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Adaptive Reuse Suggestions in Interior Architecture Education: A Registered Workshop in Ankara

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Abstract

This study aims to determine both the recommendations for the conservation and reuse of historical buildings in interior architecture education and the learning outcomes of the restoration course. A registered building in Ankara, which formerly served as a production workshop for a vocational high school, has been identified as the study's main issue as it is no longer in use after having served its purpose. As part of the restoration course in this case, senior students in interior architecture department of Selcuk University were asked to submit a variety of function concepts for the registered building. The study focused on both qualitative and quantitative research methods, which included four stages: preparation, analysis, design, and evaluation. Through examples of applications from our nation and around the world, students were given the information they needed to understand the restoration during the first phase, preparation. The second stage, analysis, entails taking measurements of the building's interior and exterior as well as photographing and collecting written and visual records of it. The third step, the design phase, begins with the choice of a new function appropriate for the building's location and style in light of all available data and documentation. The students were asked to assess their level of knowledge regarding conservation and adaptive reuse as well as the learning outcomes of the restoration course before and after taking it in the final stage of the evaluation process, which took place after the fourteen-week restoration course. This study helped interior architecture students gain experience with a holistic design process through an adaptive reuse proposal project. In conclusion, increasing the number of courses on conservation and adaptive reuse in interior architecture education is important in training interior architects who are experts and competent in the field of reuse.

Keywords:
Adaptive reuse, Conservation, Interior design education, Workshop.

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INTRODUCTION

Throughout history, human beings have co-evolved with the structures they inhabited. Many buildings have lost their original functions and taken on new ones as a result of the altering lifestyle from the past to the present and the different needs that resulted from it (Küçük, 2022; 10). Historical structures can be preserved by adapting their uses and passing them on to younger generations while keeping them alive in relation to both the past and the present. The idea of reuse is based on "change" (Öter, 1996). Historic buildings undergo various effects over time, such as functional obsolescence, structural wear, and technological advancements. As a result, they lose their originality and become inadequate to their initial function. The reasons for reusing such structures are categorized into social, economic, environmental, and technological factors (Ay, 2013;15). From a social perspective, societies preserve their cultural heritage to maintain social memory and identity (Kaşlı, 2009). Even if a building has completed its functional life, it is important to consider its physical life for the purpose of reuse. Researchers such as Cantacuzino (1989), Altınoluk (1998) and Lewis (2013) emphasize that adaptive reuse is a cost-effective and economically beneficial alternative to constructing new buildings. According to Karslı and Aytıs (2018), three criteria are accepted as success indicators in adaptive re-use: "suitability for current use," "respect for the originality of the building," and "ability to distinguish the intervention made to the building from the original structure by solving them with modern techniques and materials." Unfortunately, as in many other nations, the negative effects and irreparable damage to historical monuments are a matter of great concern due to a lack of technical expertise and academic knowledge on conservation and restoration studies. The significance of conservation education is crucial in this regard (Büyükmıhçı & Yücel, 2012;2721).

It is crucial for students of architecture and interior architecture to receive education on the preservation of historical buildings as a means of safeguarding our cultural heritage (Efe Yavaçcan, 2021;2). Ahunbay (2011;145) stated that the purpose of conservation education is to provide knowledge and experience in the protection of the man-made environment, new design in the historical environment, and to develop a common conservation philosophy, language and method. In their study, Yıldırım Gönül and Balcı Yaşar (2019) emphasize the need for interior architects to receive training that raises their awareness of conservation, as they are responsible for preserving architectural heritage at the spatial scale. They suggest that the education for conservation should be integrated into every stage of interior architecture education, and that training specialized interior architects in conservation and adaptive reuse will contribute to the economy of the country, as it will enable the arrangement and use of existing buildings instead of constructing new ones. It's evident that students who have received education in these subjects can make much more accurate and

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vital decisions regarding the transmission of cultural assets to future generations (Efe Yavaçcan, 2021;13). However, Jahromi (2015) criticized that there is very little research in the field of interior architecture education that emphasizes the importance and necessity of integrating conservation and reuse theories into the academic curriculum. In this context, the study differs from similar studies in that it proposes functions for reuse within the existing shell with a conservation awareness and evaluates the students' learning outcomes for the Restoration Course.

As a result, in the context of the study, a function proposal was created for the II. degree registered-idle building in Ankara-Yenimahalle, in the restoration course with the senior students of the Department of Interior Architecture at Selcuk University. This was accomplished to bring attention to the issues of conservation and adaptive reuse as well as to determine the design choices appropriate for the nature of the historical structure. Ahunbay (2011; 34-35) defined II. Degree buildings as "buildings that create the urban environment, give character to the region, and are built with traditional construction techniques" and stated that the facades, views from a certain direction or some construction details of these types of buildings are preserved. While proposing a function suitable for the building, three factors (Ay, 2013) were taken into account: (i) the location of the building, (ii) the functional setup of the building, and (iii) the volumetric and spatial setup of the building. The students, who suggested a use for the structure, were permitted to add space in accordance with the needs analysis they conducted. The limit of adding units while using modern methods and materials has been established, but only in a way that preserves the registered structure's original integrity in terms of mass, size, proportion, and material (Yüceer & İpekoğlu, 2012;424). There are four stages to the study. The preparatory phase, where literature information was exchanged and data for conservation and adaptive re-use were collected, the analysis phase, where fieldwork was conducted, and the design phase, where recommendations were made in accordance with the written and visual information/documents obtained, all contributed to the completion of the fourteen-week restoration course. After that, through a survey, students were asked to assess their conceptual understanding, practical skills, and methods for conservation and adaptive reuse. The survey includes statements to determine the level of knowledge of the students about the concepts of conservation and adaptive reuse before and after taking the restoration course, and to evaluate the learning outcomes of the Restoration Course.

