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Araştırma Makalesi (Research Article)

İlk Yıl Tasarım Stüdyosunda Yapay Zeka Araçlarının Potansiyeli

İpek YILDIRIM CORUK[a]

Öz

Farklı seviyelerdeki tasarım stüdyolarında yapay zeka kullanımını ele alan çok sayıda araştırma bulunmaktayken, ilk yıl tasarım stüdyosu ile yapay zeka arasındaki ilişkiyi inceleyen çalışmaların sayısı ve kapsamı sınırlıdır. Bu doğrultuda, bu çalışmada konuya ilk yıl tasarım stüdyosu ölçeğinde yaklaşılmıştır. Çalışmanın amacı, iki farklı yapay zeka aracının aynı istemlere verdiği yanıtların karşılaştırılması üzerinden, bu araçların stüdyo ortamına entegrasyon potansiyellerini tartışmaktır. Durum çalışması metoduna dayanan araştırmada, ilk yıl tasarım stüdyosunda verilen tasarım görevlerine öğrencilerin ürettikleri yanıtlar istem olarak kullanılmıştır. Bu istemlere ChatGPT ve MidJourney araçlarının verdiği yanıtlar karşılaştırmalı olarak analiz edilerek söz konusu tasarım görevleri üzerinden, araçların tasarım stüdyosu bağlamındaki potansiyelleri değerlendirilmiştir. Araştırmanın sınırlı örneklemi üzerinden elde edilen bulgular, birinci yıl tasarım stüdyolarında analize ve çıkarıma dayalı, iki boyuttan üç boyuta ilerleyen analitik projelerin ChatGPT ile desteklenebileceğini; buna karşılık kurgusal mekân tasarımı, atmosfer oluşturma ve ufuk açıcı fikirlerin geliştirilmesini gerektiren projelerin ise MidJourney ile desteklenmesinin daha uygun olabileceğini göstermektedir. Bu bulgular doğrultusunda, birinci sınıf tasarım eğitimi ölçeğinde yapay zekâ araçlarının geleneksel stüdyo uygulamalarının yerini almaktan ziyade insan tasarımcıları destekleyici bir araç olarak kullanılmasının uygun olabileceği söylenebilmektedir.

Anahtar Kelimeler: *İlk yıl tasarım stüdyosu, Yapay zeka, Midjourney, ChatGPT, Vaka çalışması*

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Etik Beyan

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[a] **Sorumlu Yazar:** Dr. Öğr. Üyesi, Fenerbahçe Üniversitesi, Mimarlık ve Tasarım Fakültesi, Türkiye. E-mail: ipek.coruk@fbu.edu.tr
ORCID: https://orcid.org/0000-0001-8782-9943

* Bu çalışmanın hazırlanma sürecinde yapay zekâ tabanlı herhangi bir araç veya uygulama kullanılmamıştır. Çalışmanın tüm içeriği, yazar(lar) tarafından bilimsel araştırma yöntemleri ve akademik etik ilkelere uygun şekilde üretilmiştir.

The Potential of Artificial Intelligence Tools in the First-Year Design Studio

İpek YILDIRIM CORUK[a]

Abstract

While numerous studies address the use of artificial intelligence in design studios at different levels, the number and scope of studies examining the relationship between artificial intelligence and the first-year design studio remain limited. Accordingly, this study approaches the subject at the scale of the first-year design studio. The aim of the study is to discuss the potential of integrating AI tools into studio environments by comparing the responses of two different AI platforms to identical prompts. Based on a case study methodology, the research used the responses produced by students to the design tasks assigned in the first-year design studio as prompts. The outputs generated by ChatGPT and MidJourney in response to these prompts were comparatively analyzed, and the potential of these tools within the context of the design studio was evaluated through the selected design tasks. The findings obtained from the study's limited sample indicate that analytical projects based on analysis and inference, progressing from two dimensions to three, can be supported with ChatGPT, whereas projects requiring fictional space design, atmosphere creation, and horizon-expanding ideas can be supported with Midjourney. Accordingly, at the scale of first-year design education, it can be argued that AI tools can be employed as supportive instruments for human designers.

Keywords: *First-year design studio, Artificial intelligence, MidJourney, ChatGPT, case study*

About Article

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Ethical Statement

It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited (İpek YILDIRIM CORUK).

[a] **Corresponding Author:** Assist. Prof. Dr., Fenerbahçe University, Faculty of Architecture and Design, Türkiye. E-mail: ipek.coruk@fbu.edu.tr ORCID: https://orcid.org/0000-0001-8782-9943

*No artificial intelligence-based tools or applications were utilized in the preparation of this manuscript. All content was generated solely by the author(s) in adherence to scientific research methodologies and academic ethical standards.

Introduction

As an emerging field, artificial intelligence integrated disciplines and it's potential within these domains constitute current research topics. This study addresses the relationship between artificial intelligence and architectural design education through the context of first-year design studios.

