JOURNAL OF DESIGN FOR RESILIENCE IN ARCHITECTURE & PLANNING

Research Article
Online: www.drarch.org
Volume 7, Issue 1 (69-88), 2026
DOI: 10.47818/DRArch.2026.v7i1204

Designing resilience in historical environments: A pedagogical analysis of a "healing"-themed studio

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Abstract

A this article presents a design studio model that integrates architectural pedagogy with urban resilience by focusing on the theme of "healing" within a historical context. Conducted in Sarıkaya, an ancient Roman thermal settlement in Turkey, the studio aimed to cultivate student awareness of historical continuity, collective memory, and spatial repair through design interventions that address physical, social, and ecological healing. A mixed-methods research design was employed, including pre- and post-studio surveys, cognitive mapping, and protocol analysis of student processes and outcomes. Quantitative findings based on 11 participants revealed a marked increase in conceptual and spatial awareness after the studio. The average post-test score rose from 62.3 to 81.7 out of 100, indicating a 31.1% improvement in students' capacity to engage with urban resilience and heritage-based healing concepts. Cognitive map complexity also increased by 44%, showing a shift from form-based to multi-layered socio-spatial strategies. Thematic categorization of student projects revealed four primary resilience domains: social (31%), ecological-economic (30%), cultural-technological (23%), and morphological (16%). Design outputs included proposals such as AI-assisted pediatric ateliers, memory-based housing for elderly Alzheimer's patients, geothermal healing centers, and sensory walking routes, all developed in response to the socio-cultural and spatial dynamics of the historic site. The study demonstrates how design education can function as a vehicle for heritage-conscious innovation and collective well-being. By combining conceptual framing, contextual analysis, and experiential learning, the studio model not only fostered architectural empathy and historical imagination but also provided measurable cognitive and perceptual growth. These results underscore the relevance of resilience-centered design pedagogy in cultivating architects capable of addressing both past legacies and future uncertainties through spatial healing.

Keywords: architectural pedagogy, cultural heritage, healing approach, historic environment, urban resilience

1. Introduction

The tension between the preservation of cultural heritage and the dynamics of contemporary urban development constitutes one of the most fundamental and complex challenges in 21st-century architecture and planning disciplines. The pressures brought about by globalization, rapid urbanization, and climate change have placed historical environments and monuments worldwide under unprecedented threat (Pendlebury, 2009; Rodwell, 2008). In response to this global challenge, conservation paradigms have evolved from static preservation toward more dynamic and sustainable approaches that integrate historical values into contemporary life. Charters and reports issued by organizations such as the International Council on Monuments and Sites (ICOMOS) increasingly emphasize that heritage is not only a physical entity but also a core component of social identity, collective memory, and urban resilience (Ashworth, 2011; ICOMOS, 2013). Within this framework, the central question is not how to "freeze" historical structures as remnants of the past, but how to keep them alive as part of contemporary life in ways that respond to today's social, economic, and ecological needs.

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Article history: Received 28 July 2025, Revised 8 March 2026, Accepted 14 April 2026, Published 30 April 2026

One of the primary responses of the architectural discipline to this challenge has been the adoption of the strategy of "adaptive reuse." Rather than demolishing existing building stock and constructing anew, assigning new functions to these structures is considered a sustainable action that both conserves the embodied energy of the building (Gursel et al., 2023) and ensures cultural continuity (Plevoets & Van Cleempoel, 2013; Wong, 2024). This approach not only reduces waste and preserves resources but also protects the historical and cultural layering of the urban fabric. By extending the lifespan of buildings and reducing resource consumption, adaptive reuse also aligns directly with the principles of the circular economy (Brand, 1995; Ikiz Kaya et al., 2021; Pintossi et al., 2021). In this process, contemporary designs that are integrated into the historical fabric offer the potential to create rich and layered spaces through a dialogue between the old and the new (Cantacuzino, 1989). As stated in the ICOMOS Venice Charter (ICOMOS, 1964), the requirement that such interventions must "bear a contemporary stamp" forms the basis of this dialogue and compels architects to strike a delicate balance. The search for this balance continues around concepts such as Christian Norberg-Schulz's (1980) "Genius Loci" (Spirit of Place) and Jukka Jokilehto's (2002) "authenticity" (Jokilehto, 2017; Norberg-Schulz, 1979).

Equipping future architects with the knowledge, skills, and sensibilities needed to solve these complex problems has become one of the most critical responsibilities of architectural education. The primary pedagogical platform where this competence is cultivated is the architectural design studio. As an "epistemic culture" (Cetina, 1999) where professional knowledge is produced and reproduced, the studio is a space where students learn to cope with uncertainty and complexity—what Donald Schön conceptualizes as a "reflective practicum" (Schön, 2017).

Recent scholarship on sustainability in architectural education emphasizes that design studios are pivotal sites for building sustainability literacy and integrative reasoning, yet sustainability is often unevenly embedded in studio culture. Empirical studies report that when sustainability is treated as a design problem—rather than isolated in theoretical courses—students' awareness and ability to operationalize environmental, social, and economic dimensions tend to improve (Altomonte et al., 2014; Calikusu et al., 2023).

Moreover, from an educational standpoint, heritage-based learning transforms adaptive reuse from a mere technical exercise into a profound pedagogical tool. As Brooker and Stone (2004) note, remodeling existing buildings requires students to deeply 'read' the historical context, fostering an empathetic dialogue between past narratives and future interventions (Brooker & Stone, 2004). This process cultivates a critical awareness of context that abstract design exercises often fail to provide.

However, this pedagogical process itself faces the need for transformation. Contemporary discussions in architectural pedagogy question the traditional model of the studio and foreground more critical, participatory, and socially responsible approaches (Salama, 2016; Sara & Mosley, 2014; Teymur, 1982).

It is precisely at this point that the unique research gap addressed by this study becomes clear. Although the literatures on architectural pedagogy (Salama, 2016; Sara & Mosley, 2014), heritage preservation (Jokilehto, 2017), "healing architecture" (Al Khatib et al., 2024; Ulrich, 1984), and "urban resilience" (Davoudi et al., 2012; Holling, 1973) are rich in content, they are often treated within separate disciplinary silos. The originality of this study lies in proposing 'healing/repair' as a conceptual bridge between heritage conservation and architectural pedagogy. Traditionally, healing architecture focuses on healthcare facilities. However, this study argues that historic environments can act as 'therapeutic landscapes' (Gesler, 1992). The theme of 'healing' provides a holistic framework for the design studio. It moves the design problem beyond mere technical preservation or aesthetic composition. Instead, it encourages students to explore how spatial repair can achieve multiple goals simultaneously: supporting individual mental health, fostering social bonds (Jacobs, 1961), revitalizing local economies, and repairing collective cultural memory. The lack of integration between these disciplinary silos is not only a gap in the literature but also a

fundamental problem in architectural practice and education. As a solution to this issue, the pedagogical intervention proposed here aims to use the theme of "healing" as a tool to guide students toward more integrated and socio-ecologically focused thinking.

Research problem and objectives. Despite the growing prominence of sustainability and resilience as learning outcomes in architectural education, studio-based awareness-building processes in living historical environments often remain fragmented—heritage is handled as a technical conservation task, healing is confined to building-scale healthcare typologies, and resilience is discussed at an abstract planning level. This study addresses this pedagogical problem by testing a continuity-centered “healing/repair” framework in a design studio context. Specifically, the study aims to (i) examine whether a healing-themed studio enhances students’ awareness of historical/architectural continuity in relation to sustainability and urban resilience, and (ii) document how students translate this conceptual frame into multi-domain design strategies in a real heritage setting.

In line with this theoretical framework, the article provides an in-depth analysis of the proposed pedagogical approach through a case study conducted in and around the Sarıkaya Roman Bath (Basilica Therma), which is listed on the UNESCO World Heritage Tentative List and is known for its historical identity as a site of “healing waters.” The primary research question of the study is: How does a design studio process that employs a holistic theme like "healing" within a historical environment affect architecture students' knowledge, awareness, and design competencies related to conservation, sustainability, and urban resilience? To answer this question, a mixed-methods research design was employed, including pre- and post-studio surveys, participant observations, and project analyses. The subsequent sections of the article will elaborate on the research methodology, present findings from the case study, and conclude by discussing these findings in light of the theoretical framework proposed.