CONCEPTUAL BACKGROUND: ADAPTIVE REUSE IN INTERIOR ARCHITECTURE EDUCATION

History is the study of changes over time. Removing evidence of these changes would mean erasing history altogether (Kuban, 1969; 344). Experts stress the importance of conserving historical sites and

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artifacts for the sake of continuity. The International Council on Monuments and Sites (ICOMOS) draws attention to the necessity of "It is essential to the conservation of monuments that they be maintained on a permanent basis" (ICOMOS, Venice Charter, 1964, article 4). One of the methods of preserving historical buildings is adaptive reuse (Ahunbay, 2011).

Numerous researchers have defined the idea of adaptive reuse (AR) from various angles. According to Pereira, Post, and Erkelens (2004), historical structures may outlive their usefulness due to social, economic, functional, physical, environmental, or legal factors. Through repairs, additions, and other changes, adaptive reuse enables a building's harmonious use while preserving its historical, cultural, or architectural values (Ijla & Broström, 2015). While Ahunbay (2011; 97) describes adaptive reuse as a process of change and transformation that brings the building back to life, Brooker and Stone (2004) define it as the process of using the building for a different purpose than the one for which it was built or designed. Current conservation theory and practice view adaptive reuse as a fundamental tactic in the preservation of cultural heritage.

The cultural accumulation of the society they serve is expressed in architectural spaces, which are the living indicators of societies (Apaydın Başa, 2002). Reuse's sociocultural contribution prevents the erasure of historical traces and social memory that the historical structure has amassed (Köksal, 2006; Powell, 1999). An intergenerational cultural link will be built by modernizing the historic structure to accommodate modern living requirements and needs. Factors affecting social culture also affect the function and form of architectural structures. Spaces that have a representative feature for people need to be designed in an original and harmonious way with their environment, without being separated from their cultural ties (Noraslı, 2023).

The conversion of old structures to meet the evolving needs of the present is one of the interesting topics in architectural conservation. More spatial units may be required during this adaptation. The Venice Statute about the additional building to be made to historical buildings states "Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings." (ICOMOS, Venice Charter, 1964, article 13). Whenever a modern annex is built, it should always be subordinate to the historic structure and not compete with it in terms of size, scale, or design. An addition that deviates from the historical form and changes the scale, or that has nothing to do with the proportions and mass of the historical building, will frequently undermine the building's historical integrity (Grimmer & Weeks, 2010; 5). A modern addition to the exterior of a historic building (Grimmer & Weeks,2010;14);

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- should be simple and unobtrusive in design and should be distinguished from the historic building.
- the building materials and color used should be in harmony with the historical building materials.
- should be smaller than the historic building and covered with a matching roof covering.
- should be subject to the historical building in terms of both size and design and should be constructed in smaller dimensions than the historical building.

In light of all of this information, future generations must preserve the historical integrity and texture of our nation, which has long served as a crossroads for various civilizations and is now home to a wide range of architectural and cultural diversity. To safeguard our cultural heritage and sense of national identity, it is essential to raise conservation awareness. It is important to research how to manage this requirement within the educational system and how to keep it up throughout one's life (Büyükmıhcı & Yücel, 2012;2727). As a professional responsibility, the education system of architecture and interior architecture in our country should include raising awareness for the protection of individuals and making the built environment sustainable in terms of cultural heritage. This will ensure that future professionals are equipped with the necessary knowledge to fulfill their duties toward preserving cultural heritage and creating sustainable built environments.

As the human population has grown throughout history, needs have started to change. Unconscious construction has become more prevalent due to the need to build structures that satisfy needs. The cities are being subjected to ecological, sociocultural, and economic wear as a result of the daily growth in the stock of existing buildings. This is why it's crucial for interior architecture education to emphasize the reuse of current building stock and the preservation of distinctive historical built environments (Cordan, Dinçay & Teixeira, 2014;4). When the impact of conservation education—which is provided both theoretically and practically in the education of architecture and interior architecture—is examined, it becomes clear that there is a significant difference between the levels of awareness of students who take conservation lessons and those who do not (Gökarslan & Tuncer, 2023; 383). Similarly, the philosophy of preserving and keeping alive the historical cultural heritage should be guaranteed thanks to the education provided to interior architecture students for the conservation and re-functioning of cultural heritage and historical buildings (Atalan & Sevinç, 2016;1). In their investigation into the effectiveness of interior architecture education regarding conservation and reuse, Yıldırım Gönül and Balcı Yaşar (2019; 308) emphasize the need to enhance the knowledge gained in theoretical and/or practical conservation courses. They continued by saying that increasing the number of interior space projects for reuse in historic buildings is one way to realize gains. Researchers have criticized the idea that it is crucial to focus on the theoretical, scientific,

and technical content of the concepts of conservation and restoration when examining the relationship between restoration, which is a sub-expansion of the concept of conservation, and interior architecture (Gönül and Küçükarslan, 2007; Eren, Demirarslan & Yücel, 2007). The reuse, renewal, and conservation of historical environments and structures, which are the cultural heritage of earlier centuries, are thus among the main goals of the restoration course from this point of view. In the programs organized to achieve this goal, Ahunbay (2011; 145) emphasizes that archaeology, art and architectural history, contemporary documentation techniques, traditional structures and materials, historical construction techniques, conservation theory and techniques, historical environmental protection principles and techniques, laws and organization related to conservation, reuse and rehabilitation of historical structures should be included in the education program.

