

CO RE
DE
LLABORATION
+CREATIVITY

BOOK OF EXTENDED ABSTRACTS

Istanbul Kültür University & Trakya University
12th-13th December 2024 *online*

6th International Congress on Interior Architecture Education
ICMEK6th -2024: CORE, CODE, COLLABORATION + CREATIVITY
Extended Abstract Book

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6th INTERNATIONAL CONGRESS ON INTERIOR ARCHITECTURE EDUCATION CORE, CODE, COLLABORATION + CREATIVITY

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Dr. Elif Tural
Dr. Zakkiya Khan

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ICMEK

06th INTERNATIONAL CONGRESS ON INTERIOR ARCHITECTURE EDUCATION

CODE OF COLLABORATION + CREATIVITY

12th-13th December 2024
online

CONGRESS THEME

Interior architecture, as one of the design disciplines, has been evolving and changing since the beginning of the 20th century, with a multidimensional structure that allows for new syntheses. The structure of interior architecture/design education, which has been institutionalised in parallel with the professional practice of the profession and includes different types of knowledge and skills, continues to be structured to respond to the rapidly evolving and changing needs of the times.

The primary objective of interior architecture education is to equip students with creative thinking skills, empowering them to tackle practical problems. Given the context of interior architecture and the intricacy of the issues, developing solutions necessitates interaction with various disciplines. Moreover, contemporary technologies, which have inevitably become more widespread, offer the opportunity to explore creative and innovative new ways of working in interior architecture education, underscoring the importance of these skills in our evolving world.

ICMEK2024, which will be organized jointly by Istanbul Kültür University-Department of Interior Architecture and Environmental Design and Trakya University-Department Interior Architecture, will try to set light on the essence of interior architecture education, the codes that constitute it and will form it, collaborations and creative education models at an international level.

In this respect, the theme of ICMEK2024, which aims to discuss interior architecture education and present various suggestions for its future, was determined as "Code, Core, Collaboration and Creativity". With "ICMEK2024 International Congress on Interior Architecture Education", we invite researchers in interior architecture education or professional life to think and produce in order to understand the nature of interior architecture design education and create original, creative education models and discuss experiences, by taking into account today's needs and conditions.

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IMPORTANT DATES

1st July 2024 Announcement
16th September 2024 Abstract submission deadline
29th September 2024 Late submission for abstracts
1st-21st October 2024 Reviewer reviews
15th November 2024 Reviewers
1st December 2024 Announcement of congress program and registration
12th-13th December 2024 Congress

<https://icmik.iku.edu.tr/icmek>



CONGRESS THEME: CORE, CODE, COLLABORATION + CREATIVITY

Design, beyond being a mere preparation for a profession, is a discipline that fosters the development of an individual's creative intelligence and skills. It has now become an integral part of formal education in numerous countries. Design education encompasses a range of skills, including questioning, thinking, finding creative solutions to problems, and building relationships. This evolution has opened the door to a multifaceted study and development of design education, a journey that is both enlightening and inspiring.

While design education in pre-industrial societies was based on the master-apprentice relationship and the model of learning by doing, the Bauhaus School implemented a radical model based on experimental studies. Based on a constructivist approach in primary education, the Bauhaus model has co-operated with different art and design disciplines. Since then, many design education approaches that develop creative thinking and skills, follow technological developments, support social development, and ensure economic and ecological sustainability continue to be developed and tested in design education in parallel with the searches in the act of design.

Interior architecture, as one of the design disciplines, has been evolving and changing since the beginning of the 20th century, with a multidimensional structure that allows for new syntheses. The structure of interior architecture/design education, which has been institutionalised in parallel with the professional practice of the profession and includes different types of knowledge and skills, continues to be structured to respond to the rapidly evolving and changing needs of the times.

The primary objective of interior architecture education is to equip students with creative thinking skills, empowering them to tackle practical problems. Given the context of interior architecture and the intricacy of the issues, developing solutions necessitates interaction with various disciplines. Moreover, contemporary technologies, which have inevitably become more widespread, offer the opportunity to explore creative and innovative new ways of working in interior architecture education, underscoring the importance of these skills in our evolving world.

In summary, interior architecture is,

At its **core** (noun, the basic and most important part of something), a design discipline that involves **creative** (noun, the ability to produce original and unusual ideas, or to make something new or imaginative) action, that uses **codes** (noun, a system of words, letters, numbers or symbols that represent a message or record information secretly or in a shorter form) that the translation of requirements into abstract items and **collaborating** (noun, the act of working together with other people or organizations to create or achieve something) with different disciplines in the process.

In this respect, we believe it is important to discuss the core of interior architecture education, the codes that shape and will shape it, the collaborations created with it and the creative actions on an academic platform.

Without breaking away from the context of interior architecture discipline,

- Is an interdisciplinary approach to education possible?
- What is the future of design skills in the adventure of change and transformation of interior architecture education from yesterday to today?
- Which disciplines do interior architecture collaborate with, and how does this affect the educational process?
- What is the nature of creative thinking and its relationship with other disciplines?
- Is a different kind of interior architecture education possible?

These are the questions we are asking.

İÇMEK2024, which will be organized jointly by Istanbul Kültür University- Department of Interior Architecture and Environmental Design and Trakya University- Department Interior Architecture, will try to set light on the essence of interior architecture education, the codes that constitute and will form it, collaborations and creative education models at an international level.

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Welcome by The ICMEK 6th International Congress On Interior Architecture Education

In the contemporary world, marked by natural disasters, epidemics, climate change, conflicts, and wars, our living environments and lifestyles are undergoing transformations. Concurrently, technological advancements, machine learning, and artificial intelligence are rapidly becoming an essential part of daily life at an unprecedented rate. In the realm of interior architecture, both the profession and its educational framework are being prompted to adopt comprehensive and holistic strategies that address emergent factors such as technological advancements, globalization, economic and political uncertainty, and social inequality, alongside environmental and sustainability concerns. Moreover, there is an increasing emphasis on the integration of digitalization, artificial intelligence, and online models within interior architecture education.

In this context, we consider it valuable to contribute with a creative perspective by conducting the essential inquiries into interior architecture education, as is fundamental in any discipline, in the interest of professional and humanitarian obligations. Our goal is to approach professional education from a multidimensional perspective by establishing a platform at the ICMEK6th International Congress on Interior Architecture Education congress where scholars eager to contribute can convene.

ICMEK Interior Architecture Education National Congress has contributed to the discipline as a national platform, convening scholars who engage in thought and research related to interior architecture education to facilitate the exchange of ideas in 2007, 2012, 2015, and 2017. Notably, the fifth congress was held in 2022 as an international scientific event. The sixth congress, ICMEK6th, was organized in collaboration with Istanbul Kültür University, Department of Interior Architecture and Environmental Design and Trakya University, Department of Interior Architecture. Since ICMEK5th, new dynamics and future projections in interior architecture education have been shed light on an international level.

In accordance with these objectives, the sixth ICMEK congress will feature a discussion on interior architecture education, with a focus on the themes of "Core, Code, Collaboration, and Creativity." The objective of this discussion is to critically evaluate and re-examine the fundamental principles of interior architecture education, as well as to assess the prevailing codes that are shaping the discipline both currently and in the future. It is crucial to acknowledge the pivotal role of collaborative efforts in this transformation process, from the fundamental principles to the established codes. The congress will feature interdisciplinary collaborations in interior architecture education, as well as partnerships established and to be established within the scope of international cooperation, professional practice, and social responsibilities. These partnerships will introduce diverse perspectives that will transform the field. At the core of all these issues is creativity and creative thinking. As part of a digitalization process in education, the decision was made to make the congress more accessible by organizing it online.

The congress featured a total of 31 papers, which were presented in six sessions, each focusing on specific sub-themes, including Core-Design Perspectives, Core-Teaching and Learning Approaches, Code-Digitalization, and Collaboration. Additionally, three invited keynote speakers were scheduled to share their valuable insights through impactful presentations. We would like to extend our gratitude to the esteemed participants and the keynote speakers, Dr. Ana Cocho-Bermejo, Assoc. Prof. Dr. Elif Tural, and Dr. Zakkiya Khan, for their time and support. We believe their contributions have made a significant and positive impact on interior architecture education.

In conclusion, we would like to express our gratitude to our esteemed scientific committee members for their contributions in evaluating the extended abstracts, as well as to the organizing committee and the congress secretariat for their dedicated efforts in the realization of the congress. Finally, we would like to thank the Rectorates, Deans and Department Heads of Istanbul Kültür University and Trakya University for their support. It is our belief that the congress was a success, both in terms of productivity and the enjoyment of the participants. We would like to express our sincere gratitude to all those who participated in the congress, and we look forward to their contributions at future events.



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KEYNOTE SPEAKER RESUMES

***The invisible human:
AI & Design on the
antropocene.***

Dr. Ana Cocho-Bermejo

*Senior Lecturer in Architecture
Anglia Ruskin University*



Dr. Ana Cocho-Bermejo is an architect and computational researcher based in London. She focuses her research on the crossings of Artificial Intelligence and Design. She holds a PhD in technology in Architecture and a MPhil in Artificial Intelligence. Alumni of the Architectural Association and Bartlett's AAC programmes she is currently interested in DAI, Distributed Artificial Intelligence processes. Along her teaching she tries to improve students' skills on the implementation and understanding of complex protocols as well as aware of the need of research within architecture field on AI based processes for design innovation.

***The Future of Interior Architecture
Education: Integrating Core Skills,
Emerging Technologies, and
Industry Partnerships***

Dr. Elif Tural

*Associate Professor in Interior Design
Virginia Tech*



Elif Tural, PhD, is an associate professor of interior design at Virginia Tech. Dr. Tural holds a B.Arch from METU, an MFA in Interior Architecture and Environmental Design from Bilkent University, and a PhD in Environmental Design and Planning from Arizona State University. Prior to joining Virginia Tech, she was a post-doc at Oregon State University, where she also taught in the interior design program. Leveraging her multidisciplinary design background and experience in environment-behavior studies, her research primarily addresses how the built environment and indoor environmental comfort factors can foster health and wellbeing of occupants.

