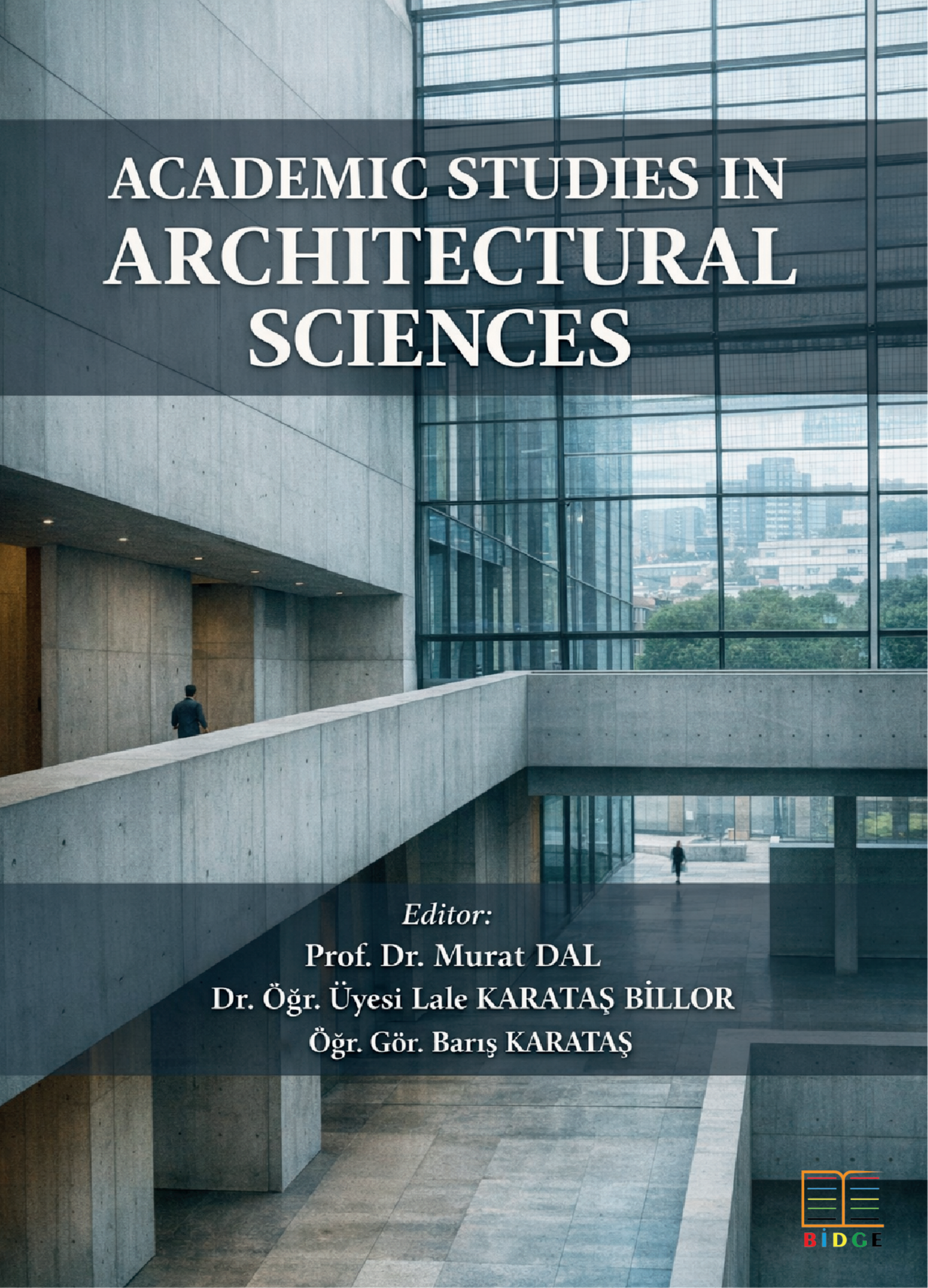

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CONTENTS

CHAPTER 1

BASIC DESIGN EDUCATION: AN EXPERIENTIAL LEARNING ENVIRONMENT

ALİ CİHAN ŞAHİN[1]
AYŞEGÜL TERECİ[2]

Introduction

Technological advancements have profoundly reshaped architecture and its education. With the development of computer-aided design and digital production tools, architectural design has evolved from a representational practice into an interactive process in which spaces can be designed, tested, and experienced. This shift calls for a reconsideration of pedagogical approaches, particularly in the Basic Design course, which forms the foundation of architectural education.

Basic Design provides the conceptual and practical groundwork for students in architecture and related design disciplines. Rather than relying on rote learning, it is structured around learning by doing and discovery-based processes, enabling students to develop creativity, critical thinking, and individual design

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strategies. First-year students often struggle with three-dimensional thinking and spatial perception due to limited experience with abstract concepts and spatial representation. Traditionally addressed through hands-on exercises, these challenges can now be supported by digital tools that allow students to experience and evaluate their designs at full scale within interactive and immersive environments.

At the same time, the profile of students has changed. Generation Z, as digital natives, are accustomed to interactive technologies and rapid feedback. This transformation, combined with technological progress, requires reconceptualizing Basic Design as a process centred on "learning to learn," encouraging students to explore their own learning styles and develop autonomy.

Contemporary architectural education increasingly adopts experiential and discovery-based learning approaches, supported by computer-assisted and immersive digital platforms. Virtual environments enhance spatial awareness and engagement by enabling students to move within and assess their designs from a first-person perspective.

This study evaluates contemporary approaches to fundamental design courses within the context of technological advancements, focusing on learning theory, virtual spaces and perception, and the role of digital technologies in Basic Design education.

Learning Theory

Learning has been a subject of inquiry throughout history and understanding how individuals learn is essential for developing appropriate educational models, particularly within design education. While early approaches to design education relied on one-way transmission of knowledge from teacher to student, contemporary models increasingly emphasise learning as a personal and experiential process. In this context, analysing students' learning tendencies is crucial for the development of effective educational programmes.

Learning can be defined as the process through which individuals interpret and internalise information gained from interaction with their environment, resulting in lasting behavioural change (Senemoğlu, 2020). Over time, four major learning approaches have emerged: Behaviourist, Humanist, Cognitive, and Constructivist. These approaches are generally categorised as passive or active based on the learner's role. Passive learning emphasises the transmission and memorisation of information, whereas active learning involves reinterpretation and reconstruction of knowledge. Learning is therefore understood as a lifelong and socially embedded process (Clements & Battista, 1990).

While passive methods were widely adopted in earlier educational systems, constructivist approaches gained prominence in the twentieth century. Constructivism views learners as active participants who rediscover and reconstruct knowledge rather than receive it directly (Bruner, 1979). This perspective aligns with Socratic inquiry, which emphasises uncovering knowledge through questioning (Karatani, 2005). Piaget further argued that new information must connect with prior knowledge for learning to occur (Aydınlı, 2015). Meaningful learning, therefore, depends on interpretation and personal sense-making rather than memorisation (Çekirdekçi, Toptaş & Çekirdekçi, 2016). Accordingly, learning environments should encourage exploration, experience, and knowledge construction (Hung, Jonassen & Liu, 2008).

Constructivist learning is subjective and shaped by individual cognitive structures (Simon, 1973; Felder & Silverman, 1988). In design and architecture education, reflective thinking and exploratory studio processes foster imagination, curiosity, and critical thinking (Schön, 1987; Aydınlı, 2001). Since emotional and motivational factors significantly influence learning and problem-solving (Şimşek, 2015; Jung et al., 2014; Tyng et al., 2017), teaching methods should be evaluated according to both subject matter and intended outcomes (Linhares & Freitas, 2010).

In contrast to traditional approaches, which treat knowledge as fixed and emphasise memorisation, as shown in Table 1, constructivist methods regard knowledge as dynamic and personally constructed. The learner actively makes sense of information, while the teacher's role is to facilitate and design environments that support this process (Milne & Taylor, 1995).

Table 1. Differences between the traditional and constructivist approaches

	Traditional Approach	**Constructivist Approach**
Knowledge	Information conveyed independently of student experiences	Constructed by the student; not fixed, constantly changing
Learning	The teacher's transfer of knowledge (rote learning)	The construction of knowledge; constructed knowledge is open to change. Built upon what the student already knows
Teacher's Role	Authoritative source of knowledge and knowledge transmitter	Creates an environment for experiences and experiments that help students construct knowledge
Student's Role	Passively receives knowledge	Actively constructs and reproduces knowledge

Reference: Milne&Taylor, 1995

Learner-centred educational models emphasise active engagement, enabling students to internalise and reconstruct knowledge through experience (Huba & Freed, 2000; Perkins, 1999). These approaches, rooted in the work of Dewey, Vygotsky, and Piaget, have shifted education away from repetitive instruction toward dynamic and exploratory learning environments, particularly within design studios (Aydınlı, 2015).

Finally, generational differences further influence learning tendencies. According to Prensky (2001a), students defined as "digital natives" differ significantly from "digital immigrants" in their approaches to learning. Generation Z learners are highly accustomed to digital technologies, rapid information processing, and visually rich environments. These characteristics underscore the importance of fostering independent learners who can access, interpret, and construct knowledge autonomously in an increasingly technology-driven educational context.

Virtual Spaces and Perception

Computer technology and the virtual reality systems that have emerged alongside it are having an impact in many areas, including design and design education. Computer-assisted equipment minimises physical limitations and provides an opportunity to experience a virtual environment. In order for the virtual spaces produced to be experienced realistically, the literature has examined how space is perceived in detail. Understanding how a person perceives the real environment is important for designing the virtual environment experience. This section examines the concepts of perception and spatial perception, as well as how the eye physically performs the function of vision and discusses the use of virtual reality systems in the field of design.

- The Concept of Perception

Throughout history, perception has been widely studied by philosophers and psychologists such as Aristotle, Kant, Plato, Koffka, and Köhler. It has been examined in relation to mental structure, knowledge, experience, and Gestalt psychology (Lang, 1987). Perception is generally defined as the process of receiving sensory data from the environment and interpreting it in the mind (Hançerlioğlu, 2004). Thus, it begins with sensory input and continues cognitively, as external stimuli are processed and reconstructed mentally (Rapoport, 1977; Lynch, 1960).

Perception is inherently subjective because it depends on individual characteristics such as prior knowledge, experience, and personal traits. Sensory data are organised and associated within the mind, and decisions are shaped by both immediate stimuli and existing mental representations (Atkinson et al., 2012). The continuity and duration of experience within a space also influence perception, as ongoing sensory input continuously reshapes interpretation (Urry, 1999).

Understanding this dynamic and reciprocal process is essential for developing effective educational and design strategies. Engaging multiple senses strengthens perception and enhances learning, particularly in spatial environments.

