ITU A|Z • Vol 23 No 1 • March 2026 • 21-41

First year design education inspired by site-specific and site-determined artworks

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Received: September 2024 • Final Acceptance: May 2025

Abstract
This research explores the potential implementation of site-specific and site-determined artworks as a pedagogical tool for the basic design studios of first-year architectural education, investigating whether these artistic creations can pragmatically contribute to the genesis of new spatial concepts. This study also aims to assess the effectiveness of Kolb's Experiential Learning Theory (ELT) in the context of studio pedagogy. The basic design course is rooted in process-oriented and student-centred studio pedagogy, drawing on Kolb's Experiential Learning Theory, and is structured around three site-specific projects that focus on the reproduction of space and the potential of spatial studies. These projects range from building scale to urban pattern, with a focus on various facets of a place, including tangible and intangible qualities, as well as explicit and implicit characteristics, while also exploring the dynamics of human-space relationships. Qualitative data were collected through participant observation, informal interviews, and the analysis of students' work documents. The course's progression and outcomes are evaluated in terms of spatial perception, critical and conceptual thinking, and multisensory engagement with space. This course enhanced students' abilities to interpret spatial experiences, develop a critical perspective, and produce original solutions to spatial problems within the framework of site-specific and site-determined design approaches. The process of the course exposes the latent potential within user-space interactions and the intermediate spatial practices bridging art and architecture. The research is original in that it suggests that many possibilities for interaction, dialogue, and collaboration between art and architecture can be incorporated into architectural education.

Keywords
Experience of space, Experiential learning theory, First-year design studio, Site-specific and site-determined art, Spatial perception.

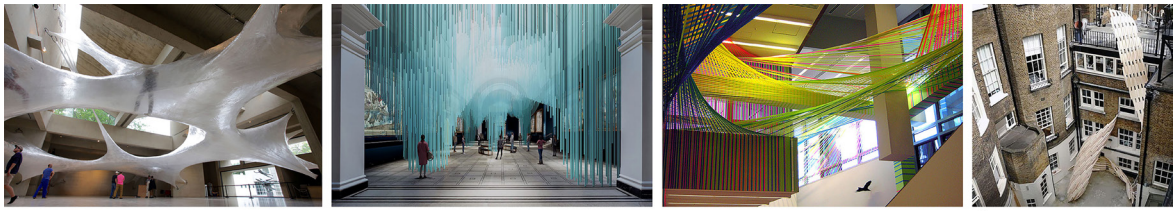
doi: 10.58278/0.2026.116

1. Introduction

The boundaries between art and architecture have often been a controversial topic of discussion within the architectural world. However, these disciplinary boundaries are becoming increasingly blurred today. In the field of art, site-specific and site-determined artworks have appeared as a form of critical spatial practices since the 1960s. Although, the terms 'site- specific' and 'site- determined' sometimes are used interchangeably in the literature, according to Robert Irwin's (1985) conceptualisation, 'site-specific' artworks are the works whose parameters have been set by the site, and 'site-conditioned/ determined' artworks refer to the works whose existence, form, and composition are determined by the physical, natural, social, and historical features of the site as well as the temporal conditions like snow, wind, etc. and visual and aural density (Üstek, 2011, p. 12; Kwon, 2004).

In the 1960s and 1970s, artists like Robert Smithson, Michael Heizer, Nancy Holt, and Walter De Maria created large-scale Land Art works using natural materials and vast open spaces, emphasising art's relationship with the environment. Concurrently, the Environmental Art Movement, with artists like Andy Goldsworthy and Christo and Jeanne-Claude, focused on engaging directly with nature to raise ecological awareness (Antmen, 2014). These works were deeply connected to the political and environmental activism of the time, merging ethics and aesthetics in critical spatial practices in contemporary art (Rose, 1969). In the 1970s and beyond, artists began creating site-specific indoor installations that responded to architectural features and spatial qualities. Installation artists such as Dan Flavin, James Turrel, Maya Lin, Megan Geckler and 'Numen/ For Use' collective group explored light, space, and materiality, transforming galleries and museums into immersive environments (Antmen, 2014) (Figure 1).

Site-specific and site-determined artworks extend beyond visual artists to include architects who create installations responsive to their surroundings. In the 1970s, CoopHimmelb(l)au and Haus-Rucker-Co produced architectural installations in public spaces as alternative suggestions for space appropriation, introducing a twist in the experience of both public and private spaces. Sami Rintala and Marco Casagrande questioned the role of the architect, the position of the users, their relationship with the built environment, and the term sustainability in their architectural installations, such as 'Land(e)scape' (1999) and 'A Chapel for Nature (2014) in the 1990s and 2000s (Zecevic, 2017, p. 65). While some architects, such as Chris Bardt and Kourosh Mahvash, focused on the tectonics of space and explored light-space relationships, others, like Mark Goulthorpe and Frances Bronet, concentrated on spatial perception and bodily experience. Philip Beesley and Pierre Thibault Architects questioned the interdependency between nature and artifice, while Peripheriques Architects, Arqhe Collective, Fieldoffice, Renzo Piano, and Alvisi Kirimoto argued the boundaries and the perception of the city (Bonnemaison & Eisenbach, 2009). Sou Fujimato and Tin Drum designed a virtual reality installation named 'Medusa' at the Design Festival 2021, allowing visitors to experience a fluid relationship between virtual and physical worlds (Pires, 2021) (Figure 1). Through installations, architects critique the status quo, and due to the transient nature of



a. b. c. d.

Figure 1. *a. 'Tape des Moines', Numen (Numen/ For Use Collective Group, 2017) b. 'Medusa', Sou Fujimato, Tin Drum (Pires, 2021) c. 'Spread the ashes of the colors', Megan Geckler (Geckler, 2010) d. '3013 Installation', students from AA School of Architecture (Frearson, 2011).*

the installations, they have the freedom to experiment with novel architectural forms, techniques, and concepts. The artefact's purpose shifts from utility to criticism and reflection (Bonnemaison & Eisenbach, 2009). By integrating site-specific artworks as critical spatial practices, architects enhance the human experience, foster creativity and innovation, and promote inclusive and socially conscious architectural practices.

