, and thus, further studies may include larger groups of students, national

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and international comparisons of experiences as well as studio output. Despite the large-scale catastrophe, findings show the benefits of increased online interiors community activity in the experience of the students as well as being reflected positively to their projects. These events have also benefited the instructors' connection to the studio. Overall, the interior design studio is a dynamic environment that needs constant research into its pedagogy, content, and overall experience, as the educational environment moves swiftly to online direction.

Keywords: Interior design studio, Interiors community, Internationality, Sense of community, Identity, Virtual design studio, Concept building.

1. Introduction

Design education requires a highly interactive process between students and professors, including the offering of alternative design solutions (Sagun & Demirkan 2007). Physical design studios (PDS) and live critique sessions are crucial parts of the design education curriculum. It allows students to expand their socio-spatial capacities simultaneously. Due to the global COVID-19 pandemic, all teaching and learning activities needed to be carried out remotely in a virtual design studio (VDS) (Kusumowidagdo & Prihatmanti, 2022). The impact of abandoning synchronous and physically immediate access to students undermined what turned out to be a significant structural element of design education for many design instructors (Jones & Lotz, 2021).

Since there is no flawless plan or design, designers are familiar with working with ambiguity, complexity, and the whims of real-world situations (Jones & Lotz, 2021). As an effective pedagogical approach and technology, online learning is widely used in higher education (Park, 2011) and the pandemic offered an opportunity to consider the growing trend of virtual design studios life (Iranmanesh & Onur 2021). Within the context of the second year studio at Izmir University of Economics, Dept. of Interior Architecture and Environmental Design, the focus is "concept building", benefited from a variety of approaches and resources that is believed to enrich the overall experience to use the opportunities of online education to the full extent within the strict confines of the COVID. With this in mind, discussions on national identity and how to create a concept that was based on what a country might want to represent

in a host city while designing an "Ambassador's Residence" and the materialization of those concepts as design projects for residences for France, Finland, Japan, and Netherlands. Each project reflects a research-based approach on the culture of host and guest countries and their depiction without simplistic or superficial representations that might be defined as "kitsch" was another challenge to overcome in this studio. The project was one of international collaborations that was possible through online platforms and introduced a variety of scales to the students throughout the course of two semesters. This study aims to provide insights and strategies to create a deepened understanding of interior architecture and an increased sense of community crucial for interior architecture education at the time of distance education and isolation.

2. Online design education and the covid-19 pandemic

Advances in digital technology have revolutionized the education system, requiring it to be integrated with educational technology, and the global pandemic has hurried the transition to digital learning and teaching (Dreamson 2020). Physical methods of teaching needed to change rapidly, thus it was not always easy to plan ahead and prepare for the development of teaching materials. Methods and materials for emergency teaching emerged, and for many, responding and reacting that was practically an emergency which later became the routine for teaching. (Winters, 2021). In fact, there were already a few institutions that provide online and integrated distance education (Jones & Lotz, 2021). However, even though the pandemic ends, it is quite likely that the altered landscape will not restore to its previous state since institutional systems and

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norms for online education have been transformed for both students and educators (Dreamson 2020).

The interior design framework is established on design studio education as a core process of "learning by doing" (Schön 1981) and encompasses a wide range of representations (visual, verbal, tactile, and written), evaluation types (design reviews, juries, and studio work), and teaching methods (desk/individual critiques, group tutorials, and lectures). Therefore, the design studio is certainly a place that has the capacity to inspire, and enable programme staff to engage with students in a uniquely intense learning experience (Spruce, 2007). Naturally, the teaching methods of the design studio have significantly changed over the years, and various digital design-teaching instruments, such as video lectures or discussion boards, are now used as supplements to the classic design studio (Alawad 2021). According to Iranmanesh and Onur (2021) in the limited time window that the COVID-19 shutdown possibly enforced virtuality on design studio education and gave the opportunity to the hidden promise of VDS (virtual design studio) to blossom. As a virtual teaching environment, an online design studio is a place where the instructors and students meet, which means that there is typically group discussion rather than single communication actions and utilization of Virtual Design Studio (VDS) to the fullest is considered effective and efficient particularly for this project due to international and collaborative nature of the project.

Higher education courses in art and design have been moving away from practical learning to virtual learning for more than ten years, and this shift is still progressing currently due to the pandemic (Kusumowidagdo & Prihatmanti, 2022). Several scholars have studied the concept of VDS over the years, concentrating on different aspects of design education (Iranmanesh & Onur, 2021; Saghafi et al., 2012; Jones et al., 2021; Winters, 2021; Lotz et al., 2015; Rodriguez et al., 2018; Broadfoot & Bennett 2003; Cheng & Kvan 2000). In their seminal work, Saghafi, Franz, and Crowther (2012) discuss nine different

aspects of physical design studio (PDS) and VDS, which are: culture, community, space, technology, pedagogy, assessment, content, process, and outcome, and each helps educators comprehend the full extent of the current and forthcoming landscape of design education. This preliminary structure was provided as a fundamental tool to be used in deciding how to conduct the evaluation, analysis, comparison, and application of diverse environments for design education (Saghafi, Franz, & Crowther, 2012). These diverse aspects have been discussed lately by several scholars together or individually to deeply understand, review and study. For instance, Fleischmann (2019) conducted a study on a fully online design studio and discovered that the majority of students appreciated the fully online learning experience and that design teachers were satisfied with the achievement of the students. According to Alawad (2021), students appreciated that they could construct their own study schedule, learn, and complete projects at the pace that worked best for them due to the general flexibility of online delivery. The "Ambassador's Residence" project focuses more on the positive and negative aspects of the online education process and the use of technology and discusses how students and instructors handled these concepts together over five different projects. There are also concerns that design education has not been thoroughly examined in terms of online learning until this global pandemic hit the world (Dreamson 2020).

On a fundamental level, it appears that the pandemic hinders educators of opportunity to participate in discourses and increase the quality of online education since there is no transition time or drastic change. In reality, educators and learners have been brutally confined online, and, more importantly, pedagogical engagement with education in the online networked learning environment may remain static, undiscovered, and unshared (Dreamson 2020). Even though VDS's advantages have included a broader and more interdisciplinary approach to learning through collaborative but individual exploring possibilities, there are few aspects in VDS that

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do need to be addressed, including a weak social interaction and diversified basic knowledge (Arora & Khazanchi, 2014). Therefore, peer learning also becomes one of the important issues that needs to be addressed.

Schön (1985) noted that learning in the design studio begins with ill-defined challenges, which is a common feature of professional education, and found that learning in the studio progressed through a process he defined as "reflection-in-action". He draws attention to the exchange between a student and a tutor to demonstrate his findings on studio teaching.

Ideally, the design studio should function as both a learning centre and a complex social entity for collaborations as other learning environments. Design studios are the places that simulate genuine situations in design education. The critique process at a design studio is much more than a lecture; it is really a social interaction between the teacher and the students as well as among students. Therefore, communication is a significant aspect of a design studio (Deasy & Laswell, 1985; Demirbas 2001 cited in Demirbas & Demirkan 2003).

During the pandemic some borders closed, yet others were opened up, allowing for international collaborations amongst colleagues. As a community of design educators, we had a unique opportunity to reshape the interpretations of participation, agency, emancipation, and belonging in order to effectively address current issues and difficulties like representation and inclusion (Jones & Lotz, 2021).

3. On collaboration and sense of community
In terms of motivation, efficacy, learning, and satisfaction, students assessed in-person collaboration significantly higher than online collaboration, although both types of collaboration generated the same results (Cho & Cho 2014). To improve and ensure the quality of online design education, Alawad's study sought to identify students' real-world experience in fully online interior design studios and investigate if such experiences vary

according to students' educational levels (Alawad 2021).

According to Alawad (2021), students' ability to communicate with their tutors is determined by their skill level in digital media, including the structure of VDS. It is necessary for both teachers and students to be acquainted with a series of innovative digital technologies in order to conduct an effective VDS. The quality of student learning will be maximized through increasing connectivity within the online learning communities (Northcote, 2008). Online education enabled students to focus on the specific problems posed and led them to be more critically analytical and self-reflective than in a conventional design studio (Alawad 2021).

In an interior design studio, students can also engage in peer collaboration, which is a common practice in the real interior design community (Sagun & Demirkan 2009). Students also learn how to cope with diverse opinions and viewpoints, lead the project positively, along with scheduling with team members, through participating in collaborative projects in the design studio (Hennessy & Murphy 1999). In recent times, a significant number of interior design firms collaborate around the globe using new technology, including synchronous and asynchronous communication tools. As a result of this trend, interior design students' standards have escalated. Therefore, to cultivate positive attitudes towards online collaboration, it is important to investigate students' perceptions of online collaboration experiences. Thus, collaboration in the design studio is an essential experience for students. Moreover, collaboration is one of the critical competencies that interior design majors are expected to develop throughout their education; unfortunately, a minority of students is capable of collaborating with others online (Cho & Cho 2014).

For distance learning students, an optimized discussion board is essential for collaborative learning and for reducing emotions of isolation and detachment (Alawad 2021). Researchers

have shown a high degree of satisfaction among students while working together in person rather than online. Nonetheless, there was no substantial difference in student performance between the two types of collaboration. Furthermore, the findings highlight the importance of providing an adequate online interface for design collaborations (Cho & Cho 2014). The second-year studio program explained in the next section aims to encompass a strong sense of community through an enriched studio experience both in terms of structure, content and enhanced communication under the challenging conditions of a pandemic by turning into its advantage to become more global and connected with the design community.

4. Methodology
The method involves the analysis of second year interior design studio projects, according to the formation of a conceptual statement, interpretation of abstract conceptual ideas into realized and concrete form (composition, layout, and reflection on all project decisions from the largest scale to the smallest detail), conceptual development, and finalization. Through collaborations with national and international partners and designers, the aim was to recognize these features and discuss variations on the theme. Moreover, surveys were done with students to understand their point of view on the process and the extent to which the studio expectations and requirements on the projects were responded to. The survey was considered as an additional quotes that supported the fndings. Semester-long discussions with students helped tailor the project according to their comprehension.

In the second-year studio, it is significant to provide to students a sense of "interiors community" that they are often not fully aware of. The studio began with a notion to realize this on different scales, local (city-scale), national, as well as international. Through discussions of identity regarding the profession and project focus, especially at a time when only distant connections could be achieved, these collaborations through the VDS explained in this paper, this became an even stronger

priority. The project brief and components explained below all carry this aim.

4.1. The VDS Project
In the first semester, the project was introduced as designing a "Foreign Ambassador's Residence and Public Centre in Izmir", which is a complex that is formed of two significant functions: residence and public centre of a chosen country at the Izmir Culturepark fairgrounds. The building space is the Painting Sculpture Museum, Culturepark Art Gallery, close to the Lozan Gate in central Izmir.

The following quote was discussed in the studio as a beginning;
"Today, designing diplomatic facilities requires architects to engage the conceptual and physical requirements for sustainable and innovative buildings, including the ways in which to incorporate public space and civic engagement. While previous designs may have once resembled fortresses and bunkers, new diplomatic buildings are created to comply with strict security standards while opening up to local programs and conditions…" (https://architizer.com/blog/inspiration/collections/embassy/)

This building type was explained as one that brings two functions together, and therefore the two distinct parts should be connected, yet separate at the same time. Well-known examples include the Turkish Embassy in Tokyo, designed by Kenzo Tange.

Ambassador homes and embassy spaces are firstly the homes of a consulate or ambassador, and secondly the connection point with the culture of the host country. There are several issues to consider such as; representation of another culture in a country without being simplistic, issues of identity, and the variety of functions to be covered. The interior design of these spaces carries specific importance in responding to these needs.

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The following points below were significant for the project context. First, the project location was chosen as a space in the city centre, easily accessible by all students. The public building is a well-known museum and therefore the students could more easily focus on adaptive reuse. Second, the project location is in the Izmir Culture Park which has a historical significance which will be explained in the paper. Moreover, the project was introduced at the 1/200 scale in the first semester, and brought to 1/1 scale by the end of the second semester.

This necessitated a comprehensive approach to design, a powerful concept that would be valid and applicable at each scale, and a consistent language throughout the various needs and scales of the project.

Taking into consideration the close surrounding of the building with its landscape design enabled the design of a close connection between the exterior and interior. The climate, plants, direction of the building, and circulation of people within Culture Park was studied in

Figure 1: Culturepark and Izmir Art and Sculpture Museum, Turkey, Izmir, Alsancak
Sources: https://www.Izmir.art/tr/kulturpark-sanat-galerisi https://Izmirinrenkleri.com/kulturpark/

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detail with guest lecturers. Lighting was another significant element introduced with lectures and detailed lighting scenario building assignments. While the first semester focused on a more abstract approach and building the scenario, the second semester focused on carrying the concept to furniture design, textiles, and selection of industrial design elements and accessories and the design of details. The projects that are presented in this paper were also the most responsive in this respect and most diverse in terms of explaining the scope of the project. Students also had to investigate the location considering several layers; Turkey, Izmir, Alsancak, and Culture Park; as well as researching the chosen country and its culture.

4.2. Project Definition
Embassies, and other representations of countries such as, ambassador's residences are significant places that represent a country in another foreign country and thus carry characteristics of both the represented and the hosting country. The building and interiors need to reflect the related country's culture, but adapt to the existing culture at the same time. Therefore, students had to think about how these two cultures come together.

The public centre was devised as the space for the reception of visitors coming for a variety of cultural events and activities, and acts as the place that creates a "first impression". The physical characteristics of this area may easily reflect on how the country is perceived, and therefore carries great significance. Therefore, students had to think about both the cultural identity and the first impression. Ultimately, students needed to create a space that was contemporary, that combined the cultural and traditional in an abstract and refined way.

Students were required to respond to the following space and program requirements. Regarding the public areas, students needed to do research on public events, meetings, and gatherings that may be held at an ambassador's residence. Students were responsible for the reception area, resting-meeting areas, waiting areas, exhibition or other specialized areas, entry area/ security, café, library, office area,

storage for personal belongings of personnel, and other specific needs according to their scenarios. In the private areas, students were responsible for doing research on the actual ambassador, research on the standard family structure of the chosen country, planning of the whole house for its inhabitants, entry area, living area, bedrooms, working spaces, kitchen(s), bathroom(s), various storage spaces, and other specific needs according to their scenarios.

When students were writing their scenarios, they were asked to consider the following; Understanding the function of a cultural centre; (Re)creation or reinterpretation of an identity; Scenario (according to the user profile); Whole volumetric space; Surfaces including the floor, the walls, the ceiling (new boundaries can be defined by your proposal); Planning and Programming; Connections between spaces; Furniture; Lighting (Artificial lighting and Daylight); Materials and Textures; Colour; HVAC, plumbing, acoustics; Connection details; Consideration of privacy issues (Visual, Audial, and other); Exterior-interior connection and planting solutions; Approach to the building and facade expression/ characterization; Artwork; and Wayfinding-circulation. The evaluation criteria were based on the depth of analysis and research on the chosen culture, success in use of design principles and spatial knowledge, innovation, functionality, feasibility, aesthetic values, and presentation.

4.3. Studio Process
The students were paired in groups of two in order to enhance communication during the period of isolation that was caused by the long-term two and three-week lockdowns that took place in Turkey in 2021. The COVID-19 pandemic which necessitated completing the whole year online and the sense of community through national and international online meetings were beneficial to strengthen bonds within a time of uncertainty and illness happening in several students' lives. Thus, there were several opportunities for the development of the studio culture enabled by online connections.

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A main difficulty for the instructors was in getting to know the students. Although every course was structured to have a general meeting before instructors and students dispersed into their "breakout groups", because some students refused to turn on their cameras or actively take part in the class discussions, there was a difficulty in combining the students' appearance, name, and project. So much of the studio culture places significance on close contact and understanding deeply a student's character, design ability, and strengths and weaknesses. Opportunities for closer connections were held through individual meetings with students outside of the in-studio critique session where instructors and students can converse freely about the student's progress.

The online platform also enabled creative collaboration with national and international colleagues, which reflected positively on the students' understanding of the interiors community as well as enriched the studio. The studio collaborated with a Professor and his 13 students from Chiba University, Architecture Department, Japan. The Japanese team was with the studio throughout the semester, and students collaborated with them and experienced different approaches to the same design problem. Moreover, the Japanese students visited the Turkish ambassador in the embassy in Tokyo, Japan and connected to the studio from their visit. This experience was also quite valuable to the studio as it was a real-life experience. As this was a cultural project, both Turkish and Japanese students benefited from this.

The evaluation criteria depended upon the elaboration of the concept and reflection on all decisions of the project; definition of the scenario that is parallel to the design decisions; depth of analysis and research on the chosen culture; understanding of the life of an ambassador; success in the use of design principles and spatial knowledge; innovation, functionality, feasibility, aesthetic values, and presentation. Students were asked to come to each class with their revised proposals and homework.

4.4. Projects
The project was a year-long topic that began with the selection of the country, cultural research, the definition of the concept, design of the site plan including landscape design and plant selection in large scale (1/200 and 1/100), and creating the general layout and scheme of the interior space in the first semester. The second semester involved a full analysis and design of the interior space, starting from the general scheme and carrying the conceptual decisions to the smallest detail. This semester focused on private and public spaces within the interior space, designation of subspaces and rooms, interior detailing and finishes, including all material selections, textiles, lighting, furniture, programming, and budgeting. As the students worked on the same project in both semesters, it was possible to carry a general idea applied at the largest composition scale, considering the location and history of the building and site and planning the approach to the building, to the smallest detail.