Although all senses contribute to perception, vision plays a dominant role (Berger, 1998a). The eye gathers light reflected from objects and transmits this data to the brain, where it is interpreted and given meaning (Arnheim, 1969). Vision therefore begins physiologically but is completed cognitively. Visual information can be categorised into four types: ocular information derived from the eye's physical structure, stereoscopic information from binocular coordination, dynamic information produced through movement, and pictorial information shaped by prior knowledge and experience (Palmer, 1999).

Ocular information:

Changes in the eye's physical structure enable it to determine whether objects are near or far away. The lens thickens and thins in response to changes in the light reaching the eye. This allows the amount of light reaching the retina to be controlled. This feature is called accommodation and can decrease with age. It produces information about the size of the objects being viewed (Palmer, 1999). The accommodation feature enables the sizes and distances of objects up to two metres away to be determined. Alongside accommodation, the convergence feature also provides information about the objects being viewed. The lens changes shape to focus on distant or nearby objects and provides information about the object's distance according to the extent of the change. In addition, the physical movements of both eyes together provide information about distance. Focusing on a nearby object involves turning the eyes towards each other, whereas focusing on a distant object involves a more parallel gaze. The distance of objects up to six metres away can be determined based on the angle of view of both eyes (Akai, 2007).

Stereoscopic information:

Due to the distance between our eyes, two different images are perceived. These images are then combined in the mind to create depth perception. This process requires input from both eyes. Therefore, this information is binocular. Studies have shown that binocular cues provide a more accurate perception of distance than monocular cues, enhancing visual exploration, discrimination, and detection (Howard & Rogers, 2002). Binocular disparity is inversely proportional to the square of the distance between the observer and the object. Nearby objects have greater binocular disparity than distant objects (Harris, 2004). It has also been observed that binocular disparity increases the likelihood of obtaining accurate information at close distances (Cutting, 1997). According to Palmer (1999), stereopsis is the most interesting source of depth information. However, Solso (1994) disputes the idea that binocular cues play a significant role in depth perception, stating that individuals missing an eye due to accident, illness or birth can still perceive depth. Ware (2004) states that 20% of the population has impaired stereo vision, meaning they cannot produce stereoscopic information. However, these individuals can live comfortably unaware of their disability.

Dynamic information:

A person's movement within a space generates data that enables perception of depth. The changing appearance of an object due to movement provides information about its form and distance. This effect is known as motion parallax. This information is dynamic and changes according to the observer's movements. As a result, distant objects change less than nearby objects, so the space is perceived more clearly with movement. Experimental studies have shown that moving within a space enhances perception. Data obtained through movement provides sufficient information for depth perception, even when other visual information is insufficient (Palmer, 1999). While other visual information is effective at distances of up to six metres, motion parallax provides effective depth information at greater distances (Cutting, 1997).

Pictorial information:

Pictorial information is frequently used in everyday life and arises from the mental interpretation of a two-dimensional visual image as perceived by the eye. Information can be obtained from a single eye. Individuals can imagine three-dimensional space by using real-life objects whose dimensions and characteristics they know as references in the images produced. This type of information is also based on an individual's knowledge and experience and can be assessed from an early age (Solso, 1994). Palmer (1999) states that, although movement within space and stereoscopic depth information are important, pictorial information is the most important source. Even when depth is perceived in space, visual information is important because it needs to be interpreted. Numerous studies have examined how the eye sees and how the obtained information is used. Vision, a process that begins in the eye and continues in the mind, is achieved through the combined use of various data. Two-dimensional images produced in the eye, physical changes made by the lens of the eye, depth information produced by both eyes together and visual information about objects in the mind enable us to see, discover dimensions and perceive space (Palmer, 1999).

- Perception of Space

Perception occurs when sensory data is interpreted, enabling individuals to define and experience space. As users interact with a space over time, they form psychological and social connections with it (Pallasmaa, 2005). The strength of communication and emotional association with a space enhances the sense of belonging (Gezer, 2007). Since perceptual factors can change, a space initially perceived as successful may later be evaluated differently; its success ultimately depends on how it is experienced (Julean, 2016).

Architecture therefore extends beyond functional problem-solving to shaping how space is perceived and experienced. Designers are influenced by their own spatial experiences, and challenges such as limited creativity may arise, particularly in virtual design processes (Erkan Yazıcı & Erdoğan, 2011). To strengthen spatial perception during design, two- and three-dimensional representations and physical or digital models are employed, as these tools enhance understanding of space (Gibson, Kwan & Wai Ming, 2002).

The concept of space has been explored by philosophers and theorists including Aristotle, Plato, Lefebvre, Zevi, Norberg-Schulz, and Lynch. Zevi (1993) defines space as a measurable void enabling movement, while Norberg-Schulz (1971a) examines it through physical, perceptual, and conceptual dimensions. Harvey (2003) further develops the idea of relational space, emphasising the role of interaction. Lynch (1960) highlights how mental images formed through engagement with space strengthen orientation and meaning. Spatial understanding becomes more lasting when individuals actively process and interpret environmental data.

Although vision provides the majority of spatial information, other senses such as hearing, smell, and touch significantly enrich perception (Berger, 1998b; Pallasmaa, 2005). Sensory experiences make spaces more memorable and meaningful. Because individuals interpret sensory data differently, the same environment can evoke varied responses and levels of attachment. This ongoing interaction between person and space underscores the importance of designing environments that engage multiple senses. In architectural education, realistic and perception-enhancing methods should therefore be integrated into the design process to support deeper spatial evaluation.

- Factors affecting perception

Perception is a continuous process that begins with sensory input and continues through mental interpretation. It involves processing spatial data through the senses, shaped by individuals' prior knowledge and experiences (Lang, 1987). Although perception primarily relies on vision, it is supported by hearing, smell, and touch. Sensory information is filtered and interpreted differently by each individual, leading to variations in spatial experience.

Interpersonal differences in perception arise from social, cultural, economic, and personal characteristics, as well as from the physical properties of both the observer and the space (Gifford, 2007; Rapoport, 1987). Factors such as profession, education, age, and physical condition influence expectations, gaze, and movement within space. For instance, architects and non-architects perceive environments differently due to professional training (Arnheim, 1977; Yazdanfar, Heidari & Aghajari, 2015). Since each individual processes sensory data through unique cognitive structures, responses to the same environment vary (Pimentel & Teixeira, 1995). Moreover, perception is not fixed; the same person may perceive a space differently over time due to changes in motivation, experience, or knowledge.

Beyond psychological and personal factors, the physical conditions of space significantly affect perception. Lighting, texture, material, and environmental legibility influence how easily spatial elements are understood (Ewing et al., 2006; Porter, 1997). Design decisions shape not only functional and formal qualities but also the intended sensory experience of space. Movement plays a crucial role in this process, as space is perceived dynamically through bodily interaction (Ching, 2016; Zevi, 1993). As individuals move, sensory data continuously updates, creating an evolving perception shaped by ongoing interaction between observer and environment (Norberg-Schulz, 1971b).

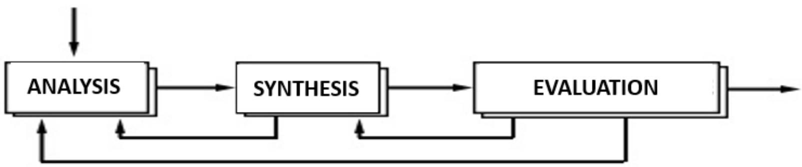
Basic Design Education

Design education, which focuses on learning through experience, has been widely studied in the literature and continues to evolve to determine the most effective approaches (Schön, 1985). This section summarises the literature on design and basic design education in order to understand these developments.

Design and architecture occupy a very important place in our daily lives and differ from many scientific disciplines (Cross, 1986). Design, which involves thinking up and creating abstract concepts, has been defined by Lawson (1994) as investigating what is necessary. Designing, on the other hand, involves researching solutions for a specific person or need and producing a unique idea. First and foremost, the problem must be identified and analysed. As design problems are highly subjective, different solutions are produced depending on changes to the problem or the designer. Since design problems cannot be comprehensively defined, designers tend to organise them hierarchically (Lawson, 1980). Like mathematical expressions, the subject of architectural design has a structure that is not clearly defined, making it difficult to define the design problem. Design education therefore focuses on equipping students with the skills to define such complex design problems and produce appropriate solutions. Students who have received design training are more successful than those in other disciplines at solving ill-defined, open-ended problems (Schön, 1985).

The design process is difficult to investigate and define because it is personalised (Jones, 1970). Beginning with the design problem and continuing until the designed product is completed, this process varies from person to person and is influenced by many factors. It is constantly renewing and updating itself (Oxman, 2008). It is important to examine the design process in order to determine how students design and identify appropriate design tasks for their level, as well as the stages they go through.

Figure 1. Lawson's Design Process Map



Reference:Lawson, 1980

Although the design process is highly subjective and complex, it follows a specific structure, as illustrated in Figure 1. The design process is divided into three main stages: analysis, synthesis and evaluation. These stages follow one another in a cyclical manner. During the process, it is possible to move from one stage to another, and this can happen continuously until the correct solution is reached (Lawson, 1980). Due to the unique nature of design problems, their solutions are also unique. Therefore, correctly defining design problems is important to achieve the right results (Cole-Colander, 2003).

The analysis stage involves identifying the design problem; the synthesis stage involves implementing the proposed solution; and the evaluation stage involves assessing the effectiveness of the solution. Based on the evaluation results, the process can return to the synthesis stage to propose a new solution or to the analysis stage to re-examine the problem. This cycle can be repeated continuously throughout the design process. A supportive design environment is important for this process. In basic design education, students experience this process for the first time to discover the design process and their own abilities. Providing a suitable design environment and better defining the design problem enables designers to make faster design decisions (Şahin, 2015).

- The Bauhaus Influence on the Development of Design Education

Design education has evolved over time in response to changing social, technological, and institutional conditions. Both educators and students play a significant role in shaping this dynamic system. Although learning is an internal process, effective design education requires clearly defined objectives and systematic implementation (Senemoğlu, 2020). As design itself involves active reasoning and critical thinking, its education must also support these processes (Oxman, 2001).

The institutional foundations of modern design education were laid with the establishment of the French Royal Academy in 1671. With industrial and technological developments, different educational models emerged, among which the Bauhaus school, founded in Germany in 1919, became highly influential. Bauhaus significantly shaped architecture and design education, including in Turkey (Artun, 2009). It integrated art, craft, and technology, promoting interdisciplinary collaboration and moving beyond traditional employer–employee models toward a master–apprentice approach (Bulat, Bulat & Aydın, 2014). This model enabled students to develop creative and technical skills simultaneously.

Bauhaus education was influenced by early twentieth-century art movements such as Cubism and Expressionism, as well as by educational philosophies associated with thinkers like John Dewey and Jean Piaget (Cross, 1986). Its Basic Design curriculum was grounded in Gestalt psychology, developed by Wolfgang Köhler, Kurt Koffka, and Max Wertheimer. Gestalt theory emphasises holistic perception, arguing that the whole is perceived differently from the sum of its parts.