In recent years, site-specific and site-determined/conditioned artworks have also appeared in workshops done by some universities, intending to discover the opportunities embedded in practice between art and architecture. For instance, at Warsaw University of Technology, students designed the project 'Halas: W Centrum' as a spatial installation to criticise the noise problems of the site and raise social awareness (Warsaw University, 2023). Another notable example comes from the Architectural Association (AA) School of Architecture in London, where students designed and fabricated a suspended sculpture, the 3013 installation, that gracefully curled down from the terrace of the AA building into the courtyard. This project was developed as part of one of five units in the AA's Summer School 2011 programme (Frearson, 2011) (Figure 1). These ephemeral artworks engage with changing site dynamics and foster dialogue between artists, sites, and audiences, often involving local communities. Artists are keenly aware of the historical, social, political, and environmental contexts, aiming to respond to or challenge these aspects. The relationship between the artwork and the site often carries metaphorical or symbolic implications, addressing themes relevant to the site's history, identity, or cultural significance. Integrating these artworks into education fosters a better understanding of how architecture interacts with its surroundings and challenges students to question the conventional roles of architecture by exploring its potential to engage with social, cultural, and environmental issues. Site-specific and site-determined artworks promote an experiential understanding of place (Zecevic, 2017), highlighting the interplay between tangible and intangible aspects and revealing tacit knowledge. Architecture is not only composed of 'rational', 'pragmatic' and 'tectonic' issues but also has 'imaginative', 'poetic', and 'experiential' qualities. Implementing these artworks into architectural education encourages students to develop a holistic way of thinking about the interwoven components of place and to discover the reciprocal relationship between man and place. It liberates them to think outside the box and to develop imaginative design solutions.

It is apparent that in architectural education, questioning existing solutions and exploring original paths of thought become crucial skills for students to gain through their design studios. In that sense, the first-year design studio plays a crucial role in fostering creativity and critical thinking. Generally named 'basic design studio' in the curricula of several universities in Türkiye, first-year design studios in architectural education are structured to introduce students to design basics. Students generally practice abstraction methods, Gestalt theories and visual organisation principles through placeless, scaleless, and abstract exercises where two-dimensional tasks gradually evolve into three-dimensional works. However, this approach often lacks meaningful engagement with real-world spatial experiences, potentially delaying students' ability to develop an embodied understanding of space and place. In this regard, site-specific and site-determined artworks provide a valuable pedagogical tool for exploring spatial experience, perception, and interpretation—core concerns of both art and architecture—through direct engagement with real environments.

This article presents a case study of an experimental first-year design studio implemented at Işık University, which integrates site-specific and site-determined artworks as a pedagogical strategy grounded in Experiential Learning Theory (ELT). The central aim of the study is to investigate how this approach fosters students' spatial awareness, critical thinking, and interpretive design skills through embodied engagement with real sites.

The originality of the study lies in its interdisciplinary pedagogical model that connects ELT, site-specific art practices, and basic design education. The research is guided by the following questions:

- How can site-specific and site-determined art practices be integrated into first-year architectural design education to enhance students' understanding of space and place?
- In what ways does Experiential Learning Theory provide an effective framework for structuring and assessing such a design studio?

Accordingly, the course structured three sequential site-specific projects that encouraged students to investigate the tangible and intangible qualities of place. Each project was mapped to Kolb's Experiential Learning Theory, providing a coherent framework for designing, implementing, and evaluating the learning process.

The paper begins with building a theoretical framework for first-year design education, reviewing the critics of basic design education and ELT in design education in section 2. Section 3 continues with an overview of the course's aim and methodology, with a special focus on studio pedagogy. The process and outcomes of tasks based on the perception and experience of space are explained in Section 4, followed by a discussion that includes an evaluation of the learning process.

2. Theoretical framework for first-year design education

This section explores foundational theories and critiques shaping first-year architectural design education. It first examines long-standing debates on basic design education, tracing its historical evolution, limitations, and pedagogical challenges. It then introduces Experiential Learning Theory as a contemporary pedagogical approach that complements design thinking through active engagement, reflection, and the construction of knowledge.

2.1. Critics of basic design education

Basic design is one of the initial stepping stones in design education, also entitled as a foundation course (Boucharenc, 2006, p. 2). Basic design education, which supports students in solving design problems, establishes a relationship with one's existing knowledge and forms the basis for relating to future architectural education. Basic design education goes by various names, including 'Visual Design', 'Basic Design', 'Applied Design', 'Introductory Design', 'Gestaltung Lehre', 'Form und Gestalt', 'Designo Communicatione' (Seylan, 2019, p. 22). Accordingly, in this study, the concept of 'basic design' refers to the foundation courses in the first year of architectural education. Different educators have employed various approaches to basic design education, with differences in epistemology and content across institutions and times. According to the curricula of universities, the duration of this education, its intensity in the total credits and its applications vary. Today, the contributions of basic design education to students, its application methods, and its role in design education are subject to debate among students, educators, designers, and researchers. Considering the changing perspectives in design education, the importance of increasing the number of studies that provide information about the different methods used in this course cannot be denied.

The Basic Design course traces its roots to the preliminary course of the Bauhaus, founded in the early 20th century. Among many other reasons, the Bauhaus was founded in response to the problems in art and design education that had developed from the Royal Academy of Architecture in France in the 18th century to the Beaux-Arts System of the 19th century (Drexler, 1984 pp. 6-10; Hudson-Miles& Broadey, 2022). In the structured framework of the Beaux-Arts School, specific expertise was acquired through the mastery of various skills, including the transformation of materials into tangible forms, the comprehension of geometry, colour theory, spatial arrangement and architectural structure through practices such as drawing, painting and model crafting (Pasin, 2017, p. 1271). The artists and architects in the Bauhaus attempted to develop rational and objectively correct

design methods (Jormakka et. al., 2014, p. 40). Bauhaus was not a monolithic movement, and it never set out with any fixed pedagogic precepts. It began as an ad hoc, spontaneous attempt to introduce a more open-ended and experimental working mode (Yeomans, 2005, p. 209). The 'Basic Design Movement', which embodies the dissemination of Bauhaus educational principles, spans over a century (Yeomans, 2005, p. 195, 209). The 'preliminary course', developed and implemented as a key component of Bauhaus and Modernism, has led to notable transformations in related disciplines, fostering innovative approaches (Droste, 2012, pp. 16-17). Basic Design formed the basis of the pedagogy of the classical schools of design and architecture, such as the Vkhutemas, the School of Chicago and the School of Ulm (Hochschule für Gestaltung) (Boucharenc, 2006, p. 2). In Türkiye, basic design education was introduced to architectural programs in the 1960s and was first discussed in the 'Mimarlık (Architecture)' magazine in 1966 (Akış, 2009, p. 22). Thus, the Bauhaus, which once offered a pioneering design education, gradually evolved into a globally established practice. According to Boelen, Botha and Sacchetti, the main difference between Bauhaus education and today's institutionalised Bauhaus-style education is that the original Bauhaus was a utopian experiment (Boelen et al., 2018, p. 43).

Basic Design education continues to be questioned, developed and reconstructed today. In this respect, it is essential to evaluate research and criticism on Basic Design education, as well as research on the design process. The aspects that need improvement should be addressed not only in the context of the 'Basic Design' course but also within the scope of first-year design education. Recently, due to changes in curriculum and pedagogical transitions, the design learning processes in architectural schools have undergone significant variations. Moreover, facing the studio culture and challenges through the instructional method makes the first year of the architectural design period more crucial.