METHODOLOGY

The article's goal is to suggestion potential modern uses for the currently registered structure, which has served its purpose for interior architecture students but is still in use today in terms of its physical structure. The stages of related studies were taken into consideration in order to properly formulate the design process. The four stages of the study methodology are the phases of preparation, analysis, design and evaluation. The restoration course's re-functionalization project's design phase took fourteen weeks to complete. For senior students at Selçuk University's Interior Architecture Department, the author of the article provided seven weeks of theoretical instruction to build an infrastructure around the concepts of protection and re-functioning. Through examples of applications from our nation and around the world, students were given the information they needed to understand the restoration during the first phase, *preparation*. The second stage, *analysis*, entails taking measurements of the building's interior and exterior as well as photographing and collecting written and visual records of it. Correctly constructing the preparation and analysis phase is of vital importance before proceeding to the design phase (Cramer & Breitling, 2007; 45; Roos, 2007; 35). The third step, the *design phase*, begins with the choice of a new function appropriate for the building's location and style in light of all available data and documentation. In the classroom, draft projects for the functions that overlap with the requirements and principles of adaptive reuse were prepared. The accepted concept projects were developed and detailed. The students had the theoretical framework for conservation and reuse at the end of the semester thanks to their architectural and interior design projects, and they had the chance to practice their design-thinking abilities on the old building. The students were asked to assess their level of knowledge regarding conservation and adaptive reuse as well as the learning outcomes of the restoration course before and after taking it in the final

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stage of the evaluation process, which took place after the fourteen-week restoration course (Figure 1).

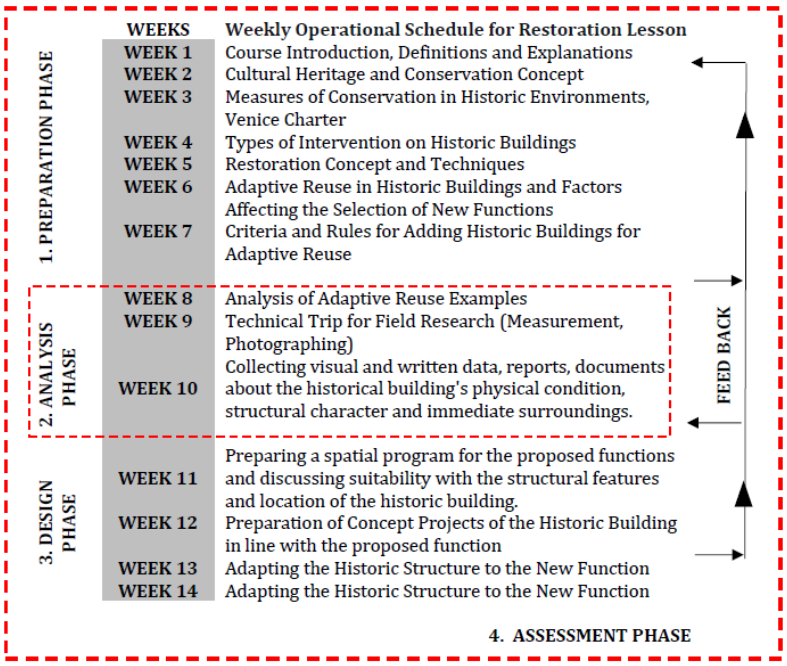

Figure 1. Methodology of the study

Field Study (Analysis Phase)

The second-degree registered property in Yenimahalle district, Güvenlik Neighborhood, Milas Street Nr:82, Block 7358, Parcel 4 in Ankara province was chosen as the study area for adaptive reuse within the context of the restoration course. The registered building has Mimar Sinan Technical High School in the southwest, Gazi Vocational and Technical Anatolian High School, Gazi Vocational Training Center in the northwest, Gazi University Faculty of Technology, and Turkish Volleyball Federation Management Offices in the southwest. (Figure 2).

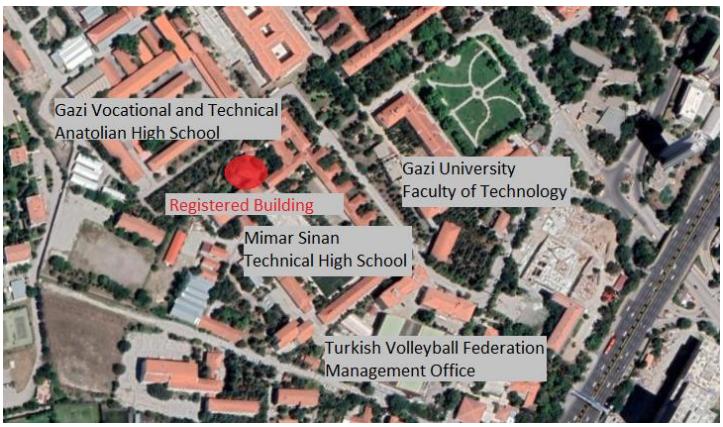

Figure 2. Location of the registered structure (Google Earth, 2023)

The structure, which is one of the educational buildings in the city's center, Ankara, was previously used as a production workshop building, but since it is now vacant, it was selected as a study area. The building is roughly 20.30 meters long and 10.30 meters wide, with a rectangular

ground plan. 8.75 meters is the distance from the ground to the ridge of the roof. The building has two entrances: a double-winged wooden door on the east side and a door with an iron bar on the west side. The majority of the façade is made up of two rows of symmetrical Windows (Figure 3).

Figure 3. Images of the west (on the left) and east (on the right) façades of the building
(Ankara Metropolitan Municipality Culture and Nature Department Archive, 2023)

The building's south façade is the most damaged façade. The wooden joinery and glass in the windows were found to be deficient. Wooden joinery also has color variations, breaks, and cracks (Figure 4).

Figure 4. Images of the north (on the left) and south (on the right) façades of the building
(Ankara Metropolitan Municipality Culture and Nature Department Archive, 2023)

The structure is situated between the educational buildings in the area of lush greenery. According to construction methods, the building's walls, which were constructed as a single story, were made of wooden carcasses from the windows to the eaves and were constructed with masonry blend bricks up to window level. Two different volumes of workshop units are divided, and a briquette wall was later added to the structure (Figure 5).

Figure 5. The immediate surroundings of the Registered Building and its plan scheme
(Ankara Metropolitan Municipality Culture and Nature Department Archive, 2023)

The floor of the building is made of concrete screed material, and the interior walls surround the building in the form of a stone beam border at ground level. The construction system is a masonry structure made up of rows of wooden uprights connected by wooden beams. The walls are made up of a mix of brickwork from the floor to the window level, followed by two rows of wooden windows that extend to the eaves. After the windows, a system of wooden beams has been designed for the

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space's ceiling and roof. In some places, wooden buttresses support the wooden beams. The roof system, which was built with incredibly beautiful craftsmanship, has held up well to the present day (Figure 6).