2. Theoretical Framework: From Individual Healing to Collective Resilience

This study is built upon an interdisciplinary theoretical framework. It operates on two primary assumptions. First, the concept of 'healing' can be scaled up from the individual building to the broader urban context. Second, the abstract notion of 'urban resilience' can be translated into tangible architectural design objectives. To achieve this, the framework synthesizes literature from three core domains: healing architecture, cultural heritage with urban resilience, and reflective studio pedagogy.

2.1. The Evolution of "Healing Architecture": An Interdisciplinary Perspective

The idea that space holds healing potential for the human body and psyche is as old as architectural history itself. Healing temples such as the Asklepions in Ancient Greece, Roman thermae, and darüşşifa (healing institutions) in Islamic civilizations indicate that the therapeutic capacity of architecture was intuitively understood and practiced even in pre-modern periods. In many mid-20th-century institutional and healthcare design contexts, functional efficiency and standardization often took precedence, and the user’s sensory and psychological experience was not always foregrounded (Verderber et al., 2000).

As a response to this neglect, the 1980s witnessed the emergence of a new approach informed by developments in environmental psychology, which systematically examined architecture’s effects on human well-being. A major turning point in this domain was Roger Ulrich’s groundbreaking 1984 study, which demonstrated that post-operative patients with views of natural scenery recovered more quickly, required fewer painkillers, and experienced fewer complications than those facing a brick wall (Ulrich, 1984). This study laid the foundation for the Evidence-Based Design (EBD) movement, advocating for design decisions grounded in empirical data rather than intuition.

The EBD framework was further enriched by psychological theories such as Stephen and Rachel Kaplan’s Attention Restoration Theory and E.O. Wilson’s Biophilia Hypothesis (Kellert & Wilson,

1993; Kaplan & Kaplan, 1989). These theories suggest that contact with nature alleviates mental fatigue and that the architectural reflection of an instinctive human affinity with nature—through elements such as natural light, materials, vegetation, and water—enhances health and well-being. Another crucial conceptual shift within this framework stems from Aaron Antonovsky's notion of Salutogenesis, which advocates focusing on health-promoting factors rather than pathogens. This approach marks a philosophical transition in architecture—from reactive spaces that treat illness to proactive environments that foster health and well-being (Dilani, 2008).

A paradigmatic contemporary reference for healing environments is the network of Maggie's Centres, which has been widely discussed as a model of non-institutional, supportive care architecture. Studies examining Maggie's emphasize how domestic atmospheres, daylight, landscape contact, and informal social spaces (e.g., shared kitchen tables) become spatial affordances for coping, hope, and psychosocial well-being. This precedent is significant for architectural education because it offers an established repertoire of design strategies that translate well-being goals into concrete spatial decisions, thereby strengthening the pedagogical bridge between healing theory and design practice (Butterfield & Martin, 2016; Maggie's, 2026).

Furthermore, contemporary discourses on healing environments emphasize that therapeutic spatiality extends beyond visual connections to nature. Drawing on phenomenological perspectives, theorists like Juhani Pallasmaa argue that architecture must engage the full sensorium—touch, sound, and spatial bodily awareness—to truly repair the human psyche (Pallasmaa, 2024). This multi-sensory approach shifts the focus from passive observation to active, embodied healing, which becomes particularly powerful when interacting with the textured layers of historic environments.

The primary theoretical move of this study is to extend this individual-centered health framework to the urban scale. Wilbert Gesler's (1992) conceptualization of Therapeutic Landscapes proposes that specific places carry meanings that support physical, mental, and spiritual healing. From this perspective, the revitalization of an urban site devastated by war, natural disaster, or economic collapse is not merely a physical restoration, but a process of collective healing and socio-spatial repair (Gesler, 1992). In this context, the historical thermal heritage of Sarıkaya is approached as a catalyst for both individual well-being and the repair of the city's cultural and social fabric.

2.2. Cultural Heritage as a Catalyst for Urban Resilience

In this study, cultural heritage is approached as an active socio-spatial system: a layered assemblage of material fabric, everyday uses, meanings, and infrastructures that can absorb change while maintaining identity and continuity. The modern scientific foundation of resilience traces back to ecologist C.S. Holling's definition of resilience as a system's capacity to maintain its structure, function, and identity in the face of external shocks—i.e., to absorb change and continue to exist (Holling, 1973). In heritage contexts, this perspective is particularly relevant because continuity is sustained not by freezing form, but by enabling adaptive transformation that keeps historic places socially and environmentally operative over time (Davoudi et al., 2012).

Building upon this dynamic view, recent advancements in socio-ecological design advocate moving beyond mere sustainability toward 'regenerative cultures' (Wahl, 2016). In this context, heritage sites are not conceptualized merely as passive artifacts to be conserved, but as dynamic socio-ecological systems (SES) that can actively regenerate local economies, biological diversity, and community resilience.

This ecological understanding was translated into the social dimension of urban space through Jane Jacobs's seminal work The Death and Life of Great American Cities (1961) (Jacobs, 1961). Jacobs criticized large-scale, functionalist urban renewal projects for destroying the intricate social fabric of cities. She argued that vibrant, safe, and socially cohesive neighborhoods emerge organically through features such as mixed-use developments, short and walkable blocks, and "eyes on the street." Her work established a direct link between spatial design and a community's social

health and safety, laying the groundwork for the spatial construction of social capital—the invisible web of trust, norms, and networks among individuals and groups (Putnam, 2000).

This study positions cultural heritage as an active catalyst in building social capital, and therefore urban resilience. The adaptive reuse of historic buildings not only preserves the past but also strengthens local identity, creates new spaces for public interaction, and offers economic opportunities that enhance a community's long-term resilience (Noaime & Alnaim, 2025). However, this process also entails a theoretical tension between the principle of authenticity and material integrity emphasized by the ICOMOS Venice Charter (1964) and the functional and spatial transformations required by adaptive reuse (ICOMOS, 1964; Jokilehto, 2017). This study argues that such tensions can be overcome. Later ICOMOS documents, especially the Washington Charter (1987), opened the door for this dialogue by acknowledging that contemporary additions to historical settings may be enriching, provided they do not compromise the overall integrity (ICOMOS, 1987). This doctrinal flexibility provides a foundational ground for students to design interventions in Sarıkaya that engage in dialogue between the old and the new.

To translate this heritage–resilience agenda into an educational logic, the linkage between "healing/repair" and cultural heritage can be clarified through the lens of heritage-based learning, where conservation is treated as a situated form of design reasoning rather than a purely technical restoration task. In a studio-based methodology, Embaby frames heritage conservation as an educational process in which students translate historical values, typological traces, and cultural meanings into adaptive reuse decisions—thereby learning to negotiate continuity and change. Complementing this approach, Clarke, Kuipers, and Stroux argue that embedding heritage values in design education requires explicit didactic tools that help students identify, map, and operationalize "built heritage values" as design drivers. In this sense, heritage becomes a structured learning medium through which students can conceptualize "repair" not only as material intervention but also as an interpretive practice that re-articulates meaning and social use over time (Clarke et al., 2020; Embaby, 2014).

2.3. A Pedagogy for Socio-Ecological Design: The Reflective Live Project

The above theoretical synthesis calls for a specific pedagogical model. At its core lies Donald Schön's (1983) concept of the reflective practitioner. According to Schön, professional competence entails the capacity to respond to complex and unique situations through reflection-in-action rather than by applying predefined solutions to predetermined problems. The architectural design studio functions precisely as a laboratory for developing this reflective practice (Schön, 2017).