With the Bauhaus, craft workshops evolved into design studios, establishing studio-based learning as central to design education. These studios aimed to cultivate students who think multidimensionally, question assumptions, and engage in research, rather than relying on rote learning (Dural, 2000).

- Design Studio: An Experience-Focused Learning Environment

Design education departments commonly use studio environments where students develop projects individually while interacting with peers and instructors (Akış, 2019; Lang, 1987). The collaborative nature of studios enhances social interaction, strengthens communication, and supports a more effective design process (Kreijns, Kirschner & Jochems, 2003). Since learning is active for both students and educators, studio settings also contribute to instructors' professional development.

Rooted in the Bauhaus tradition, design studios integrate craft and design, combining theoretical knowledge with hands-on production. Abstract ideas are transformed into tangible outcomes through iterative stages of analysis, synthesis, and evaluation.

Instructors guide students through this process, helping them reflect on and refine their own design approaches.

Because design education is based on learning by doing, architectural studios play a central role (Oxman, 1999; Schön, 1985). Knowledge is discovered through practice rather than transmitted directly (Salvadori, 1974), making the creation of an appropriate learning environment essential. Studio education relies on experiential learning (Paker Kahvecioğlu, 2007), where creativity is encouraged through guidance, while technical skills—such as modelling and technical drawing—are explicitly taught (Goldschmidt, 2003). Insufficient technical competence can hinder the design process, as practical production is fundamental to learning by doing.

- Basic Design Course and the 'Learning by Doing' Model

In studio environments, students explore their own design processes through hands-on learning. Foundational design courses are offered in disciplines such as architecture, interior architecture, graphic design, and industrial design, serving as the starting point of design education. Although compulsory in most universities, course duration and teaching methods vary (Erkan, 2006). These courses combine theoretical instruction with practical applications, encouraging students to discover their abilities and move beyond preconceived ideas (Seylan, 2005). For students accustomed to rote-based secondary education, this experiential approach can initially be challenging (Erkan, 2006).

Basic design education addresses abstract concepts that are often difficult to define, which can make comprehension challenging (Yürekli & Yürekli, 2004). Its primary aim is to develop creative thinking and problem-solving skills through level-appropriate design tasks (Dural, 2000; Sarıoğlu Erdoğdu, 2016). Unlike traditional knowledge transmission, it is grounded in experiential learning, where students learn by doing (Schön, 1985). Students are expected to interpret design problems, generate abstract ideas, and transform them into concrete outcomes (Çubukçu & Dündar, 2007). Accurate problem definition strengthens decision-making and accelerates the design process (Şahin, 2015).

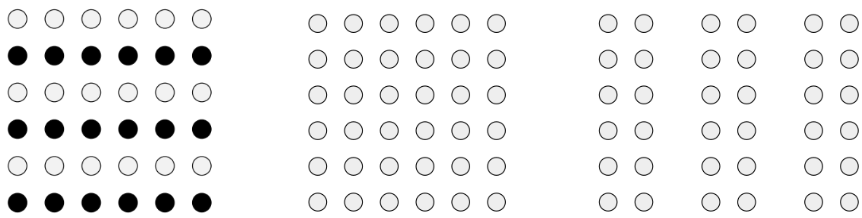
Through two- and three-dimensional applications, students analyse their work, learn from mistakes, and experiment with materials (Büyükkeçeci, 2017; Itten, 1975). Particularly in architecture, where education is centred on three-dimensional space, the ability to produce and express spatial ideas is essential (Friedman, 1999). Concepts such as form, space, structure, scale, and function are taught progressively, typically moving from 2D to 3D studies (Cantürk Akyıldız, 2020).

The Basic Design course consists of theoretical, practical, and pedagogical components, providing the foundation for later design education (Akbulut, 2015). While theory supports conceptual understanding, practical work develops technical and representational skills. Pedagogically, the course fosters abstract thinking, self-evaluation, and independent learning. Students use drawings, sketches, and models to propose and test solutions (Cantürk Akyıldız, 2020).

Students also learn fundamental design principles—such as line, surface, volume, colour, and texture—and apply them to create coherent compositions (Çetinkaya, 2011; Günay, 2007). Final projects may incorporate functional elements, integrating conceptual and practical knowledge (Gökaydın, 2010).

The theoretical foundation of Basic Design, particularly in the Bauhaus tradition, is rooted in Gestalt psychology. Gestalt theory emphasises holistic perception, asserting that the whole is perceived differently from the sum of its parts (Koffka, 1922). Meaning emerges through the relationships among elements, and perceptual organisation is influenced by principles such as figure–ground, similarity, proximity, continuity, simplicity, and closure (Aydın, 2007). These principles explain how visual elements are grouped and interpreted, shaping the way designs are perceived as unified wholes.

Figure 2. Gestalt Principles of Similarity and Proximity

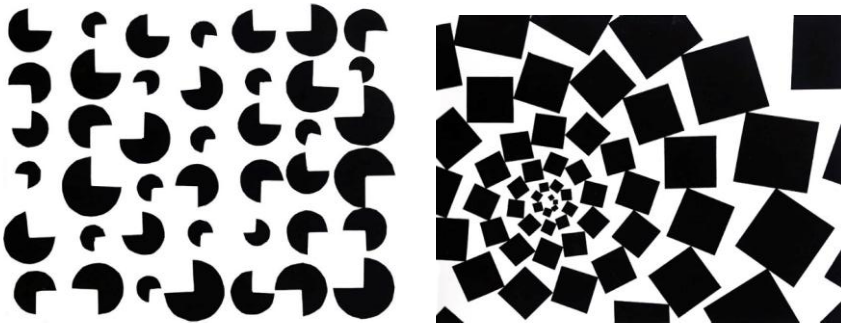


Reference: Schultz & Schultz, 2007

Gestalt principles explain how visual elements are perceptually organised. In studies using black and white circles shown in Figure 2, the mind tends to group elements according to proximity, often perceiving rows rather than columns (Stevenson, 2016). Even when shapes are identical, differences in spacing lead to perceptual grouping. According to the principle of simplicity, the mind favours the most familiar and simplest forms when interpreting complex or overlapping shapes (Çakıroğlu, 2020). The principle of continuity suggests that elements arranged along a line or curve are perceived as related, even if they intersect with others. Similarly, compositions made of separate parts may reveal forms not immediately visible when viewed as a unified whole (Feinberg, 2013; Stevenson, 2016).

In introductory design education, these Gestalt principles are explored through two-dimensional exercises using points, lines, and shapes. Such studies strengthen hand–eye coordination, develop understanding of formal relationships, and prepare students for three-dimensional design. Students may work with black-and-white or coloured ready-made shapes, arranging them according to specific rules. As presented in Figure 3, these structured exercises encourage experimentation, rapid modification, and problem-solving, allowing students to explore perceptual organisation within controlled systems.

Figure 3: Student studies on the subject of scale



Reference: Student work of Ali Alptekin Günlü &Ayşe Nur Çini

After two-dimensional studies, design education progresses to three-dimensional exploration. Students apply principles learned in 2D—such as balance, volume, structure, and the relationship between emptiness and fullness—to spatial compositions. This transition helps them develop three-dimensional thinking through hands-on experimentation.

For beginners, using ready-made forms in both 2D and 3D exercises provides structure and guidance. Instead of creating entirely new forms, students focus on organising existing objects into coherent compositions. Polyhedral forms such as cubes and pyramids as illustrated in Figure 4 are commonly used because their compatible surfaces allow easy combination (Akgül & Begeç, 2020). These modular elements enable rapid experimentation and the generation of multiple design alternatives through trial and error (Harnad, 2007).

Figure 4: Polyhedral objects (polyhedrons)

Reference: Ali Cihan Şahin

Geometric forms used in three-dimensional studies enable students to make quick design decisions. Their modular nature allows them to be easily assembled and disassembled through additive and subtractive methods, helping students achieve rapid results and maintain motivation. Because these forms are often self-supporting, they can transfer loads to one another, making it possible to construct larger spatial compositions.

The shape, size, and number of elements can be adjusted to control the complexity of the design problem. Students may produce small-scale individual works or collaborate on larger group projects, as shown in Figure 5, generating multiple alternatives through experimentation and trial-and-error (Harnad, 2007).

Figure 5. Student work with cube objects

Reference: Akgül &Begeç, 2020

In two-dimensional studies, design boundaries are defined on paper, while in three-dimensional tasks, a defined volume serves as the design space. Providing clear boundaries guides students, enabling them to experiment with predetermined objects within a cube, a common approach in foundational design education (Itten, 1975).

After 3D abstract studies, concepts of space, function, and scale are incorporated. Human figures in small-scale models help students perceive spatial dimensions and evaluate designs from multiple angles, enhancing understanding of width, height, and psychological effects of space (Erkan Yazici & Erdoğan, 2011; Köknar, Berber & Sönmez, 2011).

The use of ready-made design templates and objects, such as Juan Gris' Malevich Tectonics Method or Hejduk's 9-Square Grid, provides structure, accelerates the design process, and supports learning of architectural elements like columns, lines, and boundaries (Hejduk, 1971; Gür, 2003; Onur & Zorlu, 2017). Templates also enhance students' motivation by enabling quick, tangible results, compensating for developing manual skills (Atalayer, 1994).

Following structured exercises, students' progress to freer, abstract design tasks that foster spatial perception, imagination, and creative thinking. Narrative-based projects, such as recreating cities from Italo Calvino's Invisible Cities, encourage students to abstract and model conceptual environments, developing cognitive and imaginative faculties (Cantürk Akyıldız, 2020).

Overall, the foundational design course is crucial in preparing students for advanced design education. The concepts addressed and the skills acquired are outlined in Table 2. Through 2D and 3D studies, structured exercises, and abstract tasks, students gain practical experience, learn to think critically about design problems, and develop essential skills and self-awareness, forming the basis for their future work in design schools.

Table 2. Contents of the Single Semester Basic Design Course

Design Problem	**Skill**	**Concepts**
2D Applications	Gestalt Principles	Similarity, Proximity, Continuity, and Intelligibility
Transition from 2D to 3D	Gaining the Perception of Depth and Height in 3D	Concepts of Similarity, Proximity, Continuity, and Intelligibility, 3D Elevations
3D Applications	Creating Volume in a 3D Environment, Solid-Void Relationships, Openness-Closedness, Light-Shadow	Virtual Cube Application, Abstracted Spaces
Transition from Volume to Space	Adding Function to Form Design, Spatial Arrangement, Scale	Addressing the Function-Form Concept with Design Principles
Final Project	Space-Place-Scale-Function	

Reference: Sarıoğlu Erdoğdu, 2016

The research conducted within the content of the basic design course aims to provide students with a more efficient design process and learning experience. The implementation of different design applications is contingent upon alterations in the student structure and the subsequent manifestation of new requirements. The thoughtful selection of suitable applications for students has been demonstrated to facilitate both formal and conceptual development, thereby offering a more expeditious learning experience. In accordance with the evolving demographics of the student, consequent to technological advances and temporal shifts, the foundational design course is undergoing continuous refinement through the implementation of novel experiments.

