


Dreaming of Better Spaces: Environmental Psychology in Students' Redesign of Interior Architecture Studios

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Abstract: This study looks at interior design students' perceptions and remodeling ideas for their studio spaces through the lens of environmental psychology. It evaluates 10 student groups' proposals, with a focus on spatial layout, usefulness, aesthetics, and the emotional impact of the designed places. Key themes include ergonomic furniture, spatial zoning, color scheme preferences, and the incorporation of natural components. The study emphasizes students' need for multifunctional studio spaces that elicit good emotional responses and improve their sense of well-being. It also highlights the changing nature of interior design education, as students prefer ergonomic seats over stools. The findings highlight the necessity of incorporating students in the design of their learning environments, thereby connecting theory with real-world applications.

Keywords: Environmental Psychology, Human Centered Design, Interior Design, Interior Design Education, Studio Environment.

Introduction

Environmental psychology's study of "Place" and "Sense of Place" provides a comprehensive knowledge of how people interact with their physical surroundings. The term "place" refers to a specific, tangible area, emphasizing its physical attributes and the activities it hosts (Gifford, 2016).

Place attachment, a subcategory of "Sense of Place," refers to the emotional and functional relationships that exist between people and places, on a scale ranging from a district to a country. People create emotional ties based on physical characteristics, social interactions, and cultural influences (Hashemnezhad et al., 2013). The concept of "Sense of Place"

encompasses the dynamic process of developing these attachments, which is influenced by personal experiences, social interactions, cultural and historical backgrounds, and environmental features, emphasizing the relationship's individualized and evolving nature (Gifford, 2016). Neuroscience has helped to better understand "Sense of Place" by uncovering neural correlates of phenomenological observations about the term. Perceiving, memorizing, assessing, and applying spatial information all require the use of certain brain structures and processes. This supports the arguments of human geography and environmental psychology (Lengen & Kistemann, 2012).

In architecture and interior design, these terms drive the creation of environments that elicit emotional and meaningful responses from users. Robinson & Pallasma (2015) highlights the importance of sensory and emotional responses in design, incorporating neuroscience ideas to create more human-centered designs. Similarly, Caan (2011) argues that interior design should prioritize creating a comfortable, tactile setting ("Place") while also establishing a dynamic emotional and perceptual interaction between persons and their surroundings ("Sense of Place").

These notions influence how environments are planned and managed in order to improve human well-being. They play an important role in sectors such as urban planning, architecture, and environmental conservation, emphasizing the significance of considering both the physical and emotional components of environmental design (Donald, 2022).

Norman (2007) explains why designs that elicit good emotions are more likely to be favored by consumers. He highlights that an emotional connection to a product can have a substantial impact on user preferences and happiness. This connection stems from the product's ability to engage the user on multiple emotional levels, including visceral, behavioral, and reflective. Products that effectively appeal to these emotional qualities are frequently seen as more desired, resulting in a richer and more favorable user experience. This emotional resonance is critical in determining a design's overall perception and success among its consumers.

When integrating Norman's (2007) concepts of emotional design into interior design, the concept of "Sense of Place" is critical. If a space elicits good feelings in its users, they are more likely to form a deeper connection with it, which improves the sense of place. This emotional tie is based not just on visual appeal, but also on how space serves functional demands while reflecting personal beliefs and cultural characteristics. As users feel good in such a setting, their attachment deepens, and the area becomes more than just a physical location; it becomes an important part of their lives,

imbued with personal and emotional value (Norman, 2007; Van Gorp & Adams, 2012; Walter, 2011). "Place attachment" happens when the emotional bond is being provided between people with specific spaces or environments.

The significance of students developing a sense of place attachment to their campuses and classrooms is crucial for enhancing the university experience. Xu et al. (2015) highlight that such attachment fosters academic integration and social well-being, contributing to a more positive experience. This attachment evolves through active engagement and meaningful interactions within the space, as demonstrated by Rioux et al. (2017), who note the importance of exploration and knowledge of the environment in developing a sense of belonging. Similarly, Qingjiu & Maliki (2013) emphasize the role of the campus environment in students' well-being and identity formation, while Moghisi et al. (2015) illustrate how emotional and cognitive connections to the university influence academic motivation and social interactions.

Holton (2014) further underscores the importance of adaptive place attachment during transitions, shaping student identities and social networks, and facilitating adaptation to new and unfamiliar environments. This comprehensive view suggests that place attachment significantly enriches students' university life, highlighting the need for educational providers to create environments that strengthen the connection between students and their educational settings.

Our observations of interior design students at our university reveal an intriguing trend: they increasingly prefer working at coffee shops placed over campus or off campus rather than the studio spaces that have been specifically designated for their use. This alteration in their working space preferences piqued our interest.

The traditional design studio, as explored across a spectrum of studies, serves as the backbone of design education, emphasizing the vital role of hands-on learning and mentorship in fostering

design expertise. Kurt (2009)'s investigation into studio environments emphasizes the apprenticeship model's enduring relevance, highlighting its importance on practice and theory integration as essential components of design education.

This model supports the close interaction between students and instructors, pivotal for the development of design proficiency and critical thinking. Similarly, the study by Casakin and Davidovitch (2013) affirms the traditional studio's effectiveness in creating a rich social-academic climate conducive to collaborative learning and innovation

Kalisperis and Pehlivanidou-Liakata (1998) delineate the representation challenges within traditional studios, arguing that despite advances in digital technologies, the core activities of drawing and modeling remain central to the design process. This adherence to manual techniques underlines the traditional studio's role in teaching students to translate mental visualizations onto the drawing board, a critical skill in architectural design.

Moreover, Erçevik Sönmez (2020)'s exploration of educational approaches within design studios illuminates the structured environment of traditional studios, where instructor-led critiques and discussions facilitate a dynamic learning process. This structured critique process is instrumental in guiding students through the complexities of design challenges.

Furthermore, the contributions of Kahvecioğlu (2007) and Qureshi (2019) to the discourse on traditional design studios reveal the studios' enduring value in fostering creativity and collaboration. Kahvecioğlu (2007) delves into the organizational structures and pedagogical strategies that underpin creativity in the traditional studio setting. On the other hand, Qureshi (2019) examines the collaborative dynamics within the traditional studio environment, illustrating how these spaces serve as incubators for collective creativity and learning in design education.

Together, these works collectively affirm the traditional design studio's crucial role in design education, serving as a foundational platform for developing the complex blend of skills, knowledge, and sensibilities required in the design professions. Through mentorship, collaboration, and hands-on engagement with materials and construction processes, the traditional design studio continues to be a pivotal element in cultivating the next generation of designers.

Coffee shops, as a working environment, offer a markedly different ambiance and set of affordances compared to the traditional design studio environment, presenting an alternative space that caters to diverse learning and creative needs. Yodanis (2006) contends that coffee shops serve as vibrant social spaces, in stark contrast to the frequently isolated and antiseptic studio environs. These spaces create a sensory-rich environment that encourages creativity and collaboration, both of which are necessary for design-related work. Furthermore, Chung (2021) highlights the practical benefits of coffee shops, such as Wi-Fi and power outlets, which appeal to modern students' flexible work habits. These amenities accommodate a variety of work methods and allow for connectivity, which is critical for students working on creative or collaborative projects.

Ferreira et al. (2021) investigate coffee shops' significance in promoting community and social relationships. These places, because of their inclusive and dynamic nature, encourage interactions between disparate groups, adding to a sense of community and belonging. This point is especially important for interior design students, who frequently benefit from peer relationships and collaborative learning environments.

Pozos (2015) highlights the unique amalgamation of public and private spheres within coffee shops, fostering a distinctive social environment. This blend promotes varied social interactions, enhancing the allure of these venues as alternative workspaces. The research emphasizes the influence of social dynamics on

the choice of workspaces, particularly in urban settings.

Waxman (2006) delves into how the physical and social attributes of coffee shops contribute to a sense of place attachment. The ambiance of coffee shops, being both comfortable and aesthetically pleasing, nurtures a feeling of belonging and productivity. This aspect is crucial for interior design students, who often seek environments that not only spur creativity but also provide a sense of comfort and familiarity.