Architectural studio pedagogy has been widely discussed as a distinctive learning ecology in which tacit knowledge, iterative critique, and reflective practice shape design reasoning. Webster's account of architectural education after Schön highlights how coaching, feedback, and "design artistry" are cultivated through studio interactions rather than transmitted as stable content. More recently, Hettithanthri and Hansen synthesize contemporary studio research and show that learning outcomes are strongly mediated by studio structures, assessment cultures, and the ways projects are framed as open-ended inquiries. Within this pedagogical landscape, "live projects" have gained attention as formats that connect studio work to real stakeholders and contexts; a mixed-methods synthesis of live-project scholarship maps recurring themes such as authenticity, negotiation with external actors, and the management of uncertainty. These discussions provide a clear rationale for positioning the present studio as a reflective, evidence-informed, and context-embedded model rather than a purely speculative design exercise. (Hettithanthri & Hansen, 2022; Smith et al., 2023; Webster, 2008).

The pedagogical vehicle that activates this reflective practice is the live project model. Live projects expose students to real-world contexts, timelines, and stakeholders (in this case, a historic site rather than a client), enabling them to engage with the social responsibilities of architecture (Sara & Mosley, 2014). This approach shifts architectural education from abstract and theoretical exercises to real-life scenarios filled with complexity and uncertainty.

However, this pedagogical model also invites critical scrutiny. Beyond administrative challenges (e.g., time and budget constraints), live projects may involve unequal power dynamics and tokenistic participation in community relations, posing ethical risks (Sabree & Mustafa, 2023). Similarly, the concept of urban resilience must also be viewed through a critical lens. Some scholars argue that resilience discourse, when appropriated by neoliberal agendas, shifts the burden of systemic shocks—such as climate change or economic crises—from states to individuals and communities, thereby depoliticizing and masking structural issues of inequality and injustice (Shamsuddin, 2023).

This study contends that the proposed pedagogical model addresses these critiques. First, structuring the studio within an Action Research (AR) cycle (plan–act–observe–reflect) fosters continuous critical engagement and ethical reflection by both students and instructors. More importantly, the choice of healing as the central theme repoliticizes the notion of resilience. It encourages students to ask foundational questions such as "resilience for whom?" and "healing of what?"—prompting them not merely to make buildings earthquake-resistant but to design interventions that repair social exclusion, ecological degradation, or collective trauma. In this way, the pedagogical model does not dismiss critiques as limitations but rather incorporates them into its structure, thereby offering a more robust and ethically grounded framework.

3. Research Design and Methodology

This section systematically explains the methodological framework followed to ensure the scientific validity and reliability of the research—that is, how the study was designed, which tools and processes were used for data collection, and how the data were analyzed.

3.1. Research Design: A Mixed-Methods Action Research Case Study

Given that the study investigates a complex social phenomenon (the design studio process) in its natural context, it was structured as a holistic single case study based on a mixed-methods research design. Both quantitative data—used to measure changes in students' knowledge and awareness—and qualitative data—used to interpret the studio process and its outcomes—were collected and analyzed in tandem. The fact that the researchers were also the instructors of the studio endowed the study with the characteristics of Action Research (AR), which allows researchers to observe, intervene in, and reflect upon the process from within. AR is a methodology aimed at continuous improvement through identifying a problem within a practice (e.g., a design studio), designing an action plan, implementing it, observing the outcomes, and reflecting upon this cyclical process (Kemmis et al., 2014).

3.2. Context, Participants, and Sampling

The case of this study is a third-year architectural design studio course titled "Healing-Themed Roman Bath," conducted during the Spring semester of 2025 at a state university. The study area includes the Sarıkaya Roman Bath (Basilica Therma), dated to the 2nd century AD and included in the UNESCO World Heritage Tentative List in 2018, along with its immediate surroundings. Participants consisted of 11 third-year architecture students who were enrolled in the relevant studio course and voluntarily agreed to take part in the study. Survey data were collected from students who actively participated. Due to the specific purpose of selecting students enrolled in this particular studio and their interest in the topic, the study employed purposive sampling as the sampling method.

The data collection process was structured as a planned Action Research cycle spread over the 15-week studio schedule. This process is summarized in Table 1.

Table 1 15-Week Action Research Studio Calendar and Data Collection Stages

Week No.	Activity Description	AR Phase	Purpose and Data Collection Methods
1–2	Pre-test survey. Individual research and	Planning / Diagnosis	To assess students' initial knowledge and attitudes (Pre-test Survey). To gain a

	literature review (on site, history, and the theme of "healing").		comprehensive understanding of the site and the theme; to prepare conceptual groundwork through analysis of historical and theoretical context.
3	Field trip – on-site sketching, photography, and analysis at Sarıkaya Roman Bath and surrounding area.	Implementation	To gain spatial experience through direct observation of the site; to understand physical attributes and atmosphere firsthand (Participant Observation, Document Analysis: Sketches).
4–7	Concept development, program discussions, and First Interim Jury presentations.	Implementation / Observation	To develop a creative design concept aligned with the theme of "healing." To critically assess project approaches through interim evaluations (Participant Observation, Document Analysis: Concept Boards).
8–11	Design development (plans, sections, massing studies) and Second Interim Jury presentations.	Implementation / Observation	To translate the concept into an architectural proposal and refine it. To conduct a final formative assessment prior to final presentations (Participant Observation, Document Analysis: Developed Drawings).
12–15	Project detailing, preparation for final presentations, Final Jury, and post-test survey.	Reflection / Evaluation	To present and evaluate the project through a comprehensive final review. To measure the impact of the learning process (Post-test Survey, Document Analysis: Final Projects, Participant Observation).

3.3. Data Collection Instruments

The primary data collection instruments used throughout this process are as follows:

i. Pre-Test and Post-Test Surveys: Administered before (Week 1) and after (Week 15) the studio process, these surveys quantitatively measured changes in students' knowledge, attitudes, and awareness regarding topics such as historic environment conservation, sustainability, and contemporary architectural additions.

ii. Participant Observation: The researchers, as active participants throughout the 15-week process detailed in Table 1 (including critiques, juries, and discussions), systematically documented observational notes to capture both the progression and dynamics of the studio.

iii. Document Analysis: All materials produced by students over the course of the semester—research panels, sketches, diagrams, and final project boards—were collected as primary data sources. The analysis of these documents was based on an analytical rubric comprising predefined criteria supported by relevant literature. The evaluation criteria included:

- Design Concept and Creativity
- Functionality and Programmatic Fit
- Contextual Integration with Historical Fabric
- Spatial and Aesthetic Quality
- Technical Performance and Sustainability
- Presentation Quality and Communication

3.4. Data Analysis Procedures

A holistic approach was adopted for analyzing the mixed data collected in the study:

Quantitative Data Analysis: Data obtained from the pre- and post-test surveys were analyzed using the free statistical software. A paired-samples t-test was employed to determine whether the differences between students' scores before and after the studio process were statistically significant.

Qualitative Data Analysis: Qualitative data, including observation notes and student projects, were analyzed using thematic analysis. This method followed a systematic process involving familiarization with the data, generation of initial codes, identification and refinement of themes,

and final reporting. In analyzing student projects, the dimensions of resilience and healing—as defined in the theoretical framework—were used as the primary thematic categories.

3.5. Reliability and Mitigation of Researcher Bias

Several strategies were employed to enhance the reliability and validity of the research:

Data Triangulation: Findings from multiple data sources (surveys, observations, and documents) were compared and cross-validated. This method helped establish the robustness of the results.

Mitigating Researcher Bias: In action research, the participatory role of the researcher can pose a risk of bias. To minimize this risk, structured tools such as pre-designed surveys and analytical assessment rubrics were used. Reflective journals were maintained throughout the process, and findings were regularly discussed with other academics through peer debriefing. These measures aimed to enhance the objectivity and transparency of the study.

4. Findings: Pedagogical Impacts and Design Outcomes

This section presents the quantitative and qualitative findings derived from the mixed-methods research design under two main headings; each aligned with the study's research question. The first subsection addresses measurable changes in students' knowledge and attitudes, while the second explores how these changes were reflected in the students' design outputs through thematic analysis.

4.1. Quantitative Analysis: Measurable Changes in Student Knowledge and Attitudes

The pre- and post-studio surveys (n=11) revealed statistically significant changes in students' knowledge of fundamental conservation concepts and in their attitudes toward intervention in historical environments.