- The Impact of Digital Technologies on Design Education

Technological advancements have significantly influenced human behaviour and accelerated architectural design processes, enhancing communication between architects and clients (Gabriel & Maher, 2002; Kitchens & Shiratuddin, 2007). The shift from traditional 2D drawings to digital environments allows designs to be experienced realistically before construction, improving understanding and collaboration. Appropriate use of digital tools has been shown to positively impact design communication (Lee, 2011).

Computer-aided design (CAD) applications are now integral throughout the project lifecycle, from conceptualisation to final delivery, and are as effective as traditional methods for expression (Ölmez, 2019). In architectural education, students gain proficiency with these tools during design and presentation phases. However, first-year students often lack prior experience, limiting early integration of computer systems in basic design courses.

While digital tools offer clear benefits, CAD education remains an emerging field requiring carefully designed learning frameworks to ensure technology enhances rather than overshadows learning (Şenocak & Bozkurt, 2020). Effective computer-based education depends on three factors: reliable and accessible infrastructure, user-friendly software, and alignment with educational objectives. Tasks must be adaptable to digital environments, ideally following structured systems interpretable by computers. For example, as shown in Figure 6, the 9-square grid method has been adapted for computer use in basic design courses, allowing discovery-based learning to continue digitally. Parametric design tools, such as Rhino and 3ds Max with plugins, are also being explored to support interactive and flexible digital design education.

Figure 6. The computer-assisted 9-square grid study

Reference: Yazar & Pakdil (2009)

Using design applications in digital environments can enhance pedagogical outcomes by developing students' cognitive and problem-solving skills in fundamental design education. As technical skills improve, students become more productive, particularly when motivated. Game-like applications as demonstrated in Figure 7, have been shown to increase engagement, enhance perception, and support problem-solving (Coşkun, 2019; Shaffer, 2006; Prensky, 2001a).

Figure 7. The following illustration depicts student work undertaken using the Minecraft Education application.

Reference: Coşkun, 2019

Effective educational games must be tailored to students' proficiency levels and clearly aligned with learning objectives. Well-designed game-based learning environments foster motivation, focus, and autonomous discovery, enabling students to explore design tasks within an engaging and supportive framework (Lovejoy, 2004; Çatak, 2009). Conversely, tasks that exceed students' abilities can reduce learning outcomes and motivation (Winn, 2010; Tondello et al., 2019).

It has been established that computer games facilitate an active learning experience. The provision of an immersive experience for the student, coupled with encouragement of learning, has been demonstrated to improve the learning process. A game-based learning environment that is structured around design enables students to focus on the task at hand and to engage in a productive learning process without experiencing boredom (Lieberman, 2006).

Table 3. A comparison of the fundamental principles of design education and the concepts inherent in computer games.

Computer Games	Basic Design Training
Objectives	Assignments
Inventory	Materials
Interface	Design Framework
Rules	Principles
Scores	Grades
Levels	Topics
Scenario	Curriculum
Experience	Knowledge

Reference: Coşkun, 2018

As demonstrated in Table 3, numerous concepts inherent to computer-based games bear a striking resemblance to those found in fundamental design education. Concepts such as goal, rules, scoring, and scenario, which are frequently used in computer games, will ensure that the targeted learning outcomes are achieved at the end of the course if they are restructured according to the content of the basic design course (Coşkun, 2018).

Computer use, as in every field of science, supports designers in the architecture and design process. Although computers are helpful in many stages of education, it is necessary to select exercises appropriate to the level and course content of students just starting basic design education. Planned and parametric applications come to the forefront because basic geometric forms can be transferred to a computer environment and used without difficulty by beginner students.

- The Contribution of Virtual Spaces to Education

Technological advancements have accelerated the transition of architectural design into digital environments. Computer-aided and parametric design tools increase efficiency, while virtual reality (VR) offers immersive, first-person experiences that improve spatial perception, support experimentation, and enable more informed design decisions (Gabriel & Maher, 2002; Tasker & Dalton, 2008). VR enhances communication with clients, reduces perceptual discrepancies, and allows feedback early in the design process (Mourtzis et al., 2018).

In education, VR supports experiential learning, strengthening cognitive, spatial, and creative abilities, particularly for novice students (Dori & Belcher, 2005; Pandey et al., 2015; Abdelhameed, 2013). It enables students to perceive human scale, depth, and proportion more accurately than small-scale physical models, and comparing VR with physical models further improves understanding of scale and form (Ölmez, 2019; Häkkilä et al., 2018). Fully immersive systems are generally more effective than non-immersive applications, and game-like elements increase motivation and engagement (Schwarze et al., 2019; Prensky, 2001a).

VR facilitates collaborative design among geographically dispersed participants, replicating aspects of studio-based learning and supporting teamwork and communication (Billinghurst & Kato, 2002; Klopfer & Squire, 2008). Educational content can be rapidly created and tailored, promoting cognitive engagement and problem-solving skills before completing the design process (Huang et al., 2010). Usability is critical: intuitive interfaces reduce cognitive load, while poorly designed systems can hinder learning (Jin & Lee, 2019a; Kozak et al., 1993). Emotional and motivational factors also influence learning; engaging VR environments support prolonged focus and enhance learning efficiency (Tyng et al., 2017; Zlomuzica et al., 2016).

VR and computer-based design systems have complementary strengths: VR encourages experiential evaluation and exploration, while computer-based tools facilitate rapid decision-making. Combining both approaches can provide comprehensive learning outcomes in architectural education (Jin & Lee, 2019b; Schnabel & Kvan, 2003).

- Digital Natives in Design Education: Generation Z and Learning Habits

Students exhibit diverse interests and traits shaped by individual differences and generational factors. Generation Z (born after 2000) and Generation Y (1980–2000) differ in their familiarity with technology. Generation Z, or "Digital Natives," have grown up immersed in technology, whereas Generation Y, or "Digital Immigrants," adapted to it later (Prensky, 2001a; Seymen, 2017). In Turkey, Generation X and Y comprise 64% of the population, while most design students today belong to Generation Z (TÜİK, 2019).

Generation Z students demonstrate high technological proficiency, multitasking ability, and a preference for fast, interactive learning experiences (Prensky, 2001b; Rothman, 2014).

Conventional educational methods, which rely on passive approaches, may fail to engage this cohort, reducing motivation and focus (Prensky, 2014). Research suggests that learning methods incorporating students' skills, digital tools, and game-like structures enhance engagement and outcomes (Carstens & Beck, 2005). Familiarity with video games enables Generation Z students to navigate learning systems effectively and adapt quickly to technological infrastructure, making them well-suited for digital and interactive design education.

- Distance Learning in Architectural Education

Technological advances have transformed education, notably through computers and internet integration, giving rise to distance education. This modality allows students to participate remotely, expanding access to information and overcoming disruptions such as natural disasters, conflicts, or pandemics. The COVID-19 pandemic accelerated global adoption, prompting universities to implement platforms like Zoom, Google Meet, Microsoft Teams, Moodle, and custom systems to maintain instructional continuity (Kaçan & Gelen, 2020).

Distance education is delivered synchronously, allowing real-time interaction, or asynchronously, providing recorded content. Many institutions combine both approaches to support flexibility. Online learning removes spatial constraints and has been associated with high participation and academic achievement when interactive tools are used effectively (Karasar, 2004; Büyükşener, 2012; Kahraman, 2020).

However, practice-based disciplines such as basic design education face challenges in remote settings. Design studios rely on hands-on experimentation, direct interaction, and continuous feedback, which are difficult to replicate online, particularly for three-dimensional applications (Yıldırım, 2019). Two-dimensional exercises adapt more easily, but full experiential learning is limited.

Experimental studies suggest that immersive virtual environments can mitigate these limitations. For example, a basic design course conducted in Microsoft Minecraft allowed students to interact, collaborate, and explore space simultaneously, demonstrating that remote design education can be effective when supported by virtual platforms that enable active participation and experiential engagement (TOBB ETÜ Department of Architecture, 2020).

Conclusion

Basic Design Education is predicated on a "learning by doing" process for students entering architecture and design disciplines, whereby students construct through experience rather than memorising information. The challenges encountered by students in conventional methods, such as technical drawing and model making, in developing three-dimensional thinking, spatial depth, and an understanding of volumetric relationships, can be effectively addressed through the utilisation of contemporary technological resources. The present study demonstrates that transitioning education from physical, space-constrained environments to digital design environments has the capacity to transform it into a "learning to learn" journey, wherein students discover their own learning style.

The affordances of virtual spaces, including their perceptual differences, motivation, "presence," and "immersive" features, provide students with the opportunity to experience and navigate the volumes they design at various scales. The utilisation of this technology facilitates a more efficient evaluation process in concretising abstract concepts (full-empty, light-shadow, etc.) in comparison to conventional model making methodologies.

Moreover, the virtual environment's provision of boundless materials and accelerated speeds has been demonstrated to enhance student productivity, enabling expeditious experimentation with diverse alternatives and fortifying design decisions.

Generation Z and Game-Based Learning Models: The technological aptitude, multitasking success and rapid results-oriented nature of Generation Z students, defined as "digital natives," have rendered the structuring of educational methods with digital tools imperative. The integration of gamification elements, such as those found in applications like Minecraft Education, has been demonstrated to enhance student motivation and extend their attention spans. This, in turn, fosters an active learning environment where the apprehension of making errors is diminished.

Digital design tools in architectural education are not merely visualisation tools, but interactive experiential spaces where design problems are solved directly within the system itself. However, it is imperative that the system interfaces employed are user-friendly and that the application design is tailored to pedagogical goals, enabling students to focus on design problems without becoming overwhelmed by technological complexities. If traditional design education is analogous to observing a theatrical performance from the periphery, then virtual reality-supported education can be considered an interactive performance in which the student assumes a central role, orchestrating the mise-en-scène according to their own dimensions, manipulating the lighting through tactile sensation, and becoming an integral component of the performance. Conventional design education is predicated on a passive observation process whereby students evaluate design objects from the outside, from a certain distance, and with a limited perception of depth, through two-dimensional technical drawings and scaled models. In this method, students may encounter challenges in mentally constructing the spatial depth and volumetric relationships of the design.

Conversely, digitally supported education, with its high degree of "immersion" and "presence," situates the student at the centre of the designed volume, thereby transforming the process into an interactive spatial experience. In this model, students are able to visualise the design and experience it at its actual scale (1:1). They are able to concretise abstract concepts such as light, shadow and the relationship between solid and void by moving within the model itself. Consequently, the design process evolves from a model that receives information from the outside to a "learning by doing" and discovery-based performance where the student directly intervenes in the components of the design and constructs the knowledge themselves.