She has led and been part of several externally-funded interdisciplinary research projects, addressing active aging, institutional senior residential settings, design for neurodiversity, project-based learning environments, and acoustics in hybrid workplaces. Most recently, she is involved in the NSF-funded Building Ecology project, focusing on space/place dynamics in a living learning community, and the USDA-funded MRCS Smyth County Expansion project with a trauma-informed design focus. In addition to the lighting and acoustics, and health and interiors courses, Dr. Tural teaches design studios on workplace, cultural, and educational environments, in collaboration with community and industry partners where possible. She is an ex officio board member and past-chair of the Environmental Design Research Association (EDRA), and a member of the Interior Design Educators Council (IDEC), where she formerly chaired their Grants and Awards Committee. She was also the recipient of the 2017 Edison Price Fellowship by the Nuckolls Fund for Lighting Education.

***Towards a Global Living
Curriculum for Interior
Architecture and Design
Education***

Dr. Zakkiya Khan

*Senior Lecturer in Interior Architecture
University of Brighton*



Dr. Zakkiya Khan is a Global Educator in Interior Architecture based at University of Brighton, with extensive experience leading courses in South Africa, United Kingdom, and Hong Kong. Their diverse experiences have provided them with unique perspectives on the globalization and localization of interior architectural education. As an advocate for decolonization, Zakkiya promotes inclusive practices across the sector through Equality, Diversity, and Inclusion (EDI) project leadership, talks, panel-speaking, and campaigns.

They have held the prestigious role of Co-Opted Expert of the board of the International Federation of Interior Architects/Designers (IFI), where they contributed to global educational policy aimed at advancing the profession. Zakkiya's research specializes in retail design localization having delivered her work at international conferences. They are a published author of peer reviewed publications. As an Organizing Member of the Design Research Society's Special Interest Group on "Designing Retail and Services Futures," Zakkiya advances retail design scholarship through edited books, conferences, publications, and student events. Zakkiya is the founder of the global mentorship program, Interior Design & Architecture Graduate Career Catalyst, a bespoke online course empowering graduates to transition successfully into industry. She remains committed to shaping an inclusive, practice and globally relevant future for interior architectural education.

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EXAMINATION OF THE EFFECT OF BASIC DESIGN COURSE ON STUDENT SUCCESS: ISTANBUL KÜLTÜR UNIVERSITY INTERIOR ARCHITECTURE AND ENVIRONMENTAL DESIGN EXAMPLE

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Extended Abstract

In today's world, creativity is considered as an important skill in many areas. The ability to think creatively and come up with solutions is required to cope with rapidly changing and increasing challenges. In his book “How Designers Think”, Lawson (1997) expressed design as teachable skill in a structured framework and developed the “comprehensive model of design requirements” (Belali-Oskuie & Rishsefid-Noshabadi, 2016, p.18). In addition, Lawson (1997, p.12) emphasizes that “[f]irst, we all can design and we do, second, we can learn to design better” (Belali-Oskuie & Rishsefid-Noshabadi, 2016, p.18).

One of the areas that encourage the development of this skill is the field of design and design education. The learning process in the field of design education provides the perfect environment to increase creativity. The main purpose of design education is to teach students different ways of developing creative and innovative project proposals for the problem areas that arise within the framework of the needs and conditions of today's world. In this context, students experience the design process by developing their creative skills and learning to express innovative ideas via different tools (drawing, model, etc.).

Design education plays a critical role in developing students' creative skills through the design process. When students are encouraged to explore, experiment, and interact, they become effective innovators and can contribute to finding creative solutions to future challenges (Onur & Zorlu, 2017).

During the design education process, various courses and activities are held to develop creativity. In addition to formal courses in the education program, informal activities (workshops, onsite activities, etc.) are also stimulating in terms of creativity. When we look at the education programs, the Basic Design course is essential among the courses in terms of developing creativity.

The main purpose of the Basic Design course is to introduce students with different educational backgrounds to design education and to design experience environments to improve their creativity. In the Basic Design course, students are taught creative thinking ways in the face of design-oriented problems and focus on developing their creative abilities. Conceptual knowledge-based principles are the primary course in the development of Basic Design creativity, which is built on factors such as abstract-focus thinking, observing the environment, identifying the problem, developing different ideas, visual perception, transferring from two to three dimensions, and organizational skills. This feature has

an important place in the course plans in interior architecture education as in many design disciplines of the relevant course and is an important threshold for starting design education.

In addition, the course, which is an important threshold for starting design education and understanding design thinking in Turkey and globally, is mostly in the first semester and in some schools in both the first and second semesters. It would not be wrong to say that the knowledge and skills acquired in the Basic Design course set up the basis for learning design-related issues, opinions and concepts.

When the Basic Design course is examined in terms of the historical process, it is based on the Bauhaus, which is one of the turning points in the progress of modern art and architecture (Sözen & Tanyeli, 2003, p.37). Bauhaus is an educational institution that guided art and architecture education in the world between 1919-1933 in line with principles (Güngör, 2005, p.3; Hasol, 1975, p. 79-80; Sözen & Tanyeli, 2003, p.37; Turani, 2018, p.22). The reflection of this step in Turkey started in 1982 when all higher schools and academies were transformed into universities by the Council of Higher Education and the Basic Design course took its place in the faculties of architecture (Güngör, 2005, p.4).

According to Aydınlı (1999), the Basic Design course allows to completely free the imagination and to question the cause-effect relations in the course with Gestalt theory. On the other hand, students learn to achieve a balance between freedom and limitation.

The method of working in the Basic Design course is that students produce two or three-dimensional creative solutions individually or as a group through trial and error in the face of abstract or concrete problems given. The course, which was developed on the basis of Gestalt theory and was initially designed as teaching design elements and principles in many schools, has transformed into different contents in line with the developments in today's education programs. Experimental applications are carried out through different problems to develop students' abstract thinking skills.

In the Basic Design course (which takes different names in different schools), which is accepted as the course of starting design for the disciplines that provide design education, students produce two-dimensional or three-dimensional alternative designs based on different abstract and concrete problems. It can be assumed that the creative skills gained have/will have a significant effect especially in other design-oriented courses. Because the design works produced in the basic design course enable students to experience the form-function-structure relationship. In Hasançebi's (2004) study, it was revealed that the Basic Design course directly affected the Architectural Design course (in the architecture department), but it was concluded that the relationship-interaction between both courses lagged behind the meaning attributed to the Basic Design course and that the interaction had been limited.

Oxman (2004) states that problem solving methods for designers are usually taught in studio courses that teach design as a practice or skill and in knowledge-based courses that teach current and technical issues. For this reason, it can be said that studio (project) courses constitute the focus of design education. In a similar approach to the Basic Design course, students are expected to produce creative solutions in the face of the given design problem on Design Studio (project) courses. Schon (1985, p.6) refers to the Design Studio as “*an exemplar of education for artistry and problem-setting*”. Design education is a dynamic structure in which each design problem is considered as a new experience and a new activity to produce creative solutions, rather than being structured on stereotyped acceptances and transferred to the student (designer) (Paker Kahvecioğlu, 2001, p. 161). It can be accepted that this design training is a guide in the approaches to be developed and produced for studio (project) education, which is the application area (Paker Kahvecioğlu, 2001, p. 161). Regular discussions between students and professionals take place in a studio. The teacher shows how to explore and act as a designer using teaching methods that combine speaking and drawing (Broadfoot & Bennett, 2003, p.11). According to Schon (1990), “[t]his reflects the image of the teacher as a professional and reflective practitioner who offers guidance and inspiration to students” (Rashdan, 2017, p.88).

Therefore, Basic Design course and Design Studio studies are a process in which creative thinking abilities are experienced and developed. For this reason, examining the effect of the knowledge and skills obtained in the Basic Design course on the success in the Design Studio courses can be considered as an indicator of whether the Basic Design course has achieved its purpose.

Within the scope of this study, based on the assumption that students' creative abilities are developed in the Basic Design course, it is discussed whether this course affects their success in the learning process. In this context, the relationship between creative thinking and success in Design Studio courses, where creative thinking is experienced, creative action is performed, and which constitute the focus of design education, is examined. In this direction, while creating the study setup, first of all, research questions that question the relationship/communication of both courses were determined:

- Does the knowledge and creativity acquired in the Basic Design course have a positive impact on other courses?
- Does the success in the Basic Design course have a direct relationship with the success in the Design Studio (project) course?

The study, which examines the positive/negative relationship between the Basic Design course and the Design Studio course, consists of two steps.

In the first step, the place, purpose and content of the Basic Design course in interior architecture schools in Turkey will be determined. Here, it will be tried to determine whether the course is evaluated within the scope of developing students' creativity. For this purpose, the objectives and contents of the first-class Basic Design and creativity-oriented education courses of the interior architecture and interior architecture and environmental design programs of 21 universities (13 foundations, 8 State Universities) in Turkey and the TRNC (Northern Cyprus) were examined. The fact that the content of the Basic Design course in the schools selected here draws attention to phenomena such as developing creativity skills, starting design education, learning the activity of designing, etc. reveals the relationship/interaction with studio courses, which constitute the focus of design education and where design is experienced. Therefore, in this step, the Basic Design and Design Studio courses offered in schools in Turkey are analytically examined and their contents are compared.

The second step of the study is to determine the relationship between the success of IKU (İstanbul Kültür University) Interior Architecture and Environmental Design students in the Basic Design course and their success in the project courses. Criteria for evaluating success are not included in the scope of the study. Within the scope of the study, the Basic Design and Design Studio course achievements were accepted as the gradings determined by the course or studio (project) instructions according to the evaluation criteria of the course.