In summary, these studies elucidate that coffee shops embody an ideal mix of social engagement, practical benefits, and a creative milieu. For interior design students, these attributes render coffee shops a compelling substitute for conventional workspaces, offering the necessary flexibility, social connectivity, and creative inspiration for their academic and professional pursuits.

To further understand why interior design students prefer alternative workspaces over traditional studios, a research on their ideal studio setting is proposed. This study seeks to examine students' common preferences and the factors that influence their decision to work in various settings. The goal is to improve studio spaces in interior design programs by introducing aspects that promote a deeper sense of space attachment among students. By studying their wants and preferences, the study hopes to build studio spaces that are more in line with the conditions that make alternative locations like coffee shops desirable. This technique will aid in the development of studio environments that are more appealing to students, fostering creativity and productivity.

Methods:

Design Project

This project was developed as an assignment, completed over a span of 3 weeks within a 15-week semester. Students were lectured about the “space”, “place”, “sense of place”, “place attachment”, and “emotional design” terms for 2 weeks. Following that, students were tasked with designing the interior design studio

environment in which the course was held, as they had envisioned.

The students had frequently experienced the studio where the course was conducted in previous years and also had the opportunity to familiarize themselves with it during the initial weeks of the term. After the completion of lectures, students were first tasked with measuring the dimensions of the classroom utilized for the course to have a better understanding to the dimensions of the space. Subsequently, they were instructed to devise a scaled plan solution in a schematic sense and to create a new studio design in 3D. The critical consideration here was to design a studio environment that, while not significantly reducing student capacity, would enable an emotional connection rather than a logical or functional one; a space where students would enjoy spending the entire day and even prefer over other settings, essentially "Dreaming of Better Spaces." This task was to be undertaken in groups of at least two, with students choosing their partners to facilitate discussion opportunities and the creation of more thoughtfully conceived spaces. The process then continued through critique-based sessions. Students presented their envisioned studio environments before me, as the course instructor, and their peers, who were then encouraged to discuss whether they would find happiness in spending time in these hypothetical studio designs presented by their classmates.

These studio design proposals were created by junior class students from the Interior Architecture and Environmental Design Department at Antalya Bilim University (Turkey) as part of the "Human Factors in Interior Design" course.

Participants

A total of 68 students were enrolled in the course. Students worked on this assignment in groups of 2 to 4 people. 26 studio designs were evaluated by the department instructors at the end of the assignment based on the depth of the SWOT analyses, the originality and the accuracy of the design ideas, the design

proposals quality and suitability for SWOT analyze. Because it was not possible to incorporate all design products in the current study, only 10 designs were chosen. These ten design suggestions have at least one unique approach and are the most complete.

Methodology

This research utilized a five-stage process designed to explore the integration of environmental psychology into the redesign of interior architecture studio spaces by student groups. Each stage was meticulously planned to build upon the previous, ensuring a comprehensive approach to understanding and implementing design principles aimed at enhancing emotional engagement and educational efficacy in studio environments. The five-stage process that the students took in this process is shown in Figure 1.

The first stage involved the formation of student groups within the interior architecture program. These groups were intentionally composed to foster diverse perspectives and collaborative dynamics. Group formation was facilitated through a structured process that considered students' year of study, areas of interest, and previous collaborative experiences to promote effective teamwork and innovation.

Following group formation, each team conducted a SWOT analysis to critically assess the current studio environment. This analysis focused on identifying the strengths, weaknesses, opportunities, and threats related

to the physical layout, resources available, and the emotional ambiance of the studio. The aim was to provide a foundational understanding of the existing conditions from which improvements could be envisioned.

In the third stage, groups were tasked with researching and examining interior design studios from other universities that are recognized for their emotionally engaging and aesthetically pleasing environments. This exploration included analyzing spatial layouts, design elements, and the use of materials and colors that contribute to a positive and stimulating educational atmosphere. The goal was to gather inspiration and insights that could inform the redesign of their studio.

Building on the insights gained from the SWOT analysis and the examination of exemplary studios, each group participated in a brainstorming session aimed at generating ideas to enhance the studio environment. This collaborative session encouraged creativity and open discussion, focusing on strategies to make the studio more emotionally appealing, functionally efficient, and aesthetically pleasing. The brainstorming process prioritized ideas that could address identified weaknesses and leverage opportunities to create an inviting and supportive space for learning and creativity. The final stage challenged groups to synthesize their findings and ideas into comprehensive design proposals for the studio. Utilizing 2D and 3D modeling software, students were

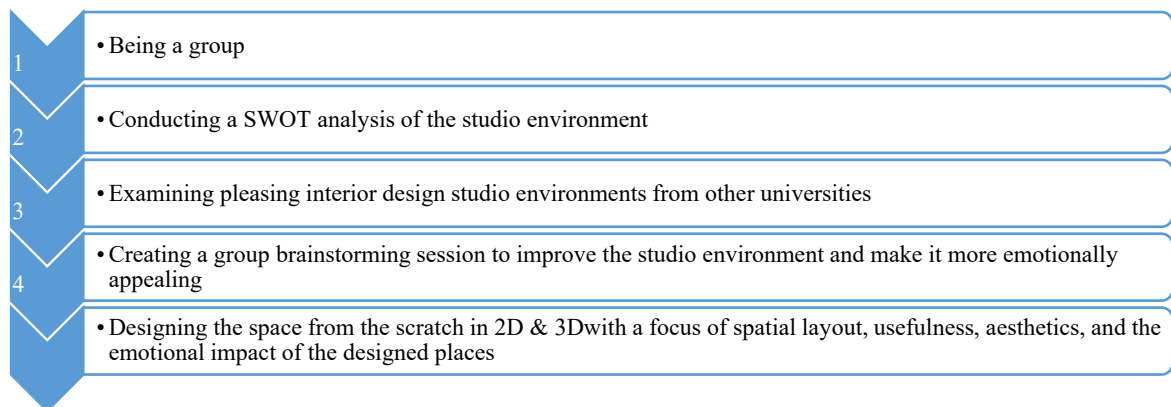


Figure 1: Students' five-stage process in the assignment

required to reimagine the studio space, focusing on spatial layout, functionality, aesthetics, and, importantly, the emotional impact of the designed environment. This stage culminated in detailed design presentations that showcased each group's vision for a studio space that not only meets practical educational needs but also fosters a sense of belonging, motivation, and well-being among its users.

By employing this structured five-stage process, the study aimed to capture a holistic view of student-driven design innovations that integrate environmental psychology principles to enrich the studio learning experience. This methodology facilitated a student-centered exploration of how space design can impact emotional engagement and educational outcomes in interior architecture studios.

Findings

The studio setting is placed on the educational building's sub-ground level; yet, because of the level difference, it has windows that provide natural ventilation, outside views, and daylight. The room is spacious enough to accommodate 45-50 students drawing at the same time. With a tighter fit, it can accommodate 60-65 people and drawing tables. The HVAC system works properly, ensuring comfort. There is a projector available for presentations.

The tables are relatively new, but they were quickly worn by students building models during the first term, causing surface damage. The tables are moveable, allowing for flexible rearranging based on varied class needs. There are outlets on the floor, which can cause tripping hazards. This was a necessary tradeoff to allow the tables to move around more easily. The environment exhibits a monochromatic palette; every element, including the furnishings and walls, is rendered in white. The lighting, abundant throughout the space, emanates a cool hue. A whiteboard is present; however, its size is modest relative to the dimensions of the wall and classroom, resulting in infrequent use. Storage is limited, and students are not allotted desks, resulting in a first-come, first-serve seating arrangement. There are no permanent cork or metal boards for

students to display their work; panels are hauled in from storage during jury days.

The space contains no level differences. During design studio workshops, instructors typically deliver comments from anywhere, commonly at a student's desk. For theoretical classes, the instructors sit at either the front student desk or the teacher's desk.

