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EXPERIENTIAL LEARNING METHOD IN INTERIOR ARCHITECTURE EDUCATION, STAIRS EXAMPLE, A VERTICAL CIRCULATION ELEMENT

İÇ MİMARLIK EĞİTİMİNDE DENEYİMSEL ÖĞRENME METODU, DÜŞEY SİRKÜLASYON ELEMANI MERDİVEN ÖRNEĞİ

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Abstract
The course materials provided by design education institutions and organizations now heavily incorporate digital media techniques more than ever before. Consequently, students have enhanced heir ability to express themselves in digital settings. However, this shift also marks a departure from the traditional interactive learning environment that has long been a cornerstone of design education, emphasizing experiential and team-based learning. Within the framework of the Structure Knowledge course in the fall semester course curriculum of the 2023–2024 academic year at Selçuk University Faculty of Architecture and Design, Department of Interior Architecture, the subject of stairs—a vertical circulation element—was discussed with second-year interior architecture students. The stairs were grouped into groups of 74 people based on stair shapes and materials as part of the experiential learning method. The technical drawing method was used to create plan and section drawings, andt wo and three-dimensional models at a scale of 1/20. The study's application phase comprises three main parts. The first phase is the preparation phase, followed by the implementation phase, and concludes with the evaluation and findings phase, where the survey data is examined. Using a survey given to the study's participating student groups, the goal was to ascertain whether the experiential learning approach had a beneficial or detrimental impact on the learning activities.

Keywords: Interior Architecture, Experiential Learning Method, Stairs, Structural Knowledge.

Öz
Günümüzde tasarım eğitimi veren kurum ve kuruluşların ders içerikleri, eskiye oranla dijital ortam yaklaşımlarını daha fazla benimsemeye başlamıştır. Bu durum, öğrencilerin dijital ortamlarda kendilerini ifade etmelerindeki gelişimi hızlandırmaktadır. Başka bir perspektiften bakıldığında, tasarım eğitiminde eskiden beri var olan ekip halinde ve deneyimleyerek öğrenme eylemine dayanan, etkileşimli eğitim sisteminden de uzaklaşmaya neden olmuştur. Bu bağlamda, düşey sirkülasyon elemanı olan merdiven konusu, Selçuk Üniversitesi Mimarlık ve Tasarım Fakültesi, İç Mimarlık bölümü 2023-2024 eğitim öğretim yılı güz dönemi ders müfredatında yer alan Strüktür Bilgisi dersi kapsamında, İç Mimarlık ikinci sınıf öğrencileri ile birlikte ele alınmıştır. Deneyimsel öğrenme metodu kapsamında, toplamda 74 kişiden oluşan topluluk ile düşey sirkülasyon elemanı olan merdivenler, biçimlerine ve malzemelerine göre gruplandırılmıştır. 1/20 ölçek oranında iki ve üçüncü boyutta maket, teknik çizim metodu ile plan ve kesit çizimleri yaptırılmıştır. Çalışmanın uygulama aşaması üç ana bölümden oluşmaktadır; birinci aşama hazırlık aşaması, ikinci aşama uygulama aşaması ve son aşama ise yapılan anket verilerinin incelendiği değerlendirme ve bulgular aşamasıdır. Çalışma kapsamında amaç, öğrencilerin deneyimsel öğrenme metodu kapsamında, işbirlikçi eğitim, ekip çalışması, problem çözme yeteneğinin artırılması ve öğrenme deneyiminin etkisinin artırılması hedeflenmiştir. Çalışmaya katılan öğrenci grupları üzerinde yapılan anket çalışması ile yapılan deneyimsel öğrenme metodunun, öğrenme eylemlerine olumlu veya olumsuz katkılarının ortaya çıkarılması hedeflenmiştir.