Figure 6. Interior images of the registered building (Ankara Metropolitan Municipality Culture and Nature Department Archive, 2023)

The structure's roof is a hipped roof with four directions of inclination and is covered in tiles in the Marseille style. The wooden pediment and the coverings under the eaves occasionally deteriorate. At the building's eaves are PVC rain gutters and downspouts, which are also visible on the facades. Additionally, the roof is torn by the threshing brick chimney, revealing itself (Figure 7).

Figure 7. Wooden trusses and beams on the roof of the registered structure (Ankara Metropolitan Municipality Culture and Nature Department Archive, 2023)

Adaptive Reuse Recommendations for the Registered Structure

The registered workshop has been effective in suggesting solutions that can serve as a socialization function because it is *located* between the educational buildings and has a densely populated green environment nearby. As a result, it will provide a chance for users near the education blocks and elsewhere to engage in social interaction. Important social benefits like job creation and crime reduction must also be included (Elsorady, 2013). When considering adaptive reuse in terms of the *spatial and volumetric set up* of the building, it is important to take into account visual, auditory, and communicative data to understand the relational connections between space and spaces of the new function (Arcan& Evci, 1992). The preservation of the spatial and volumetric characteristics of the historical building was taken into consideration when creating the requirement program for the proposed function. A system independent of the construction system of the existing building has been used to solve the circulation areas that connect the spaces from the entrance, the mezzanine floor that is designed as needed, and the stairs that provide access to the mezzanine floor. The partitions in the communal spaces intended for social activities are made of materials that can be taken apart without affecting

how the historical building perceives space and can be put back together again. To create a unique area of use, a second unit made of glass material and steel structure was attached to the existing structure. The designed additional unit has been carefully considered to reflect its own identity while maintaining the textural, proportional, volumetric, and dimensional integrity of the registered structure. Within the registered structure, service units like the preparation kitchen, warehouse, and wet areas have been resolved beneath the mezzanine floor. The primary objective of the architectural program, which was developed in accordance with the needs program, is to provide cutting-edge space solutions using modern building techniques and materials on the original layers, all the while maintaining the distinctiveness of the registered structure. The original facade surface has been preserved, and modern design solutions are displayed inside thanks to the building being registered under second-degree protection under the law (T.R. Presidency Legislation Information System, 2023). Based on the approach that requires preserving the facade and some structural details of II. degree structures (Ahunbay, 2011), some design restrictions have been imposed on students. (i) the facade will be preserved, (ii) material changes can be made without damaging the original roof structure of the structure, (iii) all selected materials will have demountable properties, (iv) the original walls will be preserved and a double-wall wall system can be created with contemporary materials, (v) an additional structure that complies with contemporary addition conditions can be built to the historical structure.

Within the scope of the course, 9 working groups consisting of 4-7 people took into account the environmental analysis for the registered building and presented re-use suggestions such as workshop-cafe, book-cafe and Office-cafe, focusing on socialization (Table 1).

Table 1. Images from student work in groups within the scope of the course

GROUP 1	GROUP 2	GROUP 3
		
GROUP 4	**GROUP 5**	**GROUP 6**
		
GROUP 7	**GROUP 8**	**GROUP 9**
		

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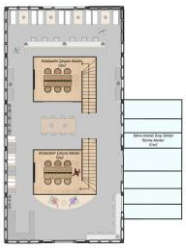
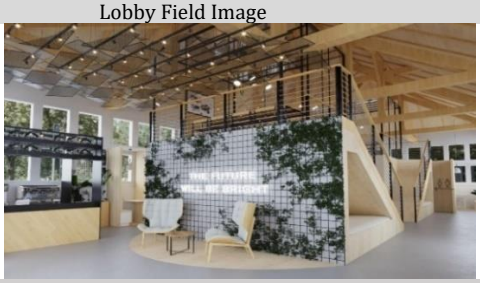
Among the presented final products, the best two projects that are compatible with the environment for socialization, create spatial integrity with material, color, texture, lighting details and evaluate the existing structure as a shell and have the least intervention were selected. Group 1 and Group 2 are the projects selected within the scope of the study, and although the spatial requirement program is similar in the groups' suggested functions, there are also differences. Since the historical structure is under second degree protection, the location and dimensions of the windows and doors on the facade have not been changed. Inside, modern but spatial solution proposals that do not ignore the historical structure were presented by the students. The proposed function for the registered structure by *Working Group 1 (Sarah ALAMERİ- Zeynep AKBAŞ-Elif Tuğçe OĞUZ-Melike SÜT)* is a workshop cafe (Table 2).

Table 2. Re-function proposal prepared by Working Group-1

Working Group-1		**Function Suggestion:** Workshop Cafe
Ground Floor Plan	Gallery Floor Plan	Presentation Poster
		
Lobby Field Image		Gallery Floor Space Image
		
Interior Image		Interior Image
		

The design aims to provide users with a space to socialize and develop their creativity by participating in do-it-yourself workshops in various fields such as handicrafts, painting, ceramics, and textiles, either individually or as a group. The building can be accessed from the main road facing west, and users who prefer to drive can park their vehicles in the mobile car park. The interior of the building cohesively uses wood and steel materials, with green elements incorporated