It is recognised as a significant issue that the basic design content cannot be effectively integrated into advanced stages of education, and that the current presentation of these concepts fails to establish a knowledge framework conducive to architectural design practice. Gelernter (1988) argues that the design principles imparted in Basic Design Studio inadequately contribute to shaping projects in subsequent studios. Therefore, students are unable to work on or develop visual forms to the extent expected of them after the intensive Basic Design course. Considering the disconnection problem of Basic Design, Gelernter (1988) states that the acquisition and application of knowledge do not occur sequentially and, as such, cannot be assigned to separate, sequential sections of the curriculum. According to Farivarsadri, largely due to the longstanding tradition of commencing architectural education with a (Bauhaus-based) Basic Design course, it is regarded as a distinct component of design education, addressing topics that are tangentially relevant to architectural design but not directly related to it (Farivarsadri, 2001, p. 10).

However, believing that visual intelligence, ethical sensitivity and aesthetic intuition can be developed and strengthened through some kind of basic design education, Findeli emphasises that basic design should not be taught as a preliminary course in the first year but should be taught in parallel with studio work throughout the entire course of study, from the first year to the last year (Findeli, 2001, p. 16). Nonetheless, the primary objective of design education is to equip students with the ability to reason effectively (Özkar, 2017, p. 4). Basic design studios are where the initial challenges in design learning and teaching most commonly emerge. This stage is the most difficult for students to develop their thinking and design skills. The basic design is prior to any design knowledge and deliberately neglects this knowledge to benefit a creative process (Özkar, 2004, p. 121). However, basic design studios remain abstract in both problem definition and educational outcomes, engaging students with various abstract tasks that are detached from real-life architectural problems (Gürsoy & Özkar, 2015, p.

982). Therefore, finding new approaches that could broaden the experience of acquiring knowledge by learning how to think has been crucial. Farivarsadri (2001) finds the course beneficial for students in organising their design ideas and thoughts by solving abstract problems. However, she notes that these problems can easily become mere geometric puzzles, losing sight of the fact that space design encompasses responsibilities beyond formal attributes (Farivarsadri, 2001, p.7). Özkar also states that basic design instruction has been reduced to a basic vocabulary of forms that are universally shared (Özkar, 2004, p. 14).

Another key component of contemporary applied approaches is technology. In basic design courses, however, paper-based culture of design remains the predominant model for explicating thought and reasoning. On the other hand, since the early 2000s, digital methodologies have enhanced certain capabilities of performative and generative processes that were previously unavailable in conventional, paper-based methods (Oxman, 2008, pp. 101-102). In this sense, it is argued that design education requires extensive restructuring to incorporate new developments and paradigmatic shifts introduced by the information age (Uysal & Topaloğlu, 2017, p. 33). Due to the issues with applying the knowledge acquired through the Basic Design course, it has been determined that this course is not included in the curricula of architecture schools in the EU and the USA. Instead, it is commonly taught within the scope of first-year education, featuring varied content that explores the abstract-concrete relationship, particularly within the framework of digital environment possibilities (Yurtsever, 2011, p. 22).

The field of architectural production encompasses activities in interdisciplinary and transdisciplinary fields where problems are viewed as multi-faceted and multi-layered investigations. In this context, it is also argued that there should be an architectural education environment that integrates different disciplines and includes an interdisciplinary learning approach. It is believed that these disciplines can only be understood in a holistic and relational manner through the application of critical thinking skills (Yurtsever, 2011, p. 95). Therefore, Findeli states that "a careful distinction should be made between the content of a design program and the pedagogical principles that are fit to transmit it" (Findeli, 1990, p. 18).

Design education requires continuous improvement and knowledge, as well as constant reevaluation. Of course, centennial perspectives are outdated in many respects. However, these perspectives and critiques provide a framework for understanding the origins of current ideas, as well as traces of alternative paths. In this context, various approaches follow alternative paths in basic design education, transforming the traditional, established principles and methodologies of basic design studios into new perspectives.

Among the current approaches discussed in the literature, several examples illustrate the use of intellectual methods as tools: creative drama, analogy and metaphor creation, music, rhythm and form, transition from text to space, philosophy and architecture, and cinema and space (Kılıçaslan & Vural, 2018; Usal & Evcil, 2017; Bekdaş & Yıldız, 2018; Kasap & Türkmen, 2018; Durmuş, 2015; Atik, 2020). These thought-centred practices emphasise creative ideas and processes and aim to reveal creative personality traits. Therefore, they seek to develop students' abilities to generate original ideas, think flexibly, and form meaningful associations (Onur & Zorlu, 2017). However, there are also studies that focus mainly on the creative product and its development. Space games, body, space and structure, verb to void, folding, digital production, design diagrams, algorithmic design, computer games (Çakmaklı et al., 2023; Sağıroğlu, 2017; Selçuk, 2018; Vyzoviti, 2008; Yazar, 2009; Terzidis, 2006; Coşkun, 2019) are examples where formal methods are used as tools. In these applications, which encourage three-dimensional thinking, it is aimed to produce original, innovative, flexible and unusual forms in two and three-dimensional compositions in order to develop the student's ability to

produce forms. These examples, briefly mentioned here, encompass various approaches that address both concept representation and form production.

Examples of current approaches used in basic design education include studies that focus on the content of the basic design course and examine various course curricula. (Boucharenc, 2006; Aktaş, 2020; Türkmen, 2022; Erdoğdu, 2016; Jormakka et. al., 2014). Although these approaches differ from one another, they contribute to the enhancement of students' basic cognitive reasoning skills and the development of skills that emerge from abstract forms and relationships. According to Özkar (2004), it is this quality that makes basic design education current and makes it an important tool that can support new design thinking and methods, especially today.

By incorporating site-specific artworks into basic design education as a pedagogical tool, this study aims to be among these alternatives that go beyond traditional approaches and support and improve the teaching/learning process. The differentiating aspects of this study from the aforementioned approaches are that first year students, who have not yet been introduced to concepts such as place, space and void and whose perception of space is limited, start working directly in real space; students at this early stage of education change their thinking habits and comprehend space independently of function; they progress by starting with three-dimensional proportional and scaled works; two-dimensional works accompany these works; they transform real spaces into design objects with their own analysis, similar to the process of creating site-specific artworks; and students interact productively and creatively with the space and their designs throughout the process. Accordingly, this study discusses the architectural basic design studio process within the framework of Kolb's Experiential Learning Theory by taking three untested case studies as its axis.