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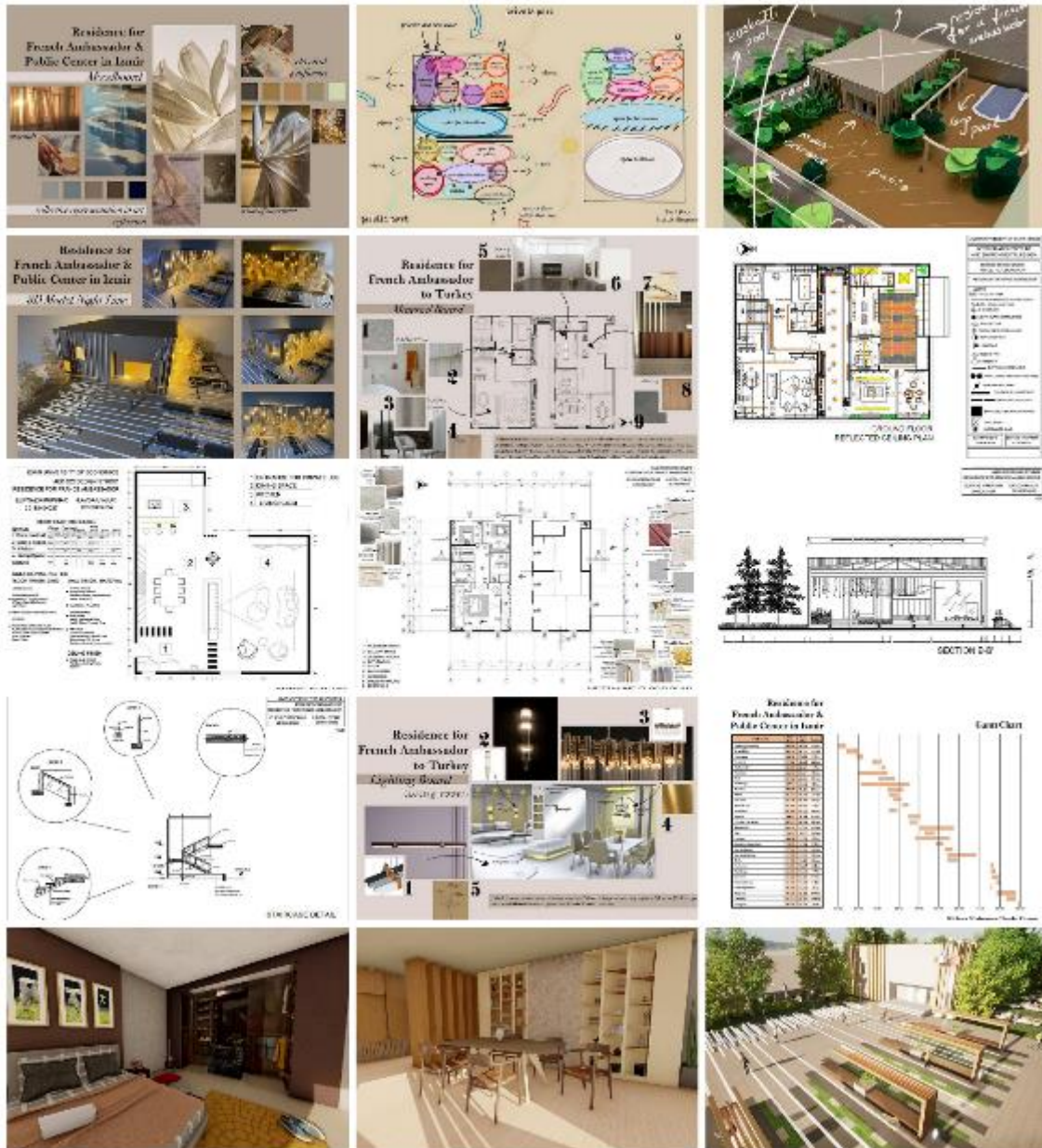
Figure 2: Project 1- Residence for French Ambassador to Turkey

This particular project began with the semester's first research through the representation of a nation and the concept of creating different representations of art within daily life narratives. The idea was sensing every detail in life as a corollary of art, as seeing the aesthetic way of figuration. In this manner, the project rotated around the idea of creating a design with the cultural identities of both Turkey and the chosen country (France), including some details and symbolic matters such as privacy that both cultures were dignifying. At the second stage, students continued to work from a distance with their teammates and peers getting critiques and trying to continue from the exterior to the interior that described a transition of planting

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with a green space. This idea began with the landscape organization together with the designed facade with planting elements. The openings of the building were designed in a way to correlate with the interior layout which affects the amount of daylight that the building took in. In the following stage, the spatial organization was developed with the idea of layers that were adapted to the functional arrangements in the space. The connections of the interior spaces were studied within the scenario regarding the hierarchy of the demands of the project. In the final stage, students were asked to share their project with all these three stages that were built up together, to compose a unique representation of the project that had two main functions with residence and public area as a virtual presentation. This also requires a different set of skills for presentation, communication, and the use of technological tools that they have had the chance to develop throughout VDS.

In the second semester, for the landscape design linearity was the important design principle that supported both the horizontal and vertical elements designed for the landscape and the facade of the building. The approach for the interiors was more about dealing with specific concerns such as built-in and mobile furniture, design objects, artificial and natural lighting solutions and more details defining the whole atmosphere.

Lighting design was a critical concern in the creation of both the general atmosphere and the reflection of the design that each space needed. Lighting scenarios were created for different time and spaces. For instance, the sitting area which is a reflection of the design language of the whole project is aimed to preserve linear shapes. General lighting in artificial lighting is provided by linear luminaires. In the living area, general lighting is provided with wide-angle downlight fixtures recessed into the ceiling in order to provide repetition with light traces in horizontal planes. In order to emphasize the desired interior architectural approach with light, recessed mini downlight fixtures were chosen to provide trace lighting inside the niches. The recessed linear lighting elements, which are also designed to be used in the library, are intended to both emphasize the product to be exhibited and contribute to the luminous level of the space with indirect lighting. In addition to direct and indirect lighting, decorative lighting fixtures are the integration of interior design language and lighting design.

Control grouping of all lighting fixtures selected for the determined area was created in line with a scenario. Lighting scenarios for this project was considering the daylight, the decorative and furniture integrated lighting fixtures working together, only furniture integrated lighting fixtures will be switched and was designed in accordance with the use before sleep, with low light levels and by direct lights. Material selections, colour and texture decisions were the focus at the end of this period. In this semester, it was found that students could find more time to deal with design details. This might be due to the practical nature of VDS where meeting and communicating with their teammates according to their own study schedules, and instructors are easier most of the year.

Figure 3: *Project 2- Ambassador's Residence and The Public Centre for Finland*

At the first stage of the project, the project aimed to bring together the conventional Finnish lifestyle and the contemporary experience. While the private spaces of the building gave the user a warm and traditional environment, public spaces were designed to be more educational, experiential and informative for people from other nations.

Moreover, nature was incorporated in every aspect of the project; both physically and conceptually. Nature was the main concern for every material, texture and colour, where function was the primary issue with the understanding of the natural lifestyle of the culture of the chosen country. This approach was already in the basic understanding of Finland; the country that the students were

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studying. Some activities were held such as; photography exhibitions, workshops, social, formal and informal gathering spaces. The private spaces were designed for tranquillity and relaxation.

At the planning stage, the students introduced an experiential walking path with a unique floor design and patio was introduced to the main entrance, in order to greet the visitors approaching the building, while appreciating the landscape. On the facade of the building, coloured window application was used to get the daylight in that were connecting the exterior design language into the interior space, with a specific illuminating effect. Thereafter, the aim was to have spacious and flexible areas, concerning the main scenario and the related functions. The idea of flexibility was brought forward to bring comfort to the interiors by

Figure 4: *Project 3- Residence for Japan Ambassador*

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maintaining a native simplicity, using natural materials, textures and colours. Various gathering spaces were designed for the public, especially in the social areas designed for multifunctionality and sharing information with visitors.

In the second semester, the symbol of the earth and the effect of the aurora, as an extension of the concept, were examined in material, texture, and colour decisions. Lighting design, thus, became the fundamental part of the design. Transparency provided the opportunity to benefit from daylight. The entrance was specifically designed to provide more flexible areas for various different activities like exhibitions, presentations, and meetings; a ceiling design with irregularly located pendant rails and magnet spots were used. The selected luminaires had diffuse covers and anti-glare qualities for visual comfort.

Regarding landscape design, the exterior green area was designed according to the species and properties of the green items, accurately. Moreover, it is possible to say that students preferred the presentation materials to be arranged mostly in horizontal direction in VDS to maximize the use of the screen and showcase many more details which was not the case for the physical studio.

The main aim of this project was to combine both traditional and contemporary Japanese style in a functional way. Zen Philosophy was chosen as the concept and the novel design approach and lifestyle of Japan determined the main point of view of the project by creating basic and pure spaces. Students working with Japan had the opportunity to interview and discuss their research and project material with online guests from Japan, which makes VDS more efficient and more multicultural with learning through collaborative yet individual exploring possibilities.

The second stage was held on simplicity and functionality, a contemporary approach with the traditional twist is adopted starting from the exterior and transitioning towards to the interiors. The exterior, which contained a private garden, was connected to the interior through an interior garden located at the centre of the building. This area had both a visual and a physical relationship with the private and public parts of the interiors. At the third stage, linearity was seen in the overall design language of the building, which contained calming design elements with details generated according to the scenario. Furniture designs and material connections were defined by direct relations with the use of texture and colour, parallel to the interior design language.

In the second semester, the supplementary idea was the grid system supporting the idea of linearity. Some additional functions and traditional elements have been added and designed to strengthen the project to complement the overall design language. The lighting design has been studied in depth with scenarios for both artificial and daylight, which should be the core subject of designing a project. Different lighting scenarios for day and night are considered to realize different conditions of lighting concerns.

Creating layers was one of the aims and thus the depth and high ceiling volumes were emphasized through lights. Another significant aspect of the interiors was the authentic decorative lighting fixtures made of rice paper, which was specially selected to harmonize with Japanese culture. One of the most important issues in the selection of lighting fixtures, the selection of products per the standards for the external environment, is one of the highlights of this project. These students became more used to VDS in second semester and they were more proficient in communicating fluently through online platforms and developing their skills about video animation more suited to virtual studio by adopting a more immersive approach to present their project with a video in addition to still representations.

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Figure 5: Project 4- Netherlands Embassy Residence

At the initial stage of this particular work, the objective was to create a space where the ambassador of Netherlands in Turkey could live and work at the same time, benefitting from the whole environment. This environment was designed as a place of silence and exteriors aimed to be brought into the interiors as a continuation. Considering the biophilic design approach, the selected elements retrieved from nature such as; greenery, water, natural colours and textures were the primary influences that affected the design language of the project, within a meticulous study of geometrical language, which represented the Netherlands.

In the following stages, a strong connection between exterior and interior which reflected the major principle of the design of the project was created. The landscape continues towards the interiors, and finally establishes a design

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language that is inspired by the biophilic design principles. Water was emphasised both in landscape design and indoors as well as green surfaces and vertical gardens. Plants were widely studied as part of the biophilic design approach, which contributed to both exterior and interior areas. In order to accentuate the green areas, white horizontal and vertical surfaces were used, and smooth walking surfaces were designed above the water level. Biophilic design was integrated to every part of the project, with a strengthened connection between the exterior and interior through plants.

In the second semester, the improvements were mainly made in the functional and geometrical design phase of the landscape layout. At the very beginning phases of the project, the facades of the building were examined in detail, along with the site analysis. The movement of daylight is noted on-site analysis by examining it annually. The cycle of the sun and seasonal effects were also discussed and influenced the interior design decisions. The second daylight scenario was based on equinox dates and the indoor layout reflected the changes in the amount and time of light received by the interior volumes throughout the year.

A holistic project was created by associating the movement of this living, changing and evolving light, which is compatible with the biophilic concept. The daylight analysis, which was so scrutinized with site analysis, was supported by artificial lighting and met at a common point in landscape design. On the main walkways connecting the entrance area to the interior, 3-meter-high modern style lighting poles provided and the necessary light level for visual comfort. Thus, following the project concept, the importance of human-oriented design was emphasized.

Consequently, there are several common design and approach elements developed throughout the year. All five of the projects mainly focused on the sense of community and national identity while utilizing the opportunities presented by the virtual interior design studio. These opportunities include; adopting more immersive approaches to present their projects,

internationality of the studio and the opportunity to interview and discuss their research and project material with online guests, efficient communication between peers, being more multicultural with learning through collaborative yet individual exploring possibilities, students could found more time to deal with design details due to the practicality of the VDS.

5. Discussion and conclusion
The study aims to instill a sense of community to interior design students with ongoing discussions on identity, both in the professional and the project-focused sense, and to see these exercises as vital to the understanding of the development of a concept as well as themselves as interior designers of the future. Online studios appear at first glance to break the sense of community, therefore novel ways and an emphasized approach was necessary. In order to enable a sense of connection and community, to find novel ways to connect with their students, to foster teamwork to encourage students for peer learning at a time of detachment, this paper employs a literature review method to provide a foundation for analysing related findings on the concept of VDS, reports the process of the studio within the confines of the COVID-19 pandemic in 2020 with a restructured curriculum for the second year interior design studio in Izmir University of Economics, Turkey and conducts a survey to review by reporting the findings of a year-long interior design project.

The survey enabled collecting quotes and feedback from the students about their overall interior design studio experience to enrich the assessment of the design projects and the success of the methods. Moreover, this helped assessing the goal to have the subjects of the study to encompass and comprehend both *internationality, sense of community, national identity, virtual design education, the scale and detail, concept building according to the location and its value* considering their projects in particular. The students were asked to answer the following questions to evaluate the enriched experience both in terms of structure and content of the studio. Six students from the

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projects that were reviewed above participated in the discussions and provided their points of view. The questions aimed to understand their insight regarding the sense of community for interior architects, the new opportunities introduced through online education, teamwork, conceptual approaches, location of the project, and working at different scales.

Table I depicts such fluidly interrelated subjects of this study and displays the students' insights as they are quoted. The overall experience was satisfactory considering each aim of the studio. Students indicated that the adaptation from the interior design studio to the virtual design studio was seamless. Since students were working as a team, they encountered certain communication difficulties at times and this created an extra challenge during the process. Some students preferred to interact online and turned the situation to their advantage by utilizing the innovative aspects of online education. Most students were pleased about the opportunity for lecturers and students from around the world to contribute and felt part of a wider interiors community. Therefore, two of the main objectives of the studio, to promote a strong community for interior architects and to strengthen the sense of community, were achieved.

In addition to these, the studio aimed to evaluate the new perspective to interiors and design education. Students indicated that the VDS increased interaction between the studio and students and guests from around the world. Even though few of them sometimes had trouble communicating with team members, the overall experience was satisfactory and they were content about the performance of the studio and the instructors' efforts.

Regarding the selection of a well-known and historic location and working on different scales along the year, due to the COVID-19 pandemic conditions the students had to challenge distance-related issues. On the other hand, selecting this location facilitated the accessibility of information and research while providing the students plenty of opportunities considering the richness of the environment and

the site. In addition to these subjects, asking students to develop a project from the site scale to the 1/1 detailing, materials, and budgeting stage encouraged them to use the acquired knowledge from complementary courses from their curriculum and provided several exclusively significant insights and knowledge about fundamentals of the interior design and a designers' responsibilities.

Today, the practicality of virtual design studios is really no longer an issue, and the attention has switched to ways of implementation and utilization of developing digital media as technologies have grown less expensive, more accessible, and an essential part of daily life (Iranmanesh & Onur 2021). Several of the studies that have been conducted about the use of online learning mostly in blended design studios have demonstrated that there are still issues to be resolved to guarantee their effective use (Chen & You 2010), whereas others have reported that online learning is capable of supporting traditional learning but still not replace it (Akar et al., 2012; Niculae 2011 cited in Alawad, 2021). Moreover, according to Dreamson (2020) findings demonstrated that teaching both online and in-person can build an efficient learning environment for non-studio classes while providing significant value to interior design education in terms of the teaching process. Tragic and continuous as it might be, the COVID-19 pandemic has brought about several new questions regarding the interior design studio which needs further research and questioning on several levels, adapting to new spatial and educational necessities.

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Table 1 *Students' insights as they are quoted*

Subjects	Student no.1	Student no.2	Student no.3	Student no.4	Student no.5	Student no.6
Promote a strong community for interior architects	* raised awareness of the profession * provided the opportunity to create a wider network * feeling a part of a global community	* requires collective action * studio encourages us to work and act collectively	* increasing the ability to work collaboratively within the department *keeps students spirited and encourage them to work for better	* studio put a lot of effort * could not achieve this fully due to the pandemic and VDS	* community enables us to work together as a team * realized what we are more talented in, and what is our active roles in the community	* thankful to the team for focusing on this issue and trying to create this environment for us
Strengthen the sense of community	* gave the greatest support during this difficult adaptation process * a part of events celebrated around the world * met guests with different professional branches and expertise	* in this process where we lost our connection with the outside world, these events and meetings actually united us * enabled us to improve ourselves	* visitors from different fields of expertise can enable students to view their designs in a wider context	* we aim to create united community * including the other professions from the faculty I could be a better approach	* enables us to gain vision gathered opinions of experts from different cultures or backgrounds * we exist stronger together	* meaningful for me to contribute in some way * very exciting, zoom meetings with the university in Japan, and a designers from the other side of the world * wish to be more connected face to face with students from
A new perspective to our interiors and design education	* took advantage of online education at maximum * we were in contact with students abroad * studio has improved us and created awareness	* pushed us to be more creative about the opportunities around us * spending time in indoors constantly has led us to rethink and question the space as a designer * the online study rooms on Blackboard helped to bring us together again	* pandemic improved our ability to produce alternatives * the online processing of the lessons also contributes to our communication especially in English	* with the pandemic, my perspective on interiors has improved a lot * aesthetic concerns were more intense for me before, I now consider more about functionality and comfort	* access to all useful online platforms for the best education and the most comprehensive insights * learned how to communicate and meet with people online * studio was always accessible	* we use the advantages of technology quite a lot
Virtual design studio (VDS)	* increased our interactions with each other * work and stand as a team better than before * in constant contact with both our instructors and our friends * increased our sense of responsibility	* we implemented the VDS system in the most beneficial way * in contact with the instructors more one-to-one * the virtual process was much more difficult in terms of group work due to technical problems	* working as a team in the virtual studio takes more time * good communication with my teammate in the VDS improved us a lot	* thankful for the effort and willingness of our lecturers and guests * increased the in-class discussions * students will feel more belonging to the studio	* instructors were always available * good communication with our guests * In addition to instructors, guests and colleagues, technology has always been part of our team	* presented a perspective or to listen to different points of view * opportunity know the opinions and experiences of people from different countries, cities or universities * some disagreements and
National identity and the representation of a country	* understanding the definition of national identity * paid the attention to blend the host and guest culture	* learned the cultural and social characteristics of both countries * tried to adopt the smallest detail down to the smallest detail * inspired by many artists who grew up in those countries	* researching the culture of a country, the lifestyles of people and the symbolic factors of the country * very beneficial in the long run, we have strong data and limit	* inspired by the character of this country * preferred the country I visited for more relevant design	* researching the social and cultural structures of the country * collected data from the local sources and merged the them into our design strategy	* very fruitful * understanding the philosophy, lifestyles, interior designs and the culture * reading articles, a philosophical research combined with Turkish culture
Location	* important location facilitated the accessibility of information * many factors such as human interaction, circulation, architecture etc. * multiple elements, structures and environmental conditions	* such a central location where most events take place pushed to think in a multi-dimensional way * chance to go and experience the location * helped for a more realistic design process	* Kültürpark has unique features * the nature of Kültürpark accompanied many different concepts created by the students very well	* disadvantage for those living outside of İzmir like me * a location outside of İzmir would provide equal conditions to all	* a historical and an accessible place * easy to adapt ourselves to the project * toured the area and this strengthened our research	* more effective for us * blending the culture of the city with the culture of the country we chose, having done more research on İzmir and the opportunity to see the building
Different scales	* working at different scales guided me in perceiving the real size of the space * ensured the interaction between large-scale spaces and small-scale spaces, acting in harmony	* working in such small details has improved us in many ways as an interior architecture student * helped us to keep user in mind	* working at different scales helped me a lot in the process of going from general to detailed * every detail of the space created a more harmonic result	* nice to use the acquired knowledge from complementary courses from our curriculum in the process * nice to combine the knowledge with our sense of space that we developed according to the pandemic conditions	* considered all the different scales implementing even the smallest detail in the project * provided a perspective how to anticipating and eliminating every problem	* following a path from the general to the specific (from large scale to small scale) contributed a lot * had such an impact that seeing the real life application * a special and beneficial experience

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Assessment of the Erzurum Kudaka (Old Tekel) Building in Light of Modern Architectural Principles Using the Example of Villa Savoye

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Abstract: Modernism in architecture with being exhibited new architecture principles by Le Courbusier, took hold of the whole world by starting from Europe. While this process progressed rapidly in some geographies and the acceptance of new architecture and modernism by the society was faster, in some geographies, it was accepted more slowly due to different reasons such as the lifestyle, culture, and aesthetic understanding of the society. Erzurum is one of the cities where new architecture is interpreted and modernism is seen. In addition to this, how much modernism and new architecture effects are seen in Erzurum is a separate issue. In this study too, the effects of new architecture on Erzurum have been discussed over the KUDAKA (Old Tekel) building which is built in 1939, after 10 years after the Villa Savoye which is the first example of the new architecture. Within the study, the principles of New Architecture which is put forward by Le Courbusier, Villa Savoye, the Tekel building, and KUDAKA with its current transformation, It is scrutinized with the help of painting. As a result of the scrutinization, it was discussed which principles were put forward in the Tekel building and it was analyzed which principles were continued in the building's current situation. In conclusion, over the KUDAKA (Old Tekel) Building which is one of the first modern architecture examples, the effects and changes of the New Architecture in Erzurum, which continues its influence by taking the whole world under its influence, are revealed.