In the study, in order to question the success relationship between the two courses, a sample group was randomly selected from the students who were enrolled in the undergraduate department of Istanbul Kültür University, Department of Interior Architecture and Environmental Design in 2021-2022-2023 and took the Basic Design course. On the determined sample, it was investigated whether there is a correlation (linear relationship between two or more variables) between the success of students who were successful in the Basic Design course and their success in the interior Design Studio course. Here, the hypothesis that those who are successful in the Basic Design course are also successful in the Design Studio courses constitutes the basic hypothesis of the research.

After determining the relationship between the success in the Basic Design course and the success in the Design Studio courses, a questionnaire study based on the opinions of the students about the Basic Design courses was included in the study. The questionnaire consists of closed-ended (three-point Likert scale) questions. Qualitative data will be obtained through this questionnaire conducted with a randomly selected sample group. What is meant here is to reveal whether the infrastructure acquired in the Basic Design course specified in the aim of the research has a positive impact on project courses in terms of student opinions. It is thought that the results of the survey will also reveal

students' expectations for the basic design course. For this reason, students who took the Basic Design course were asked questions about the relationship between the Basic Design courses and the Design Studio courses. In order to carry out the measurement, the students who received A, A-, B+ letter grades were accepted as "SUCCESSFUL", the students who received B, B-, C+, C grades were accepted as "MODERATELY SUCCESSFUL", and the students who received C-, D+, D, D-, F letter grades were accepted as "UNSUCCESSFUL". With this questionnaire study, data based on the comparison of the students who succeeded in both courses and those who failed were obtained. These data were processed graphically. The findings obtained from the students are considered to be important in the restructuring and development of the Basic Design course.

Since this study was conducted for the students enrolled in Istanbul Kültür University Interior Architecture and Environmental Design undergraduate department in 2021-2022-2023, the findings of the research are limited to the students of this school. When similar studies are conducted with students in different schools, different findings and opinions are likely to be revealed. In addition, considering that digital technologies constitute an important area in design education today, it is an undeniable reality that the Basic Design course needs to be reconsidered and reconstructed.

Keywords: Interior Architecture Education, Basic Design, Creativity

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LEVERAGING EMBODIED COGNITION IN INTERIOR ARCHITECTURE EDUCATION

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Extended Abstract

Architectural education aims to equip students with a complex set of skills, including spatial reasoning, creative problem-solving, and the ability to conceptualize abstract ideas. Central to this educational process are design studios, where students are expected to synthesize theoretical knowledge with practical skills, often through highly abstract exercises. In the first year of architectural education, the basic design studio serves as a foundational environment where students are introduced to the principles of design thinking. This early exposure often focuses on abstract representation, requiring students to engage with forms, volumes, textures, and spatial relationships in ways that differ greatly from their everyday experiences. However, the emphasis on abstract design methods at such an early stage presents a significant pedagogical challenge. Research indicates that first-year architecture students frequently struggle to comprehend the essence of the design process due to their inexperience with abstraction. For many, this initial abstraction-oriented approach can feel disconnected from their cognitive structures, which are more attuned to concrete experiences and direct interaction with materials. This cognitive dissonance can lead to frustration and inhibit the creative potential of students. In this context, a need arises to rethink how design education can be made more compatible with the cognitive abilities of students, especially at the introductory level.

Recent interdisciplinary research, particularly from cognitive science, offers valuable insights that can help address these challenges. Theories such as embodied cognition (Merleau-Ponty, 1962/2010; Lakoff & Johnson, 1999) suggest that cognition is not confined to the brain but is deeply interconnected with bodily experiences and interactions with the environment. This perspective implies that students may better grasp abstract concepts when they are allowed to physically engage with materials, rather than solely through intellectual exercises. Additionally, Kolb's experiential learning theory (1984) and Sweller's cognitive load theory (1988) support the idea that hands-on, material-based learning can reduce cognitive overload and help students gradually transition from concrete to abstract thinking. Integrating interdisciplinary studies, particularly findings from cognitive science and psychology, into architectural education not only aligns educational practices with students' cognitive structures but also enhances their creativity. This approach provides students with tools to better understand the core principles of the discipline, offering them pathways to engage with design processes in ways that are cognitively manageable. By engaging students in experiential learning that taps into both their physical and cognitive capacities, architectural education can become more accessible and effective.

Considering these insights, this study investigates how embodied cognition, and experiential learning can be integrated into the early stages of architectural education. It focuses specifically on first-year students in basic design studios, exploring how hands-on material exploration can help bridge the gap between concrete experiences and abstract design principles. The objective is to offer a pedagogical framework that reduces students' cognitive load and facilitates their integration into the design discipline, ultimately fostering both their creative development and their understanding of architectural fundamentals. This research aims to explore how embodied cognition principles can be applied in architectural education to better align with the cognitive and physical processes of students. Through a case study conducted at Istanbul Technical University (1990–2023), this paper examines how experiential, hands-on learning methods can help students develop spatial reasoning and abstraction skills. The study proposes a revised educational framework, informed by cognitive science, that encourages embodied learning and material engagement in design education.

Traditional architectural education tends to separate the intellectual process of design from the physical act of making. However, the embodied cognition theory suggests that learning is deeply connected to sensory and bodily engagement with the environment. Josef Albers' work at the Bauhaus and later at Black Mountain College and Yale University, where he encouraged students to explore materials such as paper, wire mesh, cardboard, and metal, offers historical precedent for this approach. Albers emphasized the value of tactile interaction with materials as a critical learning tool (Albers, 2013). His method allowed students to "see" both the static and dynamic qualities of materials through practice, aligning with embodied cognition principles (Albers, 1928). Furthermore, theories from cognitive science, such as Kolb's experiential learning theory (1984) and Sweller's cognitive load theory (1988), provide additional support for integrating concrete, experiential learning into design education. These theories suggest that students' cognitive capacities are enhanced when they physically engage with the learning material, as this reduces cognitive overload and supports abstract thinking.

This study is based on a mixed-method approach that combines both qualitative and quantitative analysis of first-year architecture students' experiences in a basic design studio at Istanbul Technical University. Students were tasked with creating three-dimensional compositions from two-dimensional materials as part of their introduction to architectural design. Their experiences were documented through surveys and observational studies, focusing on how physical interaction with materials influenced their ability to transition from concrete to abstract design processes (Gök, 2024).

Josef Albers' teaching methods provide a historical lens through which this study views the role of material exploration in education. Albers' workshops encouraged students to interact with materials like paper and metal to discover their hidden potentials and explore their structural capabilities. His approach resonates with the "designing by doing" framework applied in this study, where students are encouraged to engage with physical materials to deepen their understanding of abstract design concepts. However, the integration of embodied cognition into architectural education also has limitations. This study focuses specifically on first-year students in a basic design studio context. The findings may not fully translate to advanced architectural design courses, where abstraction plays a more dominant role. Additionally, the study primarily focuses on tactile and material-based learning, which may not encompass the full range of cognitive processes involved in architectural education. Despite these limitations, the study offers valuable insights for educators looking to enhance early-stage architectural education through experiential, embodied learning.

The findings from the case study indicate that students who engaged in hands-on material manipulation reported a clearer understanding of abstract design concepts. The practice of "designing by doing" allowed students to experience the physical properties of materials, which in turn helped them bridge the gap between concrete experiences and abstract representations. This aligns with Albers' pedagogical approach, where tactile exploration facilitated students' learning processes (Weber, 1988). Moreover, the emotional and cognitive engagement observed during the students' design process highlights the role of embodied cognition in guiding decision-making and problem-solving. As Damasio's somatic-marker hypothesis (1994; 1999) suggests, emotions triggered by physical interaction with materials play a crucial role in cognitive development, particularly in creative fields like architecture. Students who physically interacted with materials demonstrated a more intuitive grasp of spatial and structural concepts, which underpins the value of incorporating embodied learning into architectural education.

Incorporating embodied cognition into architectural education, particularly during the foundational stages, offers promising avenues for improving students' understanding of abstract concepts. The case study at Istanbul Technical University demonstrates that material-based, experiential learning can reduce students' cognitive load and enhance their transition into abstract design thinking. While this study focuses on early-stage design education, it underscores the potential of interdisciplinary approaches—especially those drawing on cognitive science—to reshape architectural pedagogy. The limitations of this study, including its focus on first-year students and tactile learning methods, suggest that further research is needed to explore how embodied cognition can be applied across different levels of architectural education. Nevertheless, the findings support the idea that aligning educational practices with students' cognitive and physical processes can create more effective and engaging

learning environments. Future studies should aim to refine these methods and assess their broader applicability in architectural education and beyond.

Keywords: Embodied Cognition, Architectural Education, Experiential Learning, Design Thinking

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ALTERNATIVE METHODS OF TEACHING INTERIOR ARCHITECTURE EDUCATIONAL TOOLS FOR SELF-EDUCATION

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Extended Abstract:

One of the fundamental aspects of education in interior architecture is preparing future designers to properly plan the functional layout of living spaces. The interconnection of all zones within an apartment and the placement of appropriately positioned furniture and equipment significantly impacts the comfort of the dwelling. This layout should logically align with the architectural framework of the entire building but, most importantly, should be tailored to the user's capabilities and limitations. Practical teaching experience has revealed difficulties stemming from an ingrained reverse pattern of action taken by students. The foundational knowledge in this field is based on appropriate standards, anthropometric atlases, and design guidelines from textbooks. Nowadays, the ability to design the smallest apartments—those that are financially accessible, economical to build, and efficient to maintain—has become a necessity. Deliberate action in this field presents a rewarding challenge, as the reward is a well-solved and efficient layout. This element of reward can be helpful in effective academic teaching, especially when there is limited time for direct knowledge transfer and a need to encourage self-education. In such cases, unconventional educational tools—a type of puzzle where the elements are combined according to specific rules—can be useful in introducing the concepts of functionality and ergonomics in a practical way.