The studio encompasses an area of approximately 162 square meters, with dimensions of 14.7 meters (x-axis) by 11 meters (y-axis). Structurally, the space is defined by two parallel columns located 300 cm away from the window side on the x-axis, each measuring 75 cm by 75 cm. The column nearest to both the instructor's desk and the whiteboard is situated 310 cm away from the wall where the whiteboard is mounted on the y-axis, with a distance of 240 cm separating the two columns. This configuration influences the visual and spatial dynamics of the studio, especially in relation to student engagement and visibility. The studio's ceiling height of 450 cm amplifies the sense of spaciousness, enhancing the overall perception of the studio as an open and airy environment. The presence of two double doors facilitates easy access, allowing for fluid movement in and out of the studio.

These specific architectural and design features, while contributing to the aesthetic and functional aspects of the studio, also present unique challenges and opportunities for optimizing the learning environment. The placement and dimensions of the columns, for example, necessitate a thoughtful arrangement of seating and working areas to ensure all students have unobstructed views of the instructional space and can participate fully in studio activities.

Interior architecture education has historically emphasized manual techniques such as hand drawing and model-making. However, there has been a shift towards incorporating digital tools into the curriculum. This studio is predominantly used by third-year students, at which point their coursework has fully embraced digital methodologies. The studio is

furnished with wheeled stools, which, while facilitating mobility and ease of use for traditional drawing activities, may not provide the ergonomic support needed for prolonged computer use. This situation underscores the evolving needs of interior architecture students as educational focus shifts from traditional to digital design processes.

The student groups were tasked with studying the described studio environment and performing a SWOT analysis. The evaluations of the top ten student groups have been analyzed, and the key issues are presented in

Table 1. According to Table 1, the interior architecture studio's key qualities are its spaciousness, which includes wide rooms and high ceilings as well as practical characteristics such as large tables and enough natural light. Conversely, the biggest flaws include uncomfortable seating, insufficient illumination, and a lack of individual storage space, indicating a connection between the current design and the students' ergonomic demands. These findings show that, while the studio has solid basic elements, there is a major need for changes in furniture comfort and practical facilities to better meet student needs.

Table 1: Summary of student groups' SWOT analyses of the current state of the studio

Strengths	Number of Mentions	
Large area	5	<p style="text-align: center;">Strengths (Total Mentions: 16)</p> 
Large tables	3	
High ceilings	3	
Good natural light from windows	2	
Weaknesses	Number of Mentions	
Uncomfortable seating	10	<p style="text-align: center;">Weaknesses (Total Mentions: 43)</p> 
Insufficient lighting	7	
Lack of individual storage space	6	
Inadequate or damaged desks	5	
Lack of sufficient sockets	4	
Uncomfortable stools	4	
Columns obstructing space	3	
Opportunities	Number of Mentions	

Space allows for different layouts	4	<p>Opportunities (Total Mentions: 13)</p>
Improvements in lighting	3	
Improvements in furniture design	3	
Threats	Number of Mentions	
Items loss due to no individual storage	2	<p>Threats (Total Mentions: 6)</p>
Lack of motivation due to environment	2	

In order to improve the studio atmosphere for interior design students, an exercise was implemented by the course instructor where students were invited to share their thoughts on the current studio space. The major goal was to determine why they chose not to spend time in the studio and to inspire them to reimagine the space in a way that would elicit pleasant emotions and a desire to stay. By visualizing their ideal studio setting, students were pushed to use their design abilities and ingenuity to

make the actual studio more appealing and functional. This activity was designed not only to elicit insightful comments, but also to involve students in a practical application of design concepts, establishing a stronger relationship with their learning environment.

The most commonly suggested notion is "comfortable seating," which reflects students' desire for a more comfortable and ergonomic workplace (Table 2). Other frequent

Table 2: Students' ideas when redesigning the studio

Idea	Number of Mentions
Comfortable seating	5
Ergonomic furniture	4
Lockers / Storage	3
Flexible layout	3
Bright colors	2
Greenery / Natural elements	2
Technological enhancements	2
Dedicated project/display areas	2
Improved lighting	1
Elevated teaching area	1

suggestions include ergonomic furniture and improved storage choices, demonstrating a desire for utility and comfort in the studio area.

In the conducted SWOT analysis, one of the primary weaknesses identified was the studio's lack of ergonomic seating, which contributed to discomfort among students. The 1st student group directly addresses this concern by proposing the replacement of stools with ergonomic seats, thereby enhancing comfort and potentially improving students' willingness to spend extended periods in the studio. This change aligns with the opportunity to improve the studio's furnishings, directly responding to the students' need for a more comfortable learning environment.

Another critical threat highlighted was the potential for a reduced sense of belonging due to the studio's current impersonal and utilitarian setup. To counteract this, the group suggests introducing warmer hues and indoor plants, thereby creating a more inviting and emotionally engaging space. This approach capitalizes on the opportunity to incorporate natural elements into the studio, fostering a connection to the environment that can enhance well-being and student satisfaction.

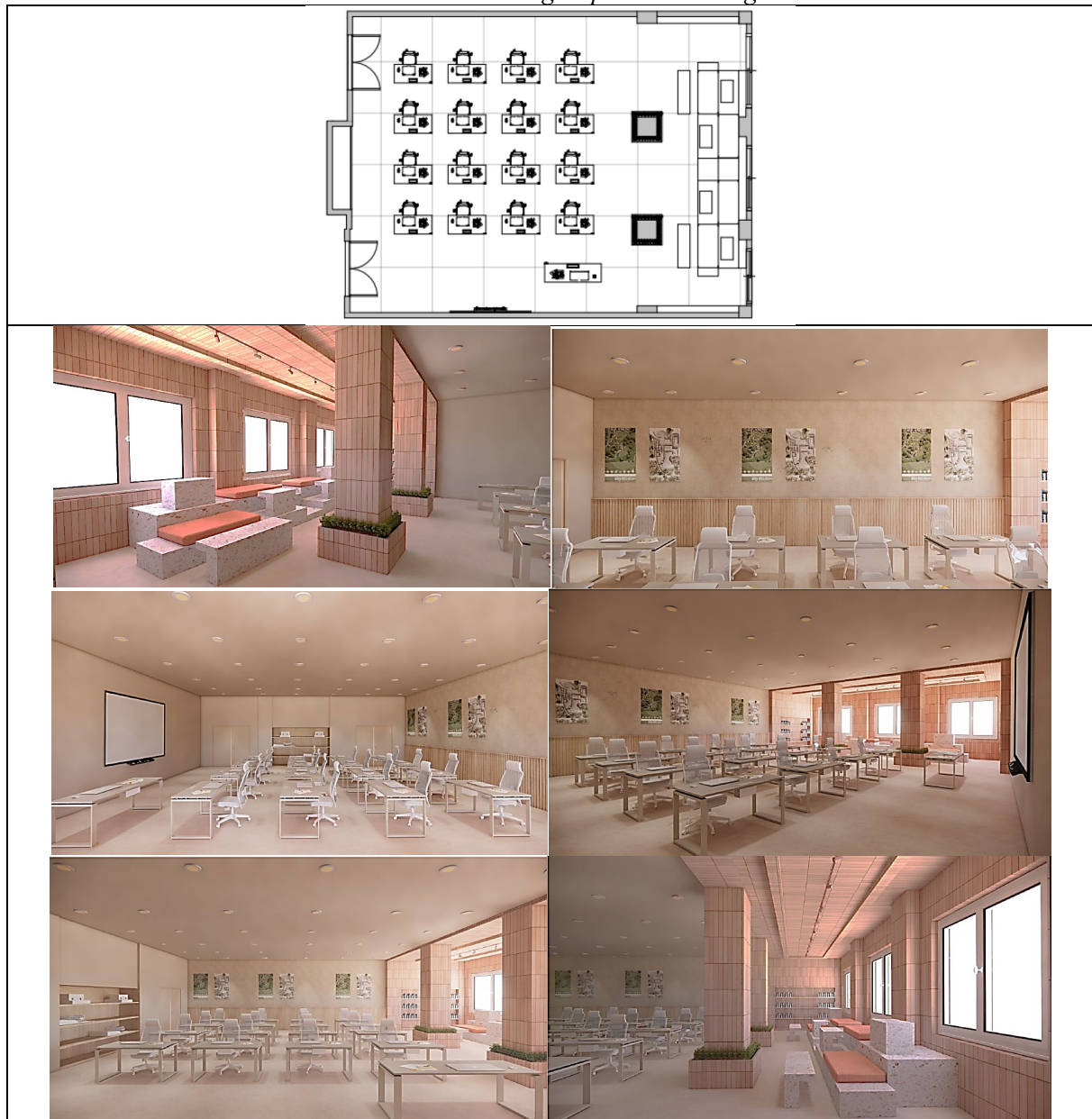
Furthermore, the SWOT analysis identified the inefficient use of space and lack of storage as weaknesses within the studio. The student