Increase in Knowledge Levels: A marked improvement was observed in students' basic knowledge regarding architectural conservation theories and principles of practice. The findings presented in Table 2 indicate that the studio effectively met its pedagogical objectives. Notably, the percentage of students correctly identifying the content and purpose of the Venice Charter—one of the most essential international documents in the field of conservation—increased from 72.7% to 100%. Similarly, awareness of contemporary conservation approaches such as adaptive reuse reached its highest level by the end of the studio (Table 2).

Table 2 Pre- and Post-Test Results: Changes in Students' Knowledge Levels

Question	Correct Answer – Pre-Test (%)	Correct Answer – Post-Test (%)	Change (%)
What is the Venice Charter concerned with?	72.7%	100%	+27.3
What is the most important consideration in modern additions to historic buildings?	81.8%	100%	+18.2
What does adaptive reuse mean?	90.9%	100%	+9.1

Analysis of Attitudinal Shifts: The analysis of Likert-scale attitudinal items reveals that the studio had a deeper and more transformative impact on students' philosophy of conservation. Table 3 presents the mean scores from the pre- and post-tests, along with the p-values indicating the statistical significance of the differences observed.

One of the most striking findings is the significant decrease in agreement with the statement "Historic buildings must be preserved in their original state" (from a mean of 3.8 to 2.7, $p < 0.01$). This suggests a shift in students' perspectives from a static and absolute understanding of conservation toward a more dynamic approach that supports the adaptive reuse of historic structures in accordance with contemporary needs.

This shift is further supported by significant increases in agreement with the statements "Historic buildings should be repurposed to meet today's needs" (from 4.4 to 4.9, $p < 0.05$) and "Contemporary architectural expressions should be used in modern additions" (from 3.9 to 4.5, $p < 0.01$). These results indicate that students have internalized the necessity of establishing a dialogue between respect for heritage and contemporary design—an approach aligned with the spirit of the Venice Charter (Table 3).

Table 3 presents the mean scores from the pre- and post-tests. To clearly demonstrate the educational impact of the studio, exact p-values are provided to indicate the statistical significance levels of the observed differences (where $p < 0.05$ is considered significant and $p < 0.01$ is highly significant).

Table 3 Comparison of Pre-Test and Post-Test Results for Likert-Scale Attitudinal Statements

Statement	Pre-Test Mean (SD)	Post-Test Mean (SD)	p-value
Modern additions compromise the integrity of historical fabric.	3.5 (0.7)	2.8 (0.6)	<0.05
The architectural features of historic buildings must be considered.	4.6 (0.5)	4.9 (0.3)	<0.01
Historic buildings should be repurposed to meet contemporary needs.	4.4 (0.8)	4.9 (0.2)	<0.05
Contemporary architectural expressions should be used in modern additions.	3.9 (0.6)	4.5 (0.5)	<0.01
Sustainability principles are essential in historic buildings.	4.7 (0.5)	5.0 (0.0)	<0.01
Historic buildings must be preserved in their original state.	3.8 (0.9)	2.7 (0.7)	<0.01

4.2. Qualitative Evaluation of Open-Ended Questions

Thematic analysis of the qualitative data collected through open-ended questions revealed the distribution of students' perceptions regarding urban and historical spaces within the context of the healing concept. These themes and their frequencies are presented in Table 4.

Table 4 Themes and Frequencies Derived from Open-Ended Questions

Theme	Frequency
Awareness of and respect for historic fabric	9
Spatial and functional balance between tradition and modernity	8
Contribution of the project to personal development and design competence	10
Architectural design challenges and creative solutions	7
Sustainable design approach in the context of urban resilience	6

The students' reflections notably emphasized the role of the healing concept in enhancing urban resilience through the preservation and adaptive reuse of historic sites. These findings suggest that the concept holds a meaningful position within architectural education and design thinking.

4.3. Qualitative Analysis: Translating "Healing" and "Resilience" into Design Strategies

The qualitative findings illustrate how students transformed the theoretical knowledge and attitudes gained during the studio into concrete and multi-layered design strategies. The thematic analysis of 11 student projects shows that the concepts of healing and resilience guided students beyond merely generating aesthetic or functional solutions, pushing them toward architectural interventions that address social, ecological, and cultural challenges. Table 5 presents an analytical

summary of these projects, categorized according to the dimensions of resilience and healing as defined in the theoretical framework.

Table 5 Thematic Analysis of Student Design Concepts According to Dimensions of Resilience and Healing

Resilience Dimension	Concept Title	Main Program / Function	Healing Dimension (Type & Description)
SOCIAL RESILIENCE (Approaches that strengthen social capital, infrastructure, and inclusivity)	Rehabilitation Center for Veterans and Families of Martyrs	Social Rehabilitation	Psychological & Social: Healing collective memory; creating safe spaces for vulnerable groups.
	Urban Memory: Alzheimer's Support Center	Health, Social Housing	Cognitive & Spatial: Using the familiar texture of the historic environment as a "conceptual anchor" for individuals with memory loss.
	Urban Rebirth: Maternity Unit	Healthcare, Women's Health	Physical & Social: Combining the physical renewal of the city and the individual through the metaphor of "birth."
ECONOMIC & ECOLOGICAL RESILIENCE (Approaches based on local resources, sustainability, and economic vitality)	Gediatrics: Center for Life Resilience	Social Housing, Elderly Care	Psychological & Social: Supporting psychological well-being by enhancing quality of life and sense of community for elderly individuals.
	Healing from Rome to Present: Physical Therapy Hospital	Health Tourism	Physical & Sensory: Integrating bodily and sensory healing through historical-natural resources (e.g., thermal water, aromas).
	Continuity of Thermal Water in Production	Agriculture, Energy, Housing	Environmental: Rehabilitating the city's natural resources by incorporating them into productive systems, restoring the human-nature relationship.
	Journey to the Ancient City: Heritage Seed Continuity	Tourism, Agriulture, Branding	Cultural: Strengthening the connection to cultural roots by transmitting agricultural heritage to future generations.
	Sarıkaya Reimagined: Ruin Hotel	Tourism, Heritage Conservation	Spatial & Cultural: "Healing" alienated ruins by reintegrating them into urban life and identity through adaptive reuse.
CULTURAL RESILIENCE (Approaches that carry cultural heritage, identity, and experience into the future through new technologies and methods)	AI-Supported Pediatric Workshops: Virtual Archaeology	Education, Technology, Children	Cognitive & Creative: Enhancing creativity by allowing children to form a positive relationship with history through technology and art.
	Sensory Circulation Route	Experiential Tourism, Landscape	Sensory & Psychological: Providing mental and physical relief through a sensory-focused route distanced from urban noise.

MORPHOLOGICAL RESILIENCE (Approaches that ensure continuity and adaptability of the city's physical structure and planning principles)	Modular Resistance of the Ancient City	Housing, Public Space	Spatial & Social: Repairing fragmented urban fabric by reconciling historical planning principles with contemporary living needs.

The architectural design projects developed throughout the studio process offer a rich framework for understanding how students conceptualized the historical environment, established relationships with the site, and interpreted the overarching theme of "healing." While each student was required to formulate their own unique design concept, they were also expected to approach it holistically by integrating not only the designated conservation site but also considering the broader urban context and morphological characteristics of the city. In this regard, the Roman Bath and its surrounding archaeological zone were compulsory components to be incorporated into each design proposal. However, the ways in which students engaged with the notion of healing—whether through spatial programming, symbolic interpretation, or sensory design—were left open to their individual conceptual decisions.

Qualitative analyses of the projects reveal multi-layered strategies extending from spatial organization to functional scenarios, from user profiles to aesthetic preferences, thereby shedding light on the original positions students developed regarding conservation, sustainability, and urban resilience. The projects not only generated architectural spaces but also proposed strategies for repair and resilience across social, economic, cultural, and morphological dimensions. Accordingly, the outcomes have been thematically grouped and evaluated along four primary axes: (1) Social Resilience and Collective Healing, (2) Continuity as Ecological and Economic Resilience, (3) Cultural Resilience and Experiential Awareness, and (4) Morphological Resilience and Spatial Repair. These themes are elaborated below through representative project examples.