Anahtar Kelimeler: İç Mimarlık, Deneyimsel Öğrenme Metodu, Merdiven, Strüktür Bilgisi

INTRODUCTION

While the growing experiences from the past to the present have given design disciplines their identity, they are also rapidly evolving today due to production and design techniques that become more specialized and customized as a result of the solutions they provide for the problems faced. Since the beginning of design education, collaborative work has been a part of student life. It actually helps students get ready for the working world by improving their ability to communicate with others and the environment. Learning develops when it happens through social and collaborative teamwork as opposed to a competitive and isolated lonely race, claim Chickering and Gamson 1987 (Chickering 1987, 53). The need to solve problems quickly and effectively in situations where an individual's abilities are limited led to the creation of a collective working environment, which has a positive impact on the quantity and quality of information that can be accessed, acquired, and distributed. Groups of students collaborate to solve problems, finish tasks, or produce products as part of the educational approach known as collaborative learning (Marjan & Seyed, 2011).

The Bauhaus School of Architecture is without a doubt the first institution that springs to mind when discussing the idea of "experiential learning." With the techniques they created, numerous educators helped the Bauhaus school thrive. One of these educators, Josef Albers, conducted challenging and intricate studies in the Bauhaus classroom that began with basic shapes to enhance students' manual skills with basic materials (particularly paper), (Dede 2014). Education theorist Georg Kerschensteiner, who made major contributions to educational methodology, argued that knowledge becomes a habit when someone learns it through doing it in the work they are engaged in, making learning permanent (Sancar Özyavuz, 2012).

In Figure 1, in Oros's study, students were reported to have kept 10% in mind of what they read, 20% of what they heard, 30% of what they touched and saw, 50% of what they heard, 70% of what they told, and 90% of what they both told and did (Oros, 2007). Figure 1 adapted from Zhang and Xie, 2012.

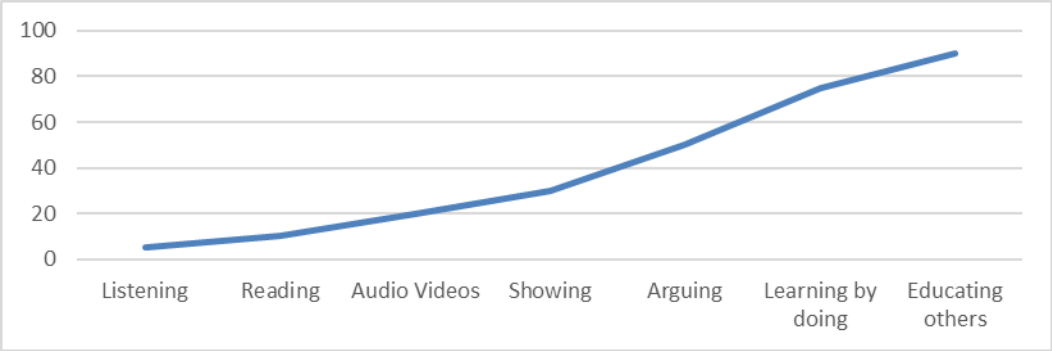


Figure 1. Recall Rate of Different Teaching Strategies (Zhang, 2012).

Socrates' definitions of inquiry-based teaching, which promotes active learning, serve as the cornerstone of experiential learning (Bradberry, 2019). An essential substitute for teaching difficult concepts and transforming students into active learners is the experiential learning approach. Engaging students and communicating the material are the two main objectives in the classroom. Additionally, it is expected of students to advance in areas like research and analysis ability, written and oral communication, and critical thinking skills. Students can immediately apply what they learn in class to enhance their written and verbal communication skills through experiential learning programs (Bradberry, 2019). As a component of experiential learning, active learning strategies are applied by students to develop an idea by identifying various approaches and emphasizing professionalism, cooperation, leadership, and communication skills.

We are currently dealing with significant shifts in the ideas behind teaching and learning. The notion of design education evolves along with the dynamics of change in the design world, and it now occurs within an integrated studio pedagogy that takes this plural environment into account. Instead of emphasizing teaching, this pluralistic environment is more concerned with the creation of novel learning

strategies and tactics. Motivating the ability to develop flexible knowledge structures by integrating experiential knowledge with conceptual knowledge instead of precise knowledge, making students aware of the distinctions between learning and knowing, and developing the ability to interpret and understand are the goals of developing a different learning and teaching strategy in the studio setting. Throughout this process, the facilitator supports the student's development of new, questionable ideas and pushes him/her to think relationally.