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CHAPTER 2

Hong Kong Monster Buildings from the Perspective of Landscape Architecture

Tuğba DÜZENLİ[1]

Introduction

In the urban morphology of Hong Kong, the massive residential blocks referred to in the literature as "monster buildings" have emerged as products of limited land availability, intense migration, and rapid industrialization (Xu et al., 2023). These structures are characterized by large-scale block typologies that accommodate hundreds of housing units and mixed-use spaces. However, when evaluated from the perspective of landscape architecture, this dense built form generates significant spatial and ecological challenges (Bhatia, 2018). In particular, the lack of access to sunlight, insufficient natural ventilation, and the scarcity of green and open spaces negatively affect both the quality of life for residents and the sustainability of urban ecosystems. The prevalence of concrete surfaces further exacerbates the urban heat island effect, contributes to inadequate stormwater management, and restricts

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biodiversity, thereby exposing the ecological vulnerabilities of these developments.

From a social standpoint, although the courtyards of these buildings function as semi-public spaces, the absence of sufficient amenities and landscape design limits their potential for fostering social cohesion. Nevertheless, the discipline of landscape architecture offers strategic interventions that hold significant potential for mitigating these adverse impacts (Hong Kong Heritage Museum, 2023). Through the incorporation of vertical greening and green wall systems on façades, community gardens on rooftops, permeable surfaces, and small-scale ecological landscape interventions, both microclimatic balance can be restored and human–nature connections can be revitalized. Accordingly, monster buildings may be regarded not only as sites of spatial and ecological problems but also as experimental laboratories for ecological and social innovation from the perspective of landscape architecture. This study evaluates these structures and their surroundings through the lens of landscape architecture.

The term *“monster buildings”* is a popular expression used to describe the massive, dense, and layered residential blocks in Hong Kong. Constructed largely from the 1960s onward in response to rapid industrialization and population growth, these high-density apartment complexes are architecturally associated with the modernist block typology, yet their scale, mixed-use character, and population intensity render them a distinct subcategory. The expression *“monster buildings”* specifically refers to Hong Kong’s mega-residential complexes, typically composed of multiple interlinked blocks that combine commercial activity on the lower floors with housing on the upper levels. The most iconic example is the cluster of five interconnected estates in Quarry Bay (including Yick Cheong, Yick Fat, and Montane), built in the 1960s, rising up to 18 stories and accommodating more than 2,000 units. The visual and spatial impact of this ensemble—layered façades, extreme density, and narrow internal courtyards—has transformed it into a symbol of "monstrous" urban compactness in the city's image, reinforced by its touristic and mediatic representations. The designation "Monster Building/Monster Mansion" has thus become institutionalized through its resonance in both local and global visual culture.

The historical and urban background of this concept is closely tied to Hong Kong's post-war demographic boom, severe land scarcity, and the large-scale housing programs initiated by the state after the 1953 Shek Kip Mei fire (Smart, 2006; Hong Kong Housing Authority, n.d.). The disaster triggered mass resettlement and public housing policies, beginning with the first generation of "resettlement blocks" and later managed under the Housing Authority's high-density paradigm (Hong Kong Heritage Museum, 2023). This framework normalized vertical growth on narrow plots and produced mega-scaled, courtyard-based, and highly stratified variants of the modernist block typology. Hence, *"monster buildings"* should not be seen merely as a label for one particular complex but also as a colloquial descriptor for an urban housing logic shaped by the triad of high density, minimal dwelling size, and the courtyard/lightwell morphology.

Morphologically, these complexes exhibit three key characteristics: (i) the formation of internal courtyards or lightwells through U- or Π-shaped block configurations, (ii) integration of micro-commercial functions at the ground and mezzanine levels to connect with street life, and (iii) the stacking of extremely small residential units—often subdivided flats falling below standard thresholds—on the upper floors. The repetitive façades and restricted sunlight/air circulation have been seared into global visual memory through Michael Wolf's Architecture of Density series (M+ Collection, 2009; Wired, 2013). For this reason, the term conveys not only physical scale but also perceptual intensity, aesthetic compression, and the lived experience of spatial congestion.

Discursively and culturally, "monster buildings" function as visual icons that construct the city's image through cinema and photography. With the rise of Instagram, film productions, and photo-tourism, the "well" perspectives looking into their courtyards have epitomized the dystopian aesthetics of the vertical megacity (M+ Museum, 2024). However, this popular representation also generates tensions, as it intrudes upon residents' privacy and everyday life.—resulting in calls for "respectful visitation" and filming restrictions (Abbas, 1997). Thus, the concept oscillates between aesthetic fetishization and the lived realities of housing inequality.

From the perspective of planning and housing policy, *"monster buildings"* embody the long-term outcome of Hong Kong's vertical urbanization model, driven by speculative land economics, stringent zoning and plot ratio regimes, and the necessity of "building upward" to meet demand in the face of exorbitant land prices (Yam, 2011). Together with other high-density forms such as "slender" or "pencil" towers, they reflect the broader regime of vertical intensification. In this sense, the term *"monster buildings"* extends beyond a single iconic complex and operates as an umbrella designation for the manifestations—both public and private—of high-density housing production in Hong Kong.

Hong Kong'daki "monster buildings" olgusunu peyzaj ve tasarım perspektifinden okuduğumuzda, mesele yalnızca konut yoğunluğu değil, aynı zamanda zeminde (ground plane) kamusal yaşamın nasıl mümkün kılındığıdır. Aşırı dikeyleşme, rüzgâr koridorlarının kesilmesi, gölgelenmenin artması, ısı adası etkisinin güçlenmesi ve yağmur suyu yönetiminin zorlaşması gibi mikroiklim baskıları üretirken; parsel içi boşluklar, avlular, geçitler, merdiven-kot farkları ve “podium” düzlemleri gündelik dolaşımın ana sahnesine dönüşür. Bu bağlamda peyzaj tasarımı, yüksek yoğunluğu “yaşanabilirliğe” çeviren kritik bir arayüz olarak; geçirgen zeminler, gölgelikli yarı-açık toplanma alanları, cephe ve teras bahçeleri, biyofilik bitkilendirme, dikey yeşil sistemler ve cephe ölçeğinde su/bitki entegrasyonu ile hem çevresel konforu hem de sosyal etkileşimi destekleyebilir. Tasarımın odak noktası, dev blokların yarattığı baskın kütleyi yalnızca “yumuşatmak” değil; okunaklı yaya bağlantıları, eşikler ve ortak kullanım cepleri üzerinden mekânsal adalet ve kamusal erişilebilirlik üreten, yoğunluk içinde nefes alan bir yeşil-mavi altyapı kurgusu geliştirmektir. “Monster buildings” tipolojisi tasarım açısından, kütle–boşluk ilişkisini ve zemin kotundaki yaşantının örgütlenmesini belirleyen bir “mega-blok” mantığı üretir: Çok sayıda birimin tek bir kütlede toplanması, hem görsel algıda hem de kullanım örüntülerinde güçlü bir kapalılık/yoğunluk hissi yaratırken, aynı zamanda avlu, ışıklık, geçit, iç sokak ve podium gibi ara mekânlar üzerinden “kentsel mikro-iklim” ve “gündelik sosyallik” tasarlanabilir hâle gelir.

At this point, the critical task of design is not merely to aesthetically “mask” the pressure exerted by mass, but to reintroduce a human scale through scale-bridging strategies—such as layered façade depths, recessed niches, balcony/terrace rhythms, and modular shading devices; to establish legible thresholds that enhance visual permeability and wayfinding by emphasizing entrances, clarifying movement axes, and constructing stair–ramp spines that ensure inter-level continuity; and to produce “buffer” spaces that blur the boundaries between public, semi-public, and private realms. In particular, because the podium plane in high-density housing production is often hardened by functions such as retail and parking, it can be reworked through design into a stage for public life: shading canopies, pockets for sitting and waiting, flexible event spaces, small-scale sport/play components, micro-community gardens, and permeable ground textures that maintain continuity along the building edge all contribute to strengthening this urban scene (Alpak & Düzenli, 2022; 2023).

Moreover, under conditions of extreme density, "good design" links climatic performance directly to spatial decision-making: air-permeable corridors can mitigate the wall effect that completely blocks wind; material and surface selections can regulate shading and reflectance; blue–green infrastructure (bioswales, rain gardens, water-retentive terrace systems) can support stormwater management; and multi-layered planting (ground + terrace + façade) can be composed as an integrated spatial "composition" to reduce urban heat island impacts (Alpak & Yılmaz, 2022; Bayramoğlu & Seyhan, 2021; Eren, 2019; Seyhan & Bayramoğlu, 2023; Yılmaz et al., 2023). In this way, "monster buildings" can be approached not only as outcomes of quantitative densification, but as urban forms whose livability, legibility, and capacity for shared life can be re-produced through design.

Table 1. Visuals of the Study Area

Monster buildings		
		 

In contemporary academic literature, studies that approach the concept indirectly often examine Hong Kong—alongside other Asian metropolises such as Shanghai—in terms of the impacts of high-rise, high-density morphology on health, microclimate, social interaction, and accessibility. Within this framework, "monster buildings" are interpreted as one of the empirical manifestations of vertical living and congested housing models, while simultaneously foregrounding debates on sustainability in relation to urban ecology and the quality of public space.

In summary, “monster buildings” function both as the popular nickname of a specific housing complex (Quarry Bay) with significant representational power in the global imagination, and as a typological shorthand that reveals the ideology of density embedded in Hong Kong’s historical housing policies, land economy, and practices of vertical urbanization. Accordingly, the concept can be understood within architectural and urban theory as situated at the intersection of morphological (block organization, courtyard structure, façade rhythm), socio-economic (housing market, public housing regime), and cultural (mediatic iconography, touristic consumption) dimensions—serving simultaneously as an analytical lens and as a critical indicator.

Historical and Urban Context

Land Scarcity: Hong Kong, with its mountainous geography and limited flat terrain, faces severe constraints on usable land. As a result, a “vertical city” model has been adopted.

Migration and Industrialization: Migration waves between the 1950s and 1970s, coupled with the demand for cheap labor, necessitated rapid housing production.

Public Policies: The state’s housing production strategies, combined with private developers, led to the emergence of mega-blocks.

Architectural Characteristics

Massive Scale: These buildings typically consist of several interconnected blocks and accommodate hundreds or even thousands of housing units.

Mixed Use: The lower floors host shops, workshops, and small businesses, while the upper floors are designated for residential purposes.

Courtyard Forms: Internal courtyards provide narrow lightwells and semi-public spaces, functioning simultaneously as sites of everyday life and as spaces of isolation.

Low Living Standards: Individual housing units are extremely small (so-called "cage apartments" of 10–20 m^2), symbolizing Hong Kong's acute housing crisis.

Socio-Cultural Dimension

Cultural Icon: Monster buildings occupy a significant place in both Hong Kong's global image and its cinematic/media representations. They often appear as a spatial "background character" in works such as Transformers: Age of Extinction (2014) and the films of Wong Kar-wai.

Social Congestion: Extreme density reduces individual privacy, yet at the same time fosters a strong sense of neighborhood identity.

Tourism and Aesthetics: Today, these structures have become symbols of "dystopian beauty" for photographers and tourists alike.