Theme 1: Social Resilience and Collective Healing: A significant portion of the projects developed within the studio reinterpreted the historical environment of Sarıkaya as a "therapeutic landscape," (Figure 1d) in which social traumas could be repaired and collective memory reconstructed. In this context, the proposed "Rehabilitation Center for Veterans and Families of Martyrs" (Figure 1a) not only offers physical spaces for healing vulnerable groups but also anchors itself in a strong axis of collective memory embedded in the city's social identity. The high population density of Sarıkaya, the intense pedestrian access to the site, and the potential for social gathering reminiscent of the ancient agora reinforce the spatial and societal relevance of the proposal. The rehabilitation spaces are integrated holistically with urban open areas, aiming to make the healing process a part of public life and to embed it symbolically into the collective urban fabric.

Similarly, the project "Gediatrics: Elderly Resilience Center" (Figure 1b) responds to the high proportion of elderly residents in Sarıkaya by proposing a multilayered social program that supports active aging throughout the life cycle. This continuum ranges from self-sufficient elderly individuals to those requiring intensive care, making use of the city's existing Physical Therapy and Rehabilitation (FTR) hospital, refunctioning educational spaces, and promoting productive engagement among the elderly. The goal is to redefine the aging process through social integration and lifelong participation.

The "Alzheimer Care Center" project transforms the site's morphology into a pedestrian-oriented and controlled "memory corridor" system that allows individuals to remain connected to the city and social life while receiving structured care (Figure 1c). Sensory guidance systems, designed according to the progressive stages of Alzheimer's disease, ensure both freedom and safety. The city square, reinterpreted from the archaeological excavation area, serves as a central civic node of orientation and gathering. This dual focus on individual healing and collective memory aims to reweave both personal and communal narratives into the urban fabric.

Moreover, the "Therapeutic Gardens" project integrates locally grown aromatic plants with thermal water resources to stimulate health tourism while supporting economic sustainability. The holistic approach includes agricultural production, aromatic plant cultivation, and scenic walking routes that incorporate the archaeological site into a broader health-oriented tourism infrastructure. This not only enriches the spatial experience of the city but also reinforces Sarıkaya's ecological and economic resilience.

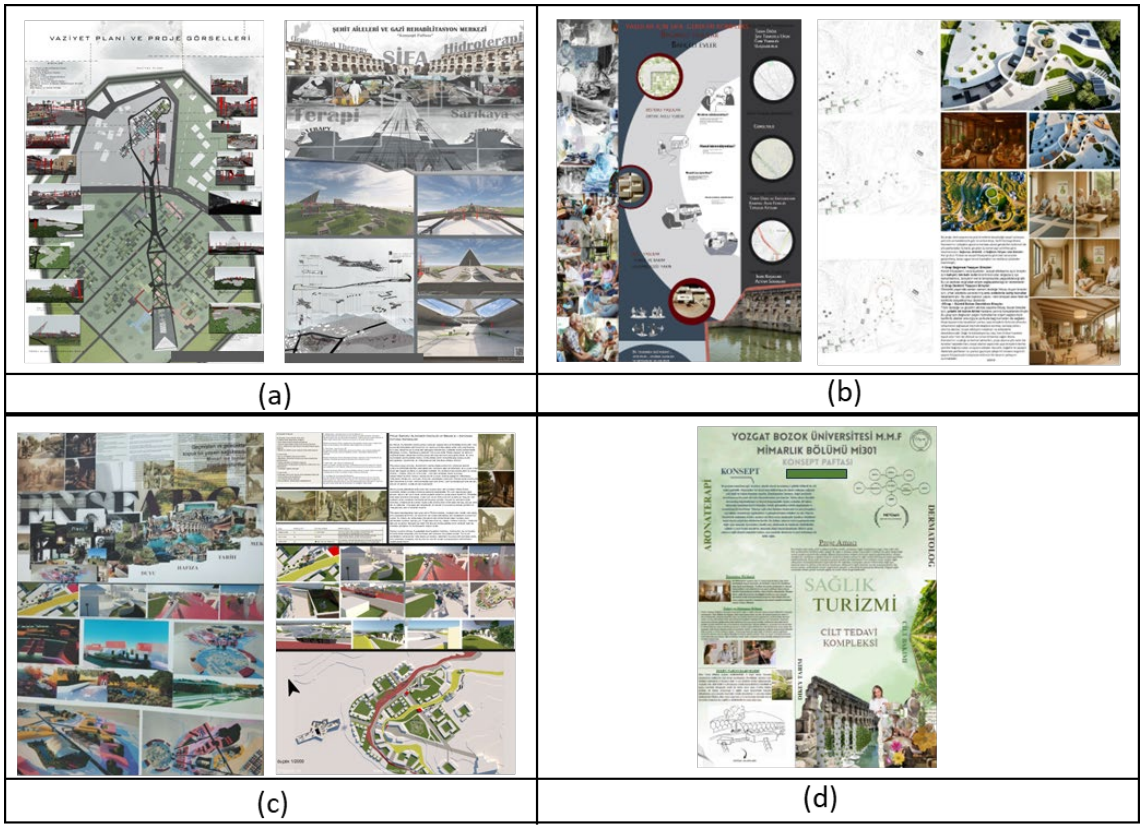

Figure 1 Projects related to the theme of social resilience and collective healing:
(a) The 'Rehabilitation Center for Veterans and Families of Martyrs' proposes collective healing by integrating therapy spaces with agora-like public gathering zones; (b) The geodesic greenhouse project highlights ecological and social continuity by utilizing thermal water in daily agricultural production; (c) The 'Urban Memory Center' employs sensory guidance and familiar urban textures as cognitive anchors for Alzheimer's patients; (d) The 'Health Tourism Unit' merges physical healing with social infrastructure through thermal water and aromatherapy

Theme 2: Continuity as Ecological and Economic Resilience: Another group of projects developed within the studio approached the concept of resilience through the principles of ecological balance and economic sustainability, placing the continuity of local resources—spanning from the past to the present—at the core of architectural design. This approach moves beyond a static preservation of the historical environment and instead proposes an adaptive reinterpretation that aligns the area's cultural and natural heritage with the productive dynamics of contemporary life.

In this context, the "Thermal Production Integration Center" project assumes that Sarıkaya's geothermal resources—utilized since antiquity—possess not only recreational and touristic value but also significant productive potential (Figure 2c). The project proposes an integrated production model in which thermal energy is harnessed in greenhouses, therapeutic health facilities, and urban heating systems. Without harming the region's ecological cycle, it introduces innovative infrastructure systems—both passive and active—that ensure the continuity of geothermal resources, thereby articulating a natural resource-based approach to ecological resilience.

Similarly, the "Heirloom Seed Preservation and Education Center" project reactivates Sarıkaya's rural agricultural traditions and heirloom seed diversity within a spatial framework that promotes

food security, biodiversity, and cultural continuity. Through spaces dedicated to cultivating, exhibiting, and disseminating heirloom seeds via educational programs, the project merges traditional agricultural wisdom with a contemporary model of ecological economy (Figure 2a, 2b).

Other projects that link economic resilience to cultural and health tourism reconceptualize historical structures not as passive preservation objects but as "active heritage" sites with renewed functions integrated into local economic cycles. In this regard, the "Physical Therapy and Rehabilitation (FTR) Hospital Integration Project" aims to transform existing healthcare infrastructure into a health tourism destination by aligning it with the thermal potential of the Roman Bath, offering treatment spaces focused on therapeutic cures. Similarly, the "Ruins Hotel" proposal offers a unique accommodation experience in which archaeological remains are spatially integrated into the interior design to preserve collective memory while also generating economic value (Figure 2b).