A review of existing studies on artificial intelligence and first-year design studios reveals that Çelik et al. (2023) conducted research to examine the impact of AI image generators on the design processes of first-year design students. In this study, students were provided with texts from the book Invisible Cities and were expected to extract keywords from these texts. Based on the identified keywords, students were tasked with creating abstract three-dimensional physical models, and the process was designed to be further developed with the support of artificial intelligence. In another study adopting a similar approach, first-year design students were asked to derive spatial interpretations from a given novel and, utilizing AI, generate two-dimensional reliefs based on these interpretations (Yıldırım, 2022).

In another study, AI-generated works and AI-student collaborative projects were evaluated in terms of creativity to investigate the creative processes and interactions between students and design tools in a first-year design studio (Çiçek et al., 2024b). Similarly, another study exploring the same context examined the integration of AI into the project studio, aiming to foster student-student and student-AI interactions and support creative encounters within design studios (Akçay Kavakoğlu et al., 2022). In a further study conducted by Çiçek et al. (2023), a first-year design studio exercise was tested using text-to-image diffusion models, and a framework was created for evaluating the outputs through experts. Another study comparatively analyzed design solutions generated by an AI model and those produced by students in a first-year design studio (Çiçek et al., 2024a).

Although existing studies on the relationship between first-year design studios and artificial intelligence examine the impact of AI integration on creativity, the role of AI as a design partner, and the comparison between AI-generated and student-produced outputs, the literature remains quite limited in studies specifically focusing on the first-year design studio, as also supported by Çiçek et al. (2024a). This indicates a need for further research in this area. Accordingly, this article aims to address this gap by exploring the relationship between the first-year design studio and artificial intelligence.

Therefore, in this article, student responses to a first-year design studio problem were used as prompts, and the study aims to discuss the potential of integrating two different AI tools into the studio environment by comparing their

responses to the same prompts. By examining the topic through two distinct AI platforms, the research differentiates itself from existing approaches and emphasizes its originality.

Method

This study is based on a multiple case study methodology, one of the qualitative research techniques (Yıldırım & Şimşek, 2021). The research was conducted using the outputs of design tasks produced by students in the Design Studio I and II courses. The courses were carried out in the Department of Interior Architecture and Environmental Design at Fenerbahçe University during the 2025 academic year. Students' responses to these design tasks were inputs for artificial intelligence tools, and the responses generated by ChatGPT and MidJourney to the same prompts were examined as comparative cases. The case study process was carried out by the researcher through uploading the student outputs to the selected artificial intelligence tools.

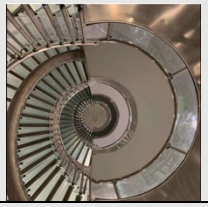
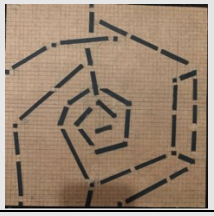
Research Design and Studio Framework

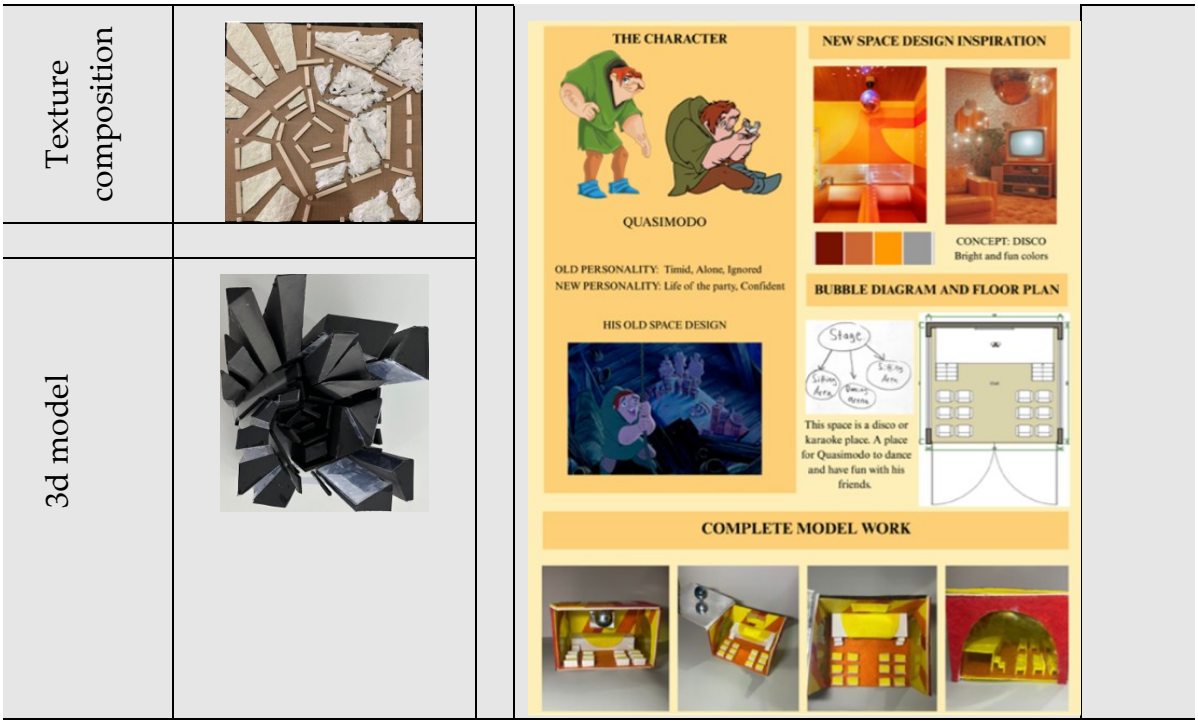
This study was designed to evaluate the potential of the artificial intelligence tools (ChatGPT and MidJourney) within the context of a first-year design studio. In this regard, the study examined the design tasks undertaken by students in the Design Studio I and Design Studio II courses, analyzed the capacities of these tools to respond to such tasks, and proposed a discussion regarding their potential integration into the design studio. The projects examined in this study are not sequential; rather, they belong to two separate studio courses conducted by the researcher. The design tasks were introduced to students during the first week of both courses.

