Journal of Architectural Sciences and Applications
JASA 2023, 8 (1), 290-300.
Research article
e-ISSN: 2548-0170
dergipark.org.tr/tr/pub/mbud

A New Approach to the Space Design Process in the Interior Architecture Basic Design Studio

H. Özlem YURTGÜN [1*], Hatice ÇINAR [1]

ORCID 1: 0000-0002-6346-6444
ORCID 2: 0000-0003-3769-6729

[1] *Selçuk University, Faculty of Architecture and Design, Department of Interior Architecture, 42250, Konya, Türkiye.*
**** e-mail**: ozlem.yurtgun@selcuk.edu.tr*

Abstract

The 'basic design' course, which plays a key role in the process of creative thinking and converting thought into an idea in today's architecture and interior architecture departments, has been constructed on a new experimental learning method for this study. The study aimed to acquire a concrete space experience based on the assumed abstract thought, to produce a problem-solving-oriented design by making the student question the original design idea. The education method designed was accordingly carried out in 4 stages in 14 weeks in the 2021-2022 Education Period, Department of Interior Architecture, Selcuk University. For starters, theoretical information was conveyed with Gestalt principles; later abstract and concrete ideas were developed on the design problem, and in the third stage, projects were developed on the process of transition from abstract to concrete space for the solution of the problem, and finally, the results were evaluated. As a result of the studio experience, the students created a working doctrine that will direct the interior design studio works with the designed method, enable the formation of original forms and shapes, enabling them to obtain concrete space from abstract concepts, and design at different scales from equipment to space design.

***Keywords**: Basic design, interior architecture education, problem, organization of space.*

İç Mimarlık Temel Tasarım Stüdyosunda Mekân Tasarım Sürecine Yeni Bir Yaklaşım

Öz

Günümüz mimarlık ve iç mimarlık bölümlerinde yaratıcı düşünme ve düşündüğünü fikre dönüştürme sürecinde önemli bir rol üstlenen 'temel tasarım' dersi bu çalışma özelinde yeni bir deneysel öğrenme metodu üzerine kurgulanmıştır. Çalışmada varsayılan soyut düşünceden yola çıkarak somut bir mekân deneyimi elde etmek, öğrenciye özgün tasarım düşüncesini sorgulatarak problem çözümüne odaklı tasarım üretmek amaçlanmıştır. Bu doğrultuda kurgulanan eğitim metodu; Selçuk Üniversitesi, İç Mimarlık Bölümü 2021-2022 Eğitim Öğretim dönemi 14 haftalık süreçte 4 aşamada gerçekleştirilmiştir. Birinci aşamada; Gestalt ilkeleri ile kuramsal bilgiler aktarılmış, ikinci aşamada; tasarım problemi üzerine soyut ve somut düşünceler geliştirilmiş, üçüncü aşamada; problemin çözümü için soyuttan somut mekâna geçiş süreci üzerine projeler geliştirilmiş, son aşamada ise sonuç değerlendirmesi yapılmıştır. Stüdyo deneyimi sonucunda öğrenciler kurgulanan yöntem ile iç mimari stüdyo çalışmalarına yön verecek, özgün biçim ve şekillerin oluşmasını sağlayacak, soyut kavramdan somut mekân elde etmesine imkân verecek ve donatıdan mekân tasarımına kadar farklı ölçeklerde tasarım yapabilecek bir çalışma öğretisi geliştirmişlerdir.

***Anahtar kelimeler:** Temel tasarım, iç mimarlık eğitimi, problem, mekân organizasyonu.*

Citation: Yurtgün, H. Ö. & Çınar, H. (2023). A new approach to the space design process in the interior architecture basic design studio. *Journal of Architectural Sciences and Applications*, 8 (1), 290-300.
DOI: https://doi.org/10.30785/mbud.1194031

***Received:** 24/10/2022 – **Accepted:** 13/06/2023*

1. Introduction

The TLA (Turkish Language Association) dictionary defines design as "form and imagination envisioned in the mind." Furthermore, according to TLA's philosophical approach, design is "the copy of an object or event that has been perceived previously and has materialized later in consciousness." According to these definitions, design is a holistic link between perception and concept. The 'Basic Design' course is one of the fields of applied education when it comes to design-oriented courses in today's architecture and interior architecture departments. As a result, basic design education has been assigned an important mission in terms of learning to think creatively and holistically and transforming what has been learned into the design.