group's concept of dividing the room into two distinct sections for relaxation and instructional purposes not only maximizes the usability of the space but also introduces wall-mounted shelves and cork wall coverings for displaying work. These features offer inventive storage solutions and facilitate the presentation of posters during critiques, directly addressing the need for functional and adaptable storage options within the studio.

Lastly, the encasement of columns in ceramic or similar materials with decorative changes introduces a visually appealing element to the studio, addressing the identified weakness of the studio's aesthetic appeal. This intervention enhances the studio's visual environment, contributing to a more pleasant and stimulating space conducive to creativity and learning.

By systematically matching the SWOT analysis items with the design solutions proposed by the 1st student group, it is evident that their renovation concept thoughtfully addresses key areas for improvement within the studio. This approach not only resolves specific weaknesses and threats identified in the analysis but also leverages opportunities to enhance the studio's functionality and emotional appeal, making it a more desirable space for students to engage in their studies (Table 3).

Table 3: 1st student group's studio design



The 2nd student group's design concept presents strategic solutions to improve the studio's functionality and aesthetic appeal. Their approach directly responds to the opportunities for enhancing the studio's capacity and storage, while also mitigating identified weaknesses such as uncomfortable seating and the underutilized space between columns and windows.

A critical opportunity identified in the SWOT analysis was the potential to increase the

studio's capacity without compromising the quality of the educational environment. By aiming to accommodate more students than the first design concept, this group's plan strategically utilizes the space between the columns and windows for model-making and group work. This decision not only increases the studio's functional capacity but also enriches the educational experience by dedicating space to collaborative activities, addressing the opportunity to foster a more interactive learning environment.

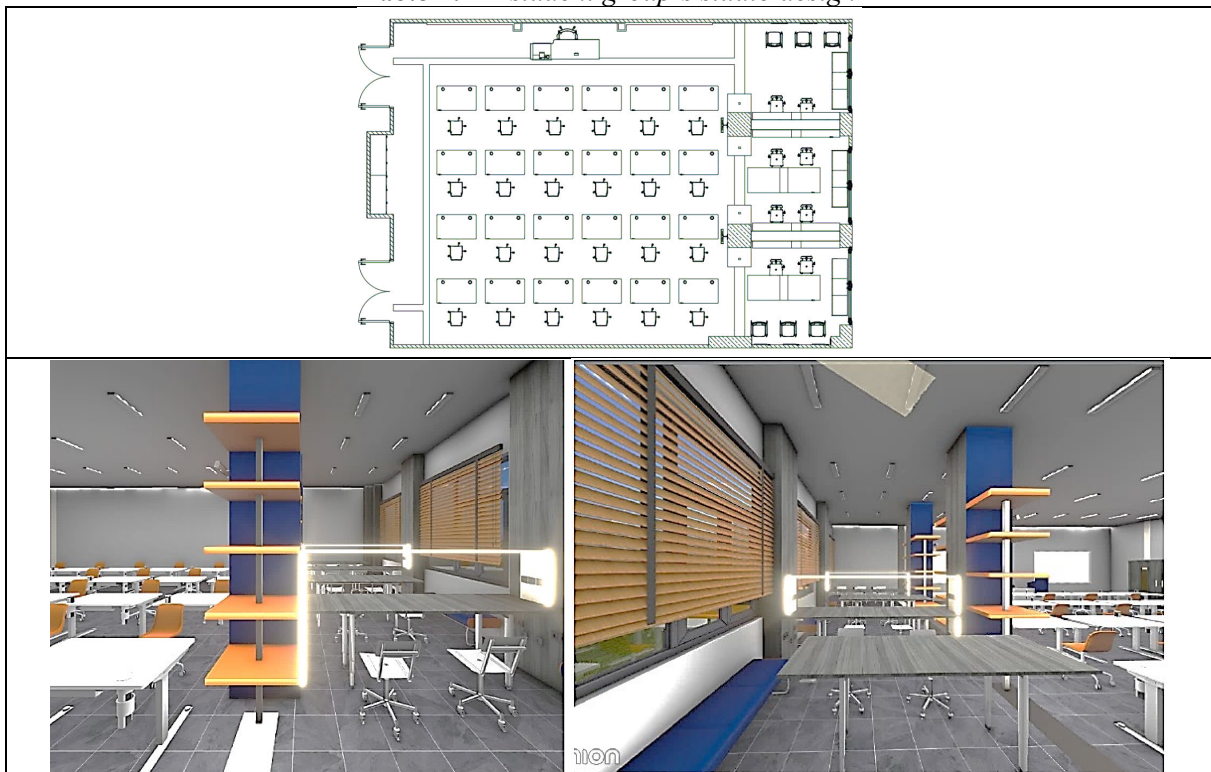
Addressing the weakness of uncomfortable seating, identified in the SWOT analysis, the replacement of stools with ergonomic seats in this design concept directly improves comfort. This change is crucial for supporting students during long hours of work, thereby enhancing their overall well-being and productivity in the studio.

The aesthetic approach of utilizing calm grey tones, complemented by dark navy blue columns and orange-toned chair elements, responds to the need for a visually cohesive and stimulating environment. This color scheme, alongside the incorporation of wooden Venetian blinds and matching shelves and cabinet doors, creates a harmonious and appealing aesthetic. This attention to color and materiality addresses the opportunity to improve the studio's ambiance, making it more inviting and conducive to creativity.

Furthermore, the introduction of closed cabinets as a solution to the studio's storage issue directly tackles the weakness of inadequate storage space identified in the SWOT analysis. This design element provides students with secure and organized storage options, crucial for managing materials and personal items, thereby enhancing the studio's overall functionality.

By specifically aligning their design interventions with the items identified in the SWOT analysis, the 2nd student group's concept effectively addresses key areas for improvement within the studio. Their thoughtful consideration of capacity, comfort, aesthetic appeal, and storage not only resolves identified weaknesses but also capitalizes on opportunities to create a more engaging, functional, and pleasant studio environment for all students (Table 4).

Table 4: 2nd student group's studio design





The 3rd student group's design concept meticulously addresses specific areas identified in the SWOT analysis, with a keen focus on enhancing the functionality and aesthetics of the studio space. Their innovative use of the area between the columns and windows for leisure, group work, and model-making directly tackles the opportunity to better utilize underused spaces within the studio, promoting a more dynamic and flexible learning environment.

Emphasizing ergonomic comfort, this design's preference for ergonomic chairs over traditional stools responds to the weakness of uncomfortable seating highlighted in the SWOT analysis. This shift aims to improve students' comfort during extended periods of work, aligning with the need for a more accommodating and student-friendly environment.

The decision to maintain the ceiling and lighting design, as well as the window blinds from the original setup, suggests a strategic choice to preserve elements that were already well-received, addressing the strengths mentioned in the SWOT analysis regarding natural light and the effective ambient conditions of the studio.