The research process was structured as follows: Within the scope of the 2025 academic year, the design tasks completed by students in Design Studio I and II (Table 1), together with the initial ideas they developed for these tasks (the focus photograph for Design Studio I and the concept proposals for Design Studio II), were presented by the researcher as inputs to artificial intelligence tools. In this way, the outputs generated by the tools were examined, and their potential for integration into the design studio was discussed. The studio frameworks are structured as follows:

Table 1

Studio Contents (Author, 2026)

Studio Contents			
	Design Studio I	**Design Studio II**	
Focus point photo			Fictional space design I
Point composition			
Point + line composition			
Point + line + surface composition			
Color composition			Fictional Space design I



Design Studio I: The starting point is an architectural focus photograph taken by the students. The focal point and compositional elements are represented through 25 squares of 5×5 mm within a 25×25 cm area. While maintaining the positions of selected squares, line and surface elements are added to create a two-dimensional composition, followed by experiments with color and texture. Finally, the two-dimensional composition is transformed into a three-dimensional form, resulting in an abstract spatial volume. The entire process progresses based on the initially selected focus photograph.

Design Studio II: Students developed fictional spatial designs. In the first project, concepts representing the students' self-expression were defined and spatial areas were designed accordingly. In the second project, the contrast of a predetermined line character was defined, and a spatial design corresponding to this contrast was developed.

By its very nature, the design studio uses written and visual sources, such as concepts and reference images, as starting points for design processes. Therefore, within the scope of this study, the written and visual inputs embedded in the project tasks were treated as initiating elements for fulfilling the design assignments. Accordingly, ChatGPT and MidJourney were selected as artificial intelligence tools representing text-based and image-based models for the purposes of this research. Based on this framework, the research questions were formulated as follows:

1. How do text-based and image-based AI tools respond to the same prompt?
2. How can AI tools be integrated into the first-year design studio

Data Collection Procedure

The research was conducted at the end of the relevant studio term and was structured based on student outputs produced in the Design Studio I and Design Studio II courses. Students were not directly involved in the study; instead, one successful project from each course was selected and used as data. The selection criterion was the extent to which the projects responded to the evaluation criteria defined at the beginning of the course and shared with the students.

Within this framework, the researcher developed a procedure (Figure 1) to test the outcomes by entering the same design tasks into artificial intelligence tools. In summary, the research process proceeded as follows:

- Development of projects by students in response to the design tasks during the 2025 spring semester,
- Selection of one student work for each design task,
- Identification of the artificial intelligence tools to be tested,
- Entering the initiating elements of the selected works into the artificial intelligence tools as prompts and establishing a dialogue with the AI systems,
- Presentation of the outputs generated by the artificial intelligence tools through tables,
- Evaluation of the outputs according to the predefined assessment criteria.

Figure 1

Methodological flowchart (Author, 2026)

1	2	3	4	5	6	7	8	9
RESEARCH DESIGN	**RESEARCH CONTEXT**	**STUDIO FRAMEWORK**	**SELECTION OF STUDENTS OUTPUTS**	**PREPERATION OF AI INPUTS**	**INTERACTION WITH CHATGPT AND MIDJOURNEY**	**AI OUTPUT GENERATION PROCESS**	**COMPARATIVE EVAULATION OF AI OUTPUTS**	**INTERPRETATION**
Qualitative Method-Multiple Case study	Interior Architecture Program Design Studio I&II Course (2025)	Studio I: Photo-2D Abstraction-3D Form Studio II: Concept-based Fictional Spatial Design	One succesfull project selected for each design task	Student ideas (focus photo and concept descriptions)	Based on students outputs some prompts provided to CHATGPT and MIDJOURNEY			Assesment of AI potential for first-year design studio integration

The outputs generated in response to the tasks given to the artificial intelligence tools were evaluated by the researcher and presented through tables and visual materials. When multiple alternatives were produced, the final selection and evaluation were also carried out by the researcher. Furthermore, since different

students were enrolled in Design Studio I and Design Studio II, there was no overlap in participants between the courses.