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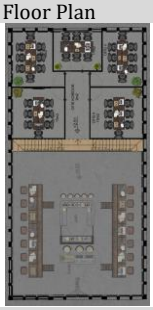
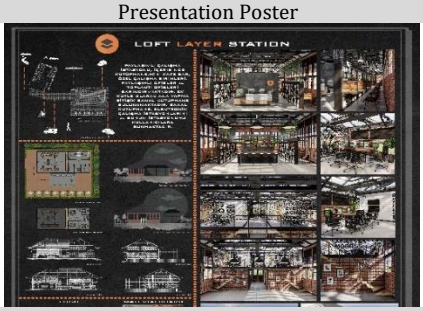
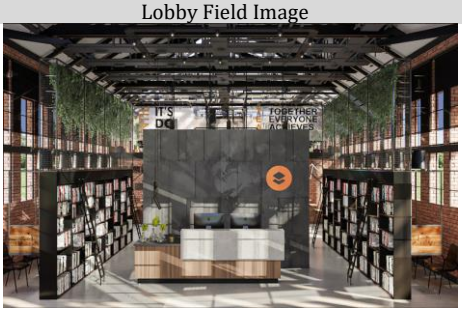
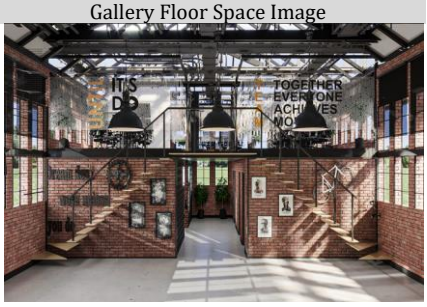
throughout. The ground floor includes both private and common areas for individual and group activities, as well as a mini-amphitheater for talks and social events. The design features two independent mezzanine floors, with the wet areas and warehouse located under one of them. There is no separate kitchen area, but the design is planned to provide beverages and snack service. Working Group 1 envisioned the building interior as a comfortable and warm social space for individuals and groups to relax, chat, and engage in activities.

Working Group 2's (Emir Çağrı AÇIKEL-Doğukan HATİPOĞLU-Süleyman ÖZTÜRK-Miraç YEŞİLOĞLU) suggestion is the office cafe (Table3).

Table 3. Re-function proposal prepared by Working Group-2

Working Group-2		**Function Suggestion:** Office Cafe
Ground Floor Plan	Gallery Floor Plan	Presentation Poster
		
Lobby Field Image		Gallery Floor Space Image
		
Interior Image		Gallery Floor Space Image
		

We spend a large portion of our lives working, which requires us to spend a lot of time in offices. Office cafes have recently appeared for people with flexible work orders, who don't need a specific workspace, or who work entirely independently due to the emergence of new job descriptions that call for working outside the office (Tunç and Sevinç Kayıhan, 2018; 232). By providing collaborative workspaces for various user profiles, such as students and business people, both individually and in groups, the design aims to create a flexible working environment. Additionally, the groups' collaborative efforts allow them to socially

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unite, share the benefits of cooperation, and articulate some shared ideals.

The registered building, which was constructed using the current industrial-style approach to office interiors, has a library, individual and group workstations, a meeting room, a cafe, and a wet area. While there is a welcome desk at the entrance, the library and private study spaces are symmetrically arranged on both sides of the entrance. On the back of the information desk is where the cafe bar area is located. On the other hand, wet areas are dealt with beneath the mezzanine floor. It is planned to put into service for users electronic study and presentation stations, which are resolved as a virtual library in the annex building as a requirement of the digital age.

The study was designed to make the registered building, which is currently unusable, sustainable and livable. As a result of the projects, the students presented suggestions for adaptive reuse in the study. By preserving the distinguishing characteristics of the registered building (roof trusses, façade layout, traditional materials), contemporary and innovative design-oriented results were achieved. The study aimed to make the least possible interventions so that the building would surround the interior like a shell, taking into account the conservation principles (ICOMOS, Venice Charter, 1964, article 4, CARTA DEL RESTAURO, Athens Charter, 1931, articles 3-4). A modern atmosphere was provided in the interior by preserving the original roof trusses, window-door sizes and positions. It is anticipated that the proposals, in which social, economic, and environmental sustainability are integrated into the design, may improve the functional value, economic value, and ecological value of the building. The additional unit has been built using modern construction methods and materials, is smaller in size, area, and height than the registered building, and has been designed in accordance with conservation principles. (ICOMOS, Venice Charter, 1964, article 13, CARTA DEL RESTAURO, Athens Charter, 1931, article 7-8).

Survey Study (Assessment Phase)

The survey consists of four parts and was prepared to determine the theoretical knowledge included in the 8th semester curriculum of the 2022-2023 spring semester of senior-year students at Selcuk University's Interior Architecture Department on the subject of conservation and adaptive reuse within the Restoration Course. It also aims to evaluate the students' learning outcomes for adaptation reuse proposal. The first part of the survey is about the students' demographic structure, followed by statements about the education they received on conservation and adaptive reuse, the instructor's approach to conservation and reuse, and the adequacy of conservation and reuse in interior architecture education in our country.

A total of 61 students who took the restoration course participated in the survey. The survey was conducted using an online form application

created on the Google Survey platform. The students were asked to respond various statements. The obtained survey data was analyzed using descriptive statistical methods, which involve collecting, interpreting, and presenting numerical data. The numerical data was evaluated using Microsoft Excel and SPSS package programs. Descriptive statistics is a set of techniques and methods used to analyze numerical data accurately (Doğan, 2007). To assess the reliability of the measurement method used in the study, the Cronbach Alpha value was calculated and it was found to be 0.897. According to Cronbach (1951; 334) and Panayides (2013; 696), a reliability coefficient of $0.80 \leq \alpha < 1.00$ indicates high reliability. Therefore, it can be concluded that the scale used in the study is highly reliable. Furthermore, the study tested four hypotheses, and the accuracy of these hypotheses was evaluated through the experiment (Table 4).

Table 4. Study hypotheses

Study's Proposed Hypotheses
H.1: "Before and after taking the restoration course, there are differences in the degree of knowledge that interior architecture students have regarding conservation and reuse.
H.2: Students' awareness of their responsibility for creative thinking and protection is positively impacted by the application proposal study prepared for adaptive reuse in interior architecture education.
H.3: The lecturer's (instructor's) conscious approach to the conservation and sustainability of cultural heritage in interior architecture education has a positive impact on the students.
H.4: Conservation awareness is impacted by the interior architecture education program's early emphasis on cultural heritage conservation and adaptive reuse."