For the past eight years, I have been developing a teaching method based on unconventional educational aids. The prototypes of the educational tools I create are based on theoretical knowledge used in teaching ergonomics, functional exploration by contemporary design theorists, and analyses of current solutions. Based on these studies, a tool in the form of a spatial puzzle has been developed, which can effectively aid in learning how to create correct functional layouts for apartments.

Each set consists of symbolically marked pieces of furniture, which earn positive points when properly accessible, and communication modules—communication paths that allow movement within a given zone, which should be used efficiently, as they carry negative points. Additionally, all zones in the apartment, such as the bedroom, kitchen, dining room, living area, bathroom, etc., must be connected by an additional communication path (main communication), which allows for comfortable movement within the interior and adds spaciousness where it is most needed. The better the use of floor space—optimal furniture arrangement, good connection of zones, and the addition of windows or balcony exits in the right place—the higher the score will be.

A well-constructed scoring system allows students to learn independently by searching for solutions and improving their scores. Additionally, a developed index—a number that is the quotient of points earned by the number of modules used—allows for comparing results obtained under different apartment parameters. The puzzle also allows for the optimal adjustment of the building's facade rhythm to the interior functionality. Window openings and large glazing can be placed in the best possible locations, adding exceptional qualities to well-arranged and comfortable interiors. The puzzle enables students to work independently.

Aim: The goal of the research was to determine the potential of supporting education through a didactic tool that:

- is visually appealing

- motivates action by providing a sense of satisfaction
- teaches design principles within the relevant design field
- allows for quick modifications and experimentation
- fosters the development of spatial thinking
- is relatively simple to produce, durable, and environmentally friendly

This goal was achieved by striving toward intermediate objectives, such as developing various versions of the tool for practical testing.

Over nine years, seven successive versions of the puzzle have been created. These included 2D versions in the form of cardboard elements to cut out, digitized versions as DWG files, and spatial versions in the form of wooden blocks to be assembled like puzzles. The spatial version allowed for assembling a residential interior model at a 1:20 scale.

Scope: The research focuses on the field of residential interior design, with particular emphasis on the smallest apartments. The tool is intended to support the learning of creating functional apartment layouts and properly integrating the interior with the facade and overall building layout.

Methodology: The adopted research path is classified as a constructive method. Its distinguishing feature is the recognition of a social need, which, along with a scientific foundation, serves as the motivation that drives the researcher to formulate a hypothesis. The hypothesis is then verified through experimentation and subjected to synthesis, which can enrich scientific knowledge in the given field. This method allows for the development of technical sciences, including architecture and interior design, and adapts them to the challenges of contemporary society.

The method of work on the puzzle involved creating various types of prototypes based on recognized theoretical knowledge in the field of functional interior design and ergonomics, as well as that derived from contemporary analyses and scientific sources. The next stage of the research involved multiple testing of prototypes with groups of students of various nationalities.

Results: The result was a precise didactic tool that can effectively support the teaching of interior architecture, as well as develop spatial imagination skills, which is of great importance for practicing designers in the digital age. Students and designers who used the puzzle changed their approach, shaping interiors in a more ergonomic way, making more efficient use of space, and arranging furniture in the various living zones. They also avoided errors resulting from a lack of sufficient space for movement within a given zone or from excessive, poorly utilized square footage.

Conclusions: The new didactic tool in its current form is worth promoting as an alternative to other exercises that introduce the concepts of interior ergonomics. The puzzle is not a tool for interior design but a tool for learning. It is based on symbols and simplifications. As a method, it should be connected to solid professional knowledge, yet it introduces good professional practices. It is especially helpful in managing space to optimally utilize the square footage of the smallest apartments.

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INTEGRATIVE TEACHING MODEL FOR INTERIOR ARCHITECTURE STUDENTS: FIRST YEAR SPATIAL REPRESENTATION COURSES

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Extended Abstract

Introduction: Architectural representation consists of various artifacts, such as sketches and models, that facilitate communication, organize thought, and stimulate creativity in the design process (Suárez, 2016), creating a feedback loop between internal and external representations that influences the overall design (Goldschmidt, 2004; Christenson, 2019). The advent of personal computers and CAD tools (especially AutoCAD) in the early 1980s shifted design representation from paper-based to digital methods, combining traditional practices with computational advantages (Carreiro and Pinto, 2013). While initial changes were minimal, the widespread adoption of CAD enhanced architectural design by enabling complex geometries and better presentations. However, the representation of building elements in CAD still largely reflected traditional techniques, facilitating communication among architects but posing challenges for those unfamiliar with established standards (Castelo-Branco et al., 2022). The drawing technique which involved a T-square and rulers etc. had been used for almost a century all around the world. We believe that this technique had a couple of issues: all the architectural drawings had to be done with a scale as a real building cannot fit on a paper; and it required consumption of time to have productions with a good line quality. Teaching methods for representation play a crucial role in education by preparing students for professional life and for the purpose of internalizing the concept of scale.

Aim: The objective of this project is to demonstrate how different representation techniques can be integrated into education to help students convert ideas from paper sketches and models into digital tools. It also aims to provide an example of an effective integrative teaching model where traditional or digital tools are expanded or dispersed for each given assignment depending on the necessities of the task. One way to formulate the study questions is to ask how this integrated approach benefits the students. Are the instructors using the new conventions in their lectures? Is there a different approach of delivering assignment briefs that would improve communication with students and help them comprehend the task? In this paper, an integrative teaching model is presented for representations courses including technical hand drawing, model making, sketching, digital modelling, digital drawing and digital rendering for specific to an interior architecture curriculum.

Scope: Emphasizing the importance of structuring course content in alignment with interior architecture accreditation standards and integrating diverse techniques within teaching models (Gurel and Potthoff, 2006; Cordan et al., 2014; Kaptan, 2016), this research focuses on a two-semester freshman interior architecture drawing course, titled "Spatial Representations I" and "Spatial Representations II." In these courses, the use of integrative teaching tools is introduced, and student submissions are enhanced.

As the course complements the Basic Design course during the fall and spring semesters, they are designed to introduce students to essential techniques and tools for representing forms, geometries and subsequently interior spatial designs. These follow-up courses aim to blend theoretical knowledge with practical applications, emphasizing technical drawing, free-hand drawing, spatial analysis, model making and digital tools for design visualization. Here it is crucial to state that visual communication abilities are vital for effectively portraying and sharing interior spatial schemes using diverse

representation methods. This incorporates orthographic projections, freehand drawings (sketches), physical models, 3D computer (digital) models, and digital renderings, all of which are indispensable and blended for interior architecture education. Throughout the course, students learn to create detailed interior architecture drawings, adhering to industry conventions and standards.

Methodology: The research advances the detailed analysis of the course structure as it diversifies the course and makes separate evaluations in three parts; theory, practice and critique sessions. The contribution of the integrated teaching model will be evaluated through these sessions and some examples belong to the previous years' assignment briefs, graded student submissions, given lecture notes and presentations will be taken into consideration.

In detail, the course is implied in these three different sessions each week. Students engage in the first “lecture presentations” to assess theoretical knowledge and background information, in following they start to work on the given task in “practice sessions” (these tasks may include and vary in free-hand drawing, computer-aided technical drawing, technical hand drawing or model making) and then in lecturers individually give and show the crucial common mistakes in given submission and go over it individually with each student in “critique sessions”.

The theoretical components focus on understanding the principles of interior architecture, including design elements, terminology, and critical analysis. Students are also introduced to digital tools such as AutoCAD, SketchUp, Photoshop and InDesign, which are essential for generating precise and scalable representations of architectural spaces.

After this theory part, the practice session involves hands-on exercises, where students apply the knowledge gained in lectures to produce their own technical drawings/modeling.

Students are also expected to complete several major assignments throughout the course, including:

1. Autodesk AutoCAD Exercises (conducted by Spatial Representations I, in fall semester): As a professional tool, AutoCAD is essential to students' development of technical drawing abilities. In order to create precise representations of complex shapes and geometries, exercises emphasize learning the software's precision tools, drafting capabilities, and user interface.

2. Technical Drawings (conducted by Spatial Representations I-II, in both semesters): Interior space representations in two and three dimensions are among them. Producing orthographic projections (plans, elevations, and sections), axonometric drawings, and perspective drawings—often at a scale of 1/50 or 1/20—is a requirement for students.

3. Model Making (conducted by Spatial Representations I-II, in both semesters): In order to give students, the opportunity to investigate the tactile and material aspects of design, physical models are also a vital component of the course. In the first term, these models are made of Styrofoam, and later, in the second term, by utilizing laser-cutting processes, they are transformed into more detailed versions that assist students in turning their digital designs into real, physical objects.

4. 3D Modeling (conducted by Spatial Representations II, in spring semester): At the start of the second semester, students are introduced to digitally produced 3D modeling techniques in addition to 2D technical drawings. They learn how to build digital models that offer a more thorough grasp of spatial volumes and relationships using programs like SketchUp, etc.

5. Adobe Photoshop and InDesign Integration (conducted by Spatial Representations II, in spring semester): Students learn how to render and visualize their designs in Adobe Photoshop as a means of improving their presentation skills. This tool is very helpful for improving and enhancing 2D and 3D drawings with colors and textures to make them more visually appealing. InDesign software is used for portfolio design that shows whole semester's works.