Basic design pedagogy, according to Boucharenc (2006) is a creative and experimental methodology that fosters a holistic learning style and cognitive skills. Boucharenc stated that it is possible to develop these fundamental design elements and principles through contemporary design practice and various experimental methods in order to fully comprehend the purpose (Boucharenc, 2006). The basic design course is a difficult-to-understand language that students who take design discipline education in the first-year encounter, which causes them to forget what they previously knew about space. Birer & Ertürk (2011) stressed that the command "*forget everything you know now, try to learn again*" aims to give the first year of design education implicitly, and this is possible through the process of "*giving up on what you have learned*". This is referred to as the "*unlearn*" process by Higgott (1996). Another goal is to raise awareness about design strategies, decision mechanisms, and the effects that guide them so that students with different cognitive structures and spatial experiences can be revealed to be creative (Birer & Ertürk, 2011). According to Onur & Zorlu (2017) to properly present creativity, the concept of creativity should be evaluated in terms of the creative person, creative process, and creative product.

The curricula used in architecture/interior architecture education in Turkey changed over time, and different methods were used, particularly in first-year studios (Dostoğlu, 2003). There are exercises to create the visual richness of form at the beginning of the skills that should be learned in first-grade education. No matter how the methods are presented, the exercises to develop form richness aim to develop creativity (Birer & Ertürk, 2011). According to Krier (1992), each design language is a distinct product with its own set of indicators. According to Uraz (1993), this design language can be realized by forming an abstract thought in the mind, the forming tools - the elements that make up the form, and the relationships between them. According to Drak (1973), on the other hand, the designer emphasizes a design within a method to achieve the purpose, and with this method and the sequence of techniques followed, a language is developed for the designer's purpose or message. When one of the basic design principles, rhythm, is used in a design, it is understood that a concept that includes movement and dynamism is being used.

Finding original shape-form works based on an abstract/concrete concept in the design setup and reflecting it in the project concept is rather difficult. A concept is an idea that has been developed from an initial thought about a project. The concept, on the other hand, is the first concrete step created during the concept-to-project transition (Bilir, 2013). The notion is abstract, and the concept is the form that the notion takes in accordance with the design's subjective and objective language (Bilir, 2013). In this sense, basic design elements and principles are a common method for transforming creative thinking and concepts into concrete ideas. There are numerous studies in the literature produced from these methods. Çınar et al. (2017), designed furniture based on biomimesis with the stylization and deformation method as a result of their search for the original form, the combination of basic design methods, and as a result, they designed furniture in original forms. Similarly, Müezzinoğlu et al. (2017) found in their studies that formal abstraction is beneficial in gaining the ability to 'design for the individual' and developing creative thinking, such as design education. Karadağ & Ünal (2020) presented a new framework/structure for abstraction, creating a design language and improving spatial perception with algorithmic design exercises methods in the basic design course. In their study, Çınar & Sungur (2022) stated that as a result of the study, students developed skills that would allow them to create original forms and shapes and thus transform abstract ideas into concrete

fields by using a metaphorical approach in the context of object-space relations, in order to guide students' formal decisions in the functional solutions of the problems that arise in the interior design process. Türkmen (2020) found that abstract concepts used as a reference to produce form in basic design education have a negative impact on both design processes and student success levels. As can be seen, different results have been obtained using the basic design principles, which serve as the foundation for many studies, with various methods and setups.