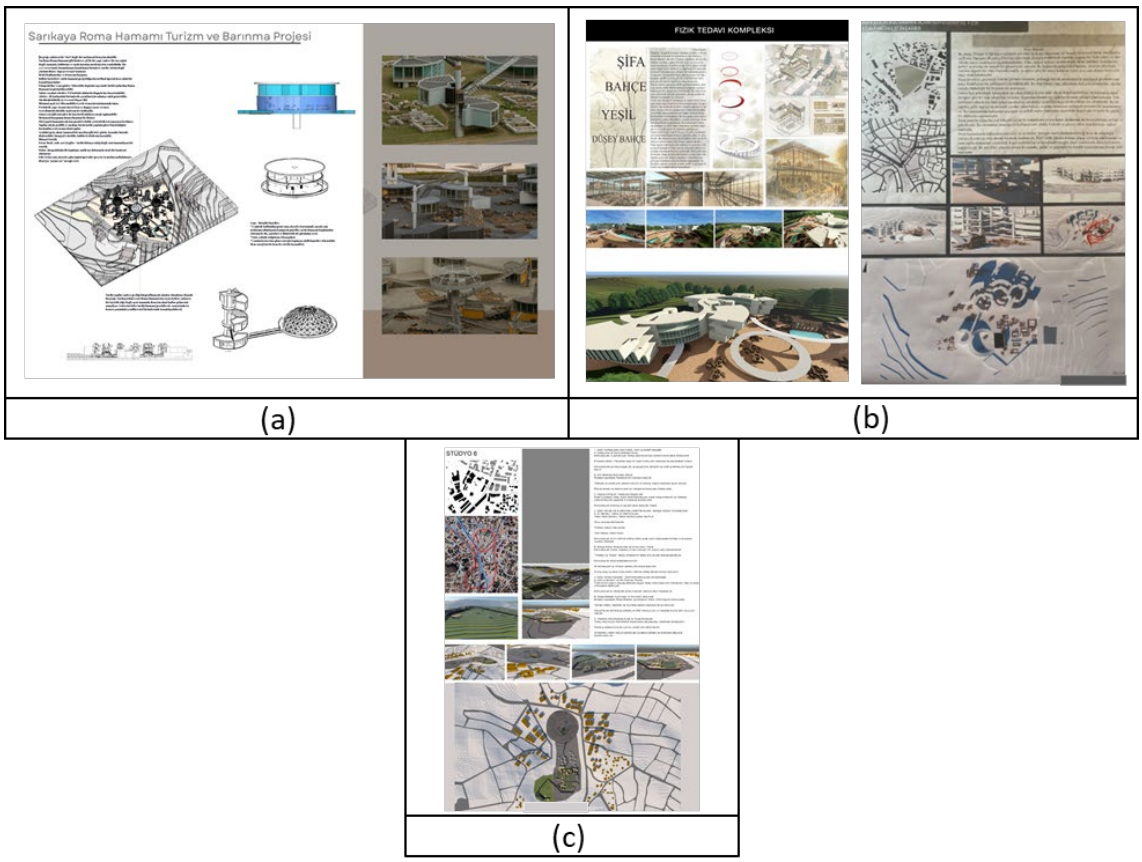

Figure 2 Projects representing the theme of continuity as ecological and economic resilience: (a) The 'Ruin Hotel' demonstrates spatial healing by actively incorporating archaeological ruins into contemporary accommodation, transforming passive remnants into economic assets; (b) The 'Physical Therapy Hospital' supports long-term economic resilience by converting local thermal water potential into a health tourism infrastructure; (c) The 'Heirloom Seed Preservation' project bridges rural agricultural traditions with a contemporary ecological economy to sustain cultural and biological diversity

Theme 3: Cultural Resilience and Experiential Awareness: Some of the projects developed during the studio process aimed to construct cultural resilience not solely through the physical preservation of the historical environment but through the sensory and experiential relationships that users establish with it. These proposals challenge the notion of the urban heritage site as a passive "monumental" presence, instead reimagining it as a multi-layered field of experience, continuously reproduced through embodied, cognitive, and sensory engagement.

Aligned with this approach, the "AI-Supported Pediatric Design and Education Workshop" project positions technology not merely as a tool but as a pedagogical bridge for the intergenerational transmission of cultural heritage. Through age-appropriate, AI-assisted

interactive modules, the project enables children to explore and internalize the historical layers of the Sarıkaya Roman Bath. In this setting, children not only engage with the site intellectually but also become active agents in the co-production of cultural meaning. Cultural sustainability is thus reframed as a process of awareness fostered through pedagogical participation.

Another proposal, the "Sensory Circulation Route," reconstructs spatial experience through auditory, visual, tactile, and olfactory stimuli, establishing a body-centered relationship between the individual and the historical context. Rather than relying solely on visual cues, this route guides visitors through a sensorially enriched spatial narrative. Sound stations, scent modules, and textured surfaces placed along the path facilitate both individual and collective encounters with the layered history of Sarıkaya.

Such projects assert that heritage is not merely an object of protection but also a performative and affective domain in which collective memory can be reconstructed through sensory and cognitive interaction. Cultural resilience, in this sense, is not confined to the preservation of the past but is actively sustained and revitalized through novel representational strategies and spatial narratives. Accordingly, the continuity of cultural heritage depends not only on the physical integrity of place but also on the multisensory, experiential bonds forged between the individual and the site (Figure 3a).

Theme 4: Morphological Resilience and Spatial Repair: Certain projects developed within the architectural studio addressed the concept of resilience not solely in structural or functional terms but through the lens of morphological continuity. Within this framework, the project titled "Modular Resistance of the Ancient City" reinterpreted the gridal urban morphology still traceable around the Sarıkaya Roman Bath by integrating it with contemporary housing and public space needs. The fundamental premise of the project is that the ancient urban order should not merely be regarded as a historical planning paradigm, but also as a resilient infrastructural model capable of informing contemporary spatial organization.

Rather than proposing a literal preservation of formal codes, this approach advocates for their reinterpretation in ways that can be integrated into the fabric of modern urban life. Here, the gridal structure is not only approached as a geometric ordering system but also as a spatial logic encompassing permeability, orientation, the balance between openness and enclosure, and neighborhood-scale sociability. The project synthesizes this modular system through housing clusters, public courtyards, green and open spaces, and pedestrian networks, thereby reestablishing morphological continuity in both functional and social dimensions.

Moreover, the proposed morphological continuity offers a critical lens through which to address the fragmented urban fabrics frequently encountered in small towns with stratified historical layers, such as Sarıkaya. The reconciliation between historical planning principles and contemporary needs is not merely interpreted as a process of physical renewal but as the restoration of a historically embedded urban continuity.

In this respect, the "Modular Resistance of the Ancient City" project investigates how historical morphology can be transformed under contemporary conditions, contributing an original architectural perspective to the concept of spatial resilience. It is proposed as a "spatial repair strategy" that maintains continuity between past and present, and establishes a theoretical bridge within design pedagogy between historical typology and contemporary adaptability (Figure 3b).

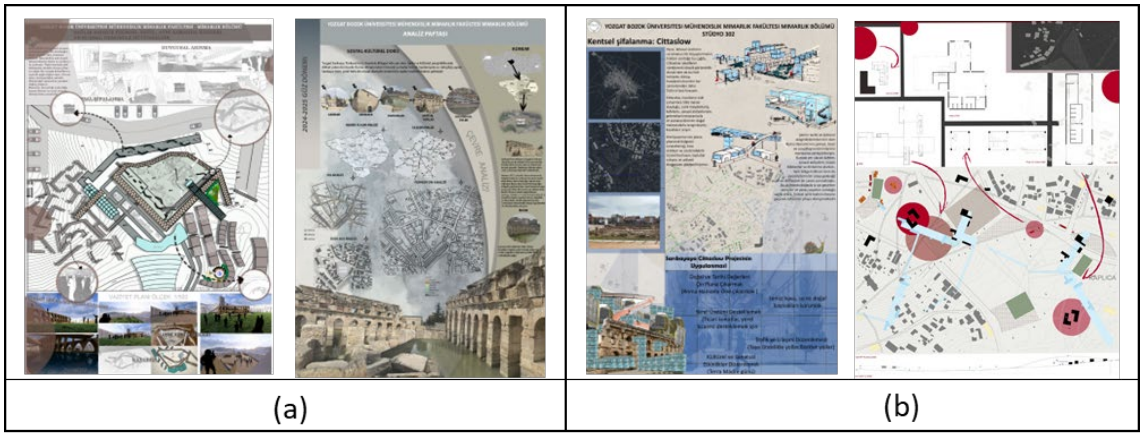

Figure 3 Projects Representing the themes of cultural resilience & experiential awareness and morphological resilience & spatial repair: (a) Diagrams from the 'Virtual Archaeology' and 'Sensory Circulation Route' projects illustrate how cognitive, performative, and sensory interactions—rather than purely visual preservation—help reconstruct cultural memory; (b) Boards from the 'Modular Resistance' project showcase spatial repair strategies that adapt the ancient Roman grid system to satisfy contemporary housing and social permeability needs