Keywords: Villa Savoye, New Architecture, Le Courbusier, KUDAKA Building, Tekel Building.

1. Introduction

In the history of architecture, significant developments have occurred in interaction with inventions, progress in human history, and societal changes. In this context, one of the most pivotal turning points for both human history and architectural history is the Industrial Revolution. Following the Enlightenment, there were first the Scientific Revolution and then the Industrial Revolution. The Industrial Revolution brought about a major change in societal structure, transitioning from an agrarian society to an industrial one. During this period, industrial cities emerged around factories, and the growing railway network accelerated this urban concentration. However, industrial cities that were unprepared for a rapid wave of migration experienced decline in certain areas.

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On the other hand, the experiences of individuals in industrial cities of the industrial society contributed to the French Revolution] (Kulözü-Uzunboy and Kocabaş, 2021). The Enlightenment and subsequent developments, including the Scientific, Industrial, and French Revolutions, led to the emergence of modern industrial society and modernity itself. The evolving and changing needs of individuals in modern industrial society gave rise to a demand for new architectural solutions. Furthermore, the industrial production's enabling of new building materials and construction techniques led to the construction of various architectural structures with different functions, such as Courthouses, Stock Exchanges, Opera Houses, Exhibition Halls, and Art Galleries (Birol, 2006; Aslanoğlu, 1983).

In short, as Lewis Mumford expressed, industrial cities characterized by railways, factories, and decline areas became centers for producing architectural solutions to the evolving and changing needs of modern society (Mumford, 2013). As Birol also stated, modern architecture emerged in response to the social, technical, and cultural changes that occurred during this period (Birol, 2006). Modern architecture, in this sense, introduced a wide range of principles encompassing technical, societal, and formal aspects (Dostoğlu, 1995; Kırıcı, 2013).

When considered in formal terms, the foundation of the modern architecture movement was laid in the 19th century, with movements like Art Nouveau led by John Ruskin and Henry Van de Velde on one hand, and the simplification and formal purification in architecture led by Louis Sullivan in America on the other hand (Yaldız and Sayar, 2016). However, modern architecture, with its transparent, linear, pure geometric forms, flexible spaces, well-lit interiors, and the use of modern materials and technology, reached its peak in the 1920s. Renowned designers like Walter Gropius, Le Corbusier, and Mies Van der Rohe became prominent for their innovative designs (Aslanoğlu, 1988).

Among the representatives of the modern architecture movement, Le Corbusier played a significant role in shaping the face of modern architecture (Dilaveroğlu, 2020). His Five Points of Architecture outlined a clear theory for modern architecture, emphasizing (1) the use of pilotis to elevate buildings, (2) an open floor plan, (3) a separation of the structure from the facade to achieve free facades, (4) horizontal strip windows for even light distribution, and (5) the use of rooftop gardens (Butini, 2015).

These principles, especially the use of pilotis, free plan, and free facade, radically transformed architectural design and contributed to the development of a new architectural language. Le Corbusier, through his work, emphasized the use of standard elements and efficient design to create simple, economic, and functional buildings (Mehmeti, 2014).

In the first of these principles, pilotis, which are like columns that raise a building above the ground or water, serve as supports. Beyond their supportive function, pilotis help elevate architectural volume, lighten it, and create space for circulation underneath the structure (Mehmeti, 2014). Elevating the building on pilotis on the ground floor allows for vehicle circulation and other services, freeing up space within the structure (Benjamin, 1998).

The second principle, known as the free plan, is expressed as a focal point of the 5 principles [13]. With the free plan, the interior space form is determined according to function, evolving from the inside to the outside on columns and uninterrupted floors.

Thirdly, by differentiating the building's structure from its facade, free facades are achieved. The structure on pilotis separates the facades from the columns. Facades serve no other purpose than separating interior and exterior spaces with doors and windows (Benjamin, 1998).

Fourthly, by separating the facade from the structure, strip windows running along the entire facade can be used in architecture. Strip

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windows ensure that all rooms benefit from daylight and natural ventilation equally and to the maximum extent (Hebly, 1991).

The last of Le Corbusier's defined principles, roof gardens, allow the integration of the ground-level garden with the house while serving a different function. Roof gardens can also be designed to accommodate recreational areas or provide space for wildlife in addition to domestic functions (Mehmeti, 2014). Roof gardens offer many advantages, including climate benefits, insulation of the upper part of the house, and the creation of different functions and volumes through the use of materials and space.

Modern architecture had a profound impact on Turkey as well, particularly during the early years of the Republic. During this period, the country witnessed a significant transformation in its architecture, with the emergence of what is known as the First National Architectural Movement. However, the principles of modern architecture, as outlined by Le Corbusier and other pioneers, influenced the design and construction of various buildings in Turkey during this era.

The multifaceted process of societal change known as modernization found its reflection in art and architecture through the modernist movement. The influence of this movement, which developed under the leadership of renowned architects like Le Corbusier, who are considered representatives of modern architecture, has been felt on architectural products produced all around the world, just as the rapid spread of the modernity project itself.

Within the framework of the modernist movement, the concept of a new architecture and principles presented by Le Corbusier has accelerated the spread of modernism. As a result, the effects of modernism began to be observed not only worldwide but also in Turkey. In other words, modernism found its best expression in Europe in architecture and urban development. Similarly, in Anatolian lands, modernism became a space where a profound cultural change that encompasses

architecture and urban development is reflected, and this change is read from the space itself.

In this context, the process of modernization in Turkey is analyzed in four stages: (1) Shy Modernity (1850-1923), (2) Radical/Radical Modernity (1923-1950), (3) Populist Modernity (1950-1980), and (4) Overcoming the Modernity Project (1980-) (Kulözü, 2016; Tekeli, 2005; Tekeli, 2009).

It is evident that the process of modernization began in the late Ottoman Empire. However, after the establishment of the Republic of Turkey, modernization was conceived as a project during the era of radical modernity. According to the approach followed during this period, a modern society must live what modern life demands, and the success of the regime became represented by the production of the capital city where these experiences would take place (Tekeli, 2010; Tankut, 1988; Kulözü, 2016). Accordingly, the Republic administration believed that the radical modernity project could only be achieved through planning and initiated a planned development process, especially in Ankara.

Nonetheless, the developments were deemed insufficient, and measures were taken to counter the I. National Architecture movement that emerged parallel to the nationalist discourse against Westernization during the Shy Modernity period. Thus, in Turkey, the Modern Architecture Era, which would prevail from 1927 until 1939, began.

In Turkey, the New Architecture, a part of the modern architectural era, was interpreted in the context of the early Republican period's "renewal" goals. During this period, the interpretation of modern architecture can be observed in many buildings constructed in Turkey (Ergut, 2009). In the field of architectural history in Turkey, this period, known as the Modern Architecture Era (1927-1939), is divided into three sub-periods. The first of these is the Foreign Architects Period, which lasted from 1927 to 1933. During this period, a building that is considered the country's first significant modern structure was

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designed by Theodor Jost and is known as the Ministry of Health Building, which was designed in 1926-1927. Among the most influential foreign architects of this period were Clemens Holzmeister, Ernst Egli, and Bruno Taut. Notable architectural structures of the period include the Central Bank Building (Clemens Holzmeister, 1931-33), Ismet Pasha Girls' Institute (Ernst Egli, 1930), and Ankara University Faculty of Language and History-Geography Building (Bruno Taut, 1936-38).

The second phase of the modern architecture era in Turkey, which took place between 1933 and 1937, was characterized by the dominance of local architects. Prominent architectural structures of this period include Florya Mansion (Seyfi Arkan, 1934), Florya Beach Facilities (Seyfi Arkan, 1936-37), Çemberlitaş Palace (Seyfi Arkan, 1937-38), Istanbul University Observatory (Arif Hikmet, 1934-36), and Ankara Railway Station (Şekip Akalın, 1935-1937). The third phase of modern architecture in Turkey occurred between 1937 and 1939 (Karasözen, 2013). As noted by Karasözen, this period in Turkish architectural history was marked by the diminishing dynamism that characterized the beginning of the modern architecture era and the gradual abandonment of the distinct features of the architectural understanding of that time.

Within the context of the modernization project in Turkey, which is an important part of modern architecture, it was also considered as an urban development project (Kulözü, 2016). Following the planned development of Ankara to give it a modern urban appearance after the success of the Turkish Republic was associated with the era of Radical Modernity, the obligation to plan cities, particularly Istanbul, was introduced. This was aimed at spreading the process of modernization spatially to every corner of Anatolia. Consequently, planned development, or in other words, planned modernization, also began in Erzurum in 1938-1939.

With the modernization and industrial improvements of Turkey; there were many companies established from government. One of the most important company is Tekel, manufacturing and marketing tobacco and alcohol. This company had got many buildings constructed in different cities of Turkey. office building were constructed in Erzurum.

The focus of this study is the KUDAKA (Old Tekel) Building, which was produced in Erzurum's planned modernization process in 1939 and is considered an early modern structure in a traditional Anatolian city (Kulözü, 2016). When evaluated in the context of Turkish architectural history, it should be emphasized that it was produced in the third

Figure 1: *Turkey's first modern building: Ministry of Health Building (1926-1927) (Gürdağ, ve Koca, 2020).*

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phase of modern architecture, the last stage of modern architecture.

Therefore, within the scope of this study, the focus will be on the KUDAKA (Old Tekel) Building, one of the modern structures in Erzurum, which was one of the first cities in Anatolia to undergo planned development in the context of Turkish modernization. The aim of the study is to examine the KUDAKA building, one of Erzurum's early modern structures, based on Le Corbusier's 5 principles of modern architecture. This way, the modernity of the Old Tekel Building, one of the first modern architectural structures in Erzurum that entered a planned modernization process, will be discussed in accordance with Le Corbusier's criteria for modern architecture. Furthermore, the impact of the changes the building has undergone from its construction in 1938-1939 to the present on its modernity will also be explored.

Le Corbusier's 5 principles, first applied and considered one of the first examples of modern architecture, can be seen in the Villa Savoye, located in Poissy, a town 33 km outside Paris (Özcan ve Ürük, 2019). Construction of the building began in 1929 and took 2 years, completing in 1931 (Murphy, 2002). Although used as a residence, Villa Savoye was recognized as one of the symbolic structures of modern architecture in the 1960s (Murphy,

2002). In the 1970s, the building was protected by the French Ministry of Culture (Samuel ve Jones, 2012), and in 2016, it was included in the UNESCO World Heritage List (Url-1., 2021). This significant work of modern architecture remains open to visitors as a museum to this day.

In the following sections of this study, in line with the study's objective, the modernization story of Erzurum and Erzurum's modern architectural products will be presented. Subsequently, the study's material and methodology will be introduced. The following section will present the findings obtained in the research with the KUDAKA Building as an example, and the study will be concluded with the results and discussion section.

2. Erzurum's modernization process and modern architectural structures

With a history of settlement dating back to 4000 BC, Erzurum has been one of the significant settlement centers in Anatolia throughout every period of history (Kulözü, 2016). In line with the subject of this study, when we examine the history of Erzurum's spatial development from the perspective of modernization, it becomes apparent that Erzurum had a traditional Turkish city appearance until the proclamation of the Republic (Kulözü, 2016) (Figure 2).

Figure 2: *Before modernization: Taş Mağazalar District in Erzurum at the beginning of the 20th century (Kulözü, 2016).*

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After the declaration of the Republic in 1923, Erzurum embarked on a radical modernization period, initiating a significant modernization process. Within this framework, in 1938-1939, French urban planner J.H. Lambert prepared a plan for Erzurum. This plan aimed to guide the interventions in the socio-spatial development process systematically and transform the traditional Turkish city appearance of Erzurum into a modern city image **(Kulözü,** 2016).

This comprehensive cultural transformation, referred to as Erzurum's modernization, was seen as a urban development project due to the nature of modernization, and architectural structures played a crucial role as the most important agents, as was the case across the entire country. Following the declaration of the Republic and Erzurum's entrance into a planned modernization and development process, significant architectural structures were constructed in the city.

In this context, the Republic Square, designed as a modern public space in the Lambert Plan, played a pivotal role in the transformation of Erzurum into a modern image that incorporated Western forms and elements (Kulözü, 2017). The architectural structures that defined the Republic Square and formed a square with the Halkevi building, symbolizing the cultural transformation of the period, included the Officer Lodging Building, the 29th Division Command Building, and the 9th Corps Command Building. In addition to these structures, at a distance from the square along the Hospitals Street, Erzurum High School, designed by Lambert, and at a similar distance from the square along the Republic Street, the Tekel Building, were positioned. Apart from Halkevi, four other structures defined the square. In summary, the Old Tekel Building, which is currently used as the KUDAKA building, gained its significant position within the city, which it still maintains today, through the Lambert Plan.

Detailed information about the Tekel Building, designed during Erzurum's radical modernity period and serving as the focus of this study, which has not been the subject of an academic study before, and its current use as the KUDAKA Building, will be presented in the following section under the material heading.

Figure 3: Plan of Lambert (Kulözü, 2016).

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3. Material and Method
3.1. Material

This study's material is primarily the Tekel Building, which is currently used as the KUDAKA Building, one of Erzurum's pioneering modern structures. On the other hand, in this section of the study, KUDAKA Building will be analyzed in terms of modernity based on Le Corbusier's five principles, along with Villa Savoye.

Erzurum's contemporary urban development has been significantly influenced by the implemented Lambert Plan (1938-1939) (Kulözü, 2017). The KUDAKA Building, which comprises the material of this study, has gained its prominent position within the city due to the Lambert Plan. The KUDAKA Building is located on Cumhuriyet Caddesi, just one building's distance from Cumhuriyet Meydanı, which lies at the western border of the city as per the Lambert Plan. Cumhuriyet Caddesi terminates at Cumhuriyet Meydanı and is designed as the city's backbone, connecting

Erzurum's modern and traditional textures (Kulözü, 2017).

The Tekel Building, currently used as the KUDAKA Building, was constructed in 1939. The building is approximately centered within the plot and has a rectangular form with a basement + ground floor + 1st floor layout. It is created by combining two rectangular prismatic blocks of different sizes, covering an approximate area of 550 m2. A protruding mass with four supports is located at the western end of the long side of the building's south façade, which provides the entrance to the building. Access to the building's entrance is reached through five steps and then passing through two columns. There is one window on each side of the door. For the KUDAKA building, an area outside the historical development zone of the city, where construction activities were observed in the 1930s and where construction was taking place at the time, was chosen. Located one building distance from Cumhuriyet Meydanı and on Cumhuriyet Caddesi, defining
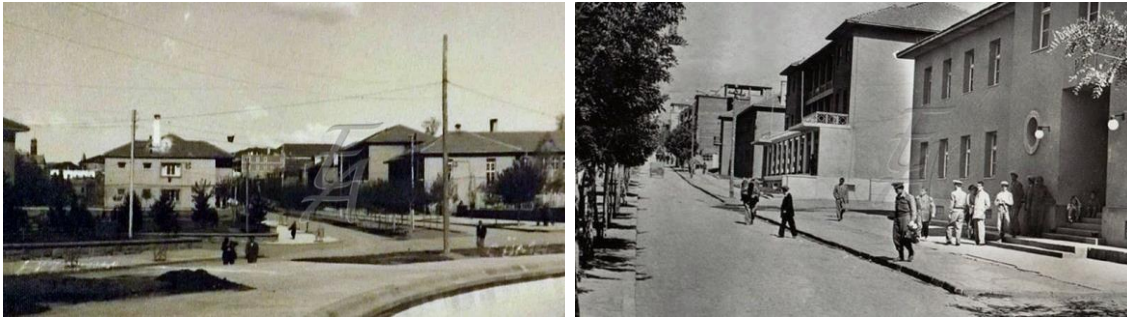
Figure 4 (Left) View from Cumhuriyet Meydanı to Cumhuriyet Caddesi in the 1950s (Tekel Building on the left, PTT Building on the right) (Url-2., 2021). (Right) The Old PTT Building and the Police Station (former Orduevi) next to it. (Url-3., 2021).

Table 1: KUDAKA Building Plans

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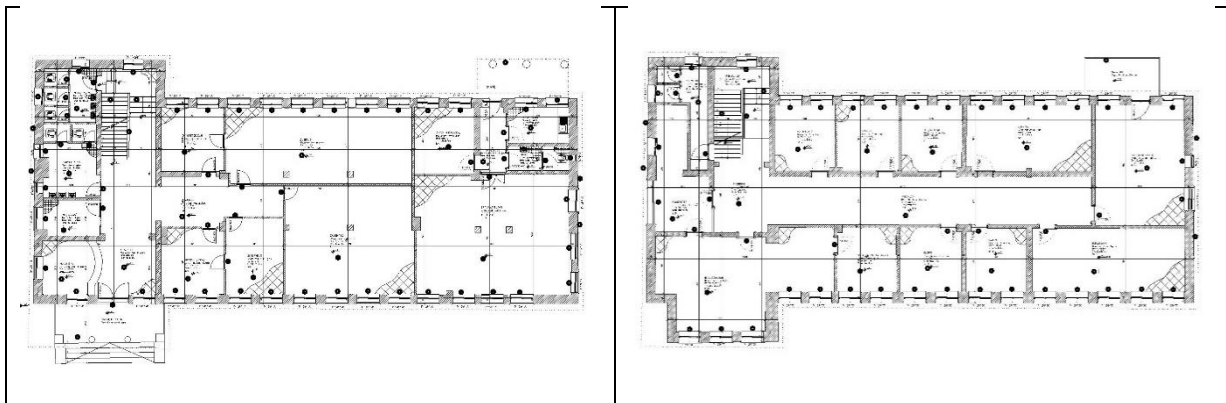
the city's backbone, the building was positioned opposite the Old PTT Building (demolished) constructed during the same period.