Accordingly, design achievement can be named as the problem-solving activity that emerges in line with the decisions made to solve the designed substance, object, and space per the purpose. Based on this definition, the study aims to develop a new perspective to research, question, and produce solutions to problems and put them into practice by integrating not only visual language but also other sensory perceptions in the basic design education of interior architecture students. In this way, it is assumed that the transformation of the abstract perception created in the mind by a previously perceived object or form into a concrete expression and therefore thought, and the reflection of the spatial organizations to the design, which will be formed by questioning and producing solutions, will be more original and the design process will be more efficient. A program was developed in the study to transform the abstract concept into a three-dimensional perception and problem-solving design. According to the program, the study method was developed by John Hejduk, who will serve as the foundation of the problem-oriented design approach and was determined as a 9-square grid, which was first given as a design problem at the Texas School of Architecture in 1954. According to Hejduk, the 9-square grid method is "a pedagogical problem" (Hejduk & Canon, 1999). The location and time for the implementation of the pre-planned education program were determined according to the program, the physical and technical conditions were met, the students suitable for the program were specified, and the program to be tested was defined. The program was introduced to the experimental group and put into practice. The program was introduced to and implemented in the experimental group.

1.1. Design Education in Interior Architecture

A basic design course is the first step of design education. The application of education requires a system that will be defined theoretically and along specific lines during the application. This system should have a formulation designed for the perception that avoids complexity. The goal of basic design education is to introduce students to the design world's system, in which they will be involved in the continuation of their undergraduate education and professional life, and gain the ability to develop themselves in research, questioning, and judgment. These qualities, which all students should have, are especially important for interior architecture students who want to make a difference with their designs in the future.

According to Aytekin (2019), a basic level of communication language should be instilled in the student in basic design education. This language is possible by gaining the ability to use basic terminology, technical and intellectual methods. Transferring the equipment that will contribute to problem-solving with different art disciplines to the student can be realized by ensuring integrity with a general approach. Design education feeds the intuition of the person and improves the ability to see and solve the problem by eliminating memorization forms and prejudices, and filling the gap that exists (Süzen, 2017, p. 414). According to Esen et al. (2018), the basic design course is of great importance to increase the awareness of students, develop their visual senses, enable them to think differently from the usual, and generate new perspectives on their problems and solutions. In this way, students become aware of self-cognitive equipment and participate in the process of developing a special attitude. This gives the ability to acquire a new language of expression by producing solutions to perception, thinking, questioning, criticizing, and questioning. The student, whose intuitive perception is prominent, learns to see the existing beyond the borders and to express the unknown aspects with lines, which forms the basis of aesthetic thinking and production. Developing subjectivity and originality in the person is the function of the basic design course (Civcir, 2015, p. 7). The design education experience and learning outcomes, which are difficult and complex at first, will cause a shift in the student's perspective and questioning. Based on all of these definitions and predictions, design education

demonstrates mental readiness for design through direct or indirect responses to various objects, situations, and the questionability of the existing.

1.2. Problem-Solving for the Interior Architecture Dimension of Design

While the design composition process focuses primarily on parameters such as responding to human needs, comfort, aesthetics, and originality, these stages become a little trickier to evaluate when viewed through the lens of interior architecture. Architectural design, according to Bruce Archer, is "a deliberate problem-solving action." Transferred; (Metlioğlu & Durmaz, 2018, p. 223), state that basic design is known as the building blocks of art, design, and craft production, which bears the first step information for people from various disciplines who produce problem solutions under the definition of a designer. Design education includes the act of designing and is shaped by applied methods. The process, not the result, is important in design education (Aşkın, 2020). The process in question begins the moment the design problem is encountered. In other words, in the design studio, the real problem is transformed into a learning experience. The gained experience is at the heart of all design-related programs (Schön, 1985). The interior design process is primarily concerned with "problem-solving." This necessitates removing some of the problems that exist during the thinking stage and transforming the thought into a design, and designs should be created in this direction.