Theoretical Analysis

From Lefebvre's Production of Space: From Lefebvre's perspective, these buildings exemplify the abstract space generated by capitalist relations of production (Lefebvre, 1991). Foucault's heterotopia concept also frames their courtyards as dual spaces that are simultaneously public and private. Likewise, Koolhaas (1978) interprets them as extreme cases of vertical living, symbolizing both the utopia and dystopia of metropolitan density.

Through Foucault's Concept of Heterotopia: The inner courtyards constitute a dual spatial configuration, simultaneously embodying both public and private qualities.

In Rem Koolhaas's Delirious New York Framework: The Hong Kong monster buildings represent extreme cases of vertical living, symbolizing both the utopia and dystopia of metropolitan density.

Critiques and Future Perspectives

Critiques

Urban Critique: Negative impacts on human health, psychology, and social life arise from a lack of sunlight, extreme crowding, and insufficient green space.

Ecological–Microclimatic Imbalances: Ecological–microclimatic imbalances are closely tied to the high-rise, high-density morphology in Hong Kong and Shanghai, which affects solar access, wind continuity, and thermal comfort (Xu et al., 2023). Since the 2000s, planning discourse has increasingly emphasized more humane, public-space-oriented, and sustainable housing models (Hong Kong Heritage Museum, 2023).The high-rise and deep canyon morphology (characterized by high/low H/W ratios and a limited sky-view factor) reduces solar exposure and wind continuity, thereby intensifying the urban heat island effect. Narrow courtyards and the dominance of hard surfaces trap long-wave radiation, exacerbating overheating in summer and damp cold stress in winter. These conditions lower user well-being by pushing UTCI/PET values beyond comfort thresholds. The homogeneity of façade materials and the prevalence of low-albedo surfaces further disrupt the balance of visual and thermal reflection.

Hydrological Discontinuity and Impermeability: Expansive hardscape surfaces at the podium and ground levels increase peak runoff, raise rainfall-to-runoff conversion rates, and heighten flood vulnerability. The weakening of natural infiltration and evapotranspiration disrupts the local water cycle. The absence of low-impact solutions such as rainwater harvesting, bioswales, rain gardens, and permeable pavements increases dependence on infrastructure systems.

Biodiversity Loss and Fragmentation of Ecological Corridors: In the absence of habitat niches on rooftops and façades, species composition becomes impoverished, while pollinator and bird mobility is interrupted at the block scale. Due to the shadow and moisture regimes of courtyards, even shade-tolerant species achieve only limited success. Isolated vertical greening initiatives without horizontal connectivity fail to scale ecosystem services effectively.

Quality and Inequality of Public Open Space: Courtyards, often conceived as "residual spaces," lack functional programming and adequate amenities, weakening perceptions of safety and belonging. Spatial injustice deepens for women, children, the elderly, and individuals with limited mobility. High façade pressure reduces visual permeability; diminished natural surveillance and weakened semantic security (legibility, sense of belonging) shorten usage durations.

Health and Well-Being Dimension: Exposure to vegetation, access to sunlight, and opportunities for contact with nature are minimal. Noise reverberation and air quality problems exacerbate psychosocial stress indicators. The limited availability of nearby recreational opportunities is particularly critical for child development and elderly health.

Aesthetic Uniformity and Loss of Identity: The repetitive massing rhythm, the perception of "endless façades," and low material diversity weaken the sense of place. Vegetation reduced to a decorative function constrains not only ecological performance but also visual diversity.

Alternatives: Since the 2000s, Hong Kong's planning discourse has increasingly promoted more humane, public-space-oriented, and sustainable public housing projects.

Future Perspectives

1. **Multiscalar Transformation Approach:** Interventions must be coordinated across building, block, and neighborhood scales.

- **Building scale:** Green roofs/terrace gardens, façade greening, vegetative shading and sun-breakers, and bird-friendly façade components should be integrated with rainwater harvesting and greywater reuse systems.
- **Block/podium scale:** The proportion of permeable surfaces should be increased; micro-parks, play pockets, therapeutic gardens, and water features (misting devices, slowed flow systems) should be implemented to mitigate the urban heat island effect.
- **Neighborhood/district scale:** Blue-green infrastructure backbones (stormwater routes, ecological corridors, shading networks) must be established as continuous systems, while wind corridors and ventilation paths should be designed in harmony with urban morphology.

2. **Nature-Based Solutions and Ecosystem Services:** Landscape strategies should be evaluated through cost–benefit analysis based on multiple ecosystem services such as carbon sequestration, heat reduction, noise attenuation, water retention, and biophilic benefits. Rooftop and terrace community gardens can strengthen food security and social cohesion, while pollinator corridors and native species compositions can re-establish ecological networks.

3. **Microclimate-Oriented Design and Simulation-Supported Decision Making:** Shading, airflow, and surface temperature scenarios should be pre-tested using CFD, ENVI-met, and radiative balance analyses. Targets should include increased shading ratios during summer design days, reduced surface temperatures, and maintaining UTCI values within comfort ranges.
4. **Water-Sensitive Urban Design (LID/SUDS):** Bioswales, rain gardens, permeable pavements, cisterns, and step-terraced drainage systems should be employed to reduce peak discharges and adapt sponge city principles at the block scale. Irrigation should rely on reused water wherever possible, and plant palettes should prioritize salt- and humidity-tolerant species.
5. **Strengthening Social Landscapes and Semantic Security:** Courtyards and interstitial voids should be transformed into programmed public spaces (shaded seating, inclusive play areas, outdoor work/exercise zones). Gender-sensitive and disability-inclusive design principles (lighting, sightlines, accessible routes, quiet/safe niches) must be standardized. Participatory design and community stewardship models (site management combined with resident volunteers) are critical for sustainable operation.
6. **Aesthetic Diversity and Rebuilding of Identity:** To break monotony, modular green façade systems, seasonal texture/color strategies, and installations referencing local cultural narratives should be incorporated. Lighting design should optimize spectrum and intensity to reduce glare and negative impacts on fauna.
7. **Performance-Based Standards and Governance:** Green transformation should be monitored through measurable indicators such as:

- Open-green space ratio (m^2/person) and presence of qualified green areas within 300 m,
- 3-30-300 approach (view of 3 trees from each dwelling; 30% canopy cover in neighborhoods; access to a quality park within 300 m),
- Runoff coefficients and peak flow reduction; annual rainwater harvested,
- Shading ratios, surface/ambient temperature reduction,
- Biodiversity indices (pollinator richness, bird observations),
- Usage intensity and perceived safety surveys.

These metrics can be aligned with frameworks such as LEED-ND, BREEAM Communities, and WELL Community, while municipalities may adopt mandatory thresholds such as a “green coefficient” or “biophilic index.”

8. **Maintenance, Operations, and Circular Economy:** Planting selections should minimize operational expenditure (OPEX) burdens (native species, low irrigation and fertilization demand). Maintenance plans must be secured through seasonal calendars and community participation. Recycled/reusable materials should be prioritized for hardscape and furniture, and detachable/plug-in systems should be used to support adaptive reuse.
9. **Digital Twin and Long-Term Monitoring:** Sensor-based networks (temperature, humidity, wind, particulate matter) should be installed in open spaces, and intervention scenarios should be continuously updated through digital twin platforms. Pre/post-intervention comparative studies must integrate health and behavioral data (usage durations, movement patterns, perception surveys).

Conclusıons And Reccomendatıons

From the perspective of landscape architecture, monster buildings are not only sites where problems arising from hyper-density are diagnosed, but also powerful testing grounds for nature-based solutions, blue-green infrastructure, and participatory governance. When a multiscalar and performance-based approach is adopted, these complexes can be transformed in ways that enhance microclimatic conditions, expand ecosystem services, and foster social inclusivity and spatial justice. Structural issues identified by critiques may be addressed within a landscape transformation roadmap that is supported by measurable targets and long-term monitoring programs, enabling this morphology to evolve toward sustainable and resilient urban living.

The monster building typology in Hong Kong thus functions as more than a manifestation of spatial density; it also serves as a laboratory for envisioning future design strategies. Their morphology—dominated by hard surfaces and restricted light and air circulation—has negative implications for ecological cycles, climatic comfort, and human health. Likewise, the dysfunctionality of semi-public spaces, which undermines social interaction, exacerbates issues of social justice and spatial equality in the city. Yet, through nature-based solutions, green infrastructure strategies, and biophilic design principles, these environments hold the potential for transformation.

Looking forward, the sustainable conversion of monster building complexes into livable urban environments requires interventions at multiple scales. At the building scale, vertical gardens, green roofs, and water-sensitive systems should be prioritized; at the block scale, permeable surfaces, shading strategies, and micro-parks should be implemented; and at the neighborhood scale, blue-green infrastructure networks, ecological corridors, and community gardens must be established. Such landscape interventions not only improve environmental comfort but also reinforce social cohesion, cultural identity, and urban aesthetics.

In summary, the monster building typology offers a dual reading from a landscape architectural perspective: on the one hand, as a critical reflection of modern urbanization, and on the other, as a transformation potential that can be reprogrammed through nature-based strategies. Landscape-oriented interventions targeting these structures may serve as a guiding framework not only for Hong Kong but also for other metropolises under similar pressures of density. In this way, landscape architecture is positioned not merely as a discipline that mitigates the challenges of urban intensity, but as one that actively transforms them into sustainable, resilient, and human-centered living environments.

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CHAPTER 3

Concept-Based Studio Practice: The Relationship Between Pedagogical Depth and Spatial Production

Aysel YAVUZ[1]

Introduction

Landscape architecture education is not merely a field in which technical and aesthetic competencies for shaping the physical environment are acquired; rather, it represents a multilayered mode of thinking in which the social, cultural, and perceptual dimensions of space are critically examined (Düzenli & Alpak, 2016). In this context, the representation of diverse experiences and perspectives within design studios (Tracey et al., 2025) enables spatial production processes to be reconsidered within a more inclusive and pluralistic framework.

Within this perspective, landscape architecture education can be regarded as a transformative tool that supports individuals in positioning themselves as active agents in spatial decision-making processes (Düzenli et al., 2018). The studio environment provides a learning setting in which students can translate their personal

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experiences into spatial decisions, develop design strategies, actively contribute to the configuration of public space, and engage in critical thinking (Huh & Miri, 2025; Zhang et al., 2025; Tracey et al., 2025). This situation demonstrates that design education goes beyond the production of individual competencies and constitutes a learning environment that contributes to processes of subject formation and empowerment. The studio process enables students to transform their experiences into a language of design (Yılmaz & K. Sezgin, 2024), to gain agency in the design of public spaces, and to reinterpret space through perspectives centered on equality, justice, and inclusivity. This outcome represents not only a pedagogical achievement but also holds strategic importance for the production of more equitable and pluralistic public spaces in the future.