The study's results are presented below in a systematic order, part by part. Table 5 reveals that of the 61 students who took the first part of the restoration course and took the survey, 63.9% were female and 36.1% were male.

Table 5. Demographic features

Variables		**f**	**%**
Gender	Female	39	63,9
	Male	22	36,1
	Total	61	100

The restoration course's conservation and adaptive reuse learning outcomes are presented in the second part. Table 6 lists the level of knowledge regarding conservation and adaptive reuse both before and after taking the restoration course.

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Table 6. Knowledge assessments before and after completing the restoration course

	None		Little		Moderate		A lot		Total
	f	%	f	%	f	%	f	%	-
STATEMENT 1	5	8,2	32	52,5	21	34,4	3	4,9	61
STATEMENT 2	-	-	-	-	28	45,9	33	54,1	61

Note: *f: Frequency number, %: Percentage value*

In response to statement 1: "*Please mark your level of knowledge about cultural heritage conservation and adaptive reuse before taking the restoration course in your interior architecture education*," 8.2% of participants had no knowledge of conservation and adaptive reuse, and 52.5% had little. As can be seen, 4.9% responded a lot while 34.4% marked moderate. These findings suggest that prior to enrolling in the restoration course, the participants knew little about conservation and adaptive reuse.

In response to statement 2: *"Please mark your level of about cultural heritage conservation and adaptive reuse after taking the restoration course in your interior architecture education,"* 45.9% of the participants indicated that they knew moderately about conservation and adaptive reuse, and 54% indicated that they knew a lot. These results suggest that more than half of the participants had a lot of knowledge of conservation and adaptive reuse and that the issue was transmitted to the restoration course students well.

These results support the **H1**: "*Before and after taking the restoration course, there are differences in the degree of knowledge that interior architecture students have regarding conservation and reuse*". According to these data, it has been ascertained that the students of the interior architecture department have sufficient knowledge about cultural heritage, conservation, conservation approaches, adaptive reuse in the course curriculum.

By suggesting a function on the registered structure, the students applied the theoretical knowledge they had learned in the course. The students assessed this application's workflow and final results (Table 7).

Table 7. Assessments of the proposal studies prepared by the students

	I strongly disagree		I disagree		Undecided		I agree		I strongly agree		Total
	f	%	f	%	f	%	f	%	f	%	-
STATEMENT 3	-	-	4	6,6	9	14,8	36	59,0	12	19,7	61
STATEMENT 4	-	-	2	3,3	9	14,8	33	54,1	17	27,9	61
STATEMENT 5	1	1,6	4	6,6	4	6,6	33	54,1	19	31,1	61
STATEMENT 6	2	3,3	2	3,3	10	16,4	34	55,7	13	21,3	61
STATEMENT 7	-	-	3	4,9	11	18,0	33	54,1	14	23,0	61
STATEMENT 8	-	-	3	4,9	7	11,5	30	49,2	21	34,4	61
STATEMENT 9	-	-	3	4,9	9	14,8	31	50,8	18	29,5	61
STATEMENT 10	-	-	1	1,6	9	14,8	36	59,0	15	24,6	61
STATEMENT 11	-	-	1	1,6	5	8,2	28	45,9	27	44,3	61

Note: *f: Frequency number, %: Percentage value*

In response to statement 3: *"Although the re-functioning proposal study prepared within the scope of the restoration course limited me with conservation principles and re-use approaches, I learned a lot in terms of protecting cultural heritage. "* It can be seen that 6.6% of participants disagree, 14.8% are undecided, 59.0% agree, and 19.7% strongly agree with the statement. These findings indicate that participants' conservation practices and reuse strategies, even when put into practice within the confines of the law, have a positive impact on the learning process.

In response to statement 4: *"The refunctioning proposal study prepared within the scope of the restoration course increased my interest in the adaptive reuse aspects of interior architecture."* 3.3% of the participants disagreed, 14.8% were undecided, 54.1% agreed, and 27.9% strongly agreed with the statement. These data suggest that the participants' interest in studies on the reuse of registered buildings was influenced by their suggestions and the implementation study.

In response to statement 5: *"The re-functioning proposal study prepared within the scope of the restoration course contributed to the formation of my sense of responsibility for the conservation of historical cultural architecture."* It can be seen that 1.6% of participants strongly disagree with the statement, 6.6% disagree, 6.6% are undecided, 54.1% agree, and 31.1% strongly agree. These findings indicate that the suggestion implementation study has a positive impact on the sense of responsibility.

In response to statement 6: *"The re-functioning proposal study prepared within the scope of the restoration course helped me to understand the sustainability problems of existing historical buildings."* 3.3% disagree, 16.4% are undecided, 55.7% agree, and 21.3% strongly agree with the statement. The concept of sustainability, which is one of the most significant issues facing registered buildings, is apparent from these data.

In response to statement 7: "The re-functioning proposal study prepared within the scope of the restoration course guided me in learning new approaches to conservation and sustainability." 4.9% of the respondents disagree with the statement, followed by 18.0% who are undecided, 54.1% agree, and 23.3% strongly agree. These data indicate that they have implemented the design principles intended to ensure the continuity and protection of the registered structures.

In response to statement 8: *"The reuse proposal study prepared as part of the Restoration course helped me to understand that buildings that are out of use but are still in good physical condition can be conserved by using them".* It can be seen that 4.9% of the participants disagree, 11.5% are undecided, 49.2% agree, and 34.4% strongly agree with the statement. These data indicate that they are aware of the significance of adding a new function, which is one of the key strategies for safeguarding registered buildings.