Incorporating light colors for the columns and grey-white tones for other parts of the studio not only refreshes the studio's visual appeal but also creates a more inviting and pleasant space. This choice of palette enhances the studio's sense of openness and supports a positive emotional

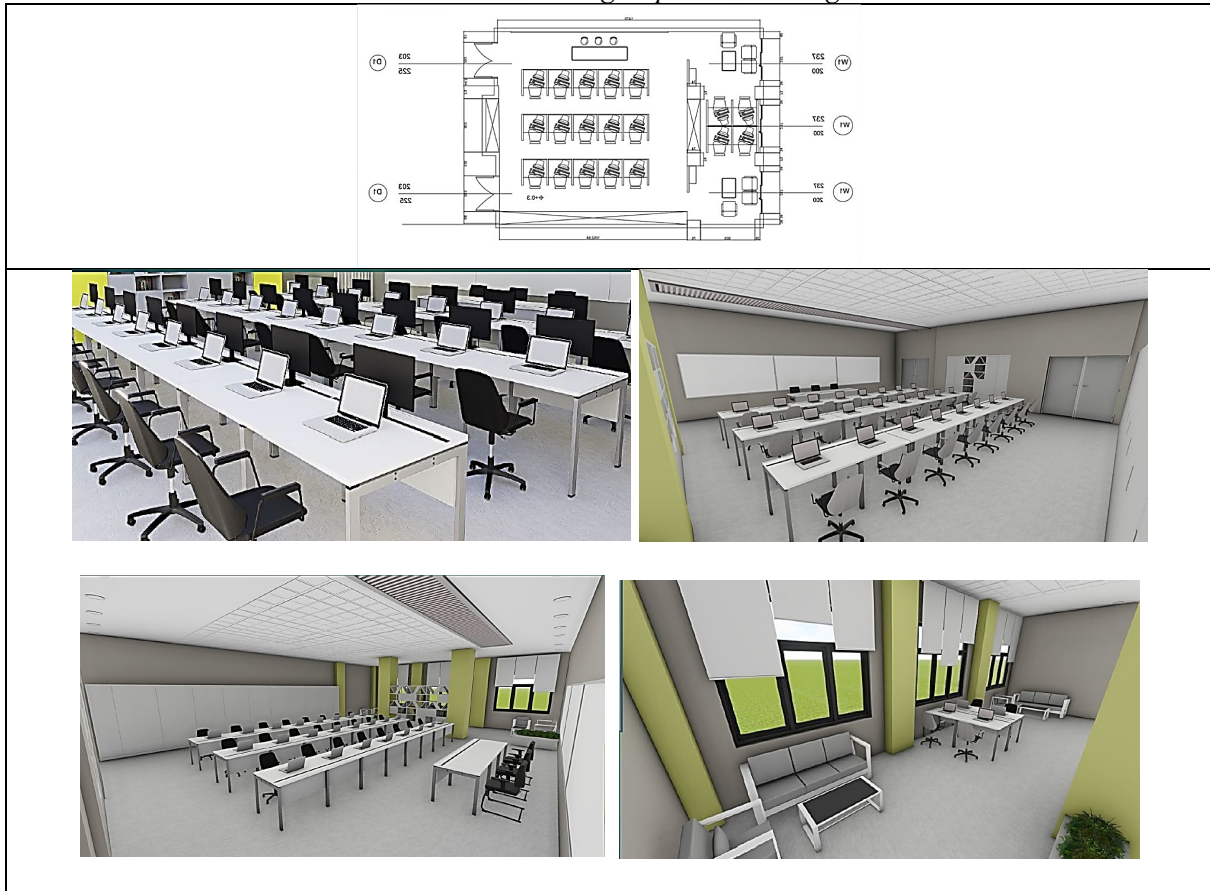
environment, directly engaging with the opportunity to improve the studio's aesthetic and emotional appeal.

Significantly, the introduction of an increased amount of closed storage in this design addresses a critical weakness identified in the SWOT analysis related to the lack of individual storage space. This solution provides a practical and organized way for students to manage their materials and personal belongings, directly contributing to the functionality and efficiency of the studio space.

Furthermore, the adaptation of the teacher's desk to accommodate multiple instructors reflects a thoughtful approach to the studio's instructional needs, especially during critical activities like juries. This design consideration ensures that the space is equipped to support the collaborative and evaluative aspects of the design education process, directly responding to the opportunities for enhancing the studio's instructional capabilities.

Overall, the 3rd student group's design concept effectively leverages the insights from the SWOT analysis to propose a comprehensive renovation that addresses key functional, aesthetic, and ergonomic needs of the studio. By thoughtfully integrating these elements, the design fosters a more engaging, comfortable, and productive environment for both students and instructors (Table 5).

Table 5: 3rd student group's studio design



The 4th student group's studio design thoughtfully addresses several key points from the SWOT analysis, particularly focusing on the preservation of traditional hand drawing methods within the studio environment. Their design contrasts with the increasing digital orientation of interior architecture education by emphasizing manual drawing skills, thereby catering to the strengths of traditional learning methods mentioned in the SWOT analysis.

This group's decision to retain stools, while integrating adjustable, mechanism-equipped drawing tables, directly engages with the opportunity to support diverse learning and working styles within the studio. Each table's individual lighting setup enhances functionality and comfort for hand drawing activities, addressing the weakness of insufficient lighting identified in the SWOT analysis.

Designating the space between the columns and windows for socialization introduces a novel approach to utilizing underexploited studio areas. The incorporation of circular column cladding and pouf seats creates an inviting communal space, addressing the opportunity to foster a more collaborative and interactive studio environment, as highlighted in the SWOT analysis.

The establishment of model display areas and the inclusion of open storage containers respond to the identified need for more effective storage and display solutions within the studio. This approach not only improves the studio's organizational efficiency but also enhances its aesthetic appeal by showcasing student work, directly tackling the weakness related to the lack of display and storage facilities.

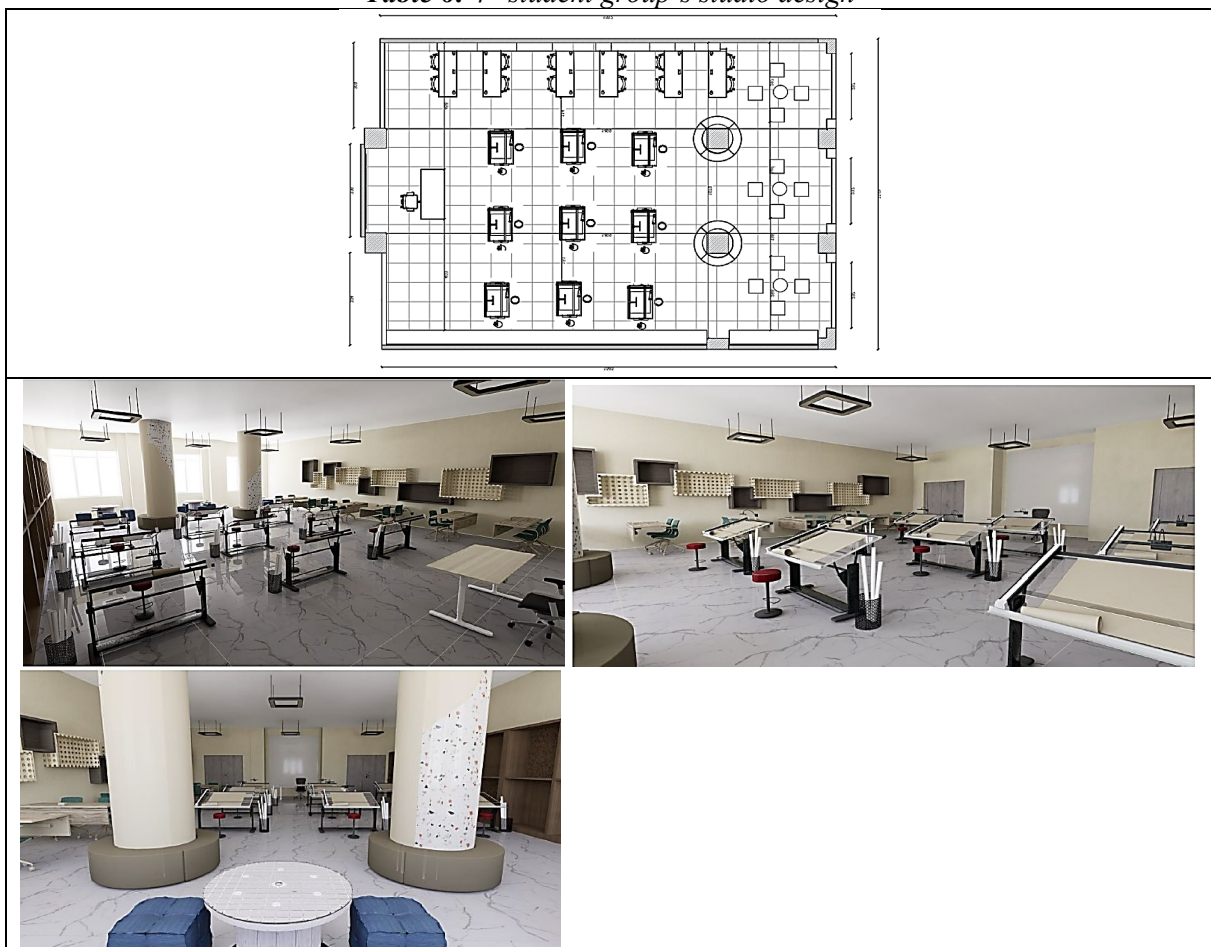
By opting for a color palette of warm and soft tones, the fourth group creates a visually