The building, which served as the Tekel Erzurum Coordinator Directorate for many years, was registered on 13.11.2008 with the decision number 1081 of Erzurum Cultural and Natural Heritage Preservation Regional Board. In 2009, a survey, restitution, and restoration work were carried out for the building (Table 1). Located in the Gez Mahallesi, 281 Parcel, 9 Parcel, the building has been used as the KUDAKA Building since 2011.

3.2. Method
This study focuses on KUDAKA Building, one of the pioneering modern structures in Erzurum, and it will be examined through the lens of the five principles defined by Le Corbusier for new architecture. The principles detailed in the introduction of the study are as follows: (1) Raising the building on pilotis, (2) Free plan or open floor plan, (3) Free facade, (4) Horizontal strip windows, and (5) Roof garden (Etlin,

1987). The primary method used for this study aligning with its objectives will be a descriptive analysis. Furthermore, to demonstrate how these five principles were manifested in architectural structures, the Villa Savoye structure, where these principles were first applied (Jeffrey, 1998), will also be presented through these principles. In this way, it will be possible to scrutinize how the KUDAKA Building, constructed a decade after the definition of the five principles of modern architecture, corresponds to these principles in the context of the 3rd phase of modern architecture in Turkish architectural history.

When examining the Villa Savoye structure before analyzing the modernity of the KUDAKA Building, it can be observed that the building consists of a ground floor and two upper floors. The floor plans of the building are presented in Table 2, and images of the building are provided in Figure 6.
As evident in the floor plans of the building, half-open spaces are created on the ground floor by elevating the pilotis. Moving to the first floor

Table 2: Villa Savoye Plans (Url-4., 2021), (Url-5., 2021).
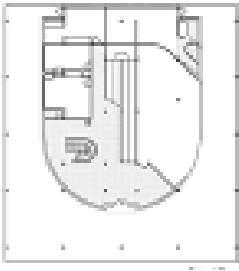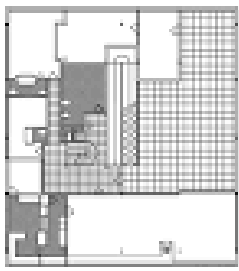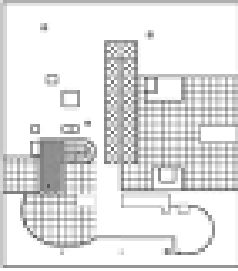
Ground Floor Plan	First Floor Plan	Second Floor Plan

Figure 5: Villa Savoye (Url-6., 2021).

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through the stairs located in the entrance area, the living area of the residence is situated on this level. The second floor of the building features a characteristic element of modern architecture, the roof garden.

4.Findings

This part of the study involved a comparative analysis of the "KUDAKA Building," the focus of the study, with Villa Savoye structures using Le Corbusier's 5 principles of modern architecture (Table 3).

In the context of the first principle of elevating the building on pilotis, it can be observed that the lower floor of Villa Savoye is elevated on pilotis. However, the Tekel Building does not elevate the structure on pilotis as seen in Villa Savoye. Still, the column design in the entrance area of the Tekel Building serves a similar function. Over the years, changes in the exterior cladding material have diminished the visual and aesthetic impact of the elevation effect in the entrance area of the KUDAKA Building.

In the second principle of free or open floor plan, Villa Savoye's floor plan consists of walls designed according to function. Therefore, the walls in the structure are used mainly as dividers and separators without a load-bearing function. The same principle is applied to the Tekel Building and subsequently the KUDAKA Building. However, it should be noted that the flexible plan approach found in Villa Savoye is not present in the Tekel and KUDAKA Buildings.
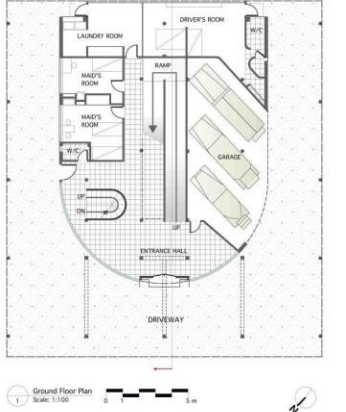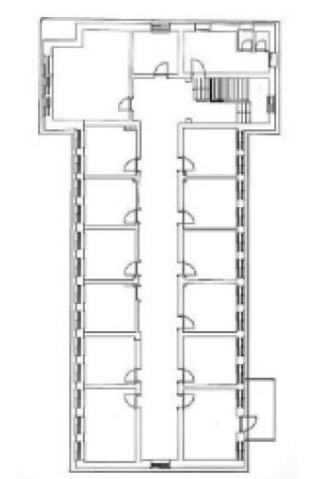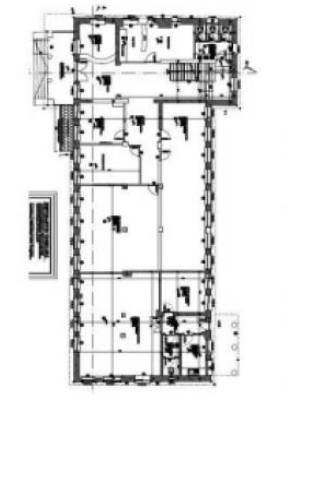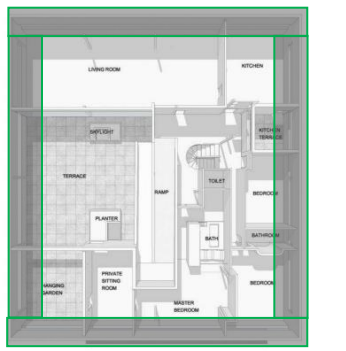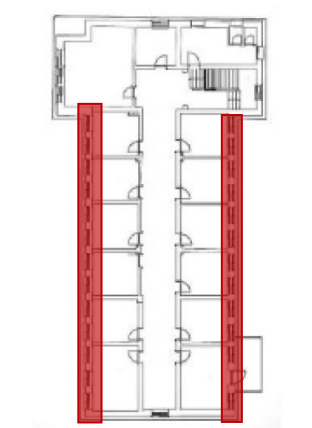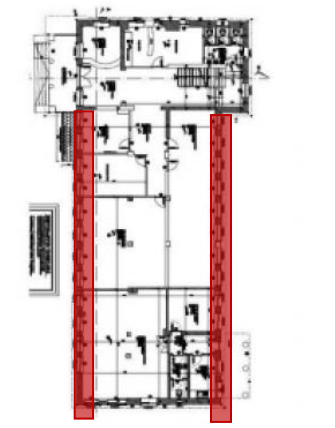
Le Corbusier's third principle of free facade, which allows for maximum daylight and natural ventilation, was successfully applied in Villa Savoye. However, this principle is not implemented in the Tekel Building and subsequently the KUDAKA Building, as the facade's window openings are interrupted by columns. The changes in the facade material over the years have also affected the facade character and building characteristics.

The fourth principle, the use of horizontal strip windows, can be clearly observed in Villa Savoye, thanks to the free facade principle. However, in the Tekel Building and subsequent KUDAKA Building, the facade's continuous window pattern is disrupted by columns, rendering the horizontal strip window principle unattainable.

The last principle defined by Le Corbusier is the use of a roof garden, successfully applied in Villa Savoye. In contrast, the Tekel Building, now used as the KUDAKA Building, does not have a roof garden. Instead, the building has a gabled roof structure, which can be attributed to Erzurum's climate and its associated challenges.

Moreover, while Villa Savoye was designed for residential use, the Tekel Building was initially planned as an administrative structure and is still used as such today. The Tekel Building was strategically located near the Cumhuriyet Meydanı (Republic Square), a symbolic public space representing modern Erzurum.

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Table 3: Mutual Analysis of Villa Savoye and Tekel (KUDAKA) Buildings in the Context of New Architectural Principles

New Architecture Pirnciples	Villa Savoye	Tekel Binası	KUDAKA Binası
Elevating the building on pilotis			
Open floor plan or open floor layout			
Free facade			
Horizontal ribbon windows			

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Roof garden
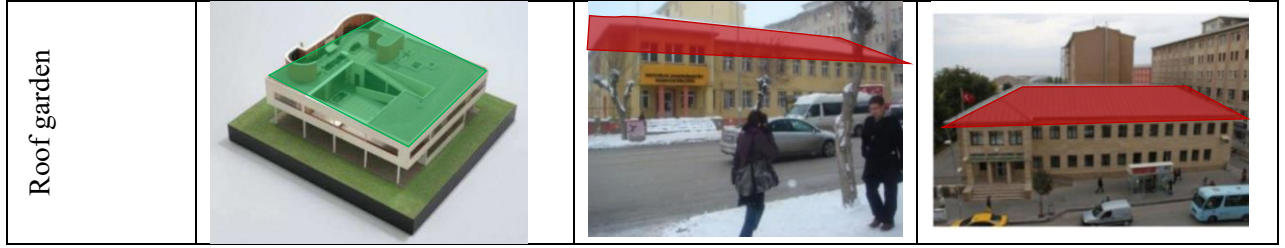
5.Discussion and conclusion

After the introduction of the new architecture concept and principles, a multitude of structures were built worldwide, as well as in our country, that embodied one or more of these principles. When we examine the early Republican buildings, it becomes evident that the majority of them are public structures. Given that these buildings are public in nature, it can be assumed that the full application of the new architectural principles during that era was challenging, especially when considering Le Corbusier's assertion that the structures designed within the framework of the new architecture concept were predominantly residential.

Another challenge encountered in the implementation of the new architectural criteria was climatic conditions. Particularly in the case of the fifth criterion, the concept of a roof garden, it can be argued that open-space utilization is as crucial as structural loads.

In conclusion, through the study of Erzurum's Tekel building and its transformation into the KUDAKA building, it can be stated that some of the criteria of the new architecture principles were partially applied in a public building in the early Republican period, approximately ten years after the construction of the iconic Villa Savoye. Within the scope of the "raising the building on pilotis" criterion, specific modifications were made to the building's entrance area. Under the "free plan or open floor plan" criterion, the building's walls were detached from the load-bearing system and used solely as dividers.

Furthermore, the criteria of "free facade," "horizontal strip windows," and "roof garden" were not applied due to design, structural, or climatic reasons. The failure to implement these criteria can be attributed to designer decisions

made during the interpretation of the new architectural principles in the early Republican period. Structural reasons include considerations related to factors such as snow and wind, while climatic reasons run parallel.

Although the time elapsed since the introduction of these principles has seen their adoption across many regions in Turkey, Erzurum and various other places still showcase the use of one or more of these principles, and sometimes almost all of them, in most buildings. This observation implies that the influence of Le Corbusier's architectural philosophy and designs extends beyond his era, spreading rapidly across the world and continuing into the 21st century. It serves as a testament to the timelessness of the philosophy he articulated and the buildings he designed.

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Assessing Game Design Experience: Insights from Educators in Design Studio Environments

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Abstract: Although video games, one of the most popular tools of new media, have become an important focus of playing and informal learning, their lack of active use in education is an important phenomenon to be considered. Though researchers have focused on the potential benefits of using games in education and integrating them into curricula, this transition has yet to be effectively implemented. Especially why educators do not use games effectively and make them a part of education is an important situation that needs to be emphasized. Certain problems are mentioned in the literature about the reasons for this situation. The reasons that come to the forefront are that educators have doubts about the benefits of including games in the curriculum, educators do not have enough experience in games and game-based education, and the idea that efforts to include games in the curriculum will not yield the desired results. Well-designed digital games or digital game-based learning environments gain a more powerful and potential structure in terms of education as they offer positioned learning experiences with transferable information and instant feedback, unlike the structure of traditional education that focuses on knowledge rather than doing. In order to see the perspectives of educators and to understand how to create a common framework, this study has identified focusing on the game design experience and educators' approaches and perceptions towards digital game-based learning environments as a research problem. The fact that most of the research in the literature is on student experience supports the approach of the study.

Keywords: Game design, Video games, Design studio, Design studio experience, Educator perspective.

1. Introduction

Raising students as successful and competitive individuals, which is one of the most important basic objectives of education, is affected by social, economic, and global changes, and accordingly, educational approaches take their place in today's world under this unpredictable influence. Creativity is an important concept in the struggle against the unpredictable. The skills possessed by creative individuals enable them to exist in the complex system of life and enable them to emerge as problem solvers. The association of creativity with innovation and success encourages researchers to search for methods of how to use it in solving problems.

In this context, design thinking, which is at the center of creative thinking, is one of the ways to solve problems creatively. The inclusion of design thinking approaches that will reveal, nurture and encourage the creativity of students, who are the focus of education, in educational curricula is gaining importance globally. When the studies in the literature are examined, it is seen that although there are various techniques followed by educators, the design thinking approach and creativity are not effectively adopted. Although approaches such as questioning students' assumptions, encouraging idea generation, encouraging risk-taking, allowing mistakes, etc. are used by educators, it

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is understood that educational frameworks to support creative thinking are not effectively included. In parallel with this, in a phase where technological developments are transforming very rapidly, the necessity for environments that will nurture design thinking and creativity to be intertwined with technology emerges. As digital technologies show their influence in every field, they have an effective place in the difference in the approaches and understanding of students raised with new media compared to the adult generation. In order to establish a more effective educational infrastructure, it is important to be aware of how students perceive new media, to take into account their habits and to provide students with appropriate learning environments. When we look at the educational processes of students today, it is noticeable that in most educational environments, it is dominant to master the content effectively. In order to master the content, students acquire isolated skills and are obliged to memorize certain facts. This process causes students to spend more time following the instructions given to them and leads to a lack of development of problem-solving skills. Students need open-ended environments where they can develop problem solving skills and experience design thinking and creativity approaches. One of the approaches that can be considered as open-ended environments is digital games (Gee, 2010). The important factors for digital games to be creative educational approaches are that they increase students' intrinsic motivation, have an interactive structure that triggers learning by doing, provide an intrinsic learning experience thanks to their highly interactive structure, and contain environments that allow exploration (Frossard et al., 2015; Gee, 2004; Perrotta et al., 2013; Ke, 2009). The most important point to consider is that digital games offer an effective environment to influence students and make them active participants in the educational process. The environment in which learning takes place in this way can be defined as an active learning environment. An active learning environment is a learning environment in which students learn by doing and use their own knowledge and experiences instead of passive learning (only obtaining information) (Petty,

2009). Digital games offer an interactive and open-ended environment that facilitates active learning. They provide a social platform for players to interact and experience emotional responses. Customized feedback increases engagement, making games an engaging tool for behavioral learning. Player involvement requires careful planning and decision-making, which reinforces cognitive skills. The game provides rewards to the player for their behavior (e.g. points, power, ranking). Such positive feedback in the game can incentivize desired actions and indicate real-world consequences. These consequences are not hypothetical or abstract but are rather directly mirrored in the game. Triumphs and losses are directly linked with the player's actions, offering an exemplary model for the player. The player can learn from the characters in the game and gain an understanding of their behavioral experiences. (Lieberman, 2006). Nevertheless, it's important to acknowledge that there are obstacles to integrating digital games into formal educational environments, including the necessity of finding a harmonious blend between entertainment and education, as well as ensuring their alignment with the curriculum. It is important for educators to explore ways to overcome these obstacles so that open-ended environments can be designed (Frossard et al., 2015).

With digital technologies, new media is no longer a tool, it changes perception patterns and habits and takes its place as a new approach to design thinking. In this context, design education should be able to adapt to developments and gain a dynamic and interactive structure. In order to ensure adaptation, appropriate environments need to be identified and integrated with design education. An in-depth exploration of the possibility of utilizing digital games to promote innovative teaching techniques aids in comprehending the phenomenon of creativity. In this context, it is important to understand how educators experience this process in terms of creating and constructing educational materials. The definition of "Design is to design a design to produce design", which emphasizes that the design process is a search, and that the designer

should experience this search process and be aware of the dynamics, has an important place in terms of understanding the subject to be addressed within the scope of the study (Heskett, 2005). The important thing is to gain continuity in the search process, which is a situation that the designer faces when faced with a decision-making situation among infinite design outputs. Being a continuous search, gaining continuity and having decision-making moments can be considered as the most important elements that shape the design. In this context, it is necessary not to put students into a process where there are definite patterns and generally valid acceptances within the scope of design education. Students' ability to understand the design process, interpret their experiences and gain the ability to represent their thoughts with different tools is a situation that needs to be emphasized. In this context, the design process may have an intertwined and simultaneous structure with feedback at every stage rather than a linear structure. Accordingly, design education becomes a working environment where different methods and approaches are designed and applied together. Developing students' awareness in the process has become a common denominator in today's design education and it is argued that this is achieved through experiential learning. The fact that traditional learning methods still take place in design education is becoming increasingly difficult, especially in terms of keeping students' interest alive and directing their energy to the design process. Environments where the flow of information and the process is slow lead to demotivation on the part of the students and, accordingly, lead to the failure to achieve what is intended in design education. It is an important stage for educators to construct the open-ended experience environment of digital games in line with a content that can be experienced by students and that can be meaningful (Tekinbaş & Zimmerman, 2006). This study aims to provide a framework to understand design educators' approaches to games and game-based learning environments and to reveal how their perceptions are affected. Understanding how games and game design experience affect design educators and their attitudes towards games is important for

providing students with an active and dynamic learning environment. For this reason, the study has a flow that aims to measure the approaches and attitudes of design educators instead of students' experiences in game-based learning environments. The study conducted qualitative and quantitative evaluations with design educators. The findings demonstrated that the experience of game design had a positive impact on educators' attitudes, approaches, self-efficacy, and perceptions towards implementing digital games in design studios.