2.2. Experiential learning theory in design education

'Experiential Learning' is a process-oriented and student-centred pedagogy in the 21st century. Rooted in the works of William James, John Dewey, Kurt Lewin, Jean Piaget, and David A. Kolb, this theory underscores the pivotal role of experience in learning. Rather than being an alternative to behavioural and cognitive learning theories, ELT offers a holistic, integrative approach to learning by blending experience, perception, cognition, and behaviour (Kolb, 2015). It advocates for using non-formal, out-of-class experiences as the foundation of the learning process (Sanoff, 2007, p. 21). This theory posits a transactional relationship between individuals and their environment, where objective conditions and subjective experience interact in a fluid, interpenetrating manner. According to Kolb (2015), learning is a dynamic process that involves the transformation of experience into knowledge, guided by the dual dialectics of experience-abstraction and action-reflection, unfolding in a cycle of four stages: concrete experience, reflective observation, abstract conceptualisation, and active experimentation (Figure 2). Grasping experience and transforming experience are two key concepts in experiential learning. Grasping experience encompasses 'concrete experience' (CE) and 'abstract conceptualisation' (AC), illustrating the acquisition of knowledge. Transforming experience involves 'reflective observation' (RO) and 'active experimentation' (AE), demonstrating the explanation or interpretation of knowledge. In the initial stage of concrete experience, learners engage in new experiences or encounter problems. This is followed by reflective observation, during which learners contemplate and analyse their experiences from various perspectives. This stage is crucial for making sense of experiences, identifying patterns, and extracting meaningful insights. In abstract conceptualisation, learners develop concepts that integrate their observations into logically sound theories. Finally, learners use these theories to make decisions in active experimentation (Kolb, 2015).

Due to its capacity to stimulate critical thinking and learning through

hands-on experience, design education has been a field that has embraced ELT in higher education (Khorshidifard, 2014). The design process, as articulated by Schön (1983), constitutes an iterative cycle of reflection that closely mirrors Kolb's learning cycle. Schön's perspective portrays design as a field grounded in reflective practice, highlighting the significance of self-reflection and deriving lessons from experiences to enhance both the design process and its outcomes. Numerous studies have applied ELT in design education, particularly in architectural education (Demirbaş & Demirkan, 2003; Kvan & Jia, 2005; Sanoff, 2007; Wallis, 2007; Khorshidifard, 2014; Altay, 2017; Rodriguez, 2018; Yahia, 2018; Thamrin et al., 2019; Özçam & Kayan, 2022; Bindal, 2022; Avcı & Beyhan, 2023). ELT has also been integrated into basic design studios in architectural education (Temple, 2010; Yüksel & Uyaroğlu, 2021). Academic research has highlighted several advantages of experiential learning in design education. Avcı and Beyhan (2023) found that students gained and applied theoretical knowledge more effectively by integrating experiential learning. Bindal (2022) noted that experiential learning helped to clarify concepts, and a better understanding of concepts was evident in students' design projects. Kvan and Jia (2005) and Demirbaş and Demirkan (2003) observed that the design studio embraced a wide range of learning styles (diverging, assimilating, converging and accommodating learning styles) throughout the experiential learning process. Özçam and Kayan (2022) and Yüksel and Uyaroğlu (2021) described the entire process as an articulated and dynamic one, enriched by ongoing discussions, and claimed that experiential learning helped increase students' sensory awareness of space, encouraged self-reflection on theirperceptions of space, and enhanced their creativity in designing spaces.

3. The aim and methodology of the course

Our lives in the physical environment inevitably involve acquiring and making sense of environmental information. As emphasised in Experiential Learning Theory, due to the dynamic and variable nature of its relationship with the individual, the space contains layers that can lead to various subjective understandings (Kolb, 2015). Based on this understanding, this course primarily focused on the representation and reproduction of spatial experience rather than the representation of space. A novel course curriculum was developed to provide a contextually sensitive and experiential foundation in basic design education, fostering students' spatial experience practices, strengthening their observation, analysis, and synthesis skills, and supplementing their understanding of core design principles. Inspired by site-specific and site-determined/conditioned artworks, site-specific design was utilised as a tool in projects developed in 'real venues', focusing on concepts such as the perception

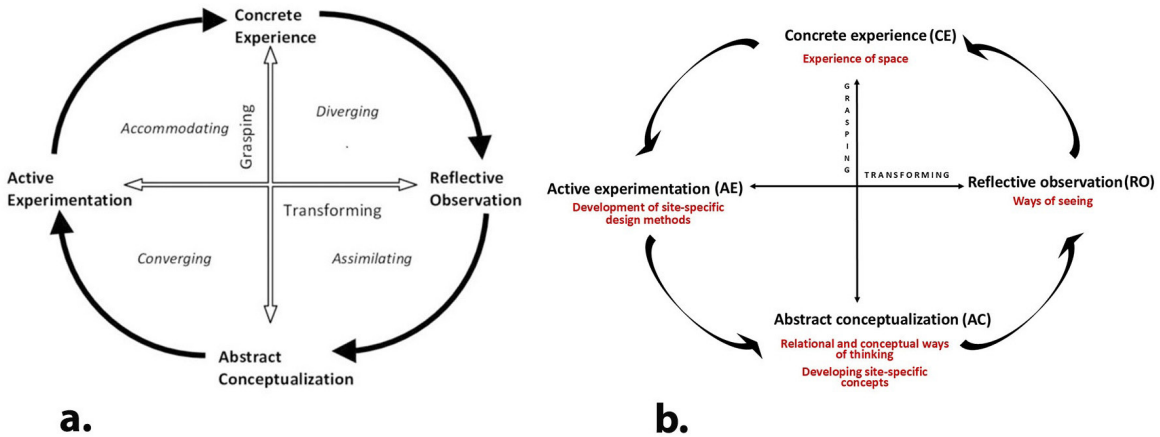


Figure 2. *a. Kolb's experiential learning cycle Source: Passarelli & Kolb, 2009, b. Experiential learning cycle implemented in the course. Source: Authors.*

of space, tangible and intangible elements of space, spatial organisation, the multi-sensoriality of the spatial experience, and the explortionof time-space routines. Accordingly, the notion of function was opened to discussion, and the potentials of spatial studies independent of function were explored.

The course implemented ELT as the studio pedagogy to provide a process-oriented and student-centred learning environment. Experiential learning defines iterative, dialogic, creative, critical, and transformative processes in which the students actively participate. In the projects carried out within the scope of the course, special attention was paid to the fact that ways of seeing (reflective observation) based on the real experience of space (concrete experience) trigger relational and conceptual ways of thinking (abstract conceptualisation), which in turn support the development of site-specific design methods (active experimentation) (Figure 2). With this perspective, students were encouraged to examine the situations, possibilities, and potentials of the spaces they experienced and to explore alternative design tools. The process was developed in the framework of ELT, and the stages of spatial experience, analysis, representation, and site-specific design production progressed in a spiral structure that provided feedback to each other. To assess the effectiveness of each phase in the process, qualitative data were collected through participant observation, informal interviews, and document analysis of students' work. These methods, which are utilised in studies examining the processes associated with the generation and adoption of creative ideas (Katz-Buonincontro & Anderson, 2018), provided valuable insights. The design studio environment, characterised by relatively intense and prolonged student-instructor interactions, facilitated the observation and evaluation of students' design thinking activities and concept development processes. Detailed field notes of instructors were meticulously recorded throughout the entire semester to ensure a comprehensive assessment of the course. Open-ended discussions that are conducted every week, facilitated students a deeper understanding of the specific stage of the project but also offered them an opportunity to express their opinions about the process. Instructors prepared a process-oriented assessment table for the evaluation of each student's learning process.