When the conceptual projects developed within landscape architecture studios are examined, it becomes evident that students often approach space as a relational, fluid, restorative, and participatory structure. This perspective challenges fixed and hierarchical spatial configurations and proposes alternative models of publicness that emphasize collective production, sensory experience, and social interaction. In this way, design education moves beyond being merely an environment for acquiring professional skills and becomes a learning ground where critical awareness develops and the idea of equal participation in public space is conceptually articulated.

Students are encouraged to conceive their projects not as hierarchical and fixed spatial structures but as relational, inclusive, restorative, and interaction-oriented systems. This perspective reinterprets public space not through axes of power and representation but through processes of encounter, sharing, interaction, and collective production. Accordingly, landscape architecture education approaches space not merely as an aesthetic composition but as a dynamic ground where social relations are established and transformed.

The development of studio environments is considered one of the fundamental factors that enhance the quality of design education. In this regard, the design of studio spaces according to a student-centered approach—one that responds to students' intellectual needs, strengthens social interaction, and supports emotional development—is regarded as a significant component of contemporary design education (Ezz et al., 2025). The conceptual approaches developed within the design studio enhance not only students' abilities to produce spatial solutions but also their capacities for critical thinking, multidimensional analysis, and the integration of social context into design decisions (Tracey et al., 2025; Alpak et al., 2018). This process strengthens students' self-confidence by encouraging them to justify their design arguments, engage in discussions with differing perspectives, and take creative risks. Moreover, the studio environment provides a holistic pedagogical framework that fosters awareness of ethics, justice, and inclusivity in the production of public space, enabling students to participate in design processes as more responsible, active, and equitable contributors.

Design Studio and Conceptual Approaches

The design studio offers a distinctive pedagogical environment in which theoretical knowledge is integrated with experience-based production processes (Ezz et al., 2025), while also fostering creativity (Yılmaz et al., 2023), critical thinking, and collaborative learning. In this context, the present study was conducted within the scope of the Environmental Design Project V and VI studios of the Department of Landscape Architecture at Karadeniz Technical University, focusing on the transformation of a historic healthcare structure in Trabzon into a center dedicated to life, art, and culture.

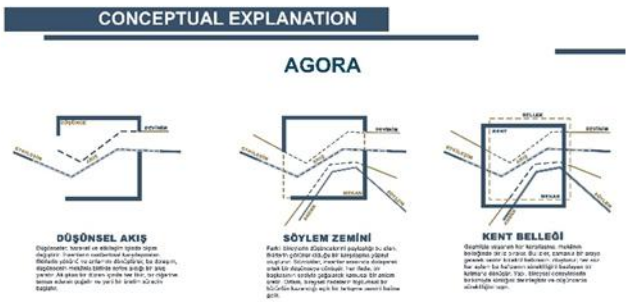
The studio process was carried out through groups consisting of 6–7 students, coordinated by the respective instructors. The groups were formed through a random distribution that ensured balanced representation of different students. The group supervised by the author consisted of six students, two of whom were enrolled in Environmental Design Project V (EDP V) and four in Environmental Design Project VI (EDP VI). Throughout the studio process, which progressed under a shared thematic framework, students developed their own design approaches and produced individual project proposals. This article examines the conceptual frameworks of the projects developed by five students from this group (two from EDP V and three from EDP VI).

Determining the conceptual framework at an early stage of the studio process enables students to develop design decisions not randomly but through a coherent intellectual structure. Educators can strengthen the conceptual foundation of design by encouraging students to articulate their ideas both visually and in written form. In the design process, not only the final product but also the development of ideas should be evaluated. Students should be encouraged to justify and critically question their conceptual decisions.

Conceptual Approach of the Project 1: Agora

The project developed by this student reinterprets the Numune Hospital site through the concept of the Agora. Historically, the agora has been understood not merely as a physical square but as a space of thought, encounter, and public dialogue. In this context, the project frames the structure as a contemporary field of intellectual encounter, proposing a public platform where ideas, voices, and social interactions gain spatial visibility. Here, the agora is conceived not only as a gathering space but as a social organism in which ideas circulate, leave traces, and gradually transform into collective memory.

Figure 1. Conceptual Approach Developed by the Student Muhsincan Cebeci.



The conceptual sub-themes developed in the project—Echo, Harmony, Motion, Interaction, Trace, and Serenity—constitute the intellectual counterparts of the spatial organization. Echo represents the way ideas resonate within the city and society; Harmony refers to the balanced coexistence of diverse identities and viewpoints; Motion expresses the continuous flow and transformation of thought; Interaction signifies encounters and collaborative production among individuals; Trace denotes the accumulation of memory within space; and Serenity represents the quiet state of equilibrium in which knowledge is absorbed and internalized. Collectively, these concepts define space not as a static mass but as a dynamic system in which intellectual flows and social energies circulate.

Within this system, the Rest Courtyard is conceived as an intermediate space that softens the tempo of the structure and offers users a moment of respite amid everyday intensity. Its direct visual connection with the open sky generates a sense of openness and belonging, while café areas and flexible seating arrangements provide a permeable transition between individual relaxation and social gathering. In this sense, the courtyard can be interpreted not only as the physical but also the social and emotional center of the structure. The contrast between the rigid architectural mass and the tree canopy with softer landscape elements introduces a human scale to the space, reinforcing the accessible and inclusive character of the public realm.

The Transition Plane, rather than functioning solely as a circulation line connecting different levels and functions of the building, becomes the visible surface of intellectual and social movement. The continuity of movement generates spontaneous encounters and brief pauses among users, transforming the experience of everyday passage into a potential field of interaction. This plane demonstrates that space is not merely an infrastructure of circulation but an organism that produces encounters. The spatial openness that allows eye contact and the exchange of ideas among participants reinforces the principle of mutual communication inherent in the concept of the agora.

The Interaction Steps create both transitional and pause spaces between different levels of the building, bringing individual contemplation and collective interaction onto the same spatial platform. Users may converse, observe others, or simply engage in moments of reflection. This multilayered mode of use demonstrates that space is not limited to a single function but offers a flexible public surface capable of accommodating diverse forms of experience simultaneously.

Within the overall project framework, the concept of the Agora reinterprets the historical space of public discourse within the contemporary context of a culture and arts academy. As ideas transform through movement and interaction, space becomes both the stage and the medium of this transformation. Each encounter leaves a trace within the memory of the place; over time, these traces accumulate to form a collective memory. In this way, the building evolves beyond being merely a venue for events and becomes a living public ground that sustains the continuity of intellectual exchange, discourse, and urban memory.

In conclusion, this approach interprets space not as a structure defined solely by physical boundaries, but as a surface of encounter where thought circulates, resonates, and acquires social meaning. Developed through the concept of the Agora, the design proposes a plural and dynamic spatial model positioned at the intersection of cultural sharing, public interaction, and everyday life.

Conceptual Approach of the Project 2: Narrative Space

The Narrative Space approach examines the Numune Hospital site through the concepts of temporality and layering, defining space not as a static physical configuration but as a transforming and pluralizing field of narrative. The project aims to reveal the mnemonic layers of the building and relate traces of different temporalities to contemporary practices of cultural production.

Figure 2. Conceptual Approach Developed by the Student Ayşenur Büyükyılmaz.

The theoretical foundation of this approach is the concept of Narrative Space, which, from a phenomenological perspective, defines space as a “stage of being.” In this understanding, space is not a passive background but an active field of memory where actions, identities, and historical traces are recorded. The reality of a place is shaped not only by its physical boundaries but also by the stories experienced, produced, and shared within it. In this context, every route within the campus becomes a sentence, each spatial stop a scene, and each user a character in the unfolding narrative. Spatial experience is thus conceived as a plural process of storytelling in which individual and collective narratives overlap.

Within the scope of the project, a large open-air screen positioned in a distinctive corner of the academy campus establishes a visual dialogue with the surrounding landscape and the sky, integrating the cinematic setting with the expansive stage of nature. Short film screenings held between classes, classic film events organized on summer evenings, and premiere screenings of works produced by film students transform this space from a mere viewing point into a collective narrative environment. The open-air cinema turns the film experience into an artistic encounter that “breathes” with nature, creating a poetic relationship between image, time, and space.

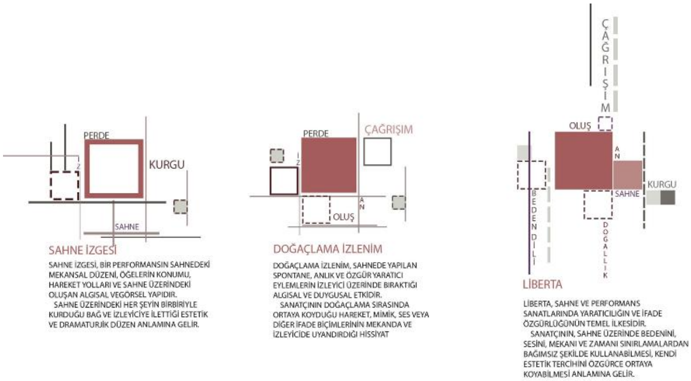
The Open-Air Stage, located in the section of the academy complex that integrates with the landscape, is designed as a multifunctional interaction space for theater, performance, film screenings, and literary gatherings. This stage functions as a vibrant public platform where artistic production extends beyond enclosed interiors, comes into contact with nature, and is shared with the community, allowing new narratives to emerge. The restaurant and café areas are designed with flexible seating arrangements that accommodate a range of uses—from brief pauses to extended creative discussions. The visual and physical continuity established with the outdoor terrace through expansive glass surfaces creates a warm and permeable gathering space that offers users opportunities both for relaxation and for the generation of ideas.

In conclusion, this project approach interprets the site not merely as a cultural and artistic campus but as a narrative landscape that evolves over time, accumulates layers, and is continuously rewritten through user experiences.

Conceptual Approach of the Project 3: Liberta

The concept of Liberta, within the context of stage and performance arts, represents not merely an aesthetic approach but also a form of spatial and social emancipation. In this framework, action is understood as a practice of expression that produces identity and meaning, while space is defined not as a passive background but as a performative public realm that is continuously reproduced through actions. Performance is therefore interpreted as a dynamic process of production that extends beyond the stage, integrating with everyday life and public interaction.

Figure 3. Conceptual Approach Developed by the Student Hilal Dündar.



The transformation of Numune Hospital into a Culture and Arts Academy and a Performance–Stage Arts Center, within the framework of the concept of Liberta, aims not only at the functional adaptive reuse of the building but also at initiating a process of spatial emancipation and cultural regeneration. While preserving the building's position within the urban memory, this transformation seeks to reinterpret it as a dynamic platform for creative expression, public interaction, and artistic production. In line with the principle of creativity and freedom of expression that lies at the core of Liberta, the proposed spatial configuration offers flexible and transformable stage environments in which artists can freely utilize their bodies, voices, and time. At the same time, the design envisions transforming the audience from a passive observer into an active participant within the performative process.

The project aims to establish a strong public spine that encourages encounter, gathering, and interaction through open performance areas, an event amphitheater, pedestrian axes, and social meeting spaces. The continuity between open and enclosed spaces enables art to integrate with the landscape, transforming every spatial setting into a potential performance environment.