2.Background of the Study

Although video games, one of the most popular tools of new media, have become an important focus of playing and informal learning, their lack of active use in education is an important phenomenon to be considered. Though researchers have focused on the potential benefits of using games in education and integrating them into curricula, this transition has yet to be effectively implemented. Especially why educators do not use games effectively and make them a part of education is an important situation that needs to be emphasized. Although certain problems are mentioned in the literature about the reasons for this situation, the reasons that come to the forefront are that educators have doubts about the benefits of including games in the curriculum, that educators do not have enough experience in games and game-based education, and that their efforts to include games in the curriculum will not yield the desired results. The fact that games are an increasingly popular medium for playing and learning has gained great momentum, especially in recent years. It can be said that one of the main features that provide this momentum is that games quickly draw players into the magical circle of the game and players immerse themselves (Kenny & McDaniel, 2011). Researchers have acknowledged that video games enhance 21st century abilities like critical thinking, social interaction, teamwork, media literacy, leadership, and productivity, and therefore agree on the suggestion that video games create an exceptional informal learning environment (Gee, 2004; Kenny & McDaniel, 2011; Kirkley & Kirkley, 2005; Prensky & Thiagarajan, 2007;

Sawyer, 2007). In the current information age, there is a need for problem solvers who possess new types of skills and competencies, can take initiative, have critical and creative thinking skills, and can effectively manage available resources and tools (Squire, 2005). Despite the need for skills in working with digital media as a reflection of digital media being at the center of major societal changes, most educators focus on content and what to teach rather than understanding the process. This results in the failure of the traditional content-centered approach to learning to capture the excitement and focus of today's learners. The active, interactive, entertaining, fun, instant feedback, and fun activities offered by video games etc. should be considered as alternative approaches (Prensky & Thiagarajan, 2007). Digital game-based learning offers a learning environment for students to cultivate their critical thinking and problem-solving skills, as well as master the skills offered by the information age. It has the potential for effective and powerful learning outcomes (Gee, 2010; Prensky & Thiagarajan, 2007; Shaffer et al., 2005; Squire, 2005).

Well designed digital games and game-based learning environments have the potential to offer a robust structure for education by providing targeted learning experiences with knowledge transfer and immediate feedback. This stands in contrast to traditional education, which often prioritizes theoretical knowledge over practical application. Students learn to effectively use the knowledge and resources provided by the game environment to solve the problems given to them by getting rid of the memorization ritual required by traditional education. This active and involved state in the game environment helps students to acquire the skills required by the information age (Gee, 2010; Shaffer et al., 2005; Yunjo & Bonk, 2009). Despite all these affirmations and the fact that games are an effective media, it is seen that many educators do not include digital game-based learning environments in their teaching (Egenfeldt-Nielsen, 2004; Kenny & McDaniel, 2011). One of the reasons for this may be that educators do not have enough interaction with new media or have never experienced these environments (Prensky,

2001). Even if game environments are designed or developed to bridge the gap and provide the opportunity to develop 21st century skills, educators have difficulties in deciding how to start the process or how to select and use digital games. The involvement of educators in the video game design process and their participation in the game experience is one solution to overcome this obstacle and create a productive learning atmosphere. Effective digital game-based learning environments can be created through collaboration among game researchers, developers, instructional designers, and educators. Their joint efforts are crucial to ensure the success of the process. In order to see the perspectives of educators and to understand how to create a common framework, the study identified as a research problem to focus on the game design experience and educators' approaches and perceptions towards digital game-based learning environments. In this context, the fact that most of the research in the literature is on student experience supports the approach of the study.

2.1. Digital Game Based Learning
Digital games are a system that can be played utilizing a range of digital technologies like computers, mobile devices, and consoles and these games may incorporate different genres. What makes digital games more than just a tool is that they have variable and measurable outcomes, a rule-based structure, a system in which the player struggles, an environment in which the player's choices affect the outcomes, and an environment in which the player immerses himself/herself (Juul, 2003). Digital game-based learning entails harnessing the engaging nature of digital games for educational purposes (Prensky & Thiagarajan, 2007). In this context, digital game-based learning provides a connection between game elements and learning environments. While providing this connection, the balanced use of entertainment and education components is an important phenomenon (Dondlinger, 2007; Nussbaum & De Sousa Beserra, 2014). When evaluating digital game-based learning environments due to their entertainment and educational components, it is necessary to look

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at them both as a learning environment and from the perspective of the player.

The reflections of game design experience in design education overlap with the basic principles of design thinking - critical thinking, problem solving skills, creative thinking (Bressler & Annetta, 2022; Akcaoglu & Koehler, 2014; Ke, 2014; Carolyn Yang & Chang, 2013). This is not only true for higher education. Game design experience can be used at all levels of education to provide an environment for design thinking (Gaskin & Berente, 2011; Kalmpourtzis, 2019). When attempting to design a game, students acquire the language of game design. By using this learned language, they engage in a unique thinking process and express themselves creatively. Throughout the game design process, students apply reasoning and problem-solving skills and then put their newfound knowledge to work in developing their own game. One advantage of students acquiring proficiency in game design language is the development of communication skills akin to those of designers (Tekinbaş & Zimmerman, 2006). These skills are a motivating and driving force for students. The combination of motivation, which will enable students to immerse themselves, with the experience of game design as a fun and engaging activity, contributes to the creation of an environment that will ensure effective and efficient learning. Motivation is an important concept to focus on. In an environment where today's students consume every phenomenon presented to them very quickly, it is not always possible to ensure and maintain motivation. The continuity of students' motivation is parallel to the fact that the learning environment is interesting, rewarding, rewarding, and responsive, and that the student feels a sense of ownership (Bressler & Annetta, 2022; Slussareff & Boháčková, 2016). In this context, one of the starting points of the study is to understand what a learning environment whose effects on students are important can mean for design educators. One of the goals of the study is to raise awareness within the scope of designing education plans and creating effective learning environments in

the scenario where design educators have the same experience.

Although it is a popular topic to talk about the relevance of digital games to design education and making them a part of design education, design educators' lack of experience with games, their lack of awareness of the pedagogical benefits that games can offer, or their skepticism about games create only a perception of apparent interest. Digital game-based learning environments are not embraced by most design educators. This may be due to a lack of understanding of the resources available in educational environments and a lack of knowledge, insecurity and understanding of how games can be used as design tools. Although digital games seem to be very attractive, the feeling of uncertainty as a medium makes it difficult to use them as a learning environment. At the same time, it is not an easy process for enthusiastic and open to experience design educators to discover which digital games they can incorporate into the design studio. There are not many references on which existing games can be efficiently incorporated into education. Even if there are references according to research and studies, there are even fewer studies on how to include them. Even if design educators want to make their own design games, this poses a new problem in terms of resources, technical knowledge, and time. As a general approach, although the pool of common research on digital game-based learning environments is growing day by day, most of the studies remain on the research report or scientific publication side, causing a question mark for educators who want to actively include them in education. In this context, educators need to be able to recognize where, how and when the games they choose can benefit them. When it comes to games, the complexity, and the experience of the environment to foster learning may differ for each educator. These skills need to be easily accessible if we are to effectively incorporate digital game-based approaches into education. It is important to examine digital games from an educator's perspective (Kirriemuir, 2002; Prensky & Thiagarajan, 2007). Evaluating every game-based learning environment in

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terms of suitability is also a time-consuming approach, and for this reason, from the perspective of design education, methods for design educators to use games more efficiently should be examined. What is important here is to ensure that design educators adopt games as a learning environment. If educators do not adopt games as a learning environment, it is not possible to talk about an effective approach. Design educators need to have confidence in their personal ability to use games and at the same time understand their limitations. These two conditions are critical for the adoption of games. At this stage, two different approaches can be used for educators to adopt games: (1) designing a new learning game, complemented with a prototype of a serious game designed by researchers and game developers, or (2) designing a learning environment by utilizing existing games and using the activities, objectives, game-playing experience and information methods provided by the game. Within the scope of the study, it was decided to address the second approach with the knowledge that educators may not have previous game experience and may lack technical knowledge in general. The aim of the study is to make design educators think seriously about how to design a game in line with design approaches and design ideas. The study aims to investigate (1) whether the game design experiences of design educators have an impact on their perceptions towards the use of digital game-based learning environments. (2) Additionally, to what extent did the game design experiences influence the design educators' approaches to incorporating games into their design studios?

3.Methodology
3.1. Course Design and Game Selection
The acquisition of the skills of design educators to use digital games effectively, which is the focus of the research questions, is directly related to the parameters of educators'

confidence in using games and their understanding that games have limits as well as potentials. Within the scope of the study, although it is considered an advantage for design educators to have active interactions with games, it is not a necessary condition. It should not be forgotten that most educators do not approach games from the perspective of using them in education. In the study, the focus is on designing a learning environment by utilizing existing games, using the activities, goals, game-playing experience and information methods offered by the game. For this reason, which game will be used within the scope of the research is an important point. Another situation is that design educators experience the game environment as part of the design studio, which is the most important course of the design education curriculum. Since the general structure of the design studio includes in-studio and out-of-studio activities, the games to be used for design studios will contribute positively by enabling in-class and out-of-class use. A game that can be part of a design studio should have features such as creating a sense of reality, creating activities, providing a collaborative environment, enabling experience, having a design construct structure and revealing acquired knowledge (Kuhn, 2001). Playing games is important to develop the game idea. This makes the game-based learning environment unique to the course. Since it is considered a priority for educators to know what games can do, their limits, and to understand what kind of environment they can offer to students, introducing design educators to different types of games has been an important step. The approach we emphasize here is that educators see the concept of game literacy as a part of the process (Becker, 2007, 2017; Egenfeldt-Nielsen, 2004; Prensky & Thiagarajan, 2007; Shaffer et al., 2005). In this context, different games were analyzed and tested by design educators throughout the process (Table 1).

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Table 1: Games Experienced by Design Educators

Games Experienced by Design Educators
Minecraft
Civilization
Gone Home
Monument-Valley
Block'hood
Sim city
Euclidean Lands
Cities in Motion
Blockland

Interviews with design educators during the process of experiencing the existing games revealed that the game environment to be selected should support certain parameters to meet the needs of the design studio. In this context, the game environment should have a multiplayer structure, provide real-time feedback, have clear objectives, provide a suitable framework for course instructors, allow interaction, include scenario elements, allow collaboration, include an inventory system, and have a structure that can increase abstraction skills. In addition, the fact that the game includes a self-entertainment activity was also an important factor. In this context, existing digital games were scanned and Minecraft: Education Edition was selected for the study.

Within the scope of the study, design studio instructors were asked to develop a conceptual game design idea that could be a part of the design studio and to build a game environment. Design educators focused on the game design task during the study. In the game design task, design educators were asked to design a game environment where learning could take place for their students. In order to be a pilot study and to be a part of the weekly lesson plan, the study was limited to a 5-week period. 2 weeks of the 5-week period was defined as the preliminary preparation phase. Due to the structure of the design studio, design educators and students come together at least twice a week in the studio environment and interact. Design educators also came together twice a week during the game design experience and the process was followed. In the preliminary preparation phase, the design educators accessed materials related to game design, did the necessary reading and adapted to using the game environment. Considering that there was a total time of 5 weeks and that they would learn new directly applicable knowledge while trying to complete this task, it was inevitable that the game designs would be of a conceptual nature. It is worth noting that the majority of participants had limited previous experience of using games in this way and lacked technical expertise. After the preliminary preparation process was completed, the design educators actively experienced the game design task and the game environment. The design educators were reminded that they were expected to create a narrative that could be a small module of the 14-week lesson plan and develop their game design ideas according to this narrative. It was not foreseen to use any game design software for the game design experience. The educators' possible reasons for distancing themselves from game design experience may include their efforts to learn game software, limited programming skills, or the limitations of game design software (All et al., 2016; An & Cao, 2017). Therefore, the study allowed design educators to experience game design at the conceptual stage. In terms of receiving feedback in the context of the pilot study, the positive reflections of keeping the game design experience at the conceptual stage were observed.

3.2. Participants
Within the scope of the study, design educators were defined as expert designers. This is because their experience in the field of design is longer than that of students. In order to be defined as an expert, it is sufficient for an organization to have staff with a certain

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professional function and a certain experience and knowledge for this purpose (All et al., 2016; Flick, 2014). In this context, within the scope of the study, it is prioritized to select design educators with at least a doctoral degree or professional designers who actively continue their design studies. The study was designed as a pilot study on the game design experience and the perceptions of design educators on the use of digital games in design studios. Since it was a pilot study, a small group of 5 experts was selected. The reason for choosing a small group is to provide feedback by making in-depth analyzes and evaluations and to create a framework for future studies.

3.3. Evaluation Criteria

Game design is an important area of user-centered design. The fact that it has become an important area of user-centered design has led to the involvement of more human-computer interaction experts in the process, which has led to the increasing prominence of methodologies that address game design (Desurvire & Wiberg, 2009). There are many methodologies that analyze the productivity of software. Usability testing and heuristic evaluation are examples of these approaches. The priority of these approaches is to make the user interfaces of applications or software understandable, easy to use and help to facilitate tasks. Although these definitions are sufficient for applications focused on a specific task, when games are the focus, additional concepts such as providing an immersive and immersive environment, sufficient challenge, fun, etc. should be considered (Desurvire & Wiberg, 2008, 2009). Heuristic evaluation is an approach that is useful when the boundaries are clear. In the case of games, too many parameters must be considered. Therefore, PLAY, an extended

version of heuristics for games, was developed to provide a general framework. In the context of PLAY, heuristic evaluation is listed in four main categories: Game play, game usability, game mechanics and game story (Desurvire & Wiberg, 2009; Federoff, 2003). The principles identified in these four categories were created to help game developers throughout the entire process, especially during the concept design phase. These principles are based on current and past research conducted by game designers (Desurvire & Wiberg, 2009).

Since the study aimed to evaluate the game design experience and the effects of digital games on design educators, evaluation forms were created for experts by using heuristic evaluation criteria. The creation of evaluation forms was considered important to measure the perceptions of design educators towards games and game-based learning environments. In this context, the experts were asked to fill in the forms after the study. The evaluation forms were reconstructed in terms of design education and studio education by taking the heuristic evaluation criteria developed for games as a general framework and transferred to the experts. In this context, the evaluation forms were created in a way to evaluate the games and game-based learning environment experiences of the experts through game environment and play style, game environment and interaction, game environment and mechanics, game environment and narrative. A 5-point Likert scale was used in the evaluations. The evaluation forms are available in the appendix. The evaluation tables based on the intuitive evaluation criteria revealed the perspectives of the experts on the use and benefits of game design experience and digital games in design studios (Table 2).

Table 2: Design Educators' Perspectives on the Integration of Digital Games in the Studio Setting

Perspectives

Digital games have a positive impact on students' motivation in the design studio.
Digital games contribute to students' development of problem-solving skills.
Digital games can help students learn.
Digital games can enhance student interaction and collaboration.
Digital games can aid students in acquiring 21st century skills.
Digital games can provide a meaningful learning environment in the design studio.

Digital games can offer personalized learning environments in design studios.
Digital games can be flexible in design studios according to the needs of students.
Digital games can be utilized to assess the design processes of students.

The study gathered both quantitative and qualitative data as part of its research. Qualitative data was gathered through in-person interviews with educators in the design field, focusing on their experience with game design over a 5-week period and incorporating games. In face-to-face interviews, design educators' perceptions about game design and the use of games and their opinions on whether they can contribute to design education were obtained. Pre- and post-surveys were conducted to measure the impact of game design experience on design educators' attitudes towards the integration of digital games in education. (Table 3).

preliminary and final surveys, which were evaluated on a Likert scale.

4.Conclusion
4.1.Review and Thoughts
In order to analyze and interpret the results of the 5-week pilot study, the overall average scores were taken into account. Each level of the Likert scale was created by considering numerical values; "strongly disagree" is equal to 1 and "strongly agree" is equal to 5. In the preliminary preparation phase before the game design experience, a questionnaire study was conducted to understand the attitudes of design educators towards the use of digital games in

***Table 3:** Design Educators' Attitudes*

Design Educators' Attitudes
Using digital games in design studio interests me.
I am at ease using digital games in design education.
I oppose using digital games in design education.
I am confident in using digital games in the field of design education.
I possess the requisite knowledge and skills necessary for utilizing digital games.
Digital Games are easy to integrate into studio environment.
Using digital games will increase my motivation.

Design educators' attitudes towards the use of digital games were measured using a 5-point Likert scale. Apart from attitudes towards the use of digital games, evaluation forms based on intuitive evaluation criteria were filled out to compare the benefits of digital games in design education. The evaluation forms provided data in terms of revealing the benefits of design educators for the use of games. The absolute minimum recommended by experts for data collection in this type of study is 20 participants per condition. For more comprehensive statistical analyses, the minimum required condition is 30 participants (All et al., 2016). Since the study was envisaged to be a pilot application and to be developed by receiving feedback, collecting detailed statistical data was not determined as one of the objectives of the study. In this context, the interviews, discussions and experiences with design educators were taken into consideration in the

design education. Design educators' attitudes towards the use of digital games were compared by conducting a survey again at the end of the 5-week experience. In addition, the design educators' perspectives on the use of digital games, which were formed by utilizing heuristic evaluation criteria in the preliminary preparation phase, were compared by conducting pre- and post-surveys. Throughout the whole process, design educators were interviewed and asked to share and discuss their experiences, observations, concerns, and approaches.

The questionnaires conducted during the preparation phase and after the game design experience provided an important input to understand the attitudes of design educators towards the use of digital games and to use them as a framework for future studies (Table 4).

Table 4: Design Educators' Attitudes - Pre and Post Tests

Attitudes	Game Tas. Experience Pre	Game Tas. Experience Post
* Using digital games in design studio interests me.	3.60	4.20
* I am at ease using digital games in design education.	3.20	3.60
* I oppose using digital games in design education.	1.60	1.20
* I am confident in using digital games in the field of design education.	3.20	3.80
* I possess the requisite knowledge and skills necessary for utilizing digital games.	3.20	3.40
* Digital Games are easy to integrate into studio environment.	2.40	3.20
* Using digital games will increase my motivation.	3.20	3.60

The overall scores show that design educators' attitudes improved after the game design experience. However, since the small number of experts reveals the necessity of evaluating qualitative data, it is important that the comments made by the experts during the process are consistent with the results. In this context, the comments and contributions made by the experts provided important feedback in terms of creating a framework in the context of design education.

"Although I found the use of digital games as an emerging medium in the design studio interesting, I had concerns about its integration into the studio. This process increased my interest in the use of games in the design studio."

"I am very interested in digital games, but I had previously thought about incorporating them into the design studio, but I could not provide the appropriate environment. The experience of designing games has positively influenced the idea that I can use digital games as a resource."

"The most important phenomenon in the design studio is that students discover how they approach and solve the design problem. This exercise made me realize that there can be new discovery environments in terms of problem-solving approach, collaboration, *interactive interaction and designing a learning environment. The experience of designing my own game made me feel that a framework can be created that my students can actively experience."*

Although the comments of the design educators, which are in line with the survey results, are positive feedback, the process also revealed certain concerns. Identifying the concerns of the experts created an important framework for studies on the use of digital games in the design studio.

"One of the most common problems students face in design studios is time management. One of my biggest concerns is that students cannot manage their time well in the game environment. The most important reason for their inability to manage time is distraction. The concern that games could distract students in this respect was a situation that haunted me throughout the process."

"The fact that the entertainment side of the work that I experienced during the process can be the main focus for students is a phenomenon that needs to be considered. If students focus too much on the fun side, I think the desired learning outcomes cannot be achieved."