According to the problem-solving approach in space, the formation process of interior space should begin with questioning the space (Ching, 2016). As the expression "the way of dealing with the problem requires the designer to think and evaluate within some rules" implies, the process of creating interior design necessitates the ability to consider many different inputs concurrently. The need for a multidimensional interior architecture that focuses on human and human needs has also resulted in the emergence of human-oriented design principles. Gaining experience for inputs such as abstract thinking, transforming abstract thought into a concept, a reflection of the concept on the space, functionality in the space, and problem-solving-oriented design approaches are provided in basic design education. It should be clear from the start for whom the design is intended, and solution suggestions should be tailored to the needs of the user type. This necessitates evaluating the design within the context of anthropometry, which deals with the physical dimensions of the user. Anthropometric measurements differ depending on age, gender, and location. The second stage is need-based design, which takes into account many factors such as the size of the space, its function, its location, user profile, user density, and so on. The third stage is to respond to the user's perceptual needs, and the color, texture, light, size, and form of the space become more important in the design to be presented at this stage. People's perception levels and perspectives also differ according to age, gender, physical condition, and even geography. Another consideration is the design's economic dimension. Creating a design suitable for the user's budget is another problem that should be evaluated in the interior design project. The requirement to evaluate all of these parameters separately necessitates the search for solutions to numerous problems in the interior design process.

With this understanding, the architect will be able to think multi-dimensionally about the architectural space, work effectively, make the necessary and appropriate choices, maintain the architectural space with its existing features, or make suggestions that will change the actual qualities of the space. Having rules in interior design ensures that the design process is manageable. The basic design principles, the spatial relations these principles establish, and the functional, structural, and aesthetic qualities they create in interior spaces will contribute to the development of the student's inquiry and production of answers (Turhan, 2018, p. 44).

2. Material and Method

The goal of basic design education is to teach students that there are many things they need to know and that they should constantly research them on their own and strive for lifelong learning. As a result, individuals who can adapt to change will thrive. Even though current innovations and technology play a role in basic design education, the course is not built entirely on digital foundations. Students should take advantage of the underlying constants as they prepare for innovations.

The design model focused on problem-solving in interior design education was carried out with first graders who received basic design education in the spring semester of the 2021-2022 14-week academic year, Department of Interior Architecture, Faculty of Architecture and Design, Selcuk University. In the study, a program was created on transforming the abstract concept into a three-dimensional perception and problem-solving design. According to the program, the 9-square grid method, which will form the basis of the problem-oriented design approach, was preferred. The 9-square grid method is, in Hejduk's own words, a "pedagogical problem". The main goal of the 9-square grid method is to use the structural grid to reveal the student's design potential. Students are expected to learn basic concepts and shapes as well as create various grid combinations. According to Gropius, the purpose of education is to teach a method of approaching problems as opposed to providing specific knowledge and skills. Because learning begins with an attempt to cope with a problem or (Yıldırım, 2018) situation, and changing attitudes is a process related to learning and experiences, the study was designed to develop different perspectives on learning and problem-solving in basic design education (Yıldırım, 2018, p. 355). According to the program, the location and time for implementing the pre-planned training program were determined, physical and technical conditions were provided, the program was introduced to the experimental group, and the implementation began (Figure 1).