After practice session ends, critique session starts, in which instructors and fellow students offer feedback on each student's work, marking the conclusion of each course. A vital component of the learning process, critique sessions assist students in refining their comprehension of spatial relationships and enhancing the quality of their representations

Conclusions: Students' capacity to effectively describe and convey spatial designs is greatly influenced by Spatial Representations I-II. The research upon this implied integrated teaching model shows that, with the aid of digital tools, practical skills, and theoretical knowledge, students can gain a thorough better understanding of spatial representation strategies, and it contributes to the literature by introducing a new holistic approach for interior architecture drawing courses. It is seen that by the end of the semester, students will have gained the ability to create drawings and models of

outstanding quality, setting them up for further studies in interior architecture and environmental design. Students may even participate actively in the lecture presentation and contribute to the theoretical session by responding to the instructors' pop-up drawing questions with their own drawings when instructors utilize interactive digital tools like idraw or Whiteboard. Though there is no substantial invention in delivering method of the assignment briefs and conveying the individual critiques which actually have a significant effect in from each other's experiences and creates a collaborative learning atmosphere.

Keywords: integrative teaching model, spatial representation methods, interior architecture education

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A DIGITAL INTERFACE PROPOSAL FOR BLACK SQUARE PROBLEM IN BASIC DESIGN EDUCATION

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Extended Abstract

Introduction: Technological advancements have been catalysts for profound changes in fundamental fields like education (Laurillard, 2013; Tomasello, 2010). According to Oxman (2006), a common goal in leading design methodology research is to make design processes, knowledge, nature, and cognitive frameworks more defined. The incorporation of digital tools and interfaces is in accordance with these theoretical frameworks (Oxman, 2006) and has been consistently included into instructional methodologies (Han et al., 2021; Wania et al., 2006). The objective of this project is to investigate the flexibility of the Black Square approach, carried out using a digital interface, in various learning settings, including those required by the pandemic, distant learning, and online education. The focus is on how this practice highlights the differences in application, learning, and processes between traditional and digital environments for design students, particularly in the context of basic design education where evolving technologies inevitably impact pedagogical approaches (Schön, 2017). Recently, the frequent use of digital tools and interfaces, especially in design-based education, has directly affected design educators (Borowski et al., 2020; Klokmoose et al., 2015). Educators have begun to consider how to transfer the theoretical framework of hands-on education into a digital working environment (Gibbs, 1988; Laurillard, 2013). In parallel, there has been a growing need to explore digital methods by which students can continue their design education (Baykal et al., 2021). A review of the literature reveals gaps in implementing basic design education in a digital format within the context of active learning (Lasen et al., 2018). Hence, it is imperative to provide digital solutions that efficiently incorporate fundamental design instruction into actively engaged learning settings.

Aim: The objective of this project is to develop an interface that allows first-year design students to engage in fundamental design education using advanced digital teaching approaches in the context of remote or home learning. The interface will most specifically target composition in basic design education, utilizing the Black Square Problem. It is not expected that this interface will fully replace hands-on basic design composition but rather enhance its capabilities. The interface is primarily designed to assist beginner students in comprehending and implementing fundamental design principles and perceptual ideation. Through the facilitation of understanding abstract design concepts and the implementation of concrete analysis, the precision of the evaluations will be assessed with the aid of professionals.

Scope: The digital interface discussed in this study is intended for use in the basic design course within the curriculum of undergraduate design-based programs, including interior architecture education. The developed approach aims to integrate into basic design education by combining it with parametric design principles. In the digital interface, students are given the ability to manipulate the parameters of a given geometric form in real time, allowing them to observe the resulting changes instantaneously. This helps students perceive the relational network between geometries more quickly and effectively. Thus, the goal is to strengthen the connections students establish between cause and effect through the movements they make in the composition.

Limitations: The software in this study is designed to operate exclusively on a single operating system. To use the interface, a screen and keyboard are required; it does not have touch interaction

capabilities. In terms of accessibility, it does not accommodate all user profiles (e.g., visually impaired individuals).

Methodology: A programming tool specifically designed for producing interactive visuals was used to build a digital interface designed to enhance learning in interior architecture. The original version of the software was created with the guidance of Sema Alaçam from Istanbul Technical University, whose valuable perspectives greatly enhanced this research. The primary goal was to develop a technology that allows students to actively change geometric objects in real time, therefore enhancing their comprehension of fundamental design concepts through direct engagement. Initially, the procedure commenced with the creation of a template for a basic geometric figure, namely a square, which functions as a fundamental component. Upon program startup, the screen displays several shapes, positioned randomly throughout the workspace. Each shape has modifiable characteristics such as dimensions, location, rotation, and chromatic qualities such as hue and brightness. The initial randomization of these features is intended to stimulate students' interaction with the forms and enable them to customize their ideas. Students have the ability to choose any shape displayed on the screen in order to alter its characteristics, therefore providing practical hands-on experience with the relationships and impacts of many design components. Individuals have a freedom to incorporate novel forms or eliminate pre existing ones, therefore allowing them complete authority over their artistic creation. To improve precision in manipulation, keyboard controls were implemented instead of mouse controls, as mouse controls were found to be less precise. An on-screen guide assists students in understanding the keyboard functions; this guide can be hidden to keep the workspace uncluttered when needed.

Findings: As students interacted with the interface, the program gathered data on their activities, including modifications made and the visual organization of shapes. This data underwent processing and was then shown using graphs and charts, therefore offering valuable insights into their design methodologies. The visual representations facilitated the evaluation of students' comprehension and implementation of design principles. Instructors used this information to offer targeted feedback, while students reflected on their work in relation to basic design theories. The results suggest that the interface successfully improves students' understanding of design principles by enabling interactive learning and analytical assessment tasks. Experts and course instructors noted enhancements in students' capacity to comprehend the interactive relationships among geometric shapes and to construct deeper correlations between cause and effect in their compositions.

Conclusion and recommendations: This study aimed to provide a digital interface that would enrich fundamental design education by applying the Black Square approach. Through its capability to manipulate design parameters in real-time, the interface facilitates students' comprehension of sophisticated design concepts within a digital environment. Despite the presence of constraints such as operating system limitations and accessibility issues, the software this study provides marks a notable advancement in the integration of new technologies into design education. Continuous evaluations seek to improve the interface, ensuring an effective assist to students and educators in the rapidly evolving domain of digital learning.

Keywords: Basic Design, Design Education, Parametric Design, User Interface, User Experience, Data Visualization, Interactive Computing, Human-Computer Interaction, Interactive Learning, Digital Learning

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THE EFFECT OF ARTIFICIAL INTELLIGENCE ON INTERIOR ARCHITECTURE DESIGN STUDIO

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Extended Abstract

Interior architecture education in Türkiye began in 1925 at the Sanayi-i Nefise Mekteb-i Ali. However, it was in the '70s that the country started training interior architecture professionals (Kaptan, 1998). Two distinct "ecole" of interior architecture education can be identified in Turkey. One focuses primarily on "decoration", while the other integrates interior architecture with architecture, industrial product design, and landscape design (Çetin, 2021). As technological advancements in Türkiye and worldwide progressed, the interior architecture curriculum also evolved. In the '80s, the improvement of computer and information technologies led to incorporating computer-aided design (CAD) courses into interior architecture education. In recent years, using artificial intelligence (AI)--supported applications has become more widespread, prompting the inclusion of AI-based design studio courses in the curriculum. It is now the responsibility of educators to ensure that students stay aligned with the evolving technological advancements in design.

Design studios in interior architecture education are a comprehensive process of several stages, with each stage playing a crucial role in achieving the final design. Starting correctly in the first stage is essential for progressing toward the desired outcome. The initial step involves creating a concept for the design and studying sample projects. Commonly, students rely on visual data from search engines like Pinterest, Google, and Bing at this stage, often resulting in designs that are based on similar or even identical concept images. However, the development of artificial intelligence applications can significantly assist students in this process. With AI tools, students can generate unique and original concept images for their projects.

Eams, industrial product designer who contributed significantly to modern architecture and furniture design, stated that architecture and design increasingly rely on new technological tools. He also emphasized that architects will succeed if they prepare for these technological advancements (Eams, 1954). Therefore, it is the responsibility of architects and interior architects to stay updated on technological developments and incorporate them into their designs. As instructors, we must help students adapt to these technological changes in the studio. This study aims to encourage students to explore and utilize current technological advancements. Another goal is to assess the impact of artificial intelligence applications on the design processes and outcomes in interior architecture education.

It is seen in the literature that studies on the relationship between artificial intelligence and architectural design have been realized in two main areas. In the first method, smart building recommendations are made by integrating artificial intelligence into the building usage stages, aiming to increase user comfort. The other usage area of artificial intelligence helps to produce alternative designs by analyzing data during the design process. When the studies on artificial intelligence and smart building were examined, it was seen that studies on artificial intelligence and smart building were conducted in areas such as analysis of artificial intelligence and architecture concepts (Atasoy, 2008) (Kömürçüoğlu, 2002); smart housing design (Tomaş, 2019), (Uzunali, 2003) (Yalkı, 2001); evaluation of artificial intelligence and smart building concepts (Üstün, 2020). The studies in which the data obtained from artificial intelligence are used in building design are; site plan generation with the help of artificial intelligence (Baydoğan, 2013), (Kayış, 2019), the role of artificial intelligence on architectural design (Uzun, 2020), (Barın Ekin, 2024) (Çerçi, 2022) (Sanalan, 2022) (Akçan, 2022). However, it has been determined that there are very few studies on the relationship between interior architecture education and artificial intelligence; in the survey conducted by Bayrak (2022) on the evaluation of the interaction of artificial intelligence and space design in current design education, it

was determined that students looked positively on the studies conducted with artificial intelligence. When the literature is examined, it is seen that studies on the relationship between students' design stages and artificial intelligence in interior architecture studio studies integrated with artificial intelligence are missing.

This study examined the integration of artificial intelligence into the Interior Architecture Project I studio, conducted during the Spring semester of 2023-24 with second-year students from the Department of Interior Architecture at Istanbul Sabahattin Zaim University. The study assessed the impact of artificial intelligence on the interior architecture design process by comparing the AI-generated visuals created by ten students at the beginning of the semester with the 3D visuals of the spaces they designed by the end of the semester.