EXPERIENTIAL LEARNING METHOD AND DESIGN EDUCATION

In his essay, Dewey (1938) argued that experience is the ultimate source of meaning and purpose for education when examining pedagogical approaches in educational theory in its broadest sense (Dewey 1938). Using a methodology that bolsters this notion, Freire (1991) highlights the significance of praxis in education (Freire, 1991). Experience is also the foundation of Kolb's (1984) experiential learning cycle model of education. Kolb defined learning as a process in which experience is transformed to reveal knowledge (Kolb, 1984).

It is evident that throughout history, numerous approaches have been tried and strong links have been formed between theoretical education and practice within educational programs. According to Carpenter (2012), applied education has no place in the field of architecture and interior design education given the advancements in building technology (Carpenter 2012). We can refer to the learning-by-experimentation methodology—which is a component of design/build studio training—as one of the approaches created to address this issue (Akcaova, 2022).

Design workshops serve as the learning environment for design disciplines, as opposed to the classroom, which is considered the traditional educational setting. The process of learning gives students one-on-one experience since theoretical justifications are backed up by hands-on instruction. For instance, allowing students to imagine as much as possible about the design phase and project planning of a space, or leaving it as a drawing, while applying and implementing it one-to-one or to scale through experience, reflects more effective results on the students and enables them to live beyond their dreams.

The architectural model was first used in design in the fifth century BC, according to historical records. Throughout history, using a physical prototype has been a standard practice in design. The scale, form, and material properties of an architectural design concept can all be quickly seen in the model. The structural function expectation states that it can also be carried out on larger or smaller scales, one-to-one. The relationship between the designed work and the surrounding area can be a crucial evaluation criterion, particularly in architectural projects. Because of this, it's an issue that needs to be assessed in light of its surroundings when using priority analysis. At this point, creating a model-making path rather than building something after it has been constructed in the intended location of a building can result in an extremely quick evaluation process (Dunn, 2010) (Figure 2).

Figure 2. Daniel Arsham's ‘Open Staircase’ (Gergin, 2015).

The application of numerous fields, including health, education, and architecture, is the topic of discussion when evaluating the model in terms of information, thought, and design in the mind. The

French word "Maquette" is where the model first appeared in our language. The French terms "modèle" and "miniatur," which have similar meanings, are also the source of the terms "model" and "miniature." The fact that there are a variety of models that archaeologists believe predate Christ indicates that the history of the model is predicated on ancient times (Gürbüz, 2009). Based on his observations of the educational process, Akbulut claims that students are more successful in realizing the intended design and are able to develop their designs more readily by creating models in the field of design (Akbulut, 2019).

One tool that is commonly used in design training is the model, which makes it easier for students to design and understand spaces with surfaces and voids as they develop their three-dimensional design skills. In the model, light, color, and texture are also incorporated. In these ways, using a model does not restrict the designer and provides a wealth of creative possibilities. Given that architecture is essentially a three-dimensional production object, this makes it an appropriate method for guiding the study more quickly to a conclusion and expediting the design process (Kutlutan, 1999). In the context of a design action simulation, the model leads the designer to the best possible conclusion in both professional and educational settings.

METHODOLOGY AND FINDINGS

This part of the study uses a survey measurement method developed based on the impact of the experienced learning method to test the accuracy of the hypotheses generated by the literature. The T.R. Selçuk University Faculty of Architecture and Design Scientific Ethics Evaluation Board's decision, dated 08.03.2024 with the decision of 02/08, approved the survey study's suitability. The widely used Cronbach Alpha value was used to assess the measurement method's reliability, and the reliability coefficient was 0.876. Table 1 displays the questionnaire that was used for the study

Table 1. Survey study used to determine student gains.