appealing and comfortable studio atmosphere. This choice addresses the opportunity to improve the studio's ambiance, contributing to a more positive and engaging learning environment that supports both the emotional and practical needs of students.

Overall, the 4th student group's design uniquely addresses the SWOT analysis by prioritizing

traditional drawing methods and enhancing the studio's social and functional spaces. Their proposal offers a balanced approach that preserves essential aspects of interior architecture education while innovatively addressing identified opportunities and weaknesses within the studio environment (Table 6).

Table 6: 4th student group's studio design



The 5th student group's design proposal thoughtfully addresses several key findings from the SWOT analysis, presenting solutions aimed at enhancing both the functionality and aesthetic appeal of the studio environment. By segregating the area between the columns and windows from the main instructional space for group projects and model-making, this design effectively utilizes previously underused sections of the studio, directly responding to the

opportunity for improved spatial utilization identified in the SWOT analysis.

Opting for ergonomic chairs over traditional stools aligns with the identified weakness of uncomfortable seating, showcasing a commitment to enhancing student comfort and well-being during studio hours. This choice underscores the importance of ergonomic

furniture in fostering a conducive learning and working environment.

The introduction of unique open-shelf storage units for each table addresses the SWOT analysis's highlighted lack of individual storage space, offering a practical and accessible solution for students' storage needs. This innovative approach not only improves the studio's organizational capabilities but also promotes a clutter-free and efficient workspace. Characterized by cool tones, cold lighting, and grey surfaces, the design's color scheme and lighting choices contribute to a distinct and modern aesthetic. This decision reflects a strategic effort to create an inviting and stimulating studio atmosphere, directly addressing the opportunity to enhance the studio's visual and emotional appeal.

Furthermore, the incorporation of general storage units, openly shelved and positioned along the studio walls, tackles the identified storage issues within the SWOT analysis. This addition provides ample and versatile storage options, further enhancing the studio's functionality and accommodating a broader range of student needs and activities.

Overall, the 5th student group's design proposal demonstrates a comprehensive understanding of the studio's current limitations and opportunities, as identified in the SWOT analysis. By proposing targeted interventions that address comfort, storage, spatial utilization, and aesthetic enhancements, this design concept offers a well-considered approach to reimagining the studio environment, making it more aligned with the needs and preferences of its users (Table 7).

Table 7: 5th student group's studio design





The 6th student group's design concept presents a thoughtful consideration of the SWOT analysis by offering solutions that cater to the studio's spatial dynamics and ergonomic needs while enhancing the aesthetic appeal. This design distinctively opts for a warm color scheme, diverging from the cooler tones preferred by the previous group, directly addressing the opportunity to create an inviting and emotionally engaging studio environment.

By choosing not to assign a new function to the space between the columns and windows, the design emphasizes the importance of open, flexible areas within the studio, potentially addressing the threat of a rigid and underutilized space highlighted in the SWOT analysis. Instead, the introduction of storage containers in this area cleverly divides the space, improving organization and addressing the weakness of inadequate storage facilities identified in the analysis.

The replacement of stools with ergonomic seats is a strategic response to the identified weakness of uncomfortable seating, ensuring that the studio supports students' physical well-being during long hours of work. This shift towards ergonomic furniture aligns with the broader trend in interior design education towards creating environments that prioritize students' comfort and health.

Incorporating elevation differences to delineate instructor areas introduces a hierarchical structure that enhances the studio's functionality

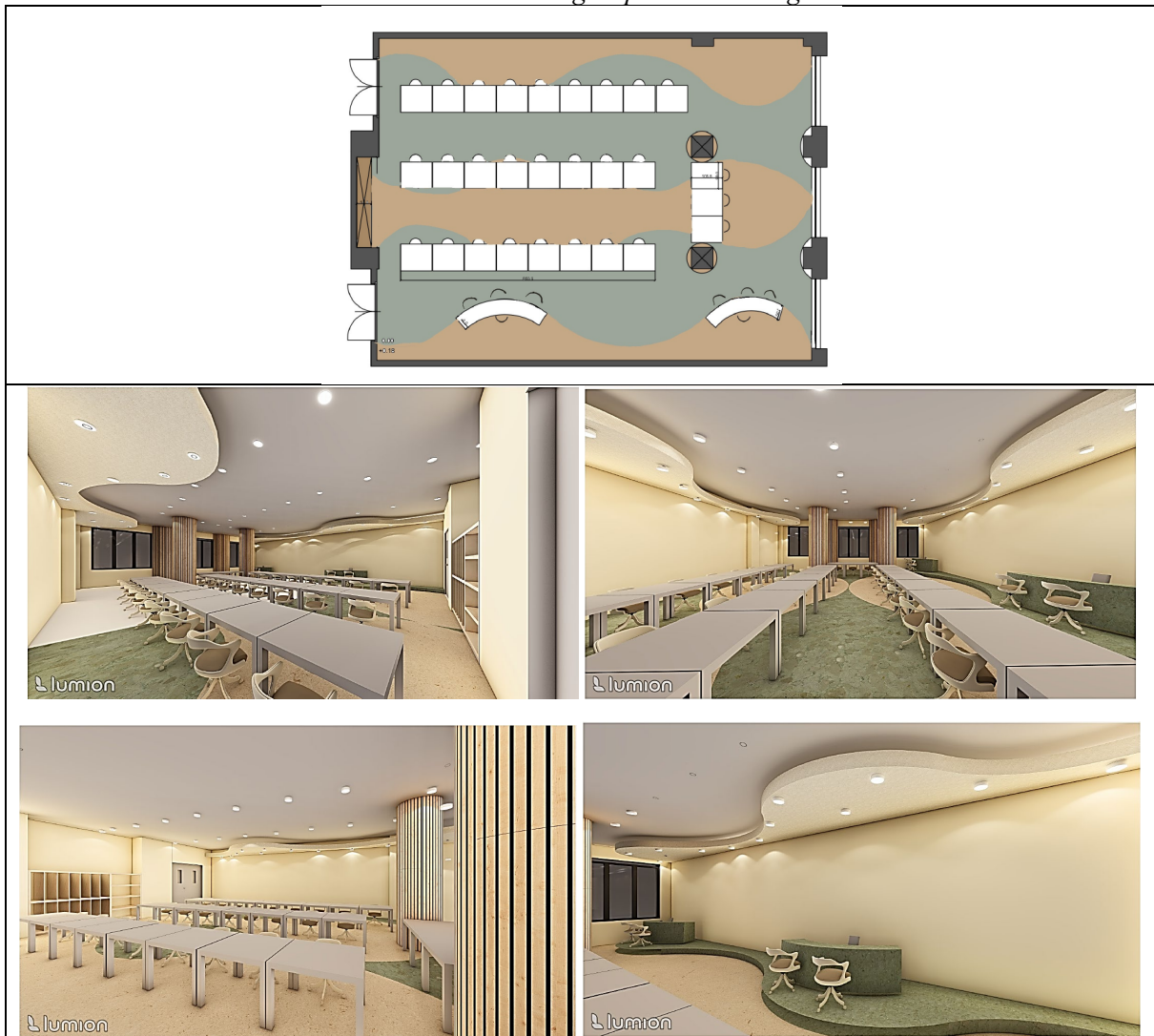
for critique sessions, directly responding to the opportunity to optimize the studio for instructional purposes. This design element ensures that the studio accommodates the collaborative and evaluative aspects of architectural education effectively.