In the Interior Architecture Project I studio, students worked on adaptive-reuse the historical Küçükçekmece Kibritthane building, with a focus on converting its 800-850 m² area into a restaurant. Initially, students conducted structural and environmental analyses of the building. Based on their findings, each student developed a design concept and created visuals using artificial intelligence, incorporating prompt that reflected their concept. They also made a storyboard to describe the restaurant's functional layout, with design elements subtly integrated into the background. Using the AI-generated visuals as a starting point, students progressed through the design process, periodically referencing the AI-generated images. By the end of the semester, students had completed their floor plans, sections, and elevations and were asked to visualize their designs using 3D drawing programs.

This study uses basic design principles and elements to analyze the 3D visuals of the student-designed project and the visuals generated by artificial intelligence at the beginning of the semester. Various researchers have different ideas about basic design principles and elements (Ching, 2007; Güngör, 2005; Aydınli, 1992; Aydınli, 1993). In this study, a common denominator was tried to be found when evaluating student projects. The concepts of form, material, color, and space were selected from the basic design elements and principles (e.g. rhythm, ratio-proportion, light/shadow, movement, appropriateness, contrast, balance, unity, form, texture (material), color, space) to measure the similarity of student projects (Figure 1).

When the similarity between two images is calculated, each image is treated as a matrix and divided into pixels. The difference between the images is determined by collecting the different pixels and calculating their proportion to the total number of pixels. Regarding similarity, the artificial intelligence-generated and 3D-rendered visuals showed a 69% match in the form category, 80% in material use, and 75.5% in color. The overall atmosphere of the space had a 75% similarity. After analyzing all categories, the total similarity rate for the ten projects was determined to be 74.9%, considering form, material, color, and space factors.

| Project number | Form | Material | Color | Space | Total Similarity Rate |
|----------------|------|----------|-------|-------|-----------------------|
| 01 | %90 | %65 | %45 | %65 | %66,25 |
| 02 | %60 | %55 | %65 | %70 | %62,5 |
| 03 | %40 | %85 | %90 | %70 | %71,25 |
| 04 | %70 | %95 | %90 | %85 | %85 |
| 05 | %90 | %92 | %95 | %95 | %93 |
| 06 | %95 | %90 | %90 | %90 | %91,25 |
| 07 | %65 | %85 | %70 | %70 | %72,5 |
| 08 | %60 | %80 | %60 | %60 | %65 |
| 09 | %60 | %85 | %90 | %85 | %80 |
| 10 | %60 | %70 | %60 | %60 | %62,5 |
| Total Average | %69 | %80,2 | %75,5 | %75 | %74,9 |

Figure 1. Artificial intelligence and 3d visual similarity table

The results show that the design visuals generated with artificial intelligence contributed 74.9% to the student's design process. Using AI-generated images based on specific keywords, rather than general or similar designs found online, helps students create unique work. Increasing the integration of artificial intelligence applications in interior architecture project workshops will benefit students by

fostering originality. This approach will also allow interior architecture education to keep pace with current technological developments while ensuring students use artificial intelligence in a controlled manner.

Keywords: Artificial Intelligence, Interior architecture studio, AI Design, Digital Design Tools

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INTEGRATING VR/AR/MR TECHNOLOGY-BASED EDUCATION INTO TRADITIONAL BUILDING CONSTRUCTION AND MATERIAL COURSE IN INTERIOR ARCHITECTURE UNDERGRADUATE PROGRAM

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Extended Abstract

The innovations brought by the transformative effect of computer technologies have grown exponentially in recent years, with interactive digital experiences at the forefront. The advanced computer technologies in digital expertise have been responded to with virtual reality applications for communication and education (Maghool et al., 2018; Rickel, 2001; Bashabsheh et al., 2019). In the axis of these applications, the discipline of architecture also observes the potential effects of advancing technologies in front of its traditional education between theory and construction practices. Bridging the gap between architectural representations and reality has a profound and beneficial impact on students' understanding. Augmented reality technologies enable users to experience visual and spatial prototyping and integration into the physical environment. Traditional architectural education often struggles to establish the relationships between place, form, space, and ratio-proportion and to grasp new construction technologies (Güray & Kismet, 2021). Undoubtedly, the knowledge of building systems, technology, and materials, which covers a significant part of architectural education, is critically essential for students in terms of construction site application practice/competence. It is crucial to gain prediction and problem-solving competence in the pre-construction site experience, which has dynamic functioning and problems that can arise at any time (An et al., 2023). However, due to the occupational safety measures at the construction site, the limited number of students participating in the construction site prevents them from learning the productions made in the field. The lack of compatibility of the construction site program with the course curriculum, material cost, time, etc., and obstacles reduce the possibility of experiencing theoretical knowledge and transforming it into practice (Lucas, 2018; Pedro et al., 2015). At this point, augmented reality technologies provide a realistic environment for visualising and spatially experiencing complex spatial relationships (Kljun et al., 2020). Simulations created with Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) technologies bring a visionary effect to architectural education by including multiple perceptions and bodily movements in the process (Al-Ansi et al., 2023; URL1 Gattupalli, 2024).

One of the specific challenges interior architecture students face is the transfer of theoretical knowledge to practice (Banerjee et al., 1996; Nabih, 2010). At this point, interactive virtual reality applications facilitate the process of transferring the perceived theoretical knowledge into practice and continuously keeping it in mind with training scenes that simulate the feeling of being on the construction site (An et al., 2023; Sampaio et al., 2010; Delgado et al., 2020). Students who can develop their technical skills in a virtual environment where realistic building systems and material applications are simulated also gain communication, cooperation, interdisciplinary studies, process, design, and project management skills. However, structuring the traditional building construction and materials course curriculum with the proposed curriculum, which includes interactive virtual reality technologies, raises essential questions about which teaching methodologies will be used. For example, in the traditional curriculum, how and with which methodology a new concept will be introduced to students is pre-programmed. It also requires measuring the interactive learning process of students facing the whole education program in virtual reality/simulation. Discussing the flexible learning theory through system flexibility is also essential in this process. This discussion requires the inclusion of components such as how students will confront augmented reality (AR/VR/MR), what kind

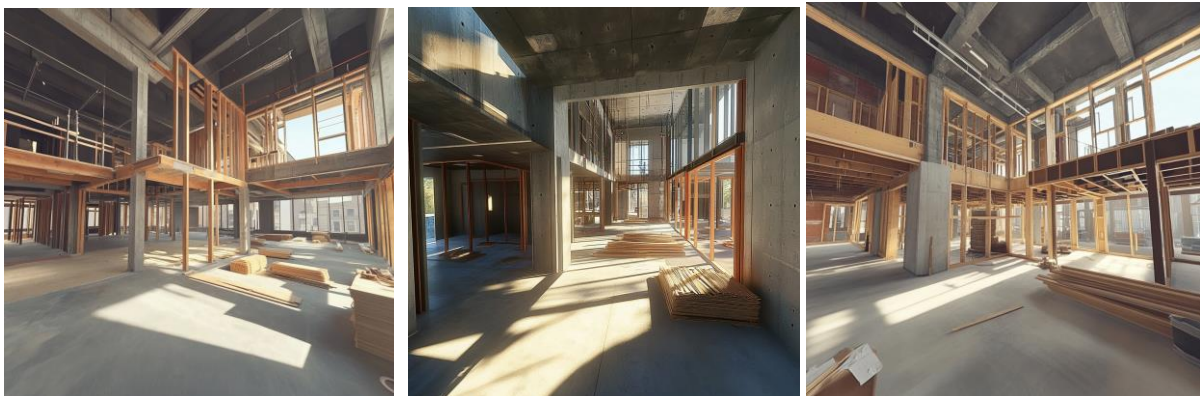
of learning materials they will use when they decide to learn and/or experience, and the system with student evaluation criteria (Maghool et al., 2018). The physical environment required for the building construction and material course program, which encourages flexible and problem-based learning with AR/VR/MR¹ technologies, differs from the educational space and usage of the traditional curriculum (Fig 1, 2). At the same time, the computer program to be implemented with virtual reality technologies needs an easy-to-understand interface, competent instructors, technological infrastructure, etc. (Fig 3, 4).



Fig. 1 Traditional Building Training Studio. Images were created by the first Author using Artificial Intelligence.



Fig. 2 VR/AR/MR Technologies Focused Education Studio. Images were created by the first Author using Artificial Intelligence.



¹ **Augmented Reality (AR):** an enhanced image or environment as viewed on a screen or other display, produced by overlaying computer-generated images, sounds, or other data on a real-world environment (www.dictionary.com).

Virtual Reality (VR): a realistic and immersive computer simulation of a three-dimensional environment, created using interactive software and hardware and experienced or controlled by movement of the body (www.dictionary.com).

Mixed Reality (MR): a blend of the real-world environment and computer-generated content viewed on a screen or other display, in which the virtual content and the physical environment coexist and react to each other in real time (www.dictionary.com).

Fig. 3 View from the Viewfinder of VR/AR/MR Building Systems and Technologies Training Programme. Images were created by the first Author using Artificial Intelligence.



Fig. 4 VR/AR/MR Technologies Focused Training Studio. Images were created by the first Author using Artificial Intelligence.