Data Analysis

The data analysis focused on the design processes developed in Design Studio I and Design Studio II. In Design Studio I, the analysis examined how students abstracted the focal point of a focus photograph by using design elements such as point, line, and surface, and how they translated this two-dimensional expression into a three-dimensional form. In Design Studio II, students developed fictional spatial designs, the evaluation criteria were defined as creativity, the translation of the concept into space, appropriate selections of color and material, and the quality of the three-dimensional spatial design. The outputs generated by the artificial intelligence tools were evaluated according to these same criteria.

In addition, the AI-generated outputs were analyzed in terms of the rapid interpretation and consistency of key elements, level of detail, creativity and degree of originality, emotional impact/atmosphere, perceptual differences, and potential areas of usability. These analyses were used to discuss the possibility of integrating artificial intelligence tools into first-year design studio environments.

Limitations of the Study

This study examines artificial intelligence tools within the context of first-year design studios, and the analyses are based on a single student example for each design task. Therefore, the findings are not intended to be generalizable; rather, they aim to test the potential of artificial intelligence tools within the specific design tasks addressed in this research.

Within the scope of the study, the artificial intelligence tools ChatGPT (GPT-5) and MidJourney 6.1 Stylize Raw version were used. The design tasks were presented to both AI tools using the same inputs. To maintain methodological consistency, the same evaluation criteria and analytical measures were applied to both tools. In tasks where MidJourney did not produce a response, the process continued with ChatGPT. Furthermore, when ChatGPT's response to a specific prompt deviated from the intended dialogue, a new conversation thread was initiated, and the process was advanced through a branching approach. This situation is acknowledged as a limitation stemming from the differing technical characteristics of the tools.

Theoretical Framework

Artificial intelligence (AI) is generally defined as systems capable of mimicking human cognitive processes while performing complex tasks such as

analyzing information, recognizing objects and sounds, and filtering and processing data (Wong et al., 2019). In recent years, this rapidly developing field has emerged as a technological domain that transforms production and decision-making processes across various disciplines due to its capacity to process large datasets (Jaruga-Rozdolska, 2022). This transformation has particularly paved the way for the emergence of new modes of production and working methods in the field of design.

In design research, artificial intelligence is typically addressed from two main perspectives. The first approach considers AI as a tool that accelerates the design process and increases production capacity. Studies within this perspective demonstrate that AI systems can rapidly generate variations of existing designs, support decision-making processes in areas such as material optimization and environmental performance, and enable the production of numerous alternatives within a short period of time (Tang et al., 2022; Bölek et al., 2023). In educational contexts, these tools are also highlighted as supportive systems that can assist students in solving design problems (Muthumanickam et al., 2021).

The second perspective focuses on the effects of generative AI tools on design pedagogy. Generative models developed in architectural design encompass systems capable of producing different types of content such as text, images, videos, or three-dimensional models (Göktepe et al., 2025). These tools are categorized according to their production mechanisms and include various model types such as generative adversarial networks, diffusion models, foundation models, and three-dimensional generative systems (Li et al., 2025). While this technological diversity introduces new creative possibilities into the design process, it simultaneously necessitates the reconsideration of pedagogical practices.

Recent studies have examined the integration of AI tools into architectural design studios from different perspectives. Some research indicates that these tools accelerate the design process and increase students' capacity to generate alternatives. For example, AI-integrated BIM simulations have been perceived by students as tools that facilitate the design process and improve efficiency (Dharmatanna & Wijaya, 2025). Similarly, ChatGPT has been identified as a potential information resource for the conceptualization of design studio projects (Çalışkan, 2023). Furthermore, generative AI systems have been shown to contribute to design processes in terms of enabling new spatial explorations and performance optimization (Sunday Adeusi et al., 2024).

Nevertheless, the literature also highlights significant limitations of these tools. In particular, AI systems may struggle with interpreting contextual information, understanding human scale, and evaluating the abstract dimensions of the design process (Iranmanesh & Lotfabadi, 2025). This suggests that AI should be positioned

not as a fully autonomous producer within the design process but rather as a supportive tool that collaborates with the designer. Indeed, several studies emphasize that while AI systems can expand the solution space, the selection and evaluation of appropriate design alternatives still require the designer's critical judgment (Çiçek et al., 2024a).

These discussions gain particular importance in the context of design education. Design studio pedagogy is inherently a dynamic learning environment that continuously interacts with new tools and technologies. In this context, generative AI tools are considered emerging instruments that facilitate the visualization of students' ideas, enable the rapid testing of different alternatives, and support creative exploration processes (Küçük et al., 2025). At the same time, hybrid production processes established between AI systems and designers have been shown to be effective in developing contextual and innovative solutions (Çiçek et al., 2024b; Akçay Kavakoğlu et al., 2022).