The aesthetic treatment of the columns with round wooden panels and the use of green tones throughout the studio not only addresses the opportunity to improve the studio's visual appeal but also contributes to creating a natural and comfortable atmosphere. This choice resonates with the SWOT analysis's identification of the need for a more aesthetically pleasing and emotionally resonant studio environment.

Furthermore, the proposal of open storage units along the walls directly tackles the SWOT analysis's highlighted weakness regarding the lack of adequate storage solutions. This innovative storage approach enhances the studio's usability and organizational efficiency while maintaining visual openness and integrity.

Overall, the 6th group's design concept thoughtfully addresses key areas identified in the SWOT analysis, offering solutions that enhance the studio's ergonomic, functional, and aesthetic qualities. This holistic approach ensures that the studio not only meets the practical needs of its users but also fosters an environment conducive to creativity, collaboration, and well-being (Table 8).

Table 8: 6th student group's studio design



The 7th student group's design uniquely addresses the opportunity to optimize the utilization of space between the columns and windows, identified in the SWOT analysis. By isolating this area with glass and a metal frame for sound isolation, the group effectively creates a dedicated zone for group model creation and printing facilities. This innovative separation enhances the studio's functional diversity without compromising the instructional area's integrity, directly responding to the need for multifunctional spaces that support various activities.

Addressing the weakness of inadequate individual storage space, highlighted in the SWOT analysis, this group introduces closed

wooden storage units within the instructional space. This solution provides secure and organized storage for students, significantly improving the studio's functionality and addressing one of the critical areas for improvement identified in the SWOT analysis.

The replacement of stools with ergonomic black seats is a strategic response to the SWOT finding regarding uncomfortable seating. This design choice prioritizes student comfort and well-being, aligning with the broader objective to create a more ergonomic and student-friendly learning environment.

Furthermore, the decision to paint the walls in warm, off-white tones directly addresses the

opportunity to enhance the studio's visual and emotional appeal, as identified in the SWOT analysis. This color choice contributes to a light and inviting atmosphere, fostering a positive emotional response and a stronger sense of place attachment among students.

By integrating open storage units alongside advanced facilities like a plotter and a beverage vending machine, the design also capitalizes on the opportunity to introduce practical amenities that support students' work and well-being. This approach not only improves the studio's overall usability but also demonstrates a thoughtful

consideration of students' daily needs and preferences.

Overall, the 7th student group's design thoughtfully addresses key areas identified in the SWOT analysis by enhancing the studio's functionality, comfort, and aesthetic appeal. Through strategic spatial division, ergonomic improvements, and the introduction of practical amenities, this design proposal effectively transforms the studio into a more engaging, accommodating, and pleasant environment for both individual and collaborative work (Table 9).

Table 9: 7th student group's studio design





The 8th group's studio design presents a distinctive approach by implementing a tiered layout method, directly targeting the opportunity to improve the studio's spatial organization. This innovative solution addresses the threat of disarray in studio spaces by constraining table movement to lateral directions within a specified height range, thus maintaining order while still offering flexibility in space usage.

The choice to employ warm hue tones and circular shapes, utilizing a vibrant color palette of purple, pink, navy blue, and green, responds to the need for a more visually stimulating and emotionally engaging studio environment, as identified in the SWOT analysis. This design element aims to create a youthful and joyful atmosphere, enhancing the studio's appeal and potentially increasing students' motivation and creativity.

Transforming the space between the columns and windows into a fixed seating and individual work or reading area tackles the weakness of underutilized spaces within the studio. This modification increases the functional diversity of the studio, ensuring that all areas contribute positively to the students' educational experience.

However, the design's limited adherence to accessible and human-centered design principles represents a missed opportunity to fully address the SWOT analysis's emphasis on creating inclusive and ergonomically supportive environments. Future redesigns could benefit from incorporating features that accommodate a wider range of student needs, including those with physical disabilities.

The application of soft off-white or beige on the walls, coupled with wooden floors and furnishings, aligns with the opportunity to utilize natural materials and colors to foster a more welcoming and comfortable learning environment. The inclusion of green-colored storage containers further adds to the studio's functionality, addressing the identified weakness of insufficient storage while maintaining the aesthetic coherence of the design.

Overall, the 8th group's design proposal thoughtfully addresses several key areas identified in the SWOT analysis by enhancing the studio's visual appeal, spatial organization, and functionality. While its innovative approach significantly improves the studio environment, further consideration of accessibility and human-centered design principles could enhance its effectiveness and inclusivity (Table 10).

Table 10: 8th student group's studio design



The 9th group's studio design adeptly addresses specific elements highlighted in the SWOT analysis, particularly focusing on the utilization of the space between the columns and windows and improving ergonomic support within the studio. By opting to differentiate this area through material change—introducing

terracotta-colored flooring—instead of structural separation, this design directly tackles the opportunity to enhance the studio's spatial dynamics and functionality. This approach allows for a seamless integration of diverse activities within the studio, fostering a more versatile and engaging learning environment.

Embracing ergonomic chairs over stools addresses the identified weakness of uncomfortable seating in the SWOT analysis. This shift not only enhances comfort for students engaged in prolonged periods of work but also aligns with the broader objective of creating a more student-friendly environment that supports their physical well-being.

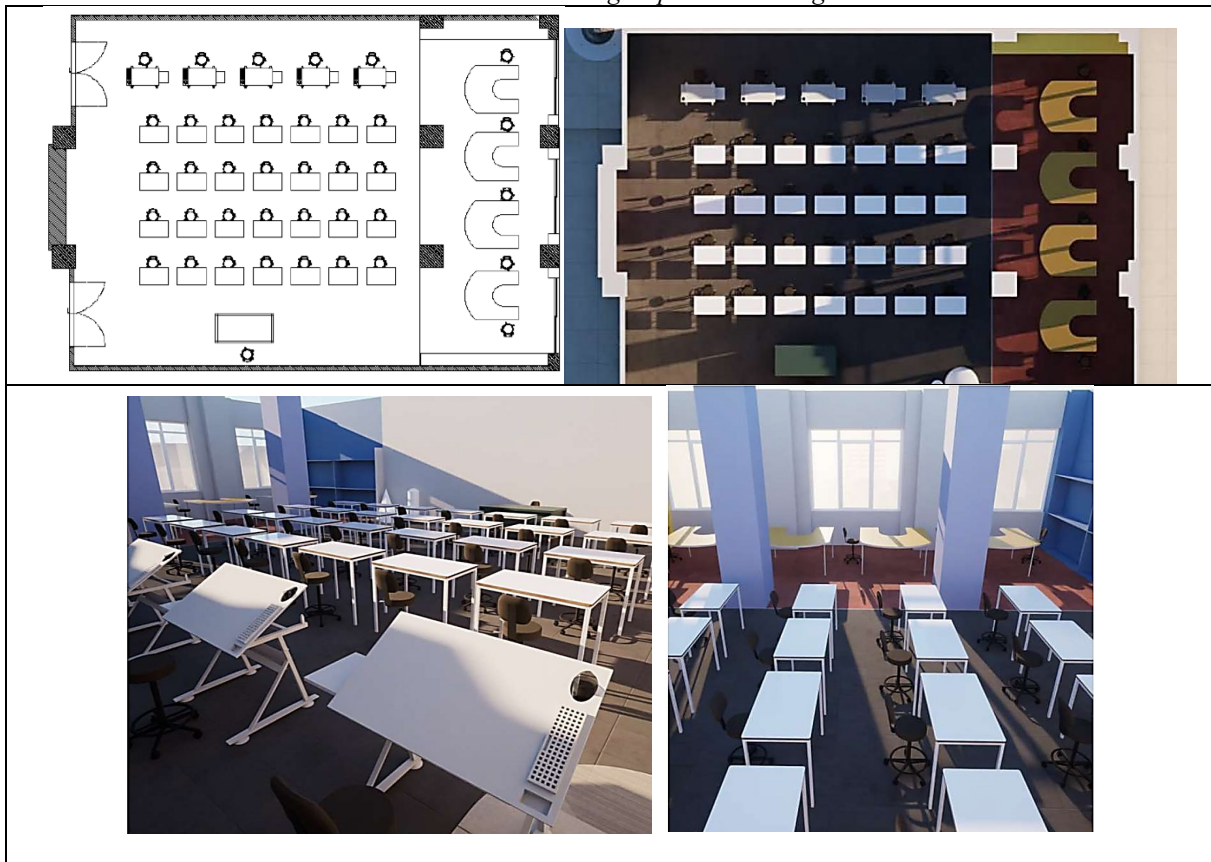
The introduction of tables with adjustable angles for drawing caters to the specific needs of design students, offering the flexibility required for various tasks from hand drawing to digital work. This design choice directly responds to the opportunity for the studio to better support the diverse working styles and preferences of its users.