This study aims to integrate and configure the traditional curriculum of the 3rd semester “Building Construction and Material I” course of İstanbul Kültür University Department of Interior Architecture and Environmental Design with virtual reality (AR/VR/MR) technologies. The measurement of the proposed curriculum, which will be created with the purpose according to the learning and evaluation components, has been determined as a specific aim to be provided with the 4th semester “Building Construction and Material II” course. In the study, the qualitative exploratory case study research method was used to integrate the traditional curriculum of department of Interior Architecture and Environmental Design into the curriculum using virtual (AR/VR/MR) technologies. The method, which is considered as the preliminary study, creates a general framework for program development and subsequent implementation phases (Bal, 2021: 371; Barlett & Vavrus, 2021). The research question was determined regarding what kind of education curriculum will emerge by integrating virtual reality (AR/VR/MR) technologies with traditional I.K.U. Interior Architecture Building Construction and Materials I curriculum. The searches conducted in internet databases such as Google Scholar and Taylor and Francis indicate a lack of studies focusing on AR/VR/MR technologies within the building construction and material course curriculums offered by interior architecture departments at universities. This gap in research highlights an important area that has yet to be explored in academic literature. Extensive studies are actively being conducted in the architecture and civil engineering faculties at some institutions like Northwestern University in their master’s program and Seminole State University in their undergraduate programs (Northwestern University Curriculum, Seminole State University Curriculum). This research successfully supports the integration of (AR), (VR), and (MR) technologies into the traditional "Building Construction and Materials I" curriculum for interior architecture. This progressive approach will significantly enhance the educational experience and thoroughly prepare students for the dynamic demands of the industry.

It is aimed to transform the curriculum of the BC&M I course in the IKU Department of Interior Architecture into an innovative teaching system of multiple learning experiences, with the collaborative inclusion of VR-AR-MR virtual reality technology. This transformation will make students more aware of structural systems and materials, enhancing their understanding and application in interior design. At the same time, the education program, which encourages problem-based learning, is designed to provide students with practical skills. These include relationship management, communication, coordination, design management, time management, interdisciplinary work, and experiential learning practice. These skills are not just theoretical knowledge but tools that students can immediately apply in their professional lives. This new proposed curriculum is planned to be proven by making virtual reality-oriented changes in the content of the BC&M II course in the fourth semester. The project will be given in the fourth semester, and students will be asked to use this system with the knowledge they have learned in the BC&M I course. The results will be evaluated at the end of this semester.

However, the difficulties in translating all plan and architectural information into computer language, content, interface design, coding and programming are foreseen as difficulties to be experienced in integrating into the traditional education curriculum. On the other hand, the need to

prepare the physical environment of the training studios with the infrastructure to serve the technology-oriented learning program is an important issue to consider, along with the cost.

Keywords: Building Construction, VR (Virtual Reality), AR (Augmented Reality), MR (Mixed Reality), Interior Design Education

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COMPARATIVE EVALUATION OF AN OFFICE SPACE DESIGNED THROUGH ARTIFICIAL INTELLIGENCE SUPPORTED TOOLS

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Extended Abstract

The concept of Artificial Intelligence, used with the purpose of developing systems endowed with intellectual processes unique to humans such as reasoning, discovery of meaning, generalization, or learning from past experiences can be defined as the ability of a computer or a computer-controlled robot to perform tasks typically associated with intelligent beings.

In recent years, the rapid changes and developments in the field of artificial intelligence have shown that numerous programs in the design domain have been introduced as final products for users and have seen a significant increase in usage. In their study, Sreenivasan and Suresh note that the combination of design and Artificial Intelligence holds great potential for generating creative solutions. However, they emphasize that this integration must be carefully managed within the framework of ethical guidelines. They conclude that incorporating Artificial Intelligence into the design process can lead to more efficient, user-centered, and innovative solutions (Sreenivasan, Suresh, 2024).

In their study, Sreenivasan and Suresh highlight that the combination of design and Artificial Intelligence holds great potential for generating creative solutions. However, they stress that this integration must be carefully managed within the framework of ethical guidelines. They conclude that incorporating Artificial Intelligence into the design process can lead to more efficient, user-centered, and innovative solutions (Sreenivasan, Suresh, 2024).

In this study, the use of AI-supported tools in the field of design is examined through a comparative analysis based on an office layout. The objective is to evaluate the design alternatives for an office space created using Chatbot AI software and AI-supported design software (OpenAI, RoomSketcher, Planner5D, Space Designer 3D, HomeStyler, and Craiyon). In this way, the differences in performance between Chatbot and AI-supported design software will be discussed based on the interior design outcomes.

An office space measuring 520 cm x 340 cm with a height of 235 cm at Istanbul Kültür University has been defined as the workspace for the study. The specifications of this space were input into each software, and the resulting designs were compared.

In the study, Chatbot AI software and AI-supported design software (OpenAI, RoomSketcher, Planner5D, Space Designer 3D, HomeStyler, and Craiyon) are used to compare design alternatives for an office space. It is noted that accessing the full functionality of AI software usually requires a paid subscription, and these tools often do not show sensitivity to certain architectural details (such as doors and windows). Moreover, an important limitation of AI systems is their inability to fully respond to complex and creative design demands.

In the study, different AI-supported software was used to design an office, and a comparative analysis was conducted based on the results. The performance of each software was evaluated according to key criteria such as functionality, aesthetics, and user experience.

AI-supported design tools offer significant advantages, particularly in terms of speed and accessibility, but they have shown some shortcomings when compared to human designers' detailed evaluations. For example, OpenAI Chatbot's design proposals overlooked key architectural details like doors and windows, limiting the functionality of the designs. On the other hand, tools like RoomSketcher and Space Designer 3D provided more detailed and functional solutions, but the requirement for paid subscriptions for some basic features limited their accessibility.

The study concluded that while AI-supported tools enhance speed and efficiency in design processes, they still require substantial human intervention in creative tasks. These tools, particularly in projects that demand aesthetic and functional intricacies, have not yet fully replaced human creativity. The findings suggest that, in the future, collaboration between AI and human designers may lead to more innovative and efficient results.

Additionally, as seen in this study, AI-supported design tools do not always deliver the expected level of functionality and accuracy. Chatbot-based software like OpenAI and Craiyon, while providing general suggestions, showed limitations when responding to more complex and detailed design needs. Their inability to consider critical architectural details, such as doors and windows, significantly reduced the design's functionality. Furthermore, they showed deficiencies in adapting to user changes and reorganizing the design accordingly.

The findings of the study highlight that while AI excels in speed and efficiency, human intervention in creative processes remains indispensable. AI can save time, especially in routine and technical tasks, but in areas that demand creativity and aesthetic sensitivity, the human factor is still crucial. Design processes require not only functional solutions but also the integration of aesthetic, cultural, and psychological elements. In this regard, AI-supported tools are not yet capable of fully competing with human creativity.

The development of AI-supported design tools presents significant opportunities in the fields of architecture and interior design. However, to provide more functional and creative solutions, these tools require various improvements. Specifically, systems need to be more responsive to user inputs, with increased attention to structural elements and details such as doors, windows, and lighting. Additionally, these tools should offer alternatives that effectively guide users through the design process. Additionally, the ethical aspects of AI should not be overlooked. AI should be utilized solely as a tool in creative processes, rather than taking over the designer's ability to direct and guide creative thinking. It is essential that AI supports, rather than replaces, the designer's role in the creative process.

In conclusion, this study has demonstrated that AI-supported design software is not yet capable of replacing human designers but can play an important supportive role by accelerating design processes. Rather than replacing human creativity, using AI as a design tool will enable more innovative and efficient design processes, serving as a valuable aid rather than a substitute for human designers.

Keywords: Office, Chatbot, AI tools, AI Design, Artificial intelligence

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RE-READING SPATIAL DESIGN IN PUBLIC SPACE WITH MAPPING METHODS

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Extended Abstract

As the scale and representation of architectural designs have expanded, the necessity of new approaches and methods in evaluating space and user activity has created a recent area of debate. The possibilities offered by modern cartography today extend beyond the pragmatic mission of transferring spatial information onto a two-dimensional plane and instead seek to answer how individuals or groups interact with and use space. Offering the capability to systematically collect extensive data ranging from individuals to sensors in public spaces, maps, and mapping methodologies are guiding new interdisciplinary research and projects. Moreover, even in a deformed area, mapping led to discovering new potentials by reconstructing the area, each time with current and varied results (Corner, 1999). Disciplines such as social sciences, architecture, urban design, and humanities have utilized mapping methodology (Space Syntax, Behaviour Mapping, Cognitive Mapping, Sensory Mapping, Experiential Mapping, etc.) and map representation tools (LIDAR, Photogrammetry, Affective Mapping, GIS, etc.) for new ideologies.

With the inclusion of technology and computer-aided generative strategies in the architectural design process, the idea of developing unique mapping methods in space organization and experience has emerged. One of these technologically based strategies is the Space Syntax method developed by B. Hillier and his colleagues, which consists of toolkits supported by theory. This method aims to describe the space configurationally in a quantitative and graphical language and to analyse all spatial complexes within the building at the level of this configuration (Major, Penn, & Hillier, 1997). Some of the significant methods in terms of map production are “LIDAR” (Light Detection and Ranging) and “Photogrammetry” systems. LIDAR is a remote sensing technology that measures the light reflected from the target to the receiver by sending laser light to a target. With the addition of GPS receiver and IMU (Inertial Measurement Unit) technologies to this measurement system in the 1980s, the scientific use of LIDAR has also developed (Mehendale & Neoge, 2020). An alternative method used in architectural documentation is photogrammetry, a measurement technique that models a three-dimensional space using two-dimensional images (Egels & Kasser, 2002).

A comprehensive understanding of spatial experience requires more than a purely technology-based perspective. In traditional cultures, architecture is seen as guiding and shaping space through the instinctive movements of the human body (Pallasmaa, 2005). With the development of communication societies, there has been an increasing shift towards a human-centered approach, also known as “behavioural geography”. Studies on the behavioural geography approach argue that space is not absolute, based on how individuals perceive it. This approach examines how people perceive their environment and how this perception influences their behaviour (Bergman, 1995). Since the second half of the 20th century, various branches of psychology have contributed to developing methods in the study of behavioural geography. One of these methods is behavioural mapping, which emerged from the collective contributions of William Ittelson, Leanne Rivlin, and Harold Proshansky in environmental psychology. This method aims to reveal the relationship between individual behaviour and the place where the behaviour happens (Ittelson et al., 1970). Cognitive mapping, which has a similar approach to behavioural mapping, was first introduced in psychology by Edward Tolman (1948). This mapping method has become more widespread with Kevin Lynch's book on urban design titled 'The Image of the City'. In forming a city image, Lynch based his approach on five types of landmarks that reflect perceptual ways of experiencing urban space. These include paths, edges,

districts, nodes, and landmarks (Lynch, 1960). In this context, he contributed to the visualization of cognitive maps and the establishment of a universal language for them.