Despite these developments, an important gap remains in the literature. Existing studies largely focus on the general potential of AI tools or their pedagogical implications, while research examining how different AI tools vary in relation to specific types of design tasks within studio environments remains limited. In particular, there is insufficient empirical evaluation regarding how these tools can be used in first-year design studios, which constitute the initial stage of design education, and in which types of tasks they may be most effective.

First-year design studios are widely recognized as threshold environments where students encounter a new design language and mode of thinking. These studios therefore represent critical learning contexts in which students learn to deal with uncertainty and translate abstract concepts into design outcomes. The rapid generation of alternatives and multiple representation capabilities offered by AI tools present significant potential to help students evaluate design problems from different perspectives (Çiçek et al., 2024b). However, the ways in which this potential is realized and how different AI tools contribute to design tasks remain insufficiently explored.

Within this context, the present study aims to contribute to this gap by comparatively examining two different artificial intelligence tools. By analyzing how these tools are used within the context of a first-year design studio, the study evaluates the types of design tasks in which they are most effective, their strengths and limitations, and their potential for integration into design pedagogy.

Results

This section presents the findings of the study. Using student responses to the problems that form the content of the first-year design studio courses as prompts, the

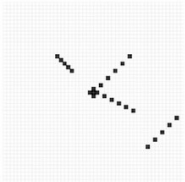
process was tested through the AI tools MidJourney and ChatGPT. The resulting data are presented in this section through tables.

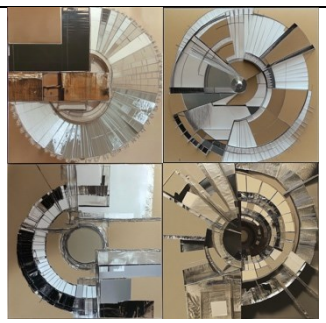
During data collection, the process was initially initiated by using the student's response to the Design Studio I problem, the focal photograph, as a prompt. Along with this photograph, the following prompt was provided to ChatGPT and MidJourney to generate outputs: "1. On the craft cardboard, use 25 squares of 5 mm×5 mm to express the relationships observed in the focal point photograph, including the focal point itself and the other elements that make up the composition."

The resulting data are presented in Table 2. ChatGPT responded to this prompt by creating a composition with points arranged on a grid, whereas MidJourney produced outputs based on different versions of the photo divided into grids. Since MidJourney operates through descriptive keyword codes (Çelik, 2025), the prompt was iteratively adjusted by adding "abstract 2D composition" in the first stage, followed by "draw diagram, abstract, 2D composition" in subsequent stages. However, the outputs did not produce a coherent composition that could be further developed according to the study requirements. Consequently, the dialogue with MidJourney was concluded, and the process for this problem continued solely with ChatGPT.

Table 2

Outputs of Prompts Submitted to ChatGPT and MidJourney for the Design Studio I Design Task (Author,2026)

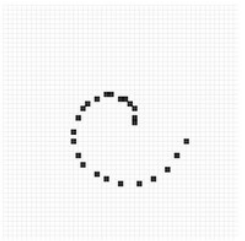
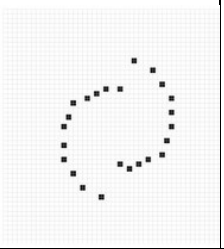
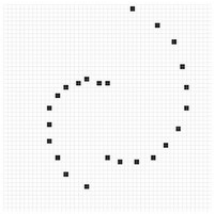
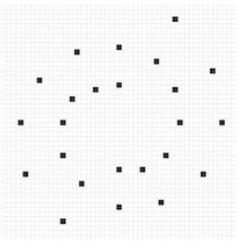
Prompt	ChatGPT	Prompt	MidJourney
 **Prompt for focus point** **1**.On the craft cardboard, use 25 squares of 5mm x 5mm to express the relationships observed in the focal point		 **Prompt for focus point** **1.**On the craft cardboard, use 25 squares of 5mm x 5mm to express the relationships observed in the focal point photograph, including the focal point itself and the other elements	

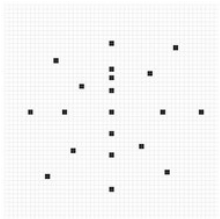
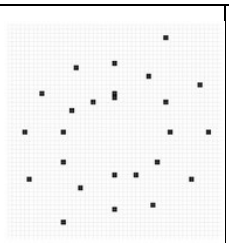
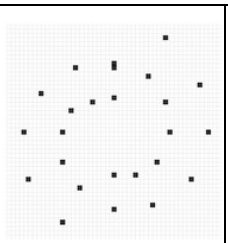
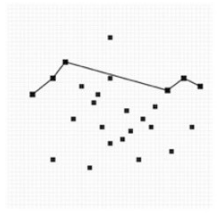
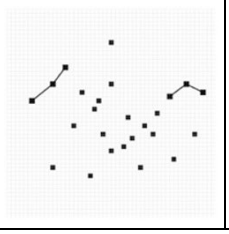
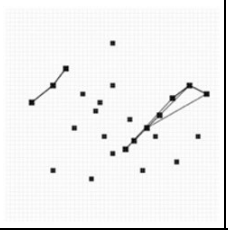
photograph, including the focal point itself and the other elements that make up the composition		that make up the composition	
		2.On the craft cardboard, use 25 squares of 5mm x 5mm to express the relationships observed in this photograph, including the focal point itself and the other elements that make up the composition, abstract, 2d composition	
		3.On the craft cardboard, use 25 squares of 5mm x 5mm to express the relationships observed in this photograph, including the focal point itself and the other elements that make up the composition, draw diagram, abstract, 2d composition,	