4. Process and outcomes

The course was structured around site-specific projects, complemented by seminars, readings, critiques, and open-ended discussions (Figure 3). This approach aimed to create an active studio environment that enriched the students' learning experience. While students were expected to engage in investigation, pose questions, evaluate, and construct meaning, instructors fulfilled roles as mentors, facilitators, and assessors. Throughout the semester, three types of informative seminar series were held on design concepts, architectural space, and tools

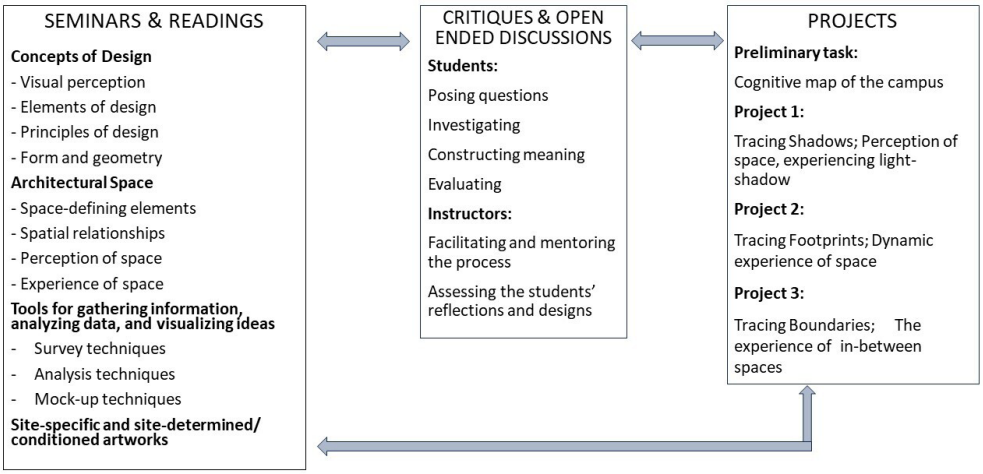


Figure 3. *Content of the course developed by authors. the course. Source: Authors.*

for gathering information, analysing data, and visualising ideas. Students were informed about visual perception, elements of design, principles of design, form and geometry, space-defining elements, spatial relationships, and the perception and experience of space. Additionally, site-specific and site-determined artworks were discussed as an approach that blurs the borders of art and architecture.

Fifty-one students participated in the study and worked in groups of 2-4 people. As a preliminary exercise, to enhance the students' awareness and to provide a basis for the discussions about their perception and experience of the space, students were asked to prepare a cognitive map of their university campus. Three project topics were identified to fully test the hypothesis of the study. Each project lasted four weeks and followed Kolb's learning cycle as a framework. The projects were named 'tracing shadows' (about the perception of space), 'tracing footprints' (about the dynamic experience of space) and 'tracing boundaries' (about experiencing in-between and transit spaces).

4.1. Tracing shadows; perception of space, experiencing light-shadow

Spatial knowledge is subjective, contextual, and time-oriented but not absolute and stable. On the other hand, spatial knowledge stemming from spatial experience is a network of interwoven concepts, including scale, proportion, perception, atmosphere, senses, time, memory, context, light, structure, materials, architectonics, spatial articulation, and syntax. Accordingly, this project utilises the potential of light and shadow to create and enrich spatial knowledge by focusing on the experience of space. Because light and shadow play a crucial role in our perception of and response to space, they continually shift and evolve, never remaining static.

According to Rasmussen (1964, pp. 186-214), light and shadow are architectural elements that contribute aesthetically to the perception of space. Meiss (1990, p. 121) states that space is perceived differently in daylight and artificial light, with different qualities. Light gains importance in perceiving the characteristics and textures of the elements that define the space, creating plastic effects in conjunction with shadow. Consequently, light and shadow, which add movement to the space, are effective in the perception and use of the space.

To begin, students were asked to select an outdoor location on the university campus with dramatic light and shadow effects (Figure 4). Then, they were asked to spend a whole day there and take pictures at different times to comprehend how light, as an essential element of design, changes the perception of space. The next step was to identify the physical properties of space. As a group, they measured the dimensions of the space, drew plans, sections, and elevations, and created a model. Experiencing the tangible elements and the light-shadow effects in the selected spaces is the concrete ex-

Figure 4. *Map of the campus indicating the selected places for design, pictures of the sites and selected student works. Source: Google Earth and authors.*

perience (CE) stage in Kolb's learning cycle.

The design process began by applying shadows of a specific time of day to the existing model. This is the 'reflective observation' (RO) stage in Kolb's learning cycle. Then, students were asked to develop a three-dimensional design by using the traces of these shadows and the boundaries of the space. Design components should be linear or planar elements. Composition should be based on the site-specific concepts they developed, considering visual design principles (Figure 4).

Developing site-specific concepts is the 'abstract conceptualisation' (AC). The concepts derived from the students' observations and perceptions of the space included solid-void, continuity, monotony, articulation, dichotomy, fragmentation, stratification, similarity, curvilinearity, homogeneity, order, transition, boundary, clustering, equality, and proportion.

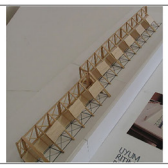
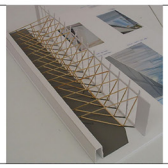
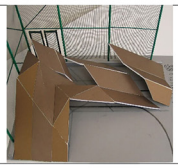
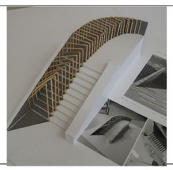
As the final stage of Kolb's learning theory (active experimentation AE), students developed their 3D works as an interpretation of their knowledge about the space. Rhythm, balance, unity, variety, harmony, contrast, hierarchy, repetition, and movement were the principles of design commonly used in projects (Table 1).

4.2. Tracing footprints; dynamic experience of space

As architects seek to design spaces that engage, inspire, and accommodate users, the concept of user experience and movement within space has a significant role in comprehending multi-faceted design decisions.