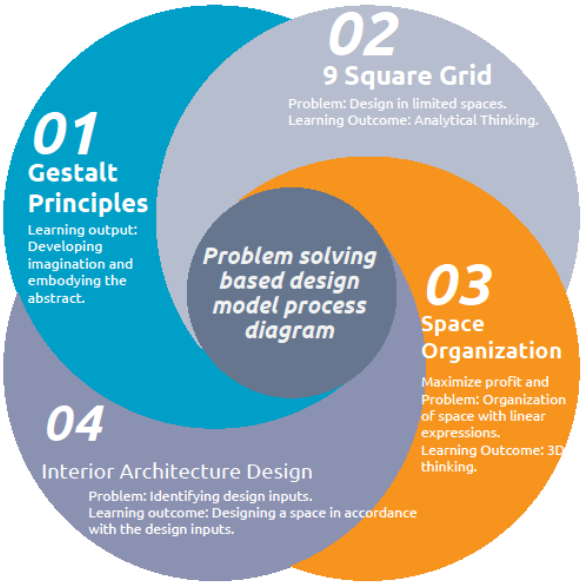


Figure 1. Problem solving based design model process diagram

The process in the training program consists of 4 stages. In the first stage, Gestalt principles, which are the building blocks of basic design education, were divided into weekly programs, and the definition of each principle was explained to the students at the theoretical stage of the lesson, discussed on the subject, and applied drawings and 3D studies were made for the students to embody the abstract and develop their imaginations. Without mentioning the content of the study to be put forward, the students were asked to research construction companies with national or international recognition. As a result of the in-class presentation and evaluation process, the students were asked to access information such as the history of the construction companies they preferred, the product, the content, and the design process. In the continuation of this stage, they were asked to identify 3 abstract concepts that should coincide with the company's vision, history, product variety, and brand identity. The first problem of the study was determined at this stage. Students were asked to specify abstract concepts that did not go beyond the brand's image and to match these concepts with the company's vision. Students' ability to think abstractly from a concrete product was thus tested. They were then asked to transfer the abstract concepts to the two-dimensional plane using a line in the following stage. Students who encountered a second limitation while transferring abstract concepts to the line were encouraged to overlap organic and geometric shape perception with the abstract concept, allowing them to think in a multidimensional manner.

In the second stage, the 9-square grid method, which forms the basis of the study is discussed. The students were asked to transfer the linear expressions of 3 abstract concepts, which they overlapped with their companies, into 9 square grids measuring 3x3 cm. At this stage, the students were faced with another problem regarding the limitation of m² in the space (81 m² in total), and they were informed that the linear expressions to be put forward should be placed per these measurements. At this stage, it is aimed to provide students with analytical thinking skills.

The process of transforming linear expressions into space, which are placed in a 9-square grid, is discussed in the third stage. At this point, the students were instructed to organize the obtained linear expressions by constructing them as closed, semi-open, and open spaces. The students who encountered a new problem here were instructed to think in 3D in order to organize space between specific boundaries.

In the fourth and final stage of the study, the students were asked to transform the space into an exhibition stand by placing welcome, exhibition, and waiting for units in the appropriate areas within the venue organizations approved as a result of the necessary evaluations. First of all, the following elements are important in the exhibition stand that is desired to be displayed;

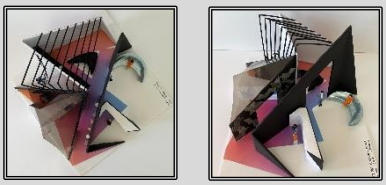
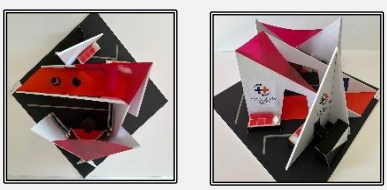
• The company's brand identity; colour, form, light transmittance, texture and size,

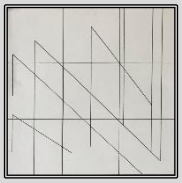
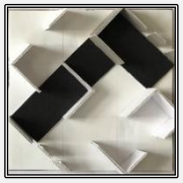
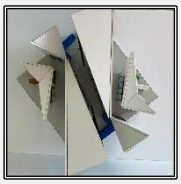
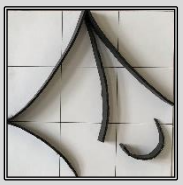
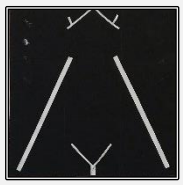
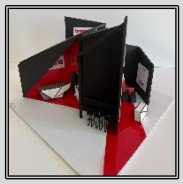
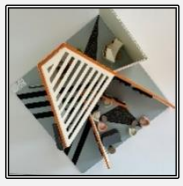
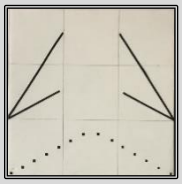
• User profile; physical condition, age, and gender,

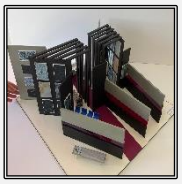
• The function of the space; Furnishing suitable for density and design suitable for material level. In this way, it is hoped that students will learn to research, develop, and produce solutions in the formation of space setups based on problem-based design inputs.