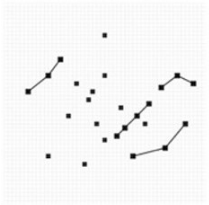
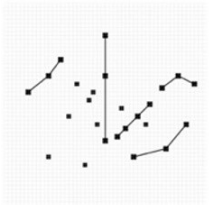
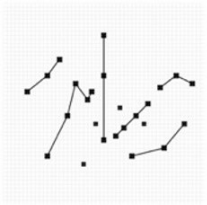
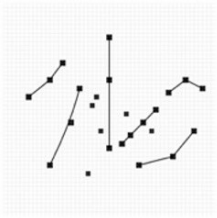
Although the critical dialogue with ChatGPT followed the logic of critiquing/evaluating student work in a studio environment, it was conducted by providing prompts in a command format rather than as critiques or suggestions. Accordingly, the prompts and outputs from the dialogue conducted with ChatGPT for the Design Studio I content are presented in Table 3.

Table 3

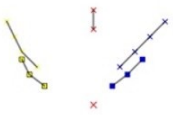
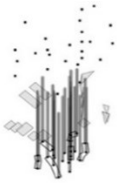
Outputs of Prompts Submitted to ChatGPT for the Design Studio I Content (Author,2026)

Prompt	**Prompt for point composition** **2.** Do not place the squares adjacent to each other; update their positions to create a diagram that reflects the circularity shown in the photo	**Prompt for point composition** **3.** Increase the spacing between the points, leaving fewer points at the center, and show the circularity on both the right and left sides of the photo	**Prompt for point composition** **4.** Further increase the spacing between the points and emphasize both the inner and outer circularity on the right and left sides of the photo	**Prompt for point composition** **5.** On the right, represent the outermost spiral and the one inside it; on the left, represent the inner and outer larger spirals. You can increase the spacing between the points to achieve this
Output				
Prompt	**Prompt for point composition** **6.** To better position the points, move a few of them into the areas that correspond to the vertical element located along the central axis in the photo	**Prompt for point composition** **7.** Do not reduce the points in the spirals too much; represent the central axis by adding just two points at the top and one point at the bottom	**Prompt for point composition** **8.** Do not use adjacent points; move one of the points that are next to each other upward.	**Prompt for line composition** **9.** Create a diagram containing points and lines by keeping some points and merging others

Output				
Prompt	**Prompt for line composition** **10.**Keep the position and number of points the same as the previous diagram. Only connect the points on the outer spiral to form lines	**Prompt for line composition** **11.** Connect the spirals on the right among themselves and the ones on the left among themselves, so that the circular effect in the composition is preserved	**Prompt for line composition** **12.** Increase the number of lines. To represent the spiral on the right, create lines by connecting the points that represent the inner spiral with those that represent the outer spiral	**Prompt for line composition** **13.** Connect each layer within itself. For the right side, connect the points on the outer spiral among themselves and the points on the inner spiral among themselves
Output				

Prompt	**Prompt for line composition** **14**.Also connect the three points at the lower right	**Prompt for line composition** **15.** Connect the topmost point on the central axis with the point below it on the same axis by drawing a vertical line	**Prompt for line composition** **16.** To represent the spiral on the left, connect the points so that both the inner and outer spirals are indicated	**Prompt for line composition** **17.** In the inner spiral on the left, connect only the three points that lie on the same axis
Output				

Prompt	**Prompt for line composition** **18.** Make all the lines 5 mm thick	**Prompt for line composition** **19.** On the central vertical axis, keep the bottom point and connect only the two points at the top	**Prompt for surface composition** **20.** Add surfaces to this composition while keeping the existing points and lines. You can use geometric shapes such as rectangles, squares, triangles, or trapezoids. Do not add surfaces randomly; use the elements in the photo as a reference	**Prompt for surface composition** **21.** Add triangular surfaces outside the spiral on the right. Add rectangular surfaces both inside and outside the spiral on the left
Output				

Prompt	**Prompt for surface composition** **22**. Do not place the surfaces on top of the points and lines; position them in the middle of or adjacent to them	**Prompt for surface composition** **23**. Add triangular surfaces between the inner and outer spirals on the right, and rectangular surfaces between the spirals on the left. Increase the density of the surfaces	**Prompt for color composition** **24.**Use primary colors (yellow, red, blue) on the black elements of this diagram to emphasize the focal point of the composition.	**Prompt for 3D model** **25.** Create an axonometric perspective by making the points, lines, and surfaces 20 cm in size
Output				

The process tested using the content forming the Design Studio II framework was initiated by using the concepts and plan diagrams identified by students as prompts. Based on this prompt, MidJourney generated several models containing different alternatives, whereas ChatGPT produced a model composed solely of geometric forms. In subsequent stages, additional prompts were provided to ChatGPT to add creative and narrative value to the model, resulting in further outputs. The prompts and outputs from this process are presented in Table 4.