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"The fun and challenge factor offered by the games is a motivating force for me and will be motivating for my students. However, I believe that it is necessary to have the ability to use this motivation correctly. If we cannot build the learning environment flexibly, we may not be able to achieve the targeted outcomes. My concerns include whether it can be done without sufficient experience and knowledge, or whether there will be enough time."

Although the experts had concerns, the benefits that the game design experience could provide did not negatively affect the overall ratings by overriding the concerns. In the comments made by the experts, the concepts of entertainment factor, in-game struggle, being motivating, and keeping the interest alive came to the forefront. In this context, the pre- and post-surveys conducted to measure the perspectives of design educators on the use of digital games are consistent with the comments made (Table 5).

The perspectives that the game design experience has influenced the experts' evaluations and that have changed the most compared to the evaluations made before are listed below.
- Digital games can help students learn
- Digital games contribute to students' development of problem-solving skills
- Digital games can provide a meaningful learning environment in the design studio

Among these evaluations, especially the proposition that "digital games can provide a meaningful learning environment in the design studio" came to the forefront, providing important feedback for future studies and creating an effective digital game-based education framework for design educators. The most common concepts used by the experts in the interviews, "fun" and "making it interesting", enabled the use of digital games in design education to be seen as a positive and effective tool from the perspective of educators.

Table 5: Perspectives of Design Educators – Pre and Post Tests

Perspectives of Design Educators	Game Tas. Experience Pre	Game Tas. Experience Post
* Digital games have a positive impact on students' motivation in the design studio.	3.80	4.20
* Digital games contribute to students' development of problem-solving skills.	3.60	4.20
* Digital games can help students learn.	3.40	4.00
* Digital games can enhance student interaction and collaboration.	3.80	4.00
* Digital games can aid students in acquiring 21st century skills.	3.00	3.40
* Digital games can provide a meaningful learning environment in the design studio.	3.40	4.00
* Digital games can offer personalized learning environments in design studios.	3.20	3.60
* Digital games can be flexible in design studios according to the needs of students.	3.40	3.80
* Digital games can be utilized to assess the design processes of students.	3.20	3.60

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In this context, it was found that the experience of game design had a positive impact on the assessments of design educators. The experts shared a consensus that digital games can enhance students' development of 21st century skills and problem-solving approaches, as well as being entertaining and engaging.

> *"One of the most important effects that digital games can provide is that they have a structure that allows students to individualize their learning. This is important as it will enable my students to progress individually and at a pace that will make them feel good. Game design experience helped me develop this awareness. It was very valuable to be able to move at an individual pace and have the opportunity to improve at every stage when designing my own game idea."*

After the game design experience, the experts emphasized that the game design process should be experienced by the educators in order to use digital games effectively in design education. They stated that trying to make digital games directly a part of the design studio by knowing only the theoretical approaches would negatively affect the process.

4.2. Discussion

This study aims to evaluate the use of digital games in design education from the perspectives of design educators and to understand the approaches of design educators. The fact that most of the studies encountered in the literature are student-oriented constitutes the unique value of the study. This study was conducted with a limited number and a small group of participants. In addition to the limited number of participants, another limitation is that the study was conducted over a short period of time. Despite the limitations, the results obtained at the end of the study provided us with important findings within the framework of the use of digital games in design studios. Future studies will be conducted with a larger group of participants to quantitatively verify the findings. In addition, it has been determined as one of the goals of the 2024 academic year that the design experience, which was determined as 5 weeks in the pilot study, will be a part of the

14-week lesson plan and the idea of game design will be taken out of the conceptual stage and put into a feasible framework.

Even though the study was conducted with a limited number of experts, the fact that the experts did not have previous game design experience positively affected their approach to digital games and their attitudes towards their use in the studio environment. The increase in interest in games after the game design experience is an effective factor in the positive effect. It is seen that the average scores increased in the pre- and post-surveys. In the interviews conducted with the experts before the pilot study, it was observed that they perceived digital games only as an entertaining tool; however, this perception changed in the interviews conducted after the study. It was observed that the experts realized that the digital game-based approach has the potential to help students develop higher-order thinking skills and to provide a personalized and meaningful teaching environment for solving design problems. Again, the interviews with the experts provided important feedback when they stated that the game design experience increased the effect in the formation of this awareness. In this context, the most important finding of the study is that educators who want to make digital games a part of design education should make game design experience and conceptual game development stages a part of the education plan. The opinions of the experts are also in line with this finding. Although the experts' perspectives on the use of digital games in design education increased positively after the game design experience, the concerns that emerged in the interviews should be addressed in detail in future studies. Another limitation of the study was the necessity to use an existing game. At this point, it is necessary to create digital game-based learning environments by using game design software. It may be necessary to use this type of software for the implementation of original ideas, as existing games are limited in what they can do. Applications created with game design software will aid in comprehending the approach of digital game-based learning. However, factors such as game design software being complex

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systems to learn, technical inadequacies, etc. may negatively affect the digital game-based learning approach. In order to overcome this negativity, it is necessary to first test the conceptual process of digital game design and determine how game designs can be used after the feedback received. Making game design experiences part of the design studio and lesson plan is one of the first steps to overcome this challenge. The common understanding that emerged from the interviews with experts is that the game design experience needs to be actively experimented with in order for design educators to understand digital game-based approaches and make them a part of education. Creating a game design experience framework that can be an active part of design education is very valuable in terms of ensuring the unity of digital games and design education.

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Appendix
ANNEX-A. Evaluation Criteria Based on Heuristics

Game Environment and Playing Style		
Proposition	**Explanation**	**(1-5)**
1	The process of the Game Module was challenging.	
2	If the game module is challenging, you lose interest in the game module.	
3	The Game Module allowed me to achieve the desired goals.	
4	I haven't lost interest in the Game Module.	
5	The fact that the Game Module was not in levels had a negative impact on me.	
6	The lack of a winning element in the Game Module had a negative impact on me.	
7	It was helpful to be given information about the game before trying the Game Module.	
8	The game module offered elements that would enable exploration.	
9	The fact that the Game Module had a framework that did not require expertise prevented it from being fun.	
10	I think I achieved what I wanted in the Game Module.	
11	I think I have control over the Game Module.	
12	The Game Module allowed me to get quick feedback.	
13	The Game Module offered elements that allowed me to dive deeper into the game.	
14	It is important to gain expertise in the Game Module.	
15	The combat in the Game Module provided a positive experience.	
Game Environment and Narrative		
Proposition	**Explanation**	**(1-5)**
1	It is important to have a story (scenario) in the Game Module.	
2	The Game Module must have a defined ending.	
3	Having my character in the Game Module helped me embrace the game world.	
4	I was satisfied with the experience at the end of the Game Module.	
5	There was a change in my feelings (excitement, ambition, winning, etc.) in the game module.	
Game Environment and Mechanics		
Proposition	**Explanation**	**(1-5)**

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1	The Game Module responded to the actions you took in response to the design problem.	
2	Seeing the game's own elements in the Game Module had a positive impact on me.	
3	When determining goals in the Game Module, points, expertise, winning, losing, etc. are taken into account. elements should be included.	
4	I think the controls in the Game Module are restrictive.	
5	I think the controls in the Game Module are simple.	

Game Environment and Interaction		
Proposition	**Explanation**	**(1-5)**
1	Game Module provided quick feedback for your actions.	
2	The game module allowed feedback for the actions you took and their consequences.	
3	It is important for you that the interface of the Game Module is simple.	
4	The player must experience the menu as part of the game.	
5	Providing preliminary information before playing the game module made it easier for me to interact with the game module.	
6	I would like to experience the Game Module in multiplayer.	
7	The Game Module's sounds provided meaningful feedback.	
8	The Game Module should be able to appeal to a player with no knowledge.	
9	The structural features of the Game Module negatively affected my design process.	
10	It is important that the Game Module has a simple structure.	
11	Game Module was able to immerse you in the game.	

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The Architectural Design Studio: A Case in the Intersection of the Conventional and the New

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Abstract: This study investigated the evolution of the methods and tools used in the architectural design studio. The focus was on the MIM 201 Architectural Design Studio II course, based on a hybrid approach where conventional and new methods are used together. For this reason, the primary data sources of the study are student productions, observations, and comments of studio tutors. While presenting the data in the article, an approach that fragmented the studio was followed instead of a chronological path. Thus, all studio elements were discussed separately, and their potential was demonstrated. The study showed that conventional tools such as context-subject, critiques, and jury are still essential and effective studio components. On the other hand, it was observed that new tools (QD) joining the studio enriched the studio experience, but the potential of some of them (OB) needed to be developed. Study findings also showed that students preferred face-to-face and active communication in the studio. The learning space was one of the most important parts of the process as an atmosphere for student motivation and belonging.

Keywords: Architectural design studio, Architectural education, Conventional, New.

1. Introduction and background of the study

Architecture is a form of communication where objectivity and subjectivity come together under one roof, and reality is produced due to a multi-layered, asymmetrical dialogue (Güney & Yürekli, 2004). On the other hand, transformations in life constantly transform architecture and the expectations of architecture. Because of this, it is inevitable to bring up architectural education and take action to implement the necessary adjustments.

Even if the commitment to conventional techniques continues today, something new should always be added due to the obligation to keep up with the changing conditions. This article focuses on the "architectural design studio," which is important in this discussion and architectural education. In order to adapt to the innovations of architectural education, it is important to plan the architectural design studio at its center as a multi-layered experience area that is dynamic and flexible, organized with different perspectives, allowing alternative opportunities and open to innovations. For this, it is necessary to share and discuss studio experiences by clearly expressing the positive and negative aspects and the aspects that need improvement to enrich/improve studio methods and tools. Moreover, this knowledge will contribute to increasing the quality of future applications.

This article aims to contribute to the discussion of studio methods, tools, and processes within the scope of the transforming framework of

architecture. In this context, the article investigates the conventional and new methods used in the architectural design studio and discusses their unity and position in production. While the studio components are highlighted, the active learning system implemented in the studio is examined within the scope of the collective relations of these components.

Traditionally, architectural education has been structured on a tried, proven, predictable, rational, and ossified value system (Yücel & Aydınlı, 2015). Although different pedagogical approaches were discussed in different periods, architectural education diversified and updated itself in parallel with the changes in time.

Today, architecture schools vary in their structures, curricula, practices, or networks in which they are involved. Although they have historically shared traditional commons, they differ today by adapting themselves to their conditions. Schön (1985) mentioned that it is challenging for schools to determine how the conventional instruction patterns should be changed or expanded to include the body of information and skills that are believed to be crucial to the emergence of architectural positions. Institutions that undertake architecture education have to work to meet specific demands due to their internal and external dynamics. According to Callicott and Sheil (2000), architecture schools should create ambitious agendas in discourse, knowledge, practice, and research. They should ask new questions and show they can be asked again by looking at old ones. They should avoid being stagnant and staying only within the institution; if necessary, they should challenge all the institutions they work with and avoid being hierarchical throughout the whole process. In this sense, architectural education institutions must open their formal structures and practices to different experiences.

Although the components of a design studio vary by school and curriculum, the primary resources are the studio space, tutors, students, projects, and critiques. The studio allows students to learn, communicate, discuss, and experiment. Here, students can explore new

technologies, materials, and past/current topics in architecture.

In architectural education's conventional studio teaching method, the educator is in the 'tutor' position. The student is in the 'learner' position, and design knowledge is conveyed with the master-apprentice method. According to Salama (2008), in recent years, several studies have challenged university professors to create teaching strategies embodying transformative pedagogies, changing how they view students from passive listeners to active learners. Tutors have learned to become not only master practitioners but also master coaches. They have learned to respond to what is imperative and present in the studio, which is often not the practice, to make more explicit assumptions, strategies, and values (Schön, 1985).

Studio-based teaching is a central component of the architecture curriculum that enacts traditions of design culture and mirrors future workplace practices in which prospective designs are discussed, critiqued, and challenged (Ardington & Drury, 2017). Studios are dynamic, open to innovations and developments, and collaborative and experience-based learning environments. Beyond this, the studio refers to a process in which the learning activity is highlighted, and students practice learning through the design object. Contrary to the conventional method, these approaches, called experience-based studios, include content where the tutor assumes a facilitating and supportive mission. This approach removes the tutor from being the only source of information in experimental studios.

On the other hand, students try to solve design problems by experiencing them and producing alternative concepts in experimental studios. Schön (1985) says that the design studio has developed the tradition of learning-by-doing – the tradition of project-based education, which often seems innovative; the more specific traditions of work, review, and criticism; and the less easily-named traditions that inform how groups of students learn from one another. The primary characteristic of active learning is that

students are engaged in individual or group activities during the course session, including reading, discussing, commenting, and exploring. While the students carry out these activities, they are facilitated by the professor, and students can receive immediate feedback (Bonwell, 1996). Notably, in active learning, students are involved in higher-order thinking that simultaneously involves analyzing, synthesizing, and evaluating a broad spectrum of issues and phenomena. In the context of the university classroom, active learning involves students doing things and thinking about what they are doing. (Salama,2008)

Conventional design studios have transformed how they produce projects. According to Varnelis (2007), with these changes in the pedagogical approaches adopted in studio education, the approach to focusing on the product and beauty, which comes from the foundation of architectural education, has ended. It aimed to develop a new form that would be created open-mindedly, emphasizing learning from the process and making sense of it. Conventional design studios have transformed how they produce projects. Paker-Kahvecioğlu (2007) stated that the main aim of design education is to provide different design experiences, to guide in the taking of an active role and the taking of risks in different fields of

design, to facilitate knowledge acquisition, exchange, and processes; to provide a robust communication and motivation medium and to direct it for student-designers that have different cognitive styles and intellectual superiorities. The primary purpose of design education is to offer different design experiences. The studio will guide students to take an active role take risks in different areas of design and will facilitate information acquisition, exchange, and processes. It should provide a robust communication and motivation environment for student designers with different cognitive styles and intellectual advantages.

The views and experiences listed above show that the evolution of the studio has been discussed for a long time. The tutor and student roles, studio methods, and tools differ (Figure 1). The design process, in which the studio tutor is the leading actor and proceeds with his/her criticisms, is replaced by a collaborative production environment, and the studio turns into a polyphonic and dynamic environment. This environment does not entirely exclude conventional methods but functionalizes them within this approach. In addition, the integration of technological tools and the inclusion of alternative design experiences transform the studio. MIM 201 is built on this basis and is shaped by the research of its tutors and the long
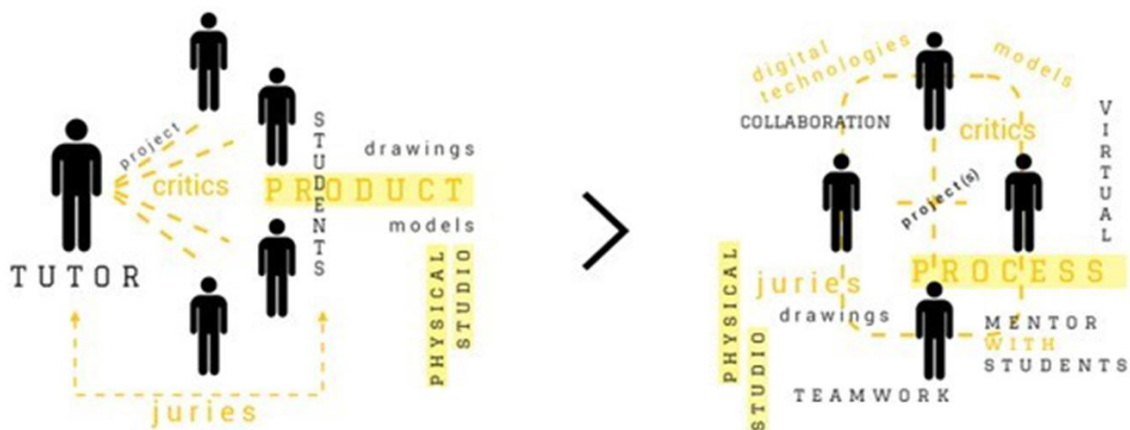

Figure 1: Conventional to New in architectural design studio

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history of experience they have had since they were students.

1.1. Methodology

Studios always have a special and unique place in architectural education (Çağlar & Uludağ, 2006). This article focuses on the evolution of architectural design studio education in the "intersection of conventional and the new." Since change is inevitable, experiments, alternative methods, and perspectives must be examined and discussed to foresee change and make maneuvers to meet the change healthily.

The article examined past experiences through a literature review, and a current case sampling was made (Figure 2). This method suits this research on the change in architectural design studio education.

The research enabled monitoring and interpretation of the experience of studio methods and tools. These components, each evaluated separately, are context-subject, process, tools, and learning space—evaluating the studio as a qualitative case allowed for testing each tool with the experiences of its tutors and students. Students aged between 18 and 20 (2 boys and 13 girls) participated in this studio, which was run under the guidance of two tutors. In the article, firstly, the organization of the architectural design studio is included, then

all the components are presented separately, and finally, the research findings are included holistically.

2. Designing/organizing an architectural design studio

Organizing the architectural design studio is an important issue, requiring experience and research. Moreover, studios may present various and unique challenges depending on their position within architectural education. In this context, early architectural design studios are critical. Here, students are trained in their representation while comparing design and production practices. Students need to develop their three-dimensional thinking skills and deepen their knowledge of architectural culture. In this respect, the first years of architectural education are like the first years of a baby. Students need to develop rapidly and gain awareness in many subjects.

Conventional methods in architecture education include content that focuses on the master-apprentice relationship, where the leader is an expert, and where project development with one-way communication comes to the fore. In this method, emphasis is placed on the jury system and grading stages, where two-dimensional expressions come to the fore. Current architectural education, on the other hand, is an education that aims to raise the level
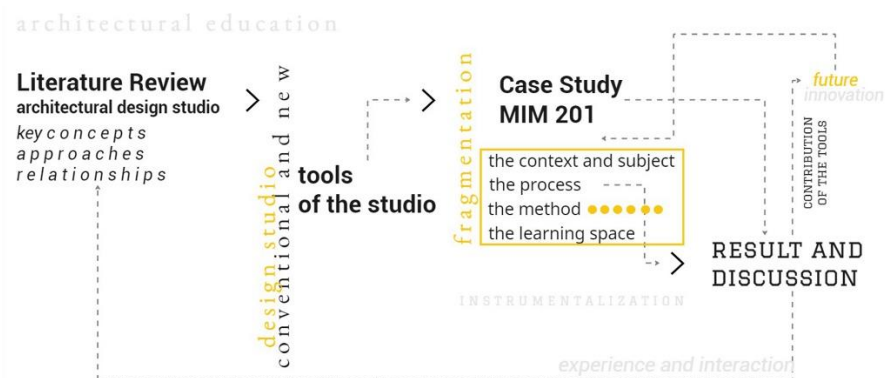

Figure 2: Methodology of the Study

of awareness and, therefore, social and environmental sensitivity of prospective architects, as well as to become successful designers and building manufacturers, to provide them with critical thinking skills, and to raise them as intellectual professionals. (Kararmaz&Ciravoğlu,2017) Approaches beyond building production support students' versatile communication with the tutor and each other, and approaches not limited to the physical studio alone enable new studio forms to come to the fore in architectural education. This study examines the combination of elements of conventional studio methods like projects, critics, juries, etc, and "new" approaches such as open boards, peer-to-peer feedback, digital tools, etc. MIM 201, exemplified in the article, is positioned at this point, aiming to expose students to a layered design practice with both traditional and innovative methods.