		-		0		+
	Expressions	**1**	**2**	**3**	**4**	**5**
Evaluations on Experiential Learning Method	Working with an experiential learning method increases my creativity in my learning process.					
	In-group studies, one of the experiential learning methods, have increased my problem-solving ability.					
	In-group studies, one of the experiential learning methods, have increased my communication capability.					
	Learning by doing, one of the experiential learning methods, has made a positive contribution to my dexterity.					
Assessments of the structure course	Within the scope of the stair subject, starting with a three-dimensional structural model from the beginning of the learning process has positively affected my learning process.					
	Investigating the structural systems of the stairs and knowing the basic principles have contributed to my learning process.					
	The construction of the staircase structure was effective in establishing the relationship between space and vertical circulation.					

There are 74 people taking part in the study in total. Upon examining Table 2, it becomes evident that 73% of the participants, based on the gender variable, were female, and 27% were male.

Table 2. Demographic features.

Variables		f	%
Gender	**Female**	54	73
	Male	20	27
	Total	**74**	**100**

Note: f: Frequency number, %: percentage value

The components of the stair, which is the vertical circulation element, and the various types of staircases based on their formal attributes and materials were explained to the students taking part in the study as part of the Structure Information course. It was intended to determine whether the experiential learning method had a positive or negative impact on the learning actions through the use of a questionnaire on student groups. Table 3 provides the experiment and operation procedure.

Table 3. Research method.

Experiments	Purpose	Hypothesis	Subjects	Mission	Scales
Effect of Experiential Learning Method on Learning Action	Review of the Effect of Experiential Learning Method on Learning Action	**H1**: Within the scope of the Structure Information course, the Experiential Learning Method positively affects the learning process. **H2**: Within the scope of Structure Information course, the Experiential Learning Method contributes positively to the comprehension of the related subject.	Department of Interior Architecture 2nd Grade Students 20 men, 54 women 74 people in total	To examine the effect of the stair model created within the scope of the course on the learning process and to answer the determined questions	Likert scale, Psychometric measurement method Cronbach Alpha reliability analysis

One psychometric measurement technique that is frequently used in research and surveys is the Likert scale. It is the method that is most frequently used to scale survey responses. Within the parameters of the study, hypotheses were developed based on earlier research on the topic and modified to fit the subject under investigation. The preparation phase, the application phase, and the evaluation and findings stage—during which the survey data are analyzed—make up the three main sections of the study.

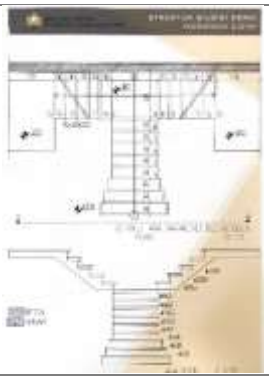
Preparation Phase: Within the scope of the Structural Information Counseling of the Department of Interior Architecture of Selçuk University, Faculty of Architecture and Design 2023-2024 Education and Training, theoretical information within the curriculum was given about the definition of the stair, the elements that make up the stair (stair steps, stair handle, riser, stairfoot, stairwell, stringer, railing, handrail), staircase varieties (single rail, single rail straight flight landing, double rail corner landing, double rail middle landing, double rail half corner, triple rail middle landing, triple rail height landing, triple rail landing, triple rail quarter turn, triple rail back turn, exact turn, ellipsis, two-sided exit, triple-sided exit) and carrier systems. The project group, consisting of eighty individuals divided into three, four, and five groups, has begun the process of applying the staircase for each type of stair chosen based on its forms. Design and structural structure information has been obtained using a sample of both domestic and foreign origin. Appropriate material selections were made, and students were informed about the materials and techniques to be used during the structuring stage's construction phase.