The workshop was carried out with a total of 14 weeks of evaluation and critique, which lasted 10 weeks until the midterm exam and 4 weeks until the final period, was completed by adhering to a method, producing solutions to existing problems, and based on research. Student studies (Table 1) were evaluated by the faculty members of Selçuk University, Faculty of Architecture and Design, Department of Interior Architecture, and the resulting products were exhibited in the faculty.

Table 1. Process and result products of the problem-solving design model in ınterior design education

COMPANY	KEY WORDS	LINE STUDIES	SPACE ORGANIZATION	RESULT PRODUCTS
Legrand	-Privacy -Trust -Development			
Şişecam	-Fragile -Permeable -Clearness			
Hologram Plus	-Energy -Dynamic -Harmony			

Bien	-Balance -Rhythm -Intersection				
Kale	-Order -Repeat -Space				
High Light	-Emphasis -Depth -Transition				
Schüco	-Connection -Boundary -Space				
Roberto Cavalli	-Natural -Aggressive -Impressive				
Simes	-Freedom -Emphasis -Vulnerability				
Legrand	-Privacy -Trust -Development				
Arlight	-Glitter -Hope -Energy				
Tureks	-Fragile -Orientation -Pattern				

Han Stone	-Orientation -Hardness -Unity				
Jonathan Adler	-Focus -Part/Whole -Harmony				

3. Conclusion and Recommendations

Education in interior architecture enhances design understanding. The first step of interior architecture education, known as basic design, places a strong emphasis on concept, form, and function. When functionality is involved, there are new issues to be resolved. Design is a process where potential solutions to a problem are first generated in the mind, followed by processes of analysis and synthesis, and the best of these potential solutions is then turned into a design output. In light of this, a problem-based learning approach is a useful tool for fostering the development of creative thinking abilities. (Ocon, 2012). According to Gallagher (2015), the definition of problem-solving and creativity is based on two factors. The first step is recognizing the restrictions, and the second is determining the purpose. By identifying these two components, the problem's solution can be approached more quickly. "Creativity is the work of making predictions, forming hypotheses, testing and arriving at the final result in the process of perceiving missing elements, knowledge gaps, difficulties, and problems," (Torrance, 1988, p. 47). As is clear from the definition, identifying and effectively resolving the issue is fundamental to the creation process. The Rhodes (1961) model states that the act of communicating a novel idea constitutes creativity. The concept here refers to the finished item. To be creative, a person, situation, process, and product must be taken into account as a whole. When these elements are used in combination, success can be attained. Focusing on a single component will negatively affect the creative thinking process of students.

The Basic Design course, which serves as the foundation of interior design education, is the focus of this study, based on a new experimental teaching methodology. The basic design course, the foundation of education in interior architecture, was the setting for the study's training program on problem-solving-oriented creative thinking and design creation. The proposed educational model's results were evaluated at the end of a 14-week process that included the evaluations of interior architecture professors and the learning outcomes attained through oral interviews with the students. Oral interviews with the students were conducted by the lecturers to ascertain the results of in-class learning. As a result of the interviews, the students stated that they learned to research and question a subject. They added that they were told to think critically and come up with answers to the problems given to them, which helped them develop the skills necessary to come up with original, creative designs and boost their motivation. The chosen abstract ideas were transformed into lines, then into 2 dimensions, then into space organization, and finally into actual space, allowing the model to match the perception of 3D with actual space. The results showed that the students who faced a fresh challenge at every stage of the program benefited greatly from the study. These are;

1- The ability to think analytically and produce solutions by developing different perspectives for each identified problem,

2- The ability to form abstract figural expressions based on a concrete product, to think multi-dimensionally and creatively by overlapping an idea with a concept,

3- The ability to think in three dimensions, to create a space organization, to see and transfer thoughts to the space,

4- At the last stage, they gained the ability to determine the boundaries of space and to produce suitable solutions for these limited spaces.