2.1. The context and subject as tools

A design studio in architectural design education is a process built in the frame of different methods related to the aims that the studio tutor/s wants to learn, where the knowledge gained from other courses is synthesized. The design area and problem mean the selected place and subject serve the determined aims (Uysal et al., 2012). The architectural design studio can be thought of as a project simulator. Here, design problems are described with their context and subject according to the studio's location and the skills it aims to provide. The emphasis here is on something other than the selected context and subject but on the framework they point to. In other words, the context (location) and the subject of the studio are some of the primary tools that structure the studio (planned according to its position in the course plan).

The place of the MIM 201 is Kuzguncuk, and the subject of the studio is children's spaces in the city/metropolis. Child-friendly cities were discussed in the studio, and the studio theme was determined as alternative approaches to children's spaces. The studio aims to deepen the discussion in the context of "Child and Space"
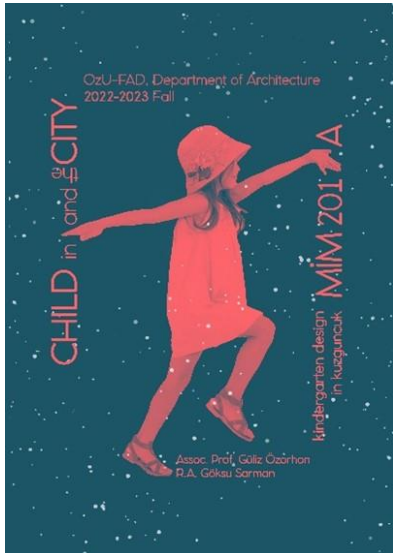

Figure 3a: Poster of MIM201 / *Figure 3b:* Kuzguncuk in Istanbul

and to create new and "alternative" experiences with time and what time brings. As the study area, Kuzguncuk (Figure 3b) is located within the borders of Üsküdar district, one of the oldest settlements in Istanbul. This place was chosen because it offers a qualified environment on a human scale and creates a vital context with its social environment that protects the neighborhood life, green areas, and orchards.

The topic of children's spaces was chosen because it can suggest cooperation with the region to gain the competencies expected in these design studio outputs. It also allows students to work by putting their childhood experiences at the forefront.

2.2.The process as a tool

Process in MIM 201: Although it included primary stages such as research, analysis, concept development, sketching, and modeling, it was planned as a cyclical structure in which students constantly improved their designs based on feedback and evaluation. (Figure 4).

Students are not given a specific architectural program to research and develop their original scenarios freely. Instead, concepts were given, and students were encouraged to think through them and develop their unique programs accordingly. MIM 201 process interactively in a face-to-face manner and planned as three modules. Module 1 is research, Module 2 is reading, and Module 3 is interpretation (Table 1).

Figure 4: Process of the Studio

Table 1: Modules of the Studio

		Subject	Scale	Quick Design	Output
Module 1	*Research*	*Child and/in the City*	No-scale	**QD1**	Collage, Video
Module 2	*Reading*	*Children's Spaces in Istanbul*	Istanbul	**QD2**	Analysis, Mapping
Module 3	*Interpreting*	*Kindergarten in Kuzguncuk*	Kuzguncuk	**QD3**	Diagrams, Solutions

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Module 1 (Research): This module is developed around dreaming, exploring, growing, and learning. Students researched these concepts through articles and books and tried to deepen their research in the child (user) context. These researches have increased their awareness about the child and enabled them to understand the stages the child goes through during its development, the effects of its experiences on its development, and its physical-psychological and social needs. As the module's name suggests, the studio became an individual and polyphonic research and discussion environment, and students tried to create a theoretical infrastructure to get to know the user. This knowledge and environment have led students to their journeys of discovery.

Module 2 (Reading): In this module, the students were given the second concept set of sports, art, games, and books. With a similar approach to the first module, students investigated and discussed the child concerning this set and began understanding the spatial needs required by these actions.

Module 3 (Interpreting): In the third and last module, the students were asked to make analyses and determinations at the neighborhood scale within the selected project area and to work on their kindergarten designs, which is the primary design problem considered within the scope of the studio, taking into account their previous research. The design process started with the students' scenario and program development phase. Each student created their unique scenario and defined the architectural program required for this scenario. With this approach, students made decisions by researching their programs, without depending on the needs determined within the scope of a specific architectural program, and could shape their scenarios according to the design approach they wanted to highlight. Then, within the framework of the determined program, the spatial design phase was started. Each student worked on designs considering different contexts in different plots within the given area. Sketching, digital drawing techniques, and model studies were used collaboratively in the design development phases.

2.3 The method as a tool
The studio method is the most crucial tool of the studio. Designing the studio method requires planning together the components according to the scope and subject of the studio and at what stage each component and subject will be included in the process. Considering the studio method as a dynamic tool open to innovations and different perspectives enriches the studio.

With this perspective, a dynamic and multi-layered method has been designed combining conventional and new in MIM 201. The components of the method (quick design (QD), open board (OB), presentation (P), critics (C), jury (J), and sketch exam (Se) are explained in detail below.
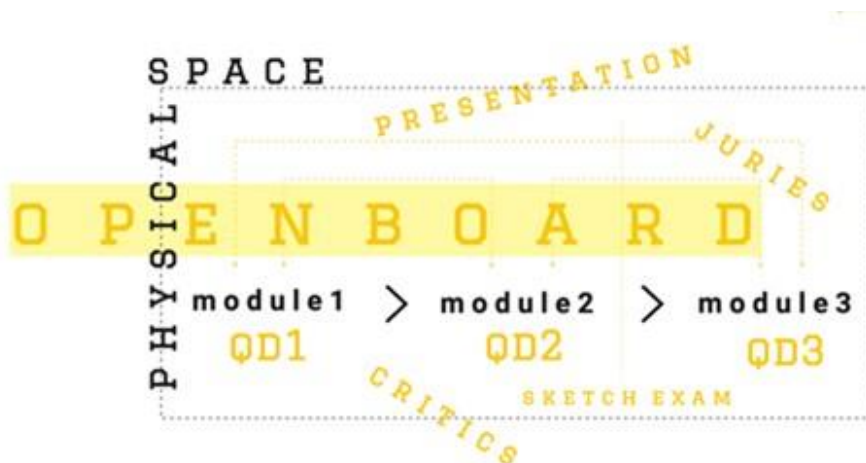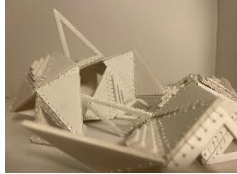

Figure 5: *Tools of the Studio*

Table 2: *Examples of QD 1*

n.	brief description	examples of students' works
qd1 . plus 5_1	Designing an *experience area* for kids	

quick design (QD): QDs are short-term design exercises integrated into each module and aim to develop students' skills in thinking about a problem and producing solutions quickly.

qd3 . plus 5_3

The first of the exercises was carried out in the early stage of the design process when students were introduced to the subject and basic concepts related to the subject (Table 2). In line with the basic concepts, students were expected to develop their designs using sketch and model techniques. By accepting the concepts as the primary guiding element of the design, they were expected to dream of a place where they could dream and activate their exploratory impulses. This place should support the development of all senses of children. Space components can be fixed or mobile. In fiction, the child can be found alone or in a crowd.

In the second exercise, students were expected to think about actions in addition to concepts, and activities such as sports, art, games, and book reading were given (Table 3). Students were expected to develop children's area designs that included these actions. On the other hand, they were expected to add context to the design process, and the exercise was planned accordingly. The students were expected to conduct their research by focusing on the concepts of Art, Sports, Games, and Books and move on to another design stage through two different venues selected in Üsküdar, close to the project area, Kuzguncuk. What is the difference between the two given urban spaces? Where is the child in these places? By taking the questions to the forefront, the students were asked to establish a place to prioritize children's creativity, help them develop it by participating in artistic productions, and highlight their
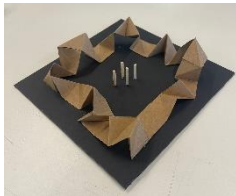
Table 3: *Examples of QD 2*
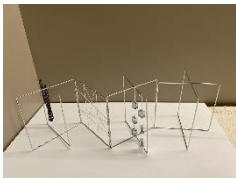
n.	brief description	examples of students' works
qd2 . plus 5_2	Establishing a space focused on *sports, art, games, and books* where context is emphasized.	

Table 4: *Examples of QD 3*

n.	brief description	examples of students' works
qd3 · plus 5_3	***Representation*** of the design idea, examination, and application of different techniques.	

mobility. The concept sets and poster expressions were obtained from the research phase, and the designs were carried out using sketch and model techniques.

In the third exercise, different techniques were demonstrated in creating content related to the visual transfer of the design problem (Table 4). They tried to develop appropriate productions for their design ideas by sharing examples of poster layout, color use, composition creation, and diagrammatic transfer of information, which have an important place in the interpretation and transfer of design.

open board (OB): Open board is the virtual digital space on a shared file on MIRO. It includes synchronous production during the studio. Students used the board throughout the semester, and the board provided a remotely accessible interactive environment where all participants could observe each other's work, do group work, and add comments from studio tutors. The holistic view of a design process was obtained by collecting the research problems and the process and result products of the short exercises in this environment. Thus, when the students moved on to the next stage, they could quickly access the products made in the previous stages and watch the transformation of the process, and this experience triggered their new moves.

presentations (P): MIM 201 students must be encouraged to express their thoughts verbally, especially considering they are in the early stages of their education and must still be competent in using architectural expression and representation tools. With this perspective, it has been prioritized for students to focus on oral and visual presentation skills since the first week of MIM 201. Thus, "presentations" became an essential tool of the studio, and students had the opportunity to express themselves orally by making presentations.
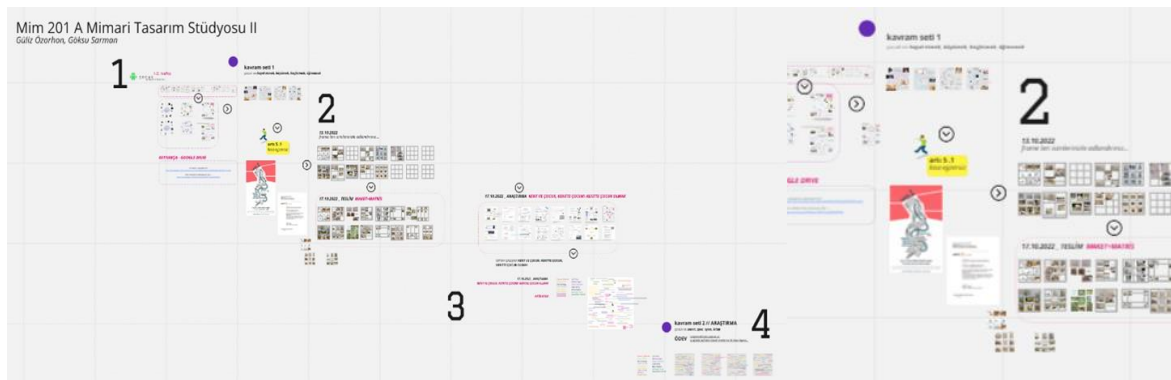

Figure 6: *Open Board – Miro*

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Figure 7 a.b.c: Concept Cloud Outcomes

These presentations were sometimes individual, sometimes structured as group work, and the presentations enriched the polyphonic environment of the studio.

Critics (C): Projects are the main challenges to work on, and students are expected to apply their knowledge and design skills to innovate solutions. Critiques serve as guiding statements when students are working on their projects. Tutors provide feedback to evaluate more effective solutions to student's ideas. In the studio, students' design ideas are discussed during each encounter and evaluated based on principles, and students are encouraged to mature their design ideas. The learning environment in the architectural design studio is a culture where tutors and students carry and share their experiences (Yurtsever & Polatoğlu,

2020). In MIM 201, the exchange of ideas between the student and the tutor was also important. However, this interaction is not organized in the form of one-on-one criticism but rather as a multi-vocal environment in which all participants in the studio can play an active role and speak. The crit helps to frame students' ideas through negotiation and discussion of the design challenges and problems (Ardington & Drury,2017). Group, individual, and peer critique (students critique each other with the tutor as a moderator) were used together in the studio, regardless of the specific program.

Jury (J): Although it is not a new method, it is still effective for students to present their design ideas to the jury using architectural representation tools and develop their projects

Figure 8 a.b. : Studio Presentations

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by considering the jury's questions and criticisms. The jury system, an indispensable part of architectural design education since Ecole des Beaux-Arts, has an important place in the casualization phase of the positive and negative aspects of the studio's approaches. During the jury, students are expected to answer questions from the jury members after briefly explaining their work. MIM 201 juries were held with another group of students from the same semester. Thus, students had the chance to receive feedback from other tutors and also watched the work of a group of students who followed a different method. Critics in the juries were enriched with the contributions of students and faculty members. Thus, it was aimed to increase the effectiveness of the students in the studio and to develop their skills in interpreting and criticizing the projects.

sketch exam (Se): In the sketch exam, which highlights the student's evaluation and use of their knowledge within the design studio, students are expected to solve a problem within a certain period. Within the scope of this studio, students were expected to produce interior organization and usage scenario alternatives by considering the use of one of the recurring units within the scope of the kindergarten projects they worked on.

2.4. The learning space as a tool

The general spaces of architectural design courses are studios; in architectural education, studios are learning and communication spaces beyond being a limited physical space. It is a tool that can support and enhance the learning process by creating an environment conducive to creativity, collaboration, and critical thinking. The studio space used in MIM 201 is an open studio where other design groups can coexist simultaneously. The studio has 12 groups and approximately 190 students at the second-grade level. Each group experienced different programs and processes defined by their tutors, side by side, in the same place. The studio has become a rich production and experience environment in this state. Considering that these students received distance education due to the pandemic in the previous semester, it is clear that this pluralistic experience is significant for this group of students. In addition, short-term presentations and lectures were held in small classrooms.
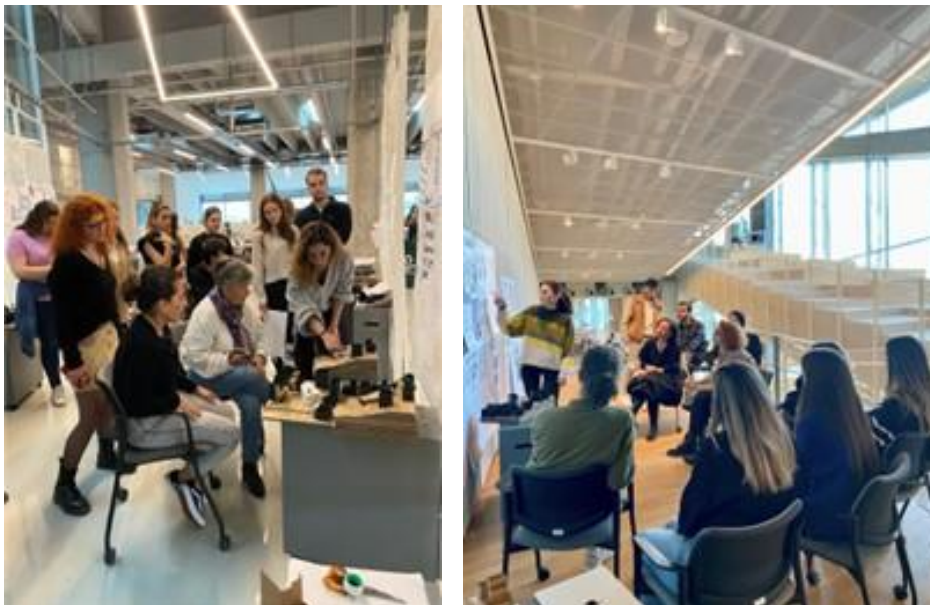

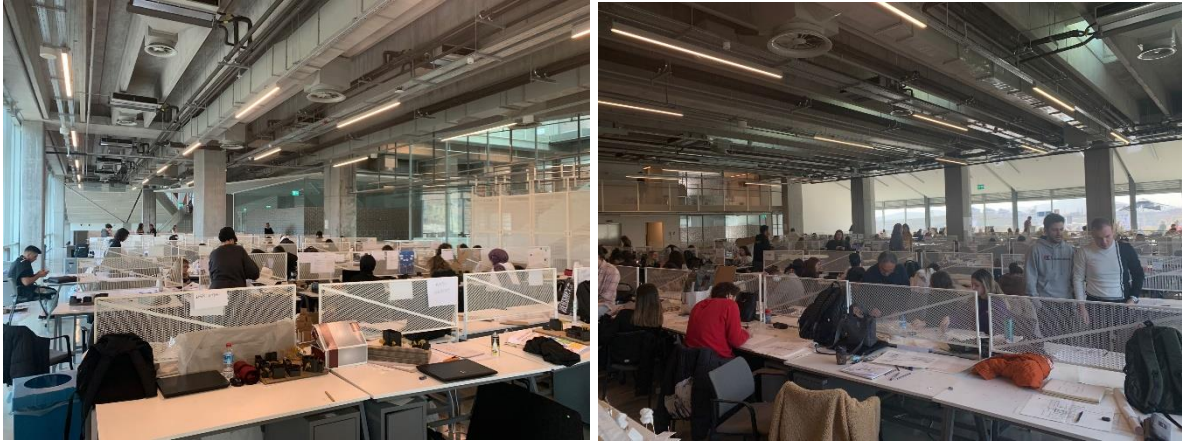
Figure 9 a.b*: Juries*

Figure 10 a.b.: Studio Space

3. Results and discussion

Organizing an experience-oriented design studio that uses a combination of different tools is a challenging task that requires careful planning and management. It should be noted that in this approach, educators must spend more time designing and supervising all processes. In this example, the process was monitored, interventions were made occasionally, new resources were added according to the student's needs and preferences, and attendance was constantly monitored.