While dining areas, interactive corners, and shared spaces support social life, green corridors and landscape gardens create a sensory dialogue between nature and art. In this way, the site evolves beyond being merely a venue for performances, becoming a vibrant spatial organism where everyday life, cultural production, and public experience intersect.

Within the conceptual framework of Liberta, the project approaches space not as a fixed and static physical environment but as a field of public experience that gains meaning through actions and is continuously re-performed. In this perspective, every movement, encounter, and interaction generates a spatial narrative. Through this approach, the project seeks to transform Numune Hospital into an inclusive, participatory, and creative cultural hub for the city of Trabzon.

Conceptual Approach of the Project 4: Entropy

The design proposal developed by this student establishes a theoretical framework for the transformation of Numune Hospital into a Congress and Exhibition Center within the structure of the Culture and Arts Academy, based on the concept of entropy. In thermodynamic terms, entropy refers to disorder and the distribution of energy; in this study, however, it is reinterpreted as an explanatory metaphor for spatial and social transformation. Within this framework, the concept represents a transformation model through which the existing structure—characterized by a closed and singular configuration—evolves into a multilayered, dynamic, and interaction-oriented public organization.

Figure 3. Conceptual Approach Developed by the Student Şevval Yaren Yılmaz.

The starting point of the project is the "low-entropy" state of space: a calm, balanced spatial configuration with clearly defined boundaries. At this stage, the rhythm is stable, spatial hierarchies are clearly articulated, and the user experience unfolds within a controlled and orderly structure. However, as time passes and the intensity of use increases, a process of dissolution and reconfiguration begins within the system. Boundaries become more permeable, the spatial rhythm accelerates, and diverse user profiles become increasingly visible within the site. This phase represents not disorder but the emergence of diversity and dynamism; the space evolves from serving a singular function into a multilayered field of public production.

At the stage where entropy reaches its highest level, the structure is redefined within a condition of creative and productive complexity. Through congresses, fairs, exhibitions, and cultural events, diverse disciplines, voices, and ideas intersect under the same roof. This "complexity" does not represent disintegration or loss of control; rather, it reflects a productive state in which creativity, knowledge exchange, and social interaction occur at their most intense level. The space is no longer an organism defined by fixed boundaries but becomes an energy field that is continuously changing, transforming, and reshaped through user movement.

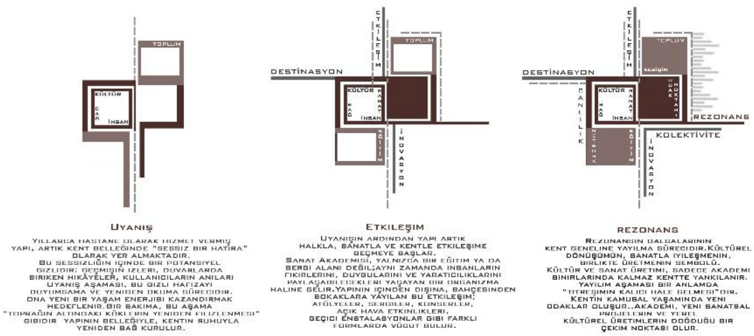
In this context, the project interprets the congress and exhibition center not merely as a venue where events take place, but as a dynamic system where ideas circulate, interdisciplinary interaction intensifies, and public energy is simultaneously distributed. The concept of entropy also plays a decisive role in the spatial organization of the design: initially controlled and balanced spaces gradually transform into more flexible, permeable, and multi-centered use scenarios as the intensity of activities increases.

In conclusion, this approach interprets the transformation of Numune Hospital not as a linear change of function but as a process of public energy unfolding within a cycle of order, disruption, and reconfiguration. In this framework, entropy is positioned not as a metaphor for collapse but as a symbol of vitality, continuity, and creative production. Accordingly, space becomes a cultural organism through which this energy is distributed and continuously regenerated.

Conceptual Approach of the Project 5: Resonance

The design approach developed within the framework of the resonance concept interprets the transformation of Numune Hospital into a Culture and Arts Academy as a process of spatial and symbolic re-vibration. A structure that once served the purpose of physical healing is reinterpreted through the restorative and transformative potential of art, acquiring a new layer of meaning within this framework. The traces accumulated in the building's memory become visible through practices of cultural production, generating a holistic narrative that establishes continuity between past and future. In this sense, the transformation is defined not merely as a functional model of adaptive reuse, but as a field of resonance that amplifies its impact at the urban scale and stimulates cultural interaction.

Figure 5. Conceptual Approach Developed by the Student Elif Alemdar



The concept of resonance refers to the diffusion of cultural production beyond the boundaries of academia, interacting with surrounding educational, commercial, and hospitality functions and extending its influence across the urban fabric. Artistic production and cultural events gradually generate enduring vibrations within urban public life, giving rise to new focal points and spaces of encounter. This process of diffusion represents a symbolic expression of healing through art and collective production. As the academy transforms into a center of attraction where local cultural practices emerge and intersect with contemporary artistic expressions, the relationship between society and art is strengthened. In this sense, cultural resonance signifies the reinterpretation of local identity through contemporary forms of expression.

The project considers sensory experience as one of the fundamental components of design. Spatial arrangements that simultaneously activate the senses of touch, hearing, and sight aim to transform users from passive spectators into active participants. The "Thought Spheres," positioned among the trees and designed with reflective surfaces, provide micro-scale spaces for meditation and observation where artists and visitors can establish a dialogue with both nature and their inner worlds. These niches function as creative retreats that enable mental renewal and temporary withdrawal from the intensity of urban life.

The pedestrian route designed as the “Light Path” offers a dynamic spatial experience: during the day it produces shifting shadow patterns, while at night sensor-based light installations create an evolving atmosphere that reveals the responsive relationship between art, time, and light. The “Open Canvas Garden,” on the other hand, creates the effect of an open-air gallery through modular panels and surfaces placed on natural ground, allowing artistic production to occur and be observed within the landscape. This space fosters a collective environment of artistic creation where art extends beyond enclosed spaces and becomes integrated with the landscape.

The vertical organization of the building is also structured to reinforce the concept of resonance. The ground floor is conceived as a plane of contact and encounter, where open restaurants, cafés, and social seating areas form a lively platform directly connected with the city. Through temporary exhibitions and live performances, art becomes embedded in everyday life, making this level the heart of public interaction and social exchange. The middle floors are designed as spaces of production and transformation. Workshops, educational studios, and flexible working areas provide creative platforms where young people and students can collaborate with artists. These levels represent the spatial manifestation of a continuous cycle of learning and creative production.

The upper floors accommodate artist residency units, offering an inspiring environment that balances individual production with collective exchange. The visual and sensory relationship with the natural landscape and the sea of Trabzon provides a powerful backdrop that deepens the artistic process. The rooftop level becomes a public platform for experiencing art through open-air exhibitions, sculpture and installation areas overlooking the sea. While this space exhibits workshop outcomes during the day, in the evening it transforms into a vibrant artistic stage hosting concerts and film screenings.

In conclusion, this approach defines the transformation of the Numune Hospital as a process of cultural resonance. While reinterpreting the building's historical function of healing through the transformative and restorative power of art, the project generates a cultural field of influence that spreads in waves across spatial, sensory, and social dimensions. Within this framework, the academy becomes not merely a place of education and production, but a dynamic cultural organism that continuously interacts with the city—vibrating and resonating within the urban landscape.

Pedagogical outcomes of conceptual approaches

The different conceptual projects developed for the Numune Hospital site (Agora, Liberta, Temporality/Narrative Space, Entropy, and Resonance) demonstrate that space in landscape architecture education can be reconsidered not merely as a physical design problem, but as an intellectual, social, and experiential construct. Each approach interprets space not simply as a domain for functional solutions, but as an organism that generates meaning, fosters interaction, and undergoes transformation.

A common characteristic of these projects is their treatment of space not as a fixed and singular entity, but as a fluid, plural, and process-oriented structure. This perspective indicates a shift in landscape architecture education beyond the traditional form-production–centered approach, integrating the experiential, temporal, and relational dimensions of space into the design process.

Through the generation of concepts, students situate their spatial decisions within a conceptual framework, transforming the design process from a practice of drawing and planning into a process of critical inquiry.

For instance, the Liberta approach frames space as a domain of expression and performance, linking the concepts of public visibility and participation with spatial organization. The Temporality and Narrative Space projects foreground the memory and layered structure of place, bringing the historical continuity of the landscape into the center of design thinking. Synovate proposes the diffusion of knowledge into open spaces, integrating learning environments with the public landscape rather than confining them within enclosed structures. Entropy reflects the tension between order and transformation in spatial organization, encouraging flexible and multi-centered use scenarios. Meanwhile, Resonance and Agora strengthen the social dimension of public space through the concepts of encounter, echo, and collective production.

This diversity reveals that concept-based design constitutes a powerful pedagogical tool within landscape architecture studios. The process of concept development enhances students' abilities to read context, engage in abstract thinking, develop spatial scenarios, and translate ideas into spatial form. Consequently, design becomes not merely a practice of producing physical solutions, but a field of inquiry that questions the meaning of space, its social role, and its future potentials.

Conclusions

The incorporation of diverse experiences and perspectives into landscape architecture education contributes to making issues such as safety, accessibility, sensory experience, care spaces, and scenarios of collective use more visible and open to discussion, particularly in the design of public spaces. This pluralistic approach facilitates the development of more empathetic, inclusive, and multilayered spatial solutions within decision-making processes. In doing so, it transforms the design studio from a setting solely focused on project development into a research and production laboratory where more equitable spatial imaginaries can be explored and tested.

Within this framework, the research demonstrates that design education functions as a transformative tool that enables individuals to position themselves as active and critical agents in spatial decision-making processes. The landscape architecture studio provides a learning environment that allows students to gain visibility in public space, to participate in spatial production, and to engage actively in the reconfiguration of urban life. This condition is also significant for the future of professional practice, as the creation of inclusive and just cities depends on the equal participation of diverse forms of knowledge and experiences in the design process.

These projects reveal that rethinking space in landscape architecture education does not merely imply the production of formal innovation; rather, it entails addressing the social, cultural, and experiential dimensions of space in a holistic manner. A concept-based design approach enables students to develop spatial decisions in a conscious and research-oriented way, transforming the studio environment into a domain of critical thinking and creative production.

Accordingly, rethinking space in landscape architecture education involves not only producing new spatial typologies but also redefining the meaning, role, and societal impact of space. Such an approach holds the potential to cultivate future landscape architects who are more analytical, sensitive, and capable of holistic thinking in their design practices.

In conclusion, landscape architecture education possesses the potential not only to rethink space but also to shift spatial production processes toward a more democratic, responsive, and inclusive framework. Supporting this potential consciously within studio pedagogy will both strengthen the quality of design education and contribute to the more just and pluralistic reproduction of public space.

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