Moreover, the design's color and material strategy, which incorporates warm orange-pink tones for storage units and light blue for

columns, alongside distinct flooring colors for different sections of the studio, strategically improves the space's visual appeal and navigability. This thoughtful use of color not only enhances the studio's aesthetic but also aids in distinguishing between various functional zones within the space, creating a more organized and visually cohesive environment.

However, while this design introduces several innovative solutions to improve the studio's functionality and aesthetic appeal, it remains crucial to ensure that these modifications also consider all students' accessibility and inclusivity needs. The thoughtful application of ergonomic furniture, combined with strategic layout and color choices, illustrates a significant step towards addressing the SWOT analysis findings by creating a more engaging, comfortable, and functional studio space (Table 11).

Table 11: 9th student group's studio design





The 10th student group's studio design endeavors to enhance the educational environment by creating a hierarchical structure, a method reflecting an attempt to improve instructional delivery and visibility. This approach, however, presents potential accessibility concerns, emphasizing the necessity for inclusive design solutions that accommodate all users, including those with physical limitations, addressing a critical oversight in the original studio layout.

This group's preference for ergonomic chairs over traditional stools directly tackles the identified weakness of uncomfortable seating, promoting a more comfortable and supportive setting for extended periods of work. This change aligns with ergonomic principles, aiming to enhance students' physical well-being and engagement.

The implementation of adjustable tables offers flexibility in drawing and design work, catering to the diverse needs of studio activities. This feature addresses the opportunity for adaptable furniture that supports both traditional hand drawing and digital design processes, reflecting a nuanced understanding of the studio's functional requirements.

Employing warm off-white tones and natural wood materials in both the elevated instructor's area and the studio columns, the design introduces a calming and inviting aesthetic.

This choice responds to the SWOT analysis's suggestion to improve the studio's visual appeal, utilizing color and material to create a more engaging learning atmosphere.

The innovative use of space between the columns and windows, distinguished by green colors and movable poufs, offers a flexible and informal area for individual work, effectively utilizing underexploited spaces within the studio. This design decision enhances the studio's versatility, directly addressing the need for multifunctional areas that support a range of activities.

Incorporating open wooden shelves for storage and providing corkboards in individual work areas for poster display directly addresses the identified lack of adequate storage and display spaces. These solutions not only improve the studio's organizational capabilities but also encourage personalization and visual communication among students.

Overall, the 10th group's design proposal thoughtfully addresses several key concerns highlighted in the SWOT analysis, offering a comprehensive approach to reimagining the studio space. By focusing on ergonomic improvements, aesthetic enhancements, and functional flexibility, this design significantly contributes to creating a more inclusive, comfortable, and stimulating educational environment (Table 12).

Table 12: 10th Student Group's Studio Design



Conclusion

This study's exploration into the redesign of interior architecture studios, guided by the principles of environmental psychology and the innovative ideas of Norman (2007), has revealed a significant trend towards creating

multifunctional and emotionally engaging environments. The structured five-stage process undertaken by student groups not only fostered a deep understanding of the current studio settings through SWOT analyses but also inspired a comprehensive examination of

exemplary studios and collaborative brainstorming sessions aimed at reimagining these spaces.

The consistent theme across the student proposals highlights a departure from traditional studio designs that prioritize functionality alone. Instead, there is a clear preference for spaces that support a broad spectrum of activities- ranging from academic tasks to social interactions and leisure. These redesigned environments are envisioned to foster not just efficiency and productivity but also emotional connections, enjoyment, and a diverse array of experiences. This approach aligns with the emerging paradigm in interior design education, which acknowledges the significant impact of spatial aesthetics and emotional resonance on student well-being and creativity.

The proposals emphasize the importance of ergonomic furniture, the inclusion of natural elements, and the thoughtful use of color and material to create inviting and stimulating spaces. Such design decisions are directly responsive to the insights gleaned from the initial stages of the methodology, specifically the SWOT analysis and the examination of successful studio environments. For example, the ergonomic chairs over traditional stools reflect a commitment to comfort and physical well-being, while the strategic color choices and material use aim to enhance the emotional ambiance of the studios.

Moreover, the inventive storage solutions and the flexible spatial layouts proposed by the students demonstrate an acute awareness of the need for adaptable and user-centered design. This reflects a sophisticated understanding of how environmental psychology principles can be applied to create spaces that are not only functional but also supportive of the diverse needs and preferences of their users.

In sum, the findings from this study emphasize the vital role of student participation in the co-creation of their learning environments. By actively involving students in the design process, educational institutions can ensure that studio spaces not only meet the evolving

demands of interior design education but also resonate with the students on an emotional level. The student-led redesigns presented in this study offer a vision for future studio environments that are characterized by flexibility, emotional engagement, and a holistic approach to educational space design. These insights contribute to the broader discourse on the importance of integrating environmental psychology into the design of educational settings, highlighting the profound impact such an integration can have on enhancing the quality of the educational experience.

Limitations

This study, while offering valuable insights into the integration of environmental psychology in the design of interior architecture studios, is not without its limitations. One of the primary constraints lies in the subjective nature of assessing emotional responses to spatial environments. Emotional engagement and the sense of belonging are inherently personal experiences, influenced by a myriad of individual factors, including past experiences, personal preferences, and even the day's mood. As such, the interpretations of what constitutes an emotionally engaging or comforting space can vary widely among individuals. This subjectivity presents challenges in generalizing the findings and applying them uniformly across different educational contexts.

Furthermore, the study is situated within the specific context of a single university setting, which may limit the applicability of its conclusions to other institutions with different architectural layouts, cultural backgrounds, or educational philosophies. The unique characteristics of the participating university, including its spatial configurations, student demographics, and curricular priorities, might influence the design proposals generated by the students and their perceptions of what makes an effective studio environment.

These limitations underline the need for caution in extrapolating the study's findings to broader contexts. Future research could address these constraints by incorporating a more diverse

range of university settings, employing quantitative measures to complement qualitative assessments of emotional responses, and exploring the interplay between individual differences and spatial perceptions in educational environments.

By acknowledging these limitations, this study opens the door for future research to further refine our understanding of how design principles rooted in environmental psychology can enhance the educational experiences of interior architecture students. Expanding the research to include a wider variety of educational settings and incorporating more objective methods for evaluating emotional engagement with space could provide a more comprehensive and nuanced understanding of the role of studio design in supporting learning and creativity.

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