Maurice Merleau-Ponty (2012) emphasises the embodied experience of space and highlights how users' movements and bodily interactions shape their understanding of architecture. He claims that the sensory experience, bodily movement, actions, and skills (motor facilities) of the 'lived body' are integrated into our 'perceptual fields'. Seamon (2018, p. 31) classifies the motor facilities of the lived body as 'body routines' that refer to particular tasks or actions and as 'time-space routines' that identify habitual bodily actions. Movement within spaces is one of the key factors that shape our understanding and interpretation of those spaces. Movement alters our spatial awareness as different viewpoints and sensory experiences come into play. Our perception of space is not fixed; it is dynamic and continually influenced by our movements within it (Bachelard, 1994). By prioritising the human experience, architects can create environments that resonate with users, facili-

Table 1. *Assessment of the student works of Project 1: 'Tracing Shadows'. (SSC: Site-specific Concept and DP: Design Principle) Source: Authors.*

			
SSC: continuity	SSC: monotony, solid-void, order	SSC: articulation	SSC: fragmentation
DP: rhythm, asymmetrical balance	DP: rhythm, unity	DP: rhythm, balance, harmony, contrast	DP: unity/variety, asymmetrical balance
			
SSC: proximity, stratification, solid-void	SSC: similarity	SSC: homogeneity, continuity	SSC: clustering
DP: repetition	DP: rhythm, contrast, unity-variety	DP: rhythm, hierarchy, contrast	DP: contrast, unity-variety
			
SSC: transition	SSC: proportion, equality, solid-void	SSC: dichotomy, curvilinearity	SSC: boundary
DP: rhythm, movement, contrast	DP: rhythm	DP: rhythm, movement, contrast	DP: hierarchy, repetition

tating movement, engagement, and a sense of connection with the built environment.

The 'Tracing Footprints' project is conducted to increase the students' awareness of the spaces they utilise in their daily routine, regarding Seamon's 'time-space routine', to make them think about the concepts of 'experience of space' and 'movement' and to incorporate the user-site relationship into their design.

At the beginning of the project, each student group selected a transitional space on campus as their project area, based on the frequency of use and diversity of users (Figure 5). In the first step, which is the initial stage in Kolb's learning theory (CE), students were asked to monitor the site throughout the week, talk to users, make sketches, take notes, and make recordings to track movement in the space using time-lapse videos. The observations of the students not only focused on the physical properties (size, shape, height, etc.), components (vertical/ horizontal, and linear/ planar elements), and the visual, audial, and tactile properties of space but also concentrated on the patterns, timing, frequency, and density of use, the profile of the users, the form, the direction, and the speed of the movement in the space.

In the second phase —reflective observation (RO) in Kolb's learning cycle—students were asked to articulate their insights through visual representations such as movement patterns, time-space routines, graphic sequences, and similar formats (Figure 5). Finally, in the third step, they were expected to develop a concept (AC in Kolb's learning cycle) and three-dimensional site-specific work (AE in Kolb's learning cycle) grounded in the findings of their observations. This phase opened the path for developing design skills, getting used to group work, and producing alternatives supported by a concept. After serious discussions, students prepared the final mock-up and a poster of their design. At this stage, students grasped the power of poster design as a communication tool (Figure 5).

The concepts derived from the students' observations and perceptions of the space included solid-void, heterogeneity, equality, linearity, curvilinearity, closure, threshold, sequences, clarity, and fluidity.

Rhythm, balance, unity, variety, harmony, contrast, hierarchy, repetition, movement, and figure-ground are the principles of design that were commonly used in projects (Table 2).

4.3. Tracing boundaries; the experience of in-between spaces

In-betweenness can be defined as any object existing between two or more other things, but it also refers to an ambiguous and unstable condition that is difficult to define. It is often perceived as a 'negative' condition. On the contrary, the in-betweenness holds great potential to allow liberation from pre-established constraints. Thus, it is defined by Grosz (2001, p. 91) as "it is that which facilitates, allows into being, all identities, all matter, all substance" and by Derrida (Burchill, 2011, p. 27) as "the primordial milieu in which differentiation, in general, is produced".

Van Eyck considered this 'in-between' in the physical sense and as the medium of this relationship. He utilised 'intermediary places' as a design tool that formulates the relationships within the design object, as connectors

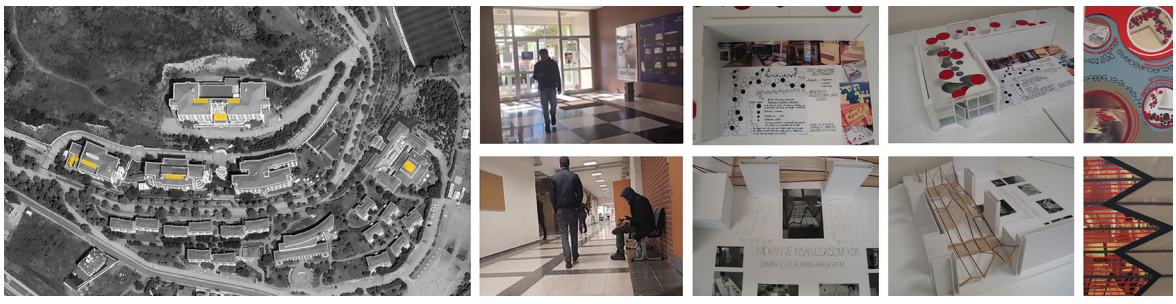


Figure 5. *Map of the campus indicating the selected places for design, pictures of the sites, analysis of movement, selected student works and posters. Source: Authors.*

of the integral parts to the whole in different scales and outside the object via its connection with the 'human' (Venturi, 2002, pp. 80-81). In this context, the theme of 'in-between spaces' was addressed as a design strategy in the third project of this course, focusing on students' experiences in 'real spaces'.

Although they differ in their existence within the city, various intermediate spaces connect or buffer urban areas. In other words, in-between spaces provide communication and continuity between boundaries and functions. They can include open spaces in front of or between buildings, cul-de-sacs, courtyards, and various pedestrianised transitional spaces that can be used at different times.

The in-between spaces are defined by visible and invisible boundaries. They create thresholds between these boundaries and enable movement across these thresholds. Therefore, unexpected uses are possible in in-between spaces. They are open to change and allow for new relationships and possibilities. In these spaces, standards become meaningless, and new interpretations emerge. They can contribute to the public space as a potential value with their characteristics of temporality, adaptability, spontaneity, freedom, and permeability.

In line with this approach, this project aimed to help students develop alternative ways of relating humans to space and the city. The in-between spaces identified for this project were analysed by considering their physical, environmental, social, and experiential contexts within the city, and these spaces were questioned and reinterpreted. While the social context included the perception of space shaped by human activities in everyday life, the urban context provided input to design research through examinations of in-between spaces. In addition, a design process was conducted in which students examined the possibilities and potential of the space and developed new design tools. Therefore, this project, like the previous two, aimed to change the way students perceive the urban setting in which they interact on a daily basis.

The project started with a site visit to Şile, an old fishing village on the coast of the Black Sea. The coordinators predetermined possible locations in accordance with the project topic (Figure 6).