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In response to statement 9: "The re-functionalization proposal prepared within the scope of the restoration course made me realize that I, as a designer, am also one of the responsible ones in balancing between the original character of the registered building and the new function." 4.9% of the participants disagree, 14.8% are undecided, 50.8% agree, and 29.5% strongly agree with the statement. These facts suggest that they realized the importance of interior architects in ensuring the survival and preservation of the registered building.

In response to statement 10: *"The re-functioning proposal study prepared within the scope of the restoration course guided me in designing spaces that are correctly related to each other within an existing registered shell and respect the registered structure."* It is seen that 1.6% of the participants disagree with the statement, 14.8% are undecided, 59% agree and 24.6% strongly agree. These data suggest that when designing the space within the space, the registered structure's presence is taken into account.

In response to statement 11: *"Although I knew that throughout my career as an interior designer, I would primarily design spaces in existing shells, the proposal study helped me better understand the necessity of designing spaces inside protected and registered building shells."* 1.6% of the participants disagree, 8.2% are undecided, 45.9% agree, and 44.3% strongly agree with the statement. These facts help us to understand how crucial it is to be prepared and skilled during the process of protection and re-functioning.

The **H2:** " Students' awareness of their responsibility for creative thinking and protection is positively impacted by the application proposal study prepared for adaptive reuse in interior architecture education" is supported by these findings. The findings suggest that the project's conservation awareness and adaptive reuse efforts should be taken into account as a whole.

Students were asked to assess the lecturer's (instructor) approaches to reuse and conservation in the third section (Table 8).

Tablo 8. Student assessments of the lecturer's (instructor's) approach to the class

	I strongly disagree		I disagree		Undecided		I agree		I strongly agree		Total
	f	%	f	%	f	%	f	%	f	%	-
STATEMENT 12	1	1,6	1	1,6	7	11,5	25	41,0	27	44,3	61
STATEMENT 13	1	1,6	1	1,6	5	8,2	27	44,3	27	44,3	61
STATEMENT 14	1	1,6	3	4,9	7	11,5	27	44,3	23	37,7	61
STATEMENT 15	2	3,3	7	11,5	11	18,0	26	42,6	15	24,6	61
STATEMENT 16	1	1,6	2	3,3	10	16,4	29	47,5	19	31,1	61
STATEMENT 17	-	-	3	4,9	8	13,1	29	47,5	21	34,4	61

Note: *f: Frequency number, %: Percentage value*

In response to statement 12: *"The instructor clearly explained the concept of reuse in historical buildings and its importance for interior architects."* It is seen that 1.6% of the participants strongly disagree,

1.6% disagree, 11.5% are undecided, 41% agree and 44.3% strongly agree with the statement.

In response to statement 13: *"The instructor contributed to the development of my awareness about the conservation and preservation of historical buildings both in my city and in our country and around the world."* It is seen that 1.6% of the participants strongly disagree, 1.6% disagree, 8.2% are undecided, 44.3% agree and 44.3% strongly agree with the statement.

In response to statement 14: *"The instructor helped me develop an understanding of the relationship between reuse issues and sustainability."* It is seen that 1.6% of the participants strongly disagree, 4.9% disagree, 11.5% are undecided, 44.3% agree and 37.7% strongly agree with the statement.

In response to statement 15: "*The course instructor contributed to my meeting with other professionals (such as architects, restorers, archaeologists, artists) and necessary collaborators*." It is seen that 3.3% of the participants strongly disagree, 11.5% disagree, 18% are undecided, 42.6% agree and 24.6% strongly agree with the statement.

In response to statement 16: *"By restricting me to decisions that could not be undone in the historical structure, the instructor encouraged me to develop my creativity*." It is seen that 1.6% of the participants strongly disagree, 3.3% disagree, 16.4% are undecided, 47.5% agree and 31.1% strongly agree with the statement.

In response to statement 17: *"The lecturer's presentation of many successful preserved, adaptable reuse examples from our country and the world inspired me*." It is seen that 4.9% of the participants disagree with the statement, 13.1% are undecided, 47.5% agree and 34.4% strongly agree.

The **H3:** "The lecturer's (instructor's) conscious approach to the conservation and sustainability of cultural heritage in interior architecture education has a positive impact on the students " is supported by these findings. These findings support the hypothesis that *the instructor's holistic transfer of cultural heritage protection and ecological, economic, and sociocultural sustainability has a positive impact on the participants' proposal project design process.*

The final part requested Turkish interior architecture departments to assess students' knowledge of cultural heritage conservation and adaptive reuse in the classroom (Table 9-10).

In response to statement 18: "In our country, interior architecture education at the current level covers cultural heritage conservation and adaptive reuse." It is seen that 24.6% of the participants strongly disagree, 26.2% disagree, 32.8% are undecided, 6.6% agree and 9.8% strongly agree with the statement. With the help of these data, it can be deduced that the participants offered a critical viewpoint on the educational strategy used to promote conservation in Turkey's interior architecture education system.

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Table 9. Assessments of interior architecture departments on cultural heritage conservation awareness and adaptive reuse in the education process

	I strongly disagree		I disagree		Undecided		I agree		I strongly agree		Total
	f	%	f	%	f	%	f	%	f	%	-
STATEMENT 18	15	24,6	16	26,2	20	32,8	4	6,6	6	9,8	61

Note: *f: Frequency number, %: Percentage value*

In response to statement 19: "*When should conservation awareness and adaptive reuse education be introduced in interior architecture programs in our country?".* The survey results indicate that 18% of the participants believe it should be introduced in the first grade, 39.3% in the second grade, 37.7% in the third grade, and 4.9% in the fourth grade. These findings suggest that the majority of participants feel that cultural heritage conservation and adaptive reuse should be taught earlier in the educational process.

The **H4:** " *Conservation awareness is impacted by the interior architecture education program's early emphasis on cultural heritage conservation and adaptive reuse"*. As per the data, the participants criticized the notion that conservation and preservation awareness should be taught in the early stages of interior architecture education in our country, and that the number of theoretical and practical courses should be increased based on the grade level.