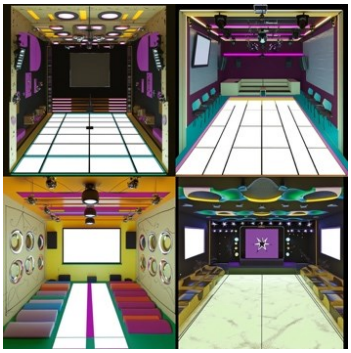
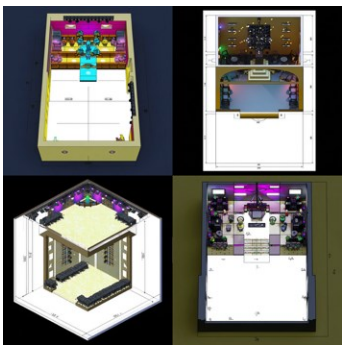
In the second fictional spatial design project, the plan sketch and concept description created by the student were used as inputs, and outputs were obtained from both AI tools. At this stage, as the AI tools were expected to generate both a three-dimensional model and an interior visual/atmosphere in parallel with student work, the same prompt was adjusted with specific keywords (e.g., “extrude this plan,” “create interior space”) to obtain the outputs. During this process, MidJourney produced outputs containing different variations in a volume inconsistent with the provided plan, whereas ChatGPT generated an output more consistent with the reference drawing.

Similarly, in the prompt involving the extrusion of the sketch plan into a three-dimensional model, ChatGPT generated outputs more consistent with the geometric characteristics of the provided plan, whereas MidJourney produced outputs containing different alternatives in square and rectangular forms. Finally, in the stage focused solely on generating an interior atmosphere based on the given prompt, outputs with varying spatial effects and atmospheres were produced. All these data are presented in Table 4.

Table 4

Outputs of Prompts Submitted to ChatGPT and MidJourney for the Design Studio II Design Tasks (Author,2026)

Fictional Space Design I			
Prompt	**ChatGPT**	**Prompt**	**MidJourney**
 **1.**The design of the space was made to be a tower following the lovely concept but making the clone a princess in a pink tower, with three smaller towers with different functioning rooms inside		 **1**.The design of the space was made to be a tower, following the "lovely" theme by making the clone a princess in a pink tower, with three smaller towers with different functioning rooms inside	
2.Add window and door and make it fictional			

3.Fairy tale castle style			
4.Add balconies/railings around some windows			
Fictional Space Design II			
Prompt	**ChatGPT**	**Prompt**	**MidJourney**
 **1.**Create an interior space, this space is a disco or kareoke place. A place for Quasimodo to dance and have fun with friends, disco concept and bright and fun colors		 **1**.Create an interior space, this space is a disco or karaoke place, a place for Quasimodo to dance and have fun with his friends, bright and fun colors	
 **2**.Extrude this plan, Create a interior space, this space is a disco or karaoke		 **2**.Extrude this plan, Create a interior space, this space is a disco or karaoke	

place, A place for Quasimodo to dance and have fun with his friends		place, A place for Quasimodo to dance and have fun with his friends	
3.This space is a disco or karaoke place, a place for Quasimodo to dance and have fun with his friends, disco concept, bright and fun colors		**3.**This space is a disco or karaoke place, a place for Quasimodo to dance and have fun with his friends, disco concept, bright and fun colors	

Discussion

In this study, the outputs obtained by testing the content conducted in the first-year design studio using two different AI tools (text-based and image-based) were examined. Through these outputs, the adaptability of the tools to the design studio with certain design task environment was evaluated, and the results are presented in this section.

When comparing the responses of ChatGPT and MidJourney to the content of Design Studio I, ChatGPT generated outputs consistent with the main elements present in the input photograph and text, whereas MidJourney produced outputs that interpreted the prompt differently. In the problems of Design Studio II, ChatGPT produced directly extruded volumes with geometry and proportions consistent with the provided plan and prompt, but with limited design and aesthetic value, while MidJourney generated alternatives with varied design qualities, albeit with geometric positions and proportions differing from the prompt. Similarly, in the second problem of the Design Studio II course, ChatGPT produced outputs consistent with the geometric characteristics of the provided plan, whereas MidJourney generated outputs that diverged from the reference.