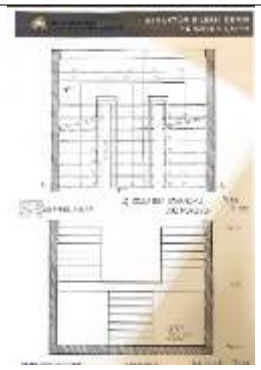
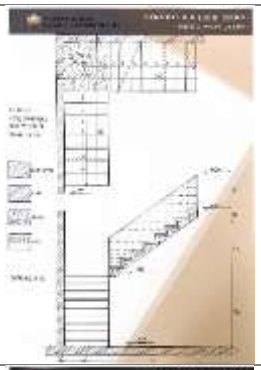
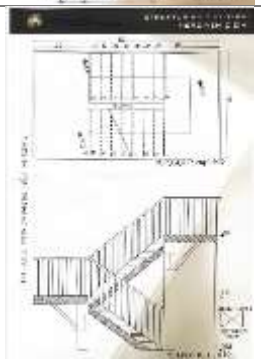
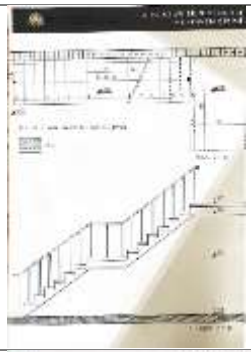
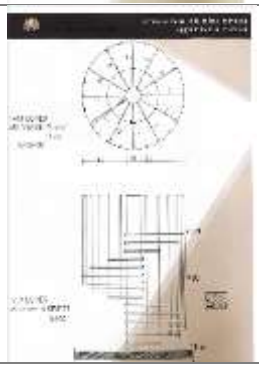
Implementation Phase: The necessary materials and working environment were supplied within the parameters of the Structure Information course, and the structure was initiated, in compliance with the data gathered from the preparatory stage. The topic of the staircase and organizing of structuring have both been covered in the context of the Structure Information course. The objective is to support the experienced learning method's learning action in the teaching of interior architecture. In addition to the stair design process, the modeling sketch works have been initiated by the staircase project groups that have been assigned based on their forms. The working environment is shown in Figure 3

Figure 3. Visuals of the Working Environment.

During one week, the model construction phase was completed as part of the Structure Information course. The study was finished in about 12 hours, and all of the students who were given the theoretical information courses in the structural model study attended. During the 2D and 3D model application phase, the students in groups were shared equally in the work according to their numbers. It is aimed for each student to contribute equally to the drawing phase and model phase in order to measure how much the experiential learning method process contributes. Table 4 lists the two-dimensional plan stage and the three-dimensional study stages.

Table 4. Experiential Learning Method Structure Model Design Stages

		Plan and cross-section	Three -dimensional model image
Stair types based on their shapes	Triple rail middle landing		

Triple rail height landing straight		
Double rail corner landing straight		
Double rail middle landing straight		
Single rail middle landing straight		
Full rotating stairs		

Evaluation and findings phase: Table 5 and Figure 4 present the statistical findings, frequency ranges, and percentage values of the measurement technique used in this study.

Table 5. Findings about Experiential Learning Method.

Evaluations About Experiential Learning Method	I strongly disagree (1)		I disagree (2)		I'm not sure (3)		I agree (4)		I strongly agree (5)		Total
	f	%	f	%	f	%	f	%	f	%	-
QUESTION 1	1	1,4	1	1,4	4	5,4	36	48,6	32	43,2	74
QUESTION 2	3	4,1	3	4,1	11	14,9	42	56,8	15	20,3	74
QUESTION 3	2	2,7	8	10,8	6	8,1	36	48,6	22	29,7	74
QUESTION 4	-	-	1	1,4	4	5,4	36	48,6	33	44,6	74