Table 6 Categorization of Student Project Concepts by Primary Themes and Programmatic Focus

Project Concept	Health & Healing	Social & Housing	Tourism & Economy	Ecology & Agriculture	Culture & Memory	Technology & Education	Experience & Sensory
1. Rehabilitation Center for Veterans & Martyrs' Families	✓	✓			✓		
2. AI-supported Pediatric Design Workshop						✓	✓
3. Sensory Circulation Route			✓		✓		✓
4. Urban Memory: Alzheimer's & Geriatric Center	✓	✓			✓		
5. Urban Rebirth: Maternity & Women's Health Unit	✓	✓					
6. Physical Therapy Hospital (Aromatherapy)	✓		✓	✓	✓		✓
7. Modular Resistance of the Ancient City		✓			✓		
8. Geriatrics: Center for Life Resilience	✓	✓					
9. Thermal Water: Geodesic Greenhouses & Housing		✓		✓			
10. Journey to the Ancient City: Ancestral Seed Branding			✓	✓	✓		✓
11. The Ruin Hotel		✓	✓		✓		

The data presented in the thematic matrix (Table 6) reveals that the students' design proposals were not confined to singular categories but were consistently intersectional in nature. The analysis of the matrix indicates a clear thematic hierarchy in the students' approach. Culture & Memory emerges as the most dominant theme, being a component in eight of the eleven projects, closely

followed by Social & Housing, which was present in seven. Health & Healing also constitutes a significant area of focus, appearing in five proposals. The matrix further highlights a strong pattern of thematic pairings; Health & Healing frequently co-occurs with Social & Housing, while Tourism & Economy is consistently linked with Culture & Memory. This demonstrates a tendency to synthesize social programs with health-based solutions and to ground economic strategies in cultural heritage. Moreover, certain projects, such as the 'Physical Therapy Hospital' (Project 6) and 'Ancestral Seed Branding' (Project 10), act as hyper-integrative models by simultaneously addressing five distinct themes, showcasing the multi-layered thinking that the studio process fostered.

5. Discussion

This study was grounded in the proposition that architectural education must be repositioned in response to the complex and interrelated challenges of the 21st century—namely, the climate crisis, social inequalities, and the erosion of cultural identity. Within this context, it introduced and evaluated an innovative pedagogical model that integrates disciplines such as historic environment conservation, urban resilience, and healing architecture by using the theme of healing as a conceptual bridge. The core findings of the research demonstrate that this integrated approach generated a multilayered and profound transformation in students' competencies.

Quantitative data revealed that the studio experience significantly shifted students' attitudes toward conservation—from rigid preservationism to a more dynamic and flexible understanding that embraces the integration of heritage into contemporary life. One of the clearest indicators of this cognitive shift was the statistically significant decrease ($p < 0.05$) in agreement with the prejudice that modern materials inherently conflict with historic fabric. This mental flexibility became the foundation for the sophisticated and context-sensitive design strategies developed by the students. Importantly, this cognitive shift mirrors the evolution of international conservation paradigms from the strict material focus of the Venice Charter to the Washington Charter's acceptance of contemporary dialogue. The cross-analysis of the project concepts confirmed this holistic approach, showing that students placed human-centered themes such as Culture/Memory and Social/Housing at the core of their projects, supported by programmatic tools like Health/Healing and Tourism/Economy.

The thematic analysis of student projects illustrates how theoretical concepts were translated into concrete, multi-layered spatial strategies. As proposed by Gesler (1992), the historical environment of Sarıkaya was successfully reinterpreted by students as a "therapeutic landscape." The design outputs seek not only to promote physical and mental well-being but also to strengthen the city's social infrastructure and inclusivity through public spaces. By reconstructing collective memory, enhancing social networks, and establishing a sustainable relationship with the urban context, the proposals ultimately become spatial manifestations of social resilience, aligning directly with Jacobs's (1961) conceptualization of social capital. Furthermore, projects addressing ecological and economic continuity moved beyond passive preservation. Collectively, these projects interpret ecological and economic resilience not merely as the sustainable management of resources but as the architectural continuity of cultural codes transmitted across generations. By transforming Sarıkaya's unique natural assets and cultural heritage into elements of a forward-looking spatial economy, the proposals aim to both safeguard the legacy for future generations and strengthen the structural resilience of the urban system through economic integration.

In terms of cultural and morphological resilience, the design outputs challenged the notion of heritage as a passive monument. Such projects assert that heritage is not merely an object of protection but also a performative and affective domain in which collective memory can be reconstructed through sensory and cognitive interaction. As supported by Pallasmaa's (2024) sensory approach, cultural resilience, in this sense, is not confined to the preservation of the past but is actively sustained and revitalized through novel representational strategies and spatial narratives. Accordingly, the continuity of cultural heritage depends not only on the physical integrity of place but also on the multisensory, experiential bonds forged between the individual

and the site. Moreover, the proposed morphological continuity offers a critical lens through which to address the fragmented urban fabrics frequently encountered in small towns with stratified historical layers, such as Sarıkaya. The reconciliation between historical planning principles and contemporary needs is not merely interpreted as a process of physical renewal but as the restoration of a historically embedded urban continuity. In this respect, the "Modular Resistance of the Ancient City" project investigates how historical morphology can be transformed under contemporary conditions, contributing an original architectural perspective to the concept of spatial resilience. It is proposed as a "spatial repair strategy" that maintains continuity between past and present, and establishes a theoretical bridge within design pedagogy between historical typology and contemporary adaptability.

The central argument of this study is that the healing theme served as a pedagogical catalyst, encouraging students to engage with the concept of resilience in a more critical and political manner. In conclusion, the analysis of these concepts demonstrates that students not only questioned how to design during the studio process, but more importantly, they began to explore why and for whom they design. In contrast to the risk of resilience discourse being used to preserve the status quo or to obscure systemic inequalities, this model directly confronted students with the questions: "Resilience for whom?". and "Which wounds need healing?" Rather than merely sustaining current conditions, student projects proposed transformative interventions: social resilience through new social infrastructure for vulnerable groups such as veterans, families of martyrs, and Alzheimer's patients; ecological and economic resilience through models based on local thermal resources and ancestral seed preservation; and cultural resilience through reinterpreting the city's historical morphology and sensory experience. These responses indicate a reframing of resilience—not simply as the capacity to bounce back after crisis, but as the potential to bounce forward toward a more just and sustainable future.

6. Conclusion

This holistic perspective repositions the architectural design studio as a resilience incubator—a space where students interweave various dimensions of resilience (social, ecological, cultural, and economic) through design. The projects developed throughout the studio provide compelling evidence that, with appropriate interventions, historic urban landscapes can be transformed into healing and resilient spaces—spaces that both carry the traces of the past and respond to the social and ecological challenges of the future. This study offers a pedagogical vision that redefines the architect not as an isolated form-giver, but as a socially embedded repairer and a resilience choreographer, embodying Donald Schön's ideal of the reflective practitioner working within complex socio-ecological systems.

Crucially, the implications of this study extend beyond the specific context of the Sarıkaya Roman Bath. The pedagogical framework tested here offers a reproducible model for international architectural education. By demonstrating how resilience, heritage, and health can be synthesized in the studio environment, this approach provides a valuable blueprint for global curricula aiming to equip future architects with the interdisciplinary tools necessary to tackle 21st-century urban challenges.

Naturally, a critical assessment of this pedagogical model requires acknowledgment of the study's limitations. Although the small sample size (N = 11) and single case study design constrain generalizability, the nature of action research allows for a contextually rich, in-depth understanding. The participatory dual role of the researchers as studio instructors introduces a potential for bias. While structured assessment rubrics and peer debriefings were employed to mitigate this, future studies should consider independent pedagogical evaluations. A more significant limitation lies in the absence of a direct co-design process with the local community. This shortcoming underscores the necessity of enriching future iterations of the model with participatory methodologies that enable students to design not only about a place, but with it. To address this, future implementations must incorporate joint design workshops, structured

stakeholder meetings, and community-led feedback loops to ground spatial healing in genuine public consensus.