Table 10. *An assessment on when to begin educating students about conservation and adaptive reuse*

	1st Grade		2nd Grade		3rd Grade		4th Grade		Post Graduate		Total
	f	%	f	%	f	%	f	%	f	%	-
STATEMENT 19	11	18,0	24	39,3	23	37,7	3	4,9	-	-	61

Note: *f: Frequency number, %: Percentage value*

FINDINGS AND DISCUSSION

The field of interior architecture has the potential to incorporate social structures' cultural components and link them to interior settings. Since education is a crucial part of professional practice in this field, the concepts of "conservation and adaptive reuse" should be emphasized. The goal of this study is to examine the relevant concepts using an example structure from the interior architecture educational process. In the study, the proposal implementation studies created by the senior interior architecture students as part of the Restoration Course were examined, and the survey method through these studies was used to question the course learning outcomes. The first part of the survey is about demographics, while the second part asks about the participants' knowledge levels before and after taking the course. The answers showed that the restoration course helped students become more aware of conservation and reuse in interior architecture education. It is concluded that students who have been trained in conservation can

make much more accurate and significant decisions about transmitting cultural assets to future generations. This conclusion is in line with the studies of Atalan & Sevinç (2016), Efe Yavaçcan (2021), and Gökarslan & Tuncer (2023), which emphasize the importance of conservation training for professionals working in historical environments. In the study, it is crucial to use holistic approaches to conservation education that foster a deep understanding of the value of cultural heritage and the revival of its ideals. Students developed their understanding, analyzing, and recognition skills of the environmental and structural features of the existing building, inspired by heritage items and contents, with the concept of "adaptive reuse" during the design phase of the proposal application. This approach to learning coincides with the results of studies by Brooker and Stone (2004) and Embaby (2014), which show that conservation processes are vital to teaching and learning. However, Yıldırım Gönül and Balcı Yaşar (2019) emphasized that competent interior architects have important duties in conservation, and the criticism that interior architecture education should be renewed immediately is similar to the result of the study. In fact, the requirement to increase the number of theoretical and applied courses according to the grade level from the early stages of education is compatible with the results of the studies of Madran, (2007), Büyükmıhçı and Yücel, (2012) and Gökarslan and Tuncer (2023). The students who took part in the fourteen-week restoration course helped to support the findings of the studies conducted by Efe Yavaçcan (2021), Cordan, Dinçay & Teixeira, (2014) because they were familiar with the theories surrounding historical environmental protection and re-functioning as well as the methods used for conservation both domestically and abroad. The role of the instructor in teaching interior architecture students about the concepts of conservation and re-functioning is crucial, as highlighted by Van Den Berghe (2014). The instructor encourages students to visit registered buildings to gain a better understanding of conservation, analyze the building's features, and prepare a proposal application project. This approach aligns with studies conducted by Aydın & Okuyucu (2009), Jahromi (2015), Efe Yavaçcan, (2021), and Hasırcı, Bakır Küçükkaya, Edes, Tatari, Rolla, Çalişkanelli, & Kabaçam (2022), which emphasize the importance of interior architecture students' contribution to the development of conservation awareness by actively "using" it. Throughout the study, it was discovered that involving external experts such as restorers and architects, as well as various stakeholders in the proposal process, encouraged students to explore conservation principles and the limitations of reusing. These findings align with similar studies conducted by Jahromi (2015). The data collected during the course also revealed that students agreed with the findings of Lewis (2013) and Celadyn (2016) that the incorporation of these principles promotes ecological, sociocultural, and economic sustainability by encouraging resource consumption reduction and a holistic approach to conservation and sustainability.

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CONCLUSIONS AND RECOMMENDATIONS

Every effort made to discuss and implement sustainability in interior architecture will increase opportunities for people to maintain their current needs and cultural values. There are various factors that have led to the depletion of environmental resources and cultural identity in society, including the acceleration of production and consumption processes, advancements in communication and transportation, increased migration to urban areas, and global warming. As a result, a new approach has emerged that seeks to address this issue holistically by preserving cultural assets and transferring them to future generations in a sustainable manner. This approach, known as "sustainable conservation," involves incorporating cultural assets into the process of use where they can be revived in environmental, socio-cultural, and economic terms rather than simply preserving them as idle historical artifacts.

Actually, this process, which is referred to as adaptive reuse, entails both spatial and temporal transformation. By providing options that can satisfy modern-day needs, this process allows for the renewal of existing structures that cannot satisfy user needs. The organization of modern demands, requests, and renewal proposals within a structure by interior architecture preserves the present and creates a link between the past and the future.

In order to ensure the sustainability of our built environment, education plays a crucial role in the field of interior architecture, as it does in every other field. Studies have shown that the "learning by doing" approach helps to develop an awareness and conservation culture for cultural assets. The primary objective of this study is to evaluate the extent to which students understand, analyze and reflect on the concepts of conservation and reuse, and the suggestions created within the boundaries of conservation principles and adaptive reuse approach. As a result of this study;

- The learning outcomes for the restoration course produced positive outcomes, and the students gained a conservation awareness and embraced the reuse strategy.
- The instructor's effective method of teaching the students about conservation and reuse had a positive outcome.
- The students' original ideas have grown as a result of the boundaries set by conservation elements and principles.

In conclusion, the study is anticipated to serve as a guide for future interior architects who will assess the stock of existing buildings and incorporate it as an extension of a distinctive architectural and cultural past while creating interior spaces in a historical, cultural, or distinctive built environment. The transfer of historical structures to subsequent generations will be facilitated by maintaining them and creating a solid link between the past and the present. Given how inadequate the conservation awareness courses are in the interior architecture education program in our nation, various theoretical and applied

courses ought to be incorporated into the curriculum from the beginning. To develop a skilled and capable interior architect in the field of reuse, it is crucial to increase the number of applied studies in the direction of conservation and adaptive reuse in interior architecture education.

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Resume

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