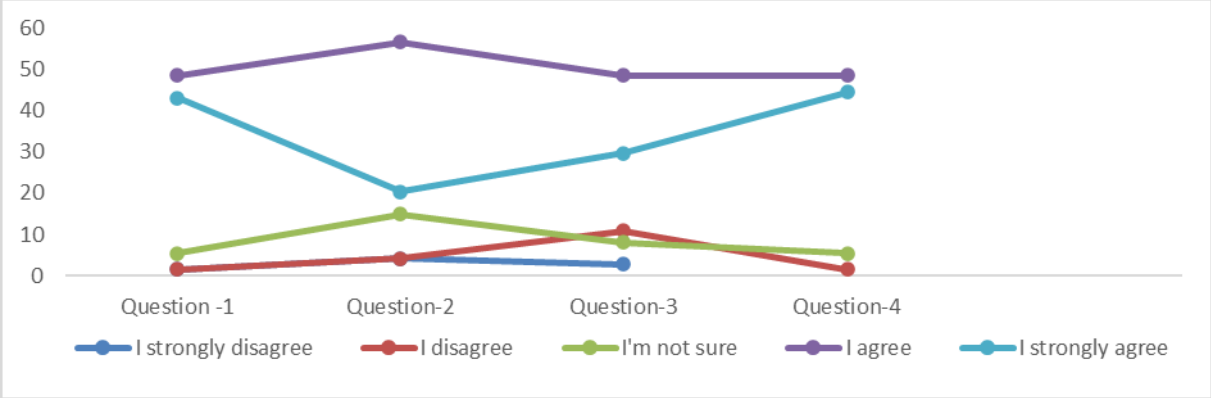


Figure 4. Findings about Experiential Learning Method

Regarding the question 1: "Working with an experiential learning method increases my creativity in my learning process," it is observed that 1,4 % of the participants strongly disagreed with the statement, just like the other 1,4% who just disagreed, while 5,4 % were not sure, 48,6 % agreed, and finally 43,2 % strongly agreed. These findings suggest that participants' attitudes toward the idea that experiential learning fosters creativity were generally positive.

As for the question 2: "In-group studies, one of the experiential learning methods, have increased my problem-solving ability", it is seen that 4,1% of the participants strongly disagreed with the statement just like the other 4,1 % who just disagreed; 14,9 % were, on the other hand, not sure, 56,8 % agreed and 20,3 % strongly agreed. Based on the data, it can be inferred that the participants hold a favorable view regarding the fact that the in-group investigations conducted as part of the experiential learning approach improve the capacity to resolve the current issue during the design phase.

For the question 3: "In-group studies, one of the experiential learning methods, have increased my communication capability", it can be observed that 2.7% of the participants strongly disagreed with the statement, 10,8% disagreed, 8,1% were not sure, 48,6% agreed and finally 29,7% strongly agreed. These data indicate that the participants are perceived as having a positive attitude regarding the fact that the in-group studies conducted as part of the experiential learning method improve communication skills during the design phase.

Question 4 reviews the question: "Learning by doing, one of the experiential learning methods, has made a positive contribution to my dexterity", it can be seen that 1,4 % of the participants disagreed with the

statement, 5,4% were not sure, 48,6 % agreed, 44,6 % strongly agreed. These results indicate that participants' attitudes toward the idea that experiential learning—which includes learning by doing—improves one's capacity for manual dexterity development are generally positive.
Following the analysis of Table 6's results, the hypothesis "H1: Within the scope of the Structure Information course, the Experiential Learning Method positively affects the learning process" is supported. Based on these data, it can be concluded that the Structural Knowledge course, which is part of the Interior Architecture education curriculum, benefits from the application of the experiential learning method in its content. Table 6 and Figure 5 present evaluation results pertaining to the stairs subject of the Structure course.

Table 6. The effect of the Structural Knowledge course on the subject of stairs

Evaluations of the Structure Lesson on the Subject	**I strongly disagree (1)**		**I disagree (2)**		**I'm not sure (3)**		**I agree (4)**		**I strongly agree (5)**		**Total**
	f	%	f	%	f	%	f	%	f	%	-
QUESTION 5	1	1,4	4	5,5	3	4,1	34	46,6	31	42,5	74
QUESTION 6	-	-	1	1,4	2	2,7	42	57,5	28	38,4	74
QUESTION 7	-	-	-	-	5	6,9	33	45,8	34	47,2	74