These limitations also open productive avenues for future research—ranging from longitudinal studies that assess the retention of gained competencies, to comparative case analyses testing the model in diverse contexts, and participatory design processes that place community engagement at the center.

CRediT Authorship Contribution Statement

Dr. Öğr. Üyesi Begüm Demiroğlu İzgi (Corresponding Author): Conceptualization; Methodology; Investigation; Formal analysis; Data curation; Writing – original draft; Writing – review & editing; Visualization; Project administration; Supervision. Öğr. Gör. Ayşegül Koç Ünlüsoy: Conceptualization; Methodology; Investigation; Data curation; Writing – review & editing; Validation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics approval for this study was granted by the Yozgat Bozok University Social and Human Sciences Ethics Committee (Decision No: 20/07; Date: 19 December 2024). The application was evaluated under the committee's directive (incoming letter dated 03 December 2024, no. 272396), and the study was found appropriate/approved. The study was conducted in accordance with the approved protocol, with voluntary participation and confidentiality safeguards as described in the ethics submission.

References

Al Khatib, I., Samara, F., & Ndiaye, M. (2024). A systematic review of the impact of therapeutical biophilic design on health and wellbeing of patients and care providers in healthcare services settings. *Frontiers in Built Environment*, *10*, 1467692.

Altomonte, S., Rutherford, P., & Wilson, R. (2014). Mapping the way forward: Education for sustainability in architecture and urban design. *Corporate Social Responsibility and Environmental Management*, *21*(3), 143-154.

Ashworth, G. (2011). Preservation, conservation and heritage: Approaches to the past in the present through the built environment. *Asian Anthropology*, *10*(1), 1-18.

Brand, S. (1995). *How buildings learn: What happens after they're built*. Penguin Books.

Brooker, G., & Stone, S. (2004). *Rereadings: Interior architecture and the design principles of remodelling existing buildings*. RIBA Enterprises.

Butterfield, A., & Martin, D. (2016). Affective sanctuaries: Understanding Maggie's as therapeutic landscapes. *Landscape Research*, *41*(6), 695-706. https://doi.org/10.1080/01426397.2016.1197386

Calikusu, A. N., Cakmakli, A. B., & Gursel Dino, I. (2023). The impact of architectural design studio education on perceptions of sustainability. *Archnet-IJAR: International Journal of Architectural Research*, *17*(2), 375-392.

Cantacuzino, S. (1989). *Re-architecture: Old buildings/new uses*. Abbeville Press.

Cetina, K. K. (1999). *Epistemic cultures: How the sciences make knowledge*. Harvard University Press.

Clarke, N., Kuipers, M., & Stroux, S. (2020). Embedding built heritage values in architectural design education. *International Journal of Technology and Design Education*, *30*(5), 867-883.

Davoudi, S., Shaw, K., Haider, L. J., Quinlan, A. E., Peterson, G. D., Wilkinson, C., Fünfgeld, H., McEvoy, D., Porter, L., & Davoudi, S. (2012). Resilience: A bridging concept or a dead end? "Reframing" resilience: Challenges for planning theory and practice interacting traps: Resilience assessment of a pasture management system in Northern Afghanistan urban resilience: What does it mean in planning practice? Resilience as a useful concept for climate change adaptation? The politics of resilience for planning: A

cautionary note: Edited by Simin Davoudi and Libby Porter. *Planning Theory and Practice*, *13*(2), 299-333.

Dilani, A. (2008). Psychosocially supportive design: A salutogenic approach to the design of the physical environment. *Design and Health Scientific Review*, *1*(2), 47-55.

Embaby, M. E. (2014). Heritage conservation and architectural education: "An educational methodology for design studios." *HBRC Journal*, *10*(3), 339-350.

Gesler, W. M. (1992). Therapeutic landscapes: Medical issues in light of the new cultural geography. *Social Science & Medicine*, *34*(7), 735-746.

Gursel, A. P., Shehabi, A., & Horvath, A. (2023). Embodied energy and greenhouse gas emission trends from major construction materials of US office buildings constructed after the mid-1940s. *Building and Environment*, *234*, 110196.

Hettithanthri, U., & Hansen, P. (2022). Design studio practice in the context of architectural education: A narrative literature review. *International Journal of Technology and Design Education*, *32*(4), 2343-2364.

Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, *4*(1), 1-23.

ICOMOS. (1964). *International charter for the conservation and restoration of monuments and sites (The Venice Charter)*.

ICOMOS. (1987). *Charter for the conservation of historic towns and urban areas (The Washington Charter)*.

ICOMOS. (2013). *The Hangzhou declaration: Placing heritage and development on the same scale*. UNESCO.

Ikiz Kaya, D., Pintossi, N., & Dane, G. (2021). An empirical analysis of driving factors and policy enablers of heritage adaptive reuse within the circular economy framework. *Sustainability*, *13*(5), 2479.

Jacobs, J. (1961). *The death and life of great American cities*. Random House.

Jokilehto, J. (2017). *A history of architectural conservation*. Routledge.

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge University Press.

Kellert, S. R., & Wilson, E. O. (Eds.). (1993). *The biophilia hypothesis*. Island Press.

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner: Doing critical participatory action research* (Vol. 200). Springer

Maggie's. (2026). *Our buildings and architecture*. https://www.maggies.org/about-us/buildings-architecture/

Noaime, E., & Alnaim, M. M. (2025). Heritage and resilience: Sustainable recovery of historic Syrian cities. *Buildings*, *15*(14), 2403.

Norberg-Schulz, C. (1979). *Genius loci: Towards a phenomenology of architecture*. Rizzoli.

Pallasmaa, J. (2024). *The eyes of the skin: Architecture and the senses*. John Wiley & Sons.

Pendlebury, J. (2009). The urbanism of Thomas Sharp. *Planning Perspectives*, *24*(1), 3-27.

Pintossi, N., Ikiz Kaya, D., & Pereira Roders, A. (2021). Assessing cultural heritage adaptive reuse practices: Multi-scale challenges and solutions in Rijeka. *Sustainability*, *13*(7), 3603.

Plevoets, B., & Van Cleempoel, K. (2013). Adaptive reuse as an emerging discipline: An historic survey. In G. Brooker & S. Stone (Eds.), *Reinventing architecture and interiors: A socio-political view on building adaptation* (pp. 13-32). RIBA Publishing.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.

Rodwell, D. (2008). *Conservation and sustainability in historic cities*. John Wiley & Sons.

Sabree, M., & Mustafa, M. M. (2023). Importance and role of live projects in architectural education using a descriptive and analytical approach. *Education Science and Management*, *1*(1), 7-18.

Salama, A. M. (2016). *Spatial design education: New directions for pedagogy in architecture and beyond*. Routledge.

Sara, R., & Mosley, J. (2014). *The architecture of transgression*. John Wiley & Sons.

Schön, D. A. (2017). *The reflective practitioner: How professionals think in action*. Routledge.

Shamsuddin, S. (2023). Urban in question: Recovering the concept of urban in urban resilience. *Sustainability*, *15*(22), 15907.

Smith, S. G., Dupre, K., & Crough, J. (2023). Live projects: A mixed-methods exploration of existing scholarship. *Archnet-IJAR: International Journal of Architectural Research*, *17*(4), 793-811.

Teymur, N. (1982). *Environmental discourse: A critical analysis of environmentalism in architecture, planning, design, ecology. Social sciences and the media*. Question Press.

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, *224*(4647), 420-421.

Verderber, S., Fine, S. V. D. J., Fine, D. J., & Fine, P. D. J. (2000). *Healthcare architecture in an era of radical transformation*. Yale University Press.

Wahl, D. C. (2016). *Designing regenerative cultures*. Triarchy Press.

Webster, H. (2008). Architectural education after Schön: Cracks, blurs, boundaries and beyond. *Journal for Education in the Built Environment*, *3*(2), 63-74.
Wong, L. (2024). *Adaptive reuse: Extending the lives of buildings*. Birkhäuser.

Resume

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