Evaluation of these outputs based on the parameters established in the study reveals that ChatGPT interpreted the given prompts more consistently and faithfully in terms of prompt interpretation and the consistency of key elements, whereas MidJourney was less bound to the prompts. In terms of level of details, ChatGPT provided more detailed outputs for content aimed at abstraction or analytical inference, such as in Design Studio I; however, for the other two problems involving fictional spatial design, MidJourney's outputs contained more details. From the

perspective of perceptual differences, ChatGPT differed from MidJourney in that it interpreted the inputs and produced outputs guided by these interpretations.

When the research findings are examined in detail, ChatGPT was found to be more effective than MidJourney in performing spatial, geometric, and compositional analyses based on architectural plan sketches, as well as in reinterpreting conceptual and formal relationships. This result is consistent with the findings reported by Oh (2024). On the other hand, MidJourney's outputs were found to be more favorable in generating fictional and creative solutions. These results support findings from previous studies (Yiannoudes, 2025; Tan and Luhrs, 2024; Tong et al., 2023).

Although ChatGPT can generate meaningful schematic abstractions, it shows reduced consistency in complex organizational relationships (e.g., point + line, point + line + surface compositions). MidJourney, on the other hand, can produce spatial alternatives with high impact and creative value, but its ability to maintain spatial fidelity is limited. These findings support similar perspectives reported in the literature (Alkan and Oduncu, 2024; Yiannoudes, 2025).

On the other hand, the tools used in fictional spatial design tasks demonstrate differences in their production processes. While MidJourney can generate numerous visual alternatives in a short time based on a given input, the production of outputs in ChatGPT often requires a longer interaction process involving dialogue, guidance, and confirmation steps. This indicates that MidJourney's rapid production capacity expands the range of possibilities, particularly in terms of generating a greater number of design alternatives within a limited time.

The literature similarly suggests that such rapid generation and iterative development processes broaden design possibilities and facilitate iterative thinking in design workflows (Karadağ & Ozar, 2025). In a similar vein, visual generation tools are reported to contribute particularly to the development of interpretation and compositional skills among first-year students (Tong et al., 2023). Moreover, it has been emphasized that these tools allow students to experiment with a wider range of ideas and concepts by rapidly transforming ideas into visual forms (Yıldırım, 2022).

Conclusion

The findings obtained within the scope of this study suggest that the potential roles of the two AI tools in first-year design studio environments may be interpreted as follows. In the examined cases, ChatGPT appears to be more suitable for technical, analytical, and inference-based processes that involve abstraction and the transition from two-dimensional to three-dimensional representations. In contrast, MidJourney appears to be more effective in processes requiring fictional spatial design, atmosphere creation, and the generation of exploratory ideas. However, the results also indicate that both AI tools still require an initial idea or guidance as a starting point and do not operate independently of human input.

Within the limited scope of this research, the findings suggest that, at the scale of first-year design education, AI tools function more appropriately as supportive instruments for human designers rather than as mechanisms that replace traditional studio practices or act as autonomous decision-making systems. In this respect, the results highlight the continued importance of a human-centered design approach, particularly in forms of learning that involve abstraction, interpretation, and reasoning, as commonly encountered in first-year design studios. This observation aligns with related discussions in the literature (Çiçek et al., 2024a; Iranmanesh & Lotfabadi, 2025; Kahraman et al., 2025; Huh et al., 2025; Taşlı-Pektaş, 2025).

The findings also point to differences in the production processes of the examined tools. Although MidJourney can generate numerous alternatives within a short period of time, the produced outputs do not always remain fully consistent with the given inputs. By contrast, the output generation process in ChatGPT often requires a longer interaction due to its dialogue-based structure; however, this interactive format allows for guidance, revision, and refinement throughout the design process. These observations suggest that the two tools may demonstrate different strengths depending on the nature of the design task, at least within the cases examined in this study.

Nevertheless, the findings of this research should be interpreted with caution, as the analysis is based on a single student work for each design task. Accordingly, the results are not intended to be broadly generalizable but rather to provide an exploratory evaluation of the potential roles of AI tools within the specific studio tasks examined. Future studies could test similar design tasks with larger student groups and in different design contexts, which would enable a more comprehensive evaluation of the findings. In addition, as artificial intelligence technologies continue to evolve rapidly, repeating similar studies with updated AI systems may help reveal the emerging capabilities of newer tools as well as the limitations of earlier versions. Finally, more comprehensive research is needed to examine the broader and holistic impacts of artificial intelligence tools on design studio pedagogy.

Etik

Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur. Bu araştırma ile ilgili etik sorularınız için lütfen izufbed@izu.edu.tr adresine başvurun.

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Bu çalışma tek yazarlıdır.

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Ethical Considerations

It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited. For ethical inquiries regarding this research, please contact: izufbed@izu.edu.tr

Author Contributions

This study is single-authoured.

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Conflict of Interest

The author has no conflicts of interest to declare related to the research, writing, or publication of this manuscript.

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