The contribution of context and subject: Guiding and encouraging students to develop their original scenarios and architectural programs throughout the semester ultimately led to the forming original design ideas. For example, S1 worked on the concept of "boundary" and conceptualized this concept through the child's dialogue with his/her environment. She emphasized that in her design, she prioritized the communication of indoor and outdoor spaces to prevent children from feeling limited in closed spaces. For this purpose, she aimed to break the boundaries and communicate with the garden with the retreats and transitions she made. She designed open terraces on the upper elevations. In another project example, S2 placed "context" at the center of the design strategy with the plane tree in the area where she worked. Starting from the idea that traditional settlements in Kuzguncuk
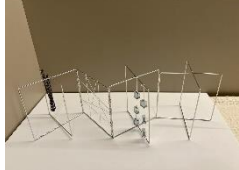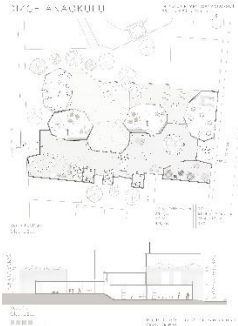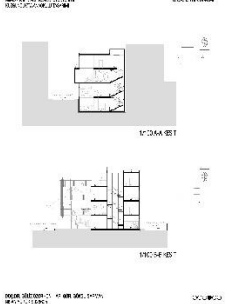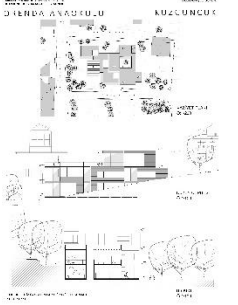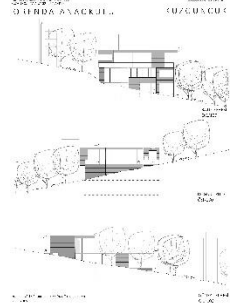
have backyards, she designed her construction with this principle. In the design, the backyard was created with a multi-story playground built where the tree is located, combined with the school unit facing the street, thus establishing structural integrity. The main design problem of the studio proceeded through the kindergarten design. However, other QDs conducted during the process focused on children's spaces. The project topic had an encouraging feature because it drew a framework that students could empathize with regarding spatial requirements and content.

The contribution of the process: The architectural design studio offers a prime example of a collaborative, multi-sensory, learner-centered, constructivist, experiential problem-based teaching environment (Kurt, 2009). In MIM 201, students made criticisms and suggestions about their projects and others in parallel with this collaborative approach, highlighting the scenarios they created. A collective communication environment has been created in which dialogue and discussion within the studio come to the fore, rather than individual communication only with the tutor. As Salama (2015) stated, students only learn a little by sitting in class, listening to faculty, and memorizing pre-packaged and ready-made interpretations; they must talk about what they are learning, write about it, and relate it to past experiences of their own and others.

The nature of architectural design requires managing multiple levels of information at different stages of the design process. Information created at one stage of the design process becomes the input and constraint of subsequent stages (Kurt, 2009). In MIM 201, research and production in one module became data for the next module. For example, the design approach in Module 1 found a place in the kindergarten's spatial organization or garden landscaping in Module 3. Context discussions in Module 2 were included in establishing environment-design relationships in Module 3 (Table 5).

Flexible structure and maneuverability are essential for the studio, considering architecture students' varying structures and needs. The MIM 201 studio process has been revised and programmed, and various additions have been made from time to time according to the needs of the students and their feedback. However, due to time pressure, the flexibility of the process has only been partially achieved and needs to be improved. It was observed that students had difficulty in conceptual thinking and using alternative representation tools. For example, in Module 1, students were expected to make collages during the visualization stage

Table 5: *Examples of the projects*

Modul 1	Modul 2	Modul 3		

of their ideas. Although some students were willing to do so, some abstained and joined the process late. On the other hand, although the studio tutors encouraged the students, some had more say during the studio process, and some remained behind. Strategies should be developed to ensure that all students are involved and can actively participate in the studio.

The contribution of method: According to Aydınlı (2001), the new responsibilities envisaged for architecture schools emerge in the context of these new conditions, and there is a need for joint studies to develop innovative approaches, tools, and systems. Therefore, it is essential to evaluate the tools included in the studio.

    QD: QDs applied throughout the modules allowed the conceptual framework to be formed and to reference each other. Nicol & Pilling (2000) claim that students need regular opportunities to step back from design project activities to analyze and evaluate how they learned through those activities and to provide feedback and performance judgments. Short exercises contributed significantly to the studio's process and enriched the studio discussions. Generating ideas on different problems through short-term exercises and listening to, watching, and criticizing each other's ideas contributed to developing students' design skills.

    Moreover, these exercises helped them improve their drawing and expressing their ideas in three dimensions. During the short exercises, students were asked to comment on each other's work, criticize their design approaches by discussing their strengths and weaknesses, and gain experience handling and interpreting another design. This experience includes observing the phenomenon under study and doing something about it (Salama, 2008). In MIM 201, In QD 1, they developed a design idea using their conceptual research; In QD 2, they discovered the importance of context and its

contribution to design; At QD 3, they were introduced to the power of representation and its alternatives. QDs, each of which is related to its module, have created breaks that disconnect students from the intellectual process of the design process. It has been observed that these breaks allow students to distance themselves from their projects, thus enabling them to look at design ideas from a different perspective.

OB: With the development of technology, online education components integrated into design education and have become more permanent, especially after the pandemic, are becoming an indispensable part of learning environments. Both physical and online environments diversify/increase the interaction and cooperation between tutors and students, as well as between students. Technology has added a new dimension to the design studio by providing different sharing opportunities for working individually or in groups while providing easy access to digital tools and resources. Within the scope of MIM 201, physical and online learning environments are considered together. The studio is designed in a continuous/unlimited structure that is not limited by course hours and location. Online tools of the working environment have become an extension of the studio independent of time and space. Even after the semester is over, it has been observed that some students visit the board occasionally and benefit from the productions there.

P: Through group work, students were encouraged to discuss among themselves and produce ideas/products together, thus improving their ability to organize the process independently. In the presentation of all these studies, it was observed that the students' expressions (both visually and verbally) improved, and they even included the new concepts

they learned during the studio process in their expressions. For presentations to be more effective, students' competencies in research and presentation skills need to be increased. On the other hand, it has been observed that students are more willing and active in the presentations they make via computer. This shows the importance of increasing the effective use of digital resources and tools in studios.

C: The students undertake a design project under the supervision of a master designer or professor in the design studio. Critiques, a vital part of this approach, are designed as an arena in MIM 201 where different ideas are discussed around the same table, where students can follow alternative approaches and express themselves freely. In order to ignite the discussion environment, from time to time, the tutors retreated into the background, and from time to time, they became more active. In addition to improving students' perspectives, this environment was also beneficial in developing their self-confidence in expressing their ideas.

J: Juries, an indispensable part of the conventional studio, nourished the process and enriched the productions by discussing different perspectives. Students also observed different perspectives through juries organized with different groups. The boundaries of the studio became blurred during juries, and the studio's interaction with the environment increased. This openness also enables adaptation to the environment. So, the studio, rather than a closed and linear progression within a sharp framework, has expanded to a framework in which students can nurture their fiction and have the opportunity to develop their designs in a flexible and cyclical work that is open to participation.

Se: The sketch exam aimed to enable students to think about different alternatives and applications without adhering to a single solution in space organization. It deepens the design scenarios they created. During the sketch exam, students had difficulty coping with the problem given in a limited period of 5 hours. The source of the problem is because they are encountering this type of experience for the first time.

The contribution of the learning space: All students of the same level were in the same studio space, creating a substantial atmosphere. Feedback from students about leaving the studio from time to time and using small classes showed that this setup should be revised. It was emphasized that the students were taught in a quiet and isolated environment, separate from the leading studios, and that the studio feeling was removed, making them lonely. On the other hand, open boards (OB) have detached the studio space from its boundaries as a virtual extension of the studio. The educational space defined by the studio space, classroom, and open board has become an essential studio tool. The panels located around the work tables in the studio are identified within the studio space. Students placed their productions on these surfaces, enriching their work and improving their relationship with the space.

According to the students, the tools that contribute the most to studio productions are learning space, context, and critiques. While the subject, QDs, jury, and process also make meaningful contributions. On the other hand, the students see the contribution of the open board and sketch exam as moderate. With an overview of the evaluations, it can be seen that all tools contribute at approximately a similar level, no one particularly stands out or lags, and all components are interpreted effectively by the students.

On the other hand, with this experience, we realized many opportunities exist to improve studio methods and tools. For example, group work can become a practical part of the studio method to encourage student participation and

strengthen belonging relationships. Thus, communication between students will also increase, and the collaborative environment in the studio will be enriched. Another vital potential relates to communication technologies. The willingness of students to learn and use computer technologies indicates a significant potential to include these tools more and more effectively in the process.

As a result, in this example, studio components stand out with their ability to be articulated with each other, as well as their singular importance. Modules that reference each other instead of single-separate studies ensured the continuity of the process. It has also expanded the use of physical space and virtual space from studio time to lecture time. Presentations or juries have been handled more flexibly and designed as environments where students can share their ideas and discuss their thoughts rather than an exam. With the cooperation of all these components, MIM 201 has been designed as a design practice combining conventional and new, where new forms of production are encouraged, and the understanding of working together is highlighted.

4. Conclusion

In an environment where information is constantly changing, the architect must first know the ways of thinking that can respond to this change and difference. The awareness of accessing information and giving it a different position in every context and the ability to transform it should prevent the transfer of formulaic and rule-based information. This situation is increasingly influential in all architectural matters involving uncertainty and contradiction. Raising an architect who can think flexibly, question, transform knowledge into 'new,' and tolerate problems involving complexity and contradiction should be a priority in education (Aydınlı, 2001). The architectural design studio environment should have collaborative practices and flexible solutions, enabling discovery, participation, and discussion (Kurt, 2009).

The architectural design studio is at the center of architectural education. For this reason, it is important to share pedagogical practices (Çağlar & Uludağ, 2006) to develop an understanding of architectural education, question it, and make it innovative, dynamic, and sophisticated (Ozorhon et al., 2012). In this respect, the reflection of current developments in education, the integration of technological changes into design education (Oxman, 2008; Kvan, 2001), and design education as an evolutionary process (Salama, 2005) are current and critical issues.

In this study, using the case study method, the methods and tools of the architectural design studio were examined, focusing on the contribution of conventional and new tools used together in the MIM 201 studio. In this example, a method focusing on the process was adopted, and tools developed taking into account the course content were included. The potential of computer technology and virtual environments was utilized in studio productions. Students were encouraged to take an active role in the collaborative environment of the studio and structure their projects according to their perspectives. Alternative design exercises where students encountered different problems supported the process.

The study showed that conventional tools such as context-subject, critique, and jury are still the most important and effective studio components. On the other hand, it was observed that the potential of these tools gradually transformed and became more prosperous as they transformed into a participatory and collaborative environment. Some of the new tools introduced to the studio, such as QDs, were extremely useful and enriched the design process and student experience. On the other hand, OB, used very effectively during the pandemic, was used with a different intensity by every student in MIM 201. This showed that students preferred face-to-face and active communication during the studio process.

Moreover, this communication environment was more comprehensive than this course; students constantly preferred being together with other groups in the studio space and participating in this atmosphere. Leaving the

studio, even during short-term presentations, decreased the students' motivation, and they continued to work together in the studio space instead of working individually outside course hours throughout the semester. These findings are related to another studio tool, learning space. It again demonstrated its importance for studio production as an atmosphere beyond physical space.

The pandemic experience we recently experienced was instructive for us in this respect and opened a way for us to question/improve our educational strategies. Each university tried to choose the tools and methods appropriate to its structure and develop strategies to use them effectively and competently. However, there was a more painful process, especially in applied courses and programs where these courses are concentrated (Özorhon & Lekesiz, 2021). Due to pandemic conditions, distance education opportunities were created. Architectural design studios, like other components of the educational environment, had to adapt to this situation quickly. The tools we had to use during the pandemic period and some of the methods we developed specifically for this period were added to our design studio setup. As Broadfoot and Bennett (2003) stated in their article comparing conventional face-to-face design studio education with modern internet-based design studios, perhaps an innovative and logical way to create revised online design studio pedagogy could combine conventional and contemporary theoretical viewpoints. Discussing and integrating the distance education experience into the formal education structure continues to be discussed/studied, and the architectural design studio continues to develop and evolve, nourished by experiences. Dreamson (2020) talks about the importance of pedagogical participation in education to ensure the transition from online education is successful after the COVID-19 pandemic.

As seen in the examples mentioned, seeking innovative tools and methods, alternative strategies, and transformative opportunities for emergency and education development is important. It is crucial to conduct experiments and discuss the results of these experiences in order to develop flexible, dynamic pedagogical programs that will enable this pursuit.

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Book Review

Spaces of Republic in Sivas, 1930-1980
Ugur Tuztasi, Pinar Koc (Editors)
YEM Publication, ISBN 978-625-7008-61-7

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Bir Anadolu Kentinin Modernleşmesi

SİVAS'TA CUMHURİYETİN MEKÂNLARI

1930–1980

UĞUR TUZTAŞI - PINAR KOÇ

YEM Yayın

Spaces of Republic in Sivas, 1930-1980, (Bir Anadolu Kentinin Modernleşmesi Sivas'ta Cumhuriyetin Mekanları 1930-1980) (2022)
U. Tuztasi, P. Koc (Eds.), Istanbul, YEM Publication
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Modernization of an Anatolian City, Republic Places in Sivas 1930-1980 is a book written by Uğur Tuztaşı and Pınar Koç and published by YEM Publishing in Istanbul in 2022. In the book Dreaming for Sivas Selections from Architectural Studios, 2014-2021 (Tuztasi and Koc , 2021) (Hacihasanoglu, 2023), edited by the same authors, it is seen that some of the buildings discussed in this book are given as context in architectural design studios. The

book is 320 pages and consists of six chapters. The first chapter is entitled as "Transformation of the City Square", the second chapter "Urban Open Spaces", the third chapter: "Destroyed Buildings", the fourth chapter: "Public Settlements", the fifth chapter: "Public Buildings", the sixth chapter: "Residences".

In the first chapter, the chronological development and transformation of the city

square is discussed. The importance of the city square for the city and social life throughout history is discussed through built, demolished, transformed buildings and open spaces. The city squares, which were not formed in traditional Turkish cities, are shaped together with the administrative buildings of the cities with the modernization efforts of the republic and their place in the urban social structure is defined.

In the second chapter, the open spaces in the city of Sivas: "Municipality Park", "National Garden", "Cıbırlar Park", "Old 4 September Stadium", "Hot Çermik" and "Cold Çermik" are explained. With modernization in the city of Sivas, emphasis is placed on open spaces becoming a part of modern life.

In the third chapter, under the title "Destroyed Buildings", the buildings whose construction years are stated and which are still demolished are explained. These buildings: "İnhisarlar Tekel Building (1932)", "Governor's Residence (1932)", "Tan Cinema (1932-1933)", "Pension Building (1932)", "Emlak Apartment (1938)", "Old Carpet Weaving School" (1940s)", "Orduevi (1946-1963)", Industrial Vocational High School (1940-50)", "Yalçın Cinema (1950)", "Provincial Public Library (1950)", "Numune Hospital (1932-1953)", "Kızilirmak School 1934", "Akgül Hotel (1956)", "Selçuk Secondary School (1959)", "Atatürk Indoor Sports Hall (1959-60)", "Ülkü Primary School (1962)", "Old Trade High School (1965-69))", "Provincial, Special Administration Lodgings (1960-73)", "Second Foundation Offices (1977)", "Sivas Government House (1973-75)". The demolition of these buildings, many of which are very valuable in terms of aesthetics and modernization, are important examples of the problem of not preserving architectural values in Turkey. Thanks to this book, it is possible to document these structures, which have been demolished due to this tendency of local politicians.

The fourth chapter of the book is titled "Public Settlements" and deals with the campuses of public institutions in the city. In this context, 21 separate buildings were examined within the scope of "Sivas State Railways Campuses". Among the buildings in this campus, there are "Sivas Train Station", "TCDD Hospital" and "TCDD Training Building". "It is emphasized that the Cement Factory (1939-1943) campus is one of the important campuses on the west side of the city. "Regional Directorate of Highways (1966)" is another campus included in the book, located to the west of the city center. It is stated that "State Hydraulic Works (1976)" is the campus that houses the DSI Sivas Regional Directorate to meet the water needs of the region. This campus is located in the western part of the city.

The fifth chapter of the book is devoted to public buildings. Map of the city of Sivas, where the public buildings in this chapter of the book are visible. The chapter begins with a general explanation of the modernization of the city and its effects on urban space. In this section, "Electric Power Plant (1930s)", "Wheat Market (late 1930s-1950s)", "Fevzi Pasha Primary School (1938)", "Girls Art School – Necip Fazıl Kısakürek Vocational and Technical Anatolian High School (1938-1970)", "Old Örnek Hotel (1940)", "İş Bank (1940)", "Ergin Primary School-Namık Kemal Primary School (1945)", "PTT Building (1946)", "Old Municipality Hotel 1950-1952)", "Old Municipality Wedding Hall (1950s)", "Old Emlak Kredi Bank (late 1950s)", "Topaloğulları İşhanı (1953)", "Sümerbank Store (1954)", "Observatory Mosque (1957)", "Tuberculosis War Association (1958)", "Observatory (1958)", "Dört Eylül Secondary School (1959)", "Anadolu Selçuklu Primary School – Mevlana Secondary School (1959-1961)", "Ece Mahallesi Mosque (1960)", "Kütüklü Mosque (1960)", "Alparslan Secondary School (1964)", "Atatürk Monument (1965)", "Vegetable Market (1965)", "Workers' Insurance Branch Building and Lodging (1965)", "Municipal Service Building (1963-1967)", "Akhan Business Center (1967)", "Former Soil-Water Regional Directorate - Provincial Directorate of National Education (1967)", "Süleyman Deveci Mosque (1969)", "Sivas High School and Pension (1970-1971)", "Sivas Workers' Insurance Hospital – Sivas State Hospital (1971)",

"Demiryol-İş Union (1971)", "SCU Faculty of Medicine Hospital (1971)", "Reverie Office Building (1973)", "Old Village Services Campus-20th Regional Directorate of Land Registry and Cadastre (1976)", "Millet İş Hanı (1976)", "SCU Old Rectorate Building (1976-1977)", "SCU Sports Hall (1977)", "Press site (1978)", "Paşa Mosque (1980)", "Wholesalers Site 1980-1984)", "Provincial Directorate of Culture and Tourism (1983)", "Health Business Site (1984)", "Municipality Bazaar (1982-1984)", "Dört Eylül Indoor Sports Hall (1984)", "Ethem Bey Wedding Hall (1984-1987)" buildings.

The sixth chapter deals with 30 apartment buildings or residential settlements after a text describing the housing development of the city of Sivas. The housing modernization of the Republican Era, which started with factory houses, and the development of the residential environment, which was stated to have turned into multi-storey housing blocks after the 1960s, show similar characteristics to other cities in Turkey.

The book can be considered as an architectural city monograph that describes the development, change and transformation of an Anatolian city, which has historical value for the Republic of Turkey, within the framework of modernization. The most powerful aspect is that the authors make valuable determinations about Sivas city, where they live and work, and which they evaluate together with their architecture students (Tuztasi and Koc, 2022), (Tuztasi and Koc, 2021b), (Tuztasi and Koc, 2020). I hope that these works will set an example for other Anatolian cities that host architecture programs.

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