All the competencies gained by the students through the drawing and applied studies carried out in the course overlapped with the results scanned in the literature. Karaşah & Özdemir (2022) conducted a study on the analysis, synthesis, and evaluation process of how they approached the basic design concepts and principles they learned during the term in line with the given problem and how they reached the final product within the scope of the Basic Design course. As a result of the study, it was observed that the students had improved in their ability to conduct research, ask probing questions, create original works, and find motivation. Similarly, a real-time study was carried out using a problem-based learning model to enhance students' high-level thinking and creativity skills (Setyowidodo et al., 2019). Tests, observations, and interviews with the students were used to gather the data, which was then used to evaluate the final design products. It was found that the students improved their knowledge and abilities in terms of creativity and content theory as a result of the study. By giving the students a foundational understanding of interior architecture education, it was ensured that they could relate to the primary art courses required in the upper class, and the study thus met the expectations of interior architecture education. Following the outcomes and conclusions reached after the application, the problem-solving-focused training program will direct the interior design studio studies specifically to interior architecture education, enable the formation of original forms and shapes, allow to obtain concrete space from an abstract concept, and design in different scales from equipment to space design. A practical doctrine has been created. The approach is at a level where it will serve as an example for designers, academics, and students studying design.

Acknowledgments and Information Note

We sincerely thank all Basic Design students who entered the Department of Interior Architecture at Selcuk University in 2022 for their devoted and successful work in this study. This article was presented orally and published in summary at the *2nd International Architectural Sciences and Application Symposium* (IArcSAS-2022) held in Baku-Azerbaijan. The article complies with national and international research and publication ethics. Ethics Committee approval was not required for the study

Author Contribution and Conflict of Interest Declaration Information

All authors contributed equally to the article. There is no conflict of interest.

References

Aşkın, G. D. (2020). *İç Mimarlık Eğitimi Temel Tasarım Sürecinde Yaratıcı Düşüncenin Gelişmesine Yönelik Bir Yöntem Önerisi*. T.C. Mimar Sinan Güzel Sanatlar Üniversitesi, Fen Bilimleri Enstitüsü, İç Mimarlık Anabilim Dalı, Doktora Tezi.

Aytekin, B. A. (2019). *Temel Tasarım Kavramlarını Disiplinlerarası Okumak 1*. Nobel Akademik Yayıncılık.

Bilir, S. (2013). *Mekân Tasarımında Kavram Geliştirme Sürecine Analitik Bir Yaklaşım.* Yüksek Lisans Tezi. Hacettepe Üniversitesi, Ankara.

Birer, E. & Ertürk, S. (2011). *İlk Yıl Mimari Tasarım Stüdyosu Deneyimleri 1.Sınıfta İşler / 1.Sınıf İşler. Paper presented at the Mimari Tasarım Eğitimi: Bütünleşme,* Yıldız Teknik Üniversitesi, İstanbul.

Boucharenc, C. G. (2006). Research on basic design education: An international survey. *International Journal of Technology and Design Education*, 16(1), 1-30. doi:10.1007/s10798-005-2110-8

Ching, F. D. K. (2016). *İç Mekan Tasarımı*. Yem Yayınları.

Civcir, E. (2015). Temel Tasarım ve Tasarım İlkeleri. In *Akademisyen Kitabevi*.

Çınar, H. & Sungur, M. (2022). Metaphorical approach in interior architecture education. *Turkish Journal of Agriculture-Food Science and Technology*, 10 (2), 3070-3075.

Çınar, H., Müezzinoğlu, M. K. & Sungur, M. (2017). *Tasarım eğitiminde form yaratma sürecine bir örnek:*

Biyomimesis. The Journal of Academic Social Science. Yıl: 5, Sayı: 63, s. 654-664.

Dostoğlu, N. (2003). Mimarlık eğitiminde ilk yıl mimari tasarım stüdyosu: Uludağ Üniversitesi örneği", *Ege Mimarlık Dergisi,* 47:15-19.

Drak, N. (1973). *The Language of Architecture.* Mouton: The Hague.