Students spent a full day on the site, attempting to identify the tangible and intangible assets of their project area as part of the CE stage in Kolb's learning cycle, focusing on both the visible and invisible boundaries of the space. In the 'reflective observation' (RO) stage of Kolb's learning cycle, students explored the tacit knowledge of space

Table 2. *Assessment of the student works of Project 2: 'Tracing Footprints'. (SSC: Site-specific Concept and DP: Design Principle) Source: Authors.*

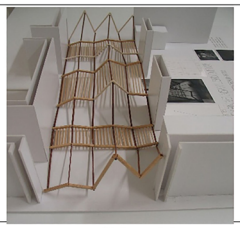
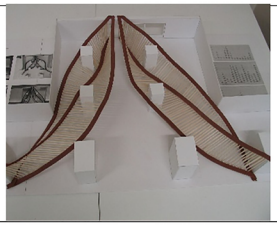
		
SSC: sequences solid-void	SSC: equality	SSC: linearity
DP: movement, rhythm	DP: rhythm, movement, contrast	DP: contrast, figure-ground
		
SSC: heterogeneity, solid-void	SSC: threshold, fluidity, solid-void	SSC: closure, clarity, curvilinearity
DP: unity-variety, contrast, hierarchy	DP: asymmetrical balance	DP:symmetrical balance

Figure 6. *Map of Şile indicating the selected places for design, pictures of the sites, selected student works and posters Source: Google Earth and authors.*

by sketches and collage work. Through this studio experience, students were encouraged to brainstorm with their group mates and explore new ways of perceiving, analysing, representing, and designing the space. With the integration of conceptual and relational thinking, they have gained the ability to recognise alternative situations related to space and interpret existing spaces.

In the third stage of Kolb's learning cycle (AC), students were asked to identify a concept based on their observations and perceptions of the space. Accordingly, one of the groups aimed to draw attention to the facade organisation of the historical houses and produced a stratified facade. The dramatic height difference between the two buildings, which compose an unbalanced street line, was interpreted by another group of students with a dynamic and parametric design. Two groups worked at the same site but produced different approaches; one focused on the patina of the historical building, generating a concept of continuity, while the other explored the horizontal and vertical voids of the site, inspired by an old well. One group, after talking to inhabitants, realised people often stared out of windows, leading to their concept of 'projection.' Another group's inspiration came from the hierarchy of voids on lateral facades. The final group was inspired by the eolian environment of in-between spaces, creating a responsive design (Table 3).

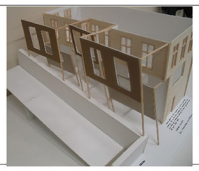
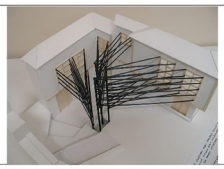
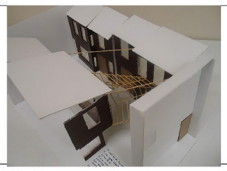
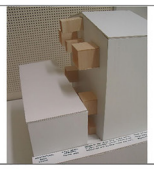
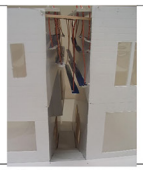
In the final stage, students designed the final mock-up of their installation and a poster, which was a 2D interpretation of their design (AE stage in Kolb's learning cycle) (Figure 6). Solid-void, proportion, rhythm, unity, variety, harmony, contrast, hierarchy, repetition, movement, and figure-ground are the design principles commonly used in projects (Table 3).

5. Discussion: evaluation of the learning experience

This study explores the impact of incorporating site-specific artworks as a pedagogical tool in basic design education, aiming to enhance first-year architectural students' understanding of spatiality through direct, personal engagement with place. Additionally, the study seeks to evaluate the effectiveness of Kolb's Experiential Learning Theory in the context of studio pedagogy. A variety of pedagogical tools were employed throughout the course, including visual materials, seminars, readings, field trips, digital technologies, juries, and discussions, to support experiential learning and multi-sensory engagement. Following a preliminary cognitive task, students progressed through three projects over the semester, each becoming increasingly complex. These projects ranged from building scale to urban patterns, with a focus on various facets of a place, including tangible and intangible qualities, as well as explicit and implicit characteristics, while also exploring the dynamics of human-space relationships. Therefore, in the studio process, the interdisciplinary nature of basic design education is transformed into a systematic learning space.

The course enhanced students' abilities to interpret spatial experiences and supported the development of a critical perspective within the context of site-specific and site-determined design approaches. As Zečević (2017) argues, such artistic works cultivate an experiential understanding of place by

Table 3. *Assessment of the student works of Project 3: 'Tracing Boundaries'. (SSC: Site-specific Concept and DP: Design Principle) Source: Authors.*

			
SSC: view of the street, projection	SSC: facade organization, stratification	SSC: height difference, dynamism	SSC: voids on surfaces, centrality
DP: emphasis	DP: solid-void	DP: emphasis, proportion	DP: repetition, emphasis
			
SSC: patina of historic house, continuity	SSC: closeness of cumba, connection	SSC: hierarchy of voids, irregularity	SSC: wind effect, responsive
DP: rhythm, figure-ground, contrast	DP: harmony, solid-void	DP: solid-void, proportion, hierarchy	DP: movement

engaging with both its tangible and intangible qualities, uncovering the tacit meanings of space through the artist's unique lens. Similarly, students in the studio engaged directly with real sites, explored them through diverse perspectives, and produced site-specific responses. Although the final outputs developed in the studio are spatial and architectural in nature, they simultaneously operate as artistic installations that embody the students' interpretive engagement with place.

ELT provided a comprehensive learning framework for this study. Correlating with the four modes of the learning cycle, concrete experience (CE), reflective observation (RO), abstract conceptualisation (AC) and active experimentation (AE), students produced their site-specific works (Table 4). In line with studio pedagogy, students were assessed not solely on their final products but through a process-oriented evaluation. As presented in Table 4, students' progress for each project was assessed based on the four stages of Kolb's learning cycle and the corresponding expected learning outcomes. The interactive nature of the studio environment enabled close observation throughout each phase of the process. At the end of each stage, students presented their work, followed by open-ended discussions. Rather than relying on a fixed set of questions, these discussions allowed instructors to engage with students more organically to understand their reflections on the process. Consequently, the assessment of the learning process is based on instructors' field notes and their evaluation of each phase as outlined in Table 4.

Accordingly, during the CE stage, students actively engaged with the university campus and the Şile historical centre, immersing themselves in various aspects of these locations. This experience significantly contributed to their understanding of the physical and social dimensions of urban and architectural space, as well as spatial organisation. Moreover, it increased their sensitivity to natural and man-made environments, fostering a deeper comprehension of human-space relationships. Additionally, the students demonstrated an enhanced understanding of visual perception, becoming more skilled at recognising how the eye perceives visual elements, structures, shapes, and compositions. Working in real-world settings created a highly conducive learning environment, with students actively participating in tasks. As noted by Lau (2009), such a creative learning environment inherently motivates students, making their learning process enjoyable and engaging. However, some students expressed difficulty with repeated site visits and the technical challenges of modelling existing conditions.