Note: f: Frequency number, %: percentage value

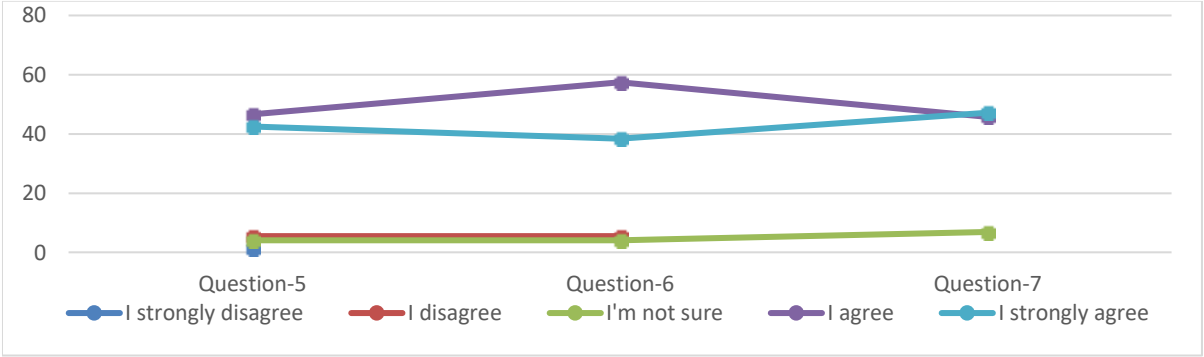


Figure 5. The effect of the Structural Knowledge course on the subject of stairs

Question 5 investigates the statement "Within the scope of the stair subject, starting with a three-dimensional structural model from the beginning of the learning process has positively affected my learning process", and we can see that 1,4 % of the participants strongly disagreed with the statement, 5,5 % who just disagreed, while 4,1 % were not sure, 46,6% agreed and finally 42,5 % strongly agreed. These data suggest that participants have a positive perception of the model-making technique's contribution to the learning process.

Regarding question 6; "Investigating the structural systems of the stairs and knowing the basic principles have contributed to my learning process", it is seen that 1,4% of the participants disagreed with the statement, 2,7 % were not sure, 57,5 % agreed and 38,4 % strongly agreed. These data indicate that the learning process was aided by the participants' theoretical knowledge sharing and presentation style throughout the course.

And finally question 7 includes the statement: "The construction of the staircase structure was effective in establishing the relationship between space and vertical circulation", 6,9% of the participants were not sure, 45,8% agreed and 47,2% strongly agreed with the statement.

These findings confirm the hypothesis H2, which states that "Within the scope of Structure Information course, the Experiential Learning Method contributes positively to the comprehension of the related subject." These data suggest that students who take courses in structure, presentation techniques,

interactive information sharing, and theoretical knowledge sharing have a beneficial effect on their comprehension of the subject matter and are aware of the connection between vertical circulation and space.

CONCLUSION

In addition to the recently applied digital visualization technique, material knowledge plays a major role in design education processes that transfer professional knowledge and skills. Numerous issues arise during the project design and implementation phases as a result of the primary material, the areas in which it is used, the material's advantages and disadvantages, and the designer's role in determining how best to use it.

The last phase of the design process is frequently represented by digitally based programs that designers utilize to express themselves. Model-making, teamwork, design research, and development phases—all crucial components of the experiential learning approach—have a crucial role in the early stages of the design process when it comes to accurately and practically transferring them to digital-based programs. Lack of communication is one of the main issues facing our generation. There must be more spaces where a person can fully express himself if knowledge is to be shared across design education processes and discussed. By acknowledging the existence of opposing viewpoints and combining them, the person should be able to contribute his or her ideas to the design process. The activity of the individual and the surroundings are also described by the natural flow that can be attained through this sharing. Physical models play an indisputably important role in this skill set as tools for design, implementation, and presentation.

There is a chance that design errors will manifest as significant flaws in the completed work or product because some project elements cannot be fully understood until production is finished without a scaled physical model, or because the harmony of these elements' scales cannot be fully understood before production is completed (Farrelly, 2012). In addition to financial loss, this circumstance results in a loss of time and trust.

Students in the classroom also underlined the value of the experiential learning approach during the design education learning phase. A variety of processes, including introducing the subject to the students, fostering peaceful group dynamics, constructing models, selecting materials, and coming up with useful designs, were attempted to be explained to the students through the use of the experiential learning approach.

Therefore, the study supports the idea that the structural model helps to make the information about construction systems in interior architecture education more permanent and more understandable. It does this by enabling the design idea formed in the mind with the experience of the experiential learning method to become visible in three dimensions.

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