Esen, E., Elibol, G. C. & Koca, D. (2018). Basic design education and Bauhaus. *The Turkish Online Journal of Design Art and Communication*, 8(1), 37–44.

Gallagher, S. A. (2015). The role of problem-based learning ın developing creative expertise. *Asia Pacific Education Review*, *16*(2), 225–235.

Hejduk, J. & Canon, R. (1999). *Education of An Architect*. The Monecelli Pres.

Higgott, A. (1996). *Teaching First Year: What do They Need to Know?*, Hardy, A. Ve Teymur, N.(ed.), Architectural History and the Studio, London, Question Press, pp:181-186.

Karadağ, D. & Ünal, F. C. (2020). *Temel Tasarım Derslerinde Algoritmik Düşünce Egzersizlerinin Yaratıcılığa Etkisi*. Paper presented at the XIV. Mimarlıkta Sayısal Tasarım Ulusal Sempozyumu, Karadeniz Teknik Üniversitesi, Trabzon.

Karaşah, B. & Özdemir, D. M. (2022). An evaluation from concept to design product with ıconic and analogical form production methods in basic design education. *International Refereed Journal of Design and Architecture*, 25(4), 107–133.

Krier, R. (1992). *Elements of Architecture*. London: Academy Editions.

Metlioğlu, H. H. & Durmaz, H. (2018). Tasarımda problem çözme eylemi kapsamında dokuma kumaş tasarımında örnek bir uygulama. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *27*(1), 223–238.

Müezzinoğlu, M. K., Sungur, M. & Çınar, H. (2017). Tasarım eğitiminde, biçimsel soyutlamanın yaratıcı düşünceye etkisi. *The Journal of Academic Social Science.* Yıl: 5, Sayı: 61, Aralık 2017, s. 408-417.

Ocon, R. (2012). Teaching Creative Thinking Using Problem-Based Learning. *In 2012 ASEE Annual Conference & Exposition*, 22–1245.

Onur, D. & Zorlu, T. (2017). Yaratıcılık kavramı ile ilişkili kuramsal yaklaşımlar*. İnsan ve Toplum Bilimleri Araştırmaları Dergisi,* 6(3), 1535-1552.

Rhodes, M. (1961). *An Analysis of Creativity*. Phi Delta Kappa International.

Schön, D. A. (1985). *The Design Studio: An Exploration of its Traditions and Potentials*. RIBA Publications for RIBA Building Industry Trust.

Setyowidodo, I., Sutanto, Handayani, A. D. & Mahmudi, H. (2019). Problem based learning in mechanical engineering to train student's creativity. *Journal of Physics: Conference Series*, *1280* (5), 1–5.

Süzen, H. N. (2017). Temel tasarım eğitimi ve 20. yüzyıl sanat akımları çerçevesinde "Kolaj Tekniği" örnekleri. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, 10 (Özel Sayı 2), 409–424.

Torrance, E. P. (1988). The nature of creativity as manifest ın ıts testing. *In R. J. Sternberg (Ed.), The Nature of Creativity: Contemporary Psychological Perspectives*, *1*, 45–75.

Turhan, K. (2018). *Fraktal Geometrinin İç Mimari Kurguda Kullanımına Yönelik Bir Araştırma*. Hacettepe Üniversitesi Güzel Sanatlar Enstitüsü İç Mimarlık ve Çevre Tasarımı Anabilim Dalı, Yüksek Lisans Tezi, Ankara.

Türkmen, A. (2020). Temel tasarımda kavram temsili ve biçim üretimi. *International Design and Art Journal*, 2(2), 228-247.

Uraz, T. U. (1993). *Tasarlama Düşünme Biçimlendirme*. İstanbul: İTÜ Baskı Atölyesi.

Yıldırım, İ. (2018). *İç Mimarlık Bölümlerindeki Temel Tasarım Eğitiminin Teorik Ve Pratik Yönden İçerik Analizi*. Hacettepe üniversitesi, Güzel Sanatlar Enstitüsü, İç Mimarlık ve Çevre Tasarımı Anabilim Dalı, Yüksek Lisans Tezi, Ankara.