After the concrete experience, students were asked to reflect on the task RO. As Khorshidifard (2014) points out, there are various possible ways of grasping and transforming experiences, which are tied to the uniqueness of each designer's way of thinking. In the RO stage, students interpreted the effect of light in Project 1, found out time-space routines and patterns of

Table 4. *Assessment of the learning experience developed by the instructors.*

Kolb's Learning Theory Phases	Project 1 Tracing Shadows; Perception of space, experiencing light-shadow	Project 2 Tracing Footprints; Dynamic experience of space	Project 3 Tracing Boundaries; The experience of in-between spaces	Learning outcomes	%
Concrete Experience (CE)	Experiencing tangible elements of space	Experiencing tangible and intangible elements of space	Experiencing tangible and intangible elements of an urban space	* demonstrate an understanding of visual perception, recognizing how the eye perceives visual elements and structures, and different shapes and compositions by default.	5%
	Experiencing light and shadow effects	Experiencing space through movement	Experiencing visible and invisible boundaries of space	* identify urban and architectural space, understanding the physical and social elements of space and spatial organization	5%
				* increase sensitivity to the natural and man-made environment, enhancing the perception of space.	5%
				* realize human-space relationships, developing an understanding of the experience of space.	5%
				* develop teamwork skills	5%
				Total	**25%**
Reflective Observation (RO)	Drawing traces of shadows	Sketches, notes, time-lapse videos Trying to find out time-space routines, patterns of movement by drawing graphics, sequences	Sketches, analysis, photographing, mapping, diagrams Trying to find out the tacid knowledge of the space with collage works	* gain the ability to express observations as analytical drawings, demonstrating analytical thinking skills.	10%
				* demonstrate critical thinking skills essential in the development of a designer, including new ways of seeing, thinking, and expressing.	10%
				* develop teamwork skills	5%
				Total	**25%**
Abstract Conceptualisation (AC)	Develop a site-specific concept	Develop a site-specific concept	Develop a site-specific concept	* develop strong conceptual thinking skills	20%
				* develop teamwork skills	5%
				Total	**25%**
Active Experimentation (AE)	Design a site-specific work	Design a site-specific work	Design a site-specific work	* approach design through basic principles and elements of design, form, space, and order	10%
				* gain the ability to transform abstract concepts into concrete designs	10%
				* develop teamwork skills	5%
				Total	**25%**
				Sum	100%

movement in Project 2 and the tacit knowledge of the space in Project 3 by using different mediums such as sketches, graphics, collage works, mapping, diagrams, photographs, sequences, time-lapse videos and animations. This stage in the learning cycle stimulated students to demonstrate analytical and critical thinking skills, which are essential in the education of a designer, including new ways of seeing, thinking and expressing.

Temple (2010) argues that, in first-year architectural design studios, merging physical reality with abstract concepts requires integrating both concrete and abstract learning experiences. In the AC stage, students learned to develop site-specific concepts for their design. This required abstract thinking and idea generation, supported by group brainstorming sessions. While students initially struggled with this conceptual leap, often citing a lack of prior experience with such modes of thinking, greater engagement and confidence emerged once a conceptual direction was established. Students experimented with design concepts such as continuity, fragmentation, clustering, and boundary, developing a richer vocabulary for design thinking.

Finally, in the AE stage, students transformed abstract concepts into concrete, site-specific designs. Although many reported that transforming abstract concepts into tangible forms was the most challenging aspect of the process, it was observed that they became increasingly capable of expressing their ideas through design and demonstrated a more refined three-dimensional understanding of space. Additionally, despite the project's emphasis on avoiding predefined functions, there was a tendency to focus on developing a specific function at the beginning. However, students gradually came to understand that the primary objective was to critically interpret space.

Throughout the studio process, students incorporated design principles, visual perception techniques, and Gestalt theory—introduced through supplementary seminars and exercises. Although spatial experience is inherently subjective, collaborative discussions allowed students to share interpretations, develop communication skills, reduce fear of failure, and engage in constructive self-critique.

Analysis of student performance (Table 4) reveals that the Reflective

Observation (RO) phase consistently received the highest scores, while the Abstract Conceptualisation (AC) phase posed the most challenges. These findings align with student feedback and suggest the need for curricular refinement.

In response, we recommend integrating short, focused exercises that support the transition from abstract concepts to concrete design proposals. Additional strategies could include guided visits to site-specific artworks and interactions with practising artists, fostering deeper insight into interpretive design approaches.

6. Conclusion

Advancing through multi-component and multi-layered research, architectural production increasingly touches interdisciplinary and transdisciplinary fields. For this reason, especially in the early years of the educational process, learning methods that establish a relationship with these disciplines and that do not treat these disciplines as separate and independent from each other gain importance. The experimental syllabus implemented at Isik University in Türkiye demonstrates the potential effectiveness of utilising site-specific artworks to foster students' ability to develop site-specific concepts for their designs. Therefore, by integrating an approach from within the discipline of art into the pedagogy of the course, this course fosters an environment of architectural education that engages with different disciplines and incorporates an interdisciplinary approach to learning. This interaction enabled students and instructors to go beyond the established boundaries of studio pedagogy and explore innovative ways of thinking.

The findings of this study suggest that incorporating site-specific artworks as a pedagogical tool in basic design education can significantly enhance first-year architectural students' comprehension of spatiality through personal experiences and perceptions of place. In the first year of architectural education, non-abstract, defined problems are presented, with an emphasis on students' understanding that space becomes visible and perceptible through various elements. These spatial experiences, which are independent of function, also provide a transition to the later stages of architectural education. This course, rooted in process-oriented and student-centred studio pedagogy of Kolb's Experiential Learning Theory, not only underscores the viability of such an instructional model but also provides a robust framework for guiding future educational endeavours in this domain. ELT allowed students to understand the reciprocal relationship between man and his environment, increased their awareness and contributed to enhancing their creativity in the representation of spatial experience and the (re) production of this representation. It is believed that participating in an experience like this will have a positive impact on the studio performance of students in subsequent semesters. It is important that basic design knowledge creates a knowledge environment that can be used in the architectural design process. For further research, collaboration with artists might enrich the studio environment, and real-scale exercises can be conducted to observe how users interact with these spaces in a way that differs from their usual experience, thereby opening a path to discussing new design possibilities. Additionally, the evaluation of the learning process could be further developed by incorporating different learning styles into the design process. This experience also highlights the numerous possibilities for dialogue, interaction, and collaboration between art, design, and architecture studios.

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