This study focuses on revealing the definition, function and role of theoretical and technology-based mapping methodologies that have come to the fore in the literature of architecture, interior architecture and urban planning and can be used to improve the experience in a public space. It will be possible to evaluate the experience of space with preliminary findings as a result of the use of these mapping methods by all professional groups working on architectural design studios, application areas, spatial organization and layout. With the use of the methodologies mentioned in the research, it is thought that the improving of information among those working in interior design and application projects can direct alternative space and furniture layout processes in terms of time and cost. Accordingly, the main research question is: How can mapping methodologies support the spatial experience as a method beyond being a representation tool in developing the practices of professional groups in the fields of architecture and design disciplines working together in the interior space?

The starting point of the research is the lack of a guide in the literature on the use of mapping methodologies in the development of spatial organization and layout. The general methodologies about “spatial experience and mapping methods” in the disciplines of architecture, interior architecture and urban planning will be defined and their scopes will be compared with each other. After the data to be obtained as a result of scanning and evaluating the relevant sources in the literature, the relations between the discipline of interior architecture and mapping methods and their contribution to the experience of space as a method will be examined. For this purpose, it is planned to utilize the case study method, one of the qualitative research methods, in the study. As a research design, it is aimed to achieve a comprehensive and comparative solution with the “embedded multiple-case design” model.

The aim of this study is to help solve the problems of interior spatial organization and possible layout problems with human-centered, technology or software-based mapping methods by presenting research that includes the interpretation of mapping methodologies applicable in public space and discussion of the results. Accordingly, with the space syntax method, the design quality of buildings can be understood and the question of how visitors use the building can be answered. Cognitive and experiential mapping methods will be able to develop holistic strategies through the collective representation of spatial experience. As a result, this research demonstrates the link between the organization of space and user satisfaction. The research shows that the user satisfaction can be improved with these methods through case studies in the literature. In addition, this study, as a general guide about the related methodologies, reveals that mapping can be used as a ‘supportive method by establishing design and collaboration’ in future public space design and implementation processes to related design studios, offices, projects, and all joint professional groups working at the intersection of architecture and interior design.

Keywords: Interior Architecture, Spatial Design, Mapping Methods, Spatial Organization, Space Syntax.

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CREATIVE SPACES, CREATIVE MINDS: AN ALTERNATIVE PERSPECTIVE ON INTERIOR ARCHITECTURE EDUCATION THROUGH ANALYZING CHILDREN'S SPATIAL BEHAVIOR

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Extended Abstract

As the interior architecture discipline expands, it can no longer claim to provide universal solutions for every user group. Similarly, interior architecture education is revealing its limitations and exclusions in terms of being contemporary, adaptable, and original. To address these limitations, this study aims to develop an alternative approach to interior architecture education, one based on experimentation that question itself and push its own boundaries while *learning from space* its users engage with. The proposed *learning from space* approach offers the opportunity to challenge the very production of interior architecture by observing the behavior of a marginal group of users, namely children, and exploring their creative behavior in it. Children's spatial behavior offer an unfiltered, dynamic, and a creative perspective on space, positioning them as ideal subjects for testing new pedagogical approaches that emphasize spatial exploration and experiential learning to test a new educational strategy which reflects on the role of the designer.

Children's primary means of spatial engagement and navigation, such as walking, observing, and interpreting the space around them, transforms their physical activity into a meaningful place-making process (Hackett, 2014). In this context, the museum serves as an informal learning environment where curatorial messages are conveyed through spatial interactions and exploratory paths, fostering an immersive and participatory learning experience (Wineman & Peponis, 2010). In Istanbul Modern, for example, “Children's Workshops” encourage active engagement with exhibitions, artworks, and artists' lives, transforming the museum into a collaborative and inclusive knowledge environment (*Children and Families*, n.d.). Observing children in these settings reveals new ways to approach studio pedagogy in interior architecture since architectural schools today are in a unique position to test new kinds of speculative approaches on space production (Steele, 2014). This exploration begins with a key question: What can children's behavior within the museum space reveal about spatial use, and how can these findings be integrated into the interior architecture studio? Specifically, how can the design studio itself be reimagined as an inclusive, experimental space that emphasizes process and exploration over its final product?

To put these ideas into practice, the study began by observing the visiting routes and interaction patterns of children and their parents (Fig. 1) to compare with the other randomly selected visitors on a busy Saturday in the Permanent Gallery of Istanbul Modern Museum on the second floor (+10.40). 30 adults and 8 children were observed. Each visitor was followed throughout their journey in the museum without being noticed, then, their paths were mapped as they navigated the exhibition spaces (Fig. 2). These patterns were then analyzed to explore differences in spatial behavior between children and adults.



Fig. 1 Children's spatial behavior and their use of exhibition space.

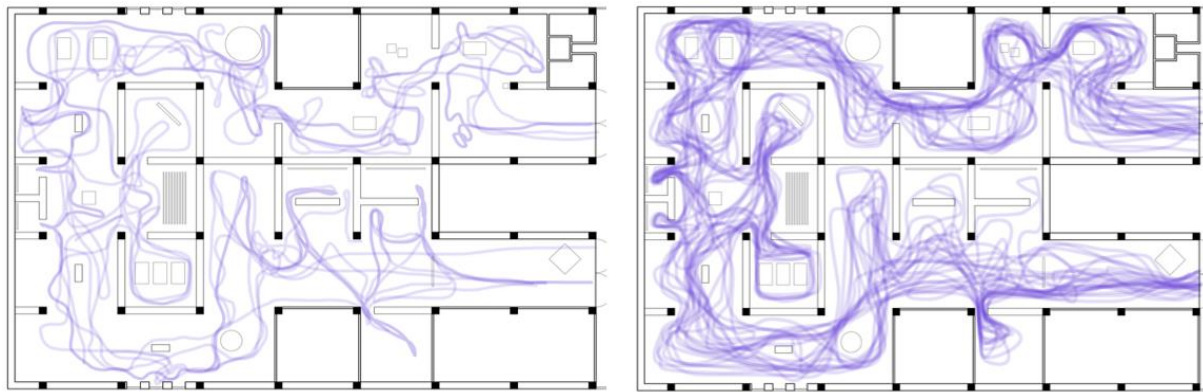


Fig. 2 Left. Visiting routes of children and their parents. Right. Visiting routes of all other visitors.

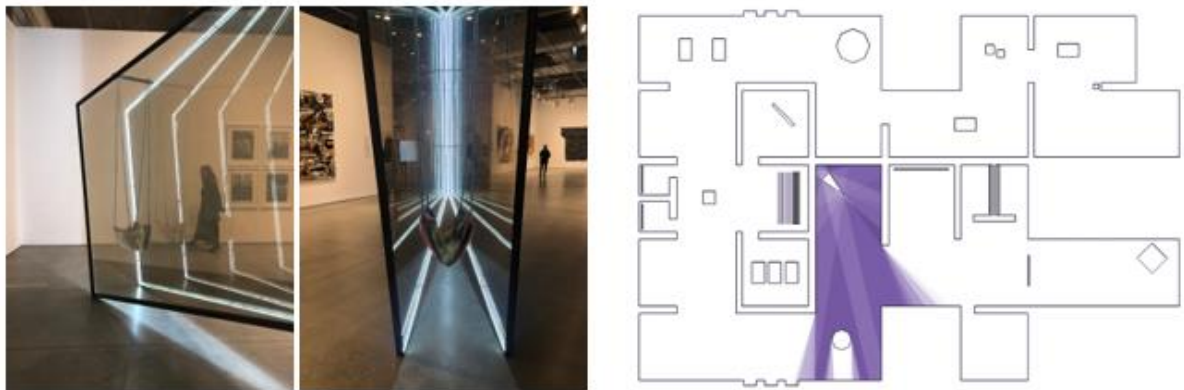
To further analyze children's spatial interactions, an isovist field diagram was created for three artworks (Fig. 3). The isovist diagrams, which describe the set of visible points from a given vantage point (Benedikt 1979), help illustrate the physical and visual accessibility of the artworks. Children, driven by curiosity and wanting to touch, tend to move around the three-dimensional artworks more actively, interacting with these artworks from multiple angles. This behavior reflects their tendency to explore and make sense of their environment through direct and varied physical interaction. Adults, on the other hand, typically follow the museum's structured and organically designed pathways, suggesting a more linear, goal-oriented approach to navigation. Their movement focuses on systematic coverage of the exhibition areas rather than deep engagement with individual works of art. These differences in movement were consistently observed and recorded, with children showing a clear preference for dynamic and exploratory paths that allow them to engage closely with the artworks, even in the less accessible points (Fig. 4). Children's use of space reveals how less-structured environments can foster discovery and engagement, which leads to proposing an approach for the interior design studios. Rather than restricting students to rigid methods, a learning environment inspired by children's spontaneous navigation could enhance creativity and accessibility.

The relevance of children's spatial behavior inside the museum with the interior design studio is derived from the fact that both children and students can be considered as blank canvases that are eager to learn, and have fresh perspectives motivated by exploration. Current curricula is structured rigidly and do not allow for alternative learning experiences (Postalci et al., 2020). This structure may seem logical to the experienced tutors, just as the way in which the pre-defined visiting path of the museum is logical to the curator. However, unplanned and often non-structured paths of exploration allow for the interior architecture education to cross its physical boundaries, turning space into a learning field, and hold a potential for a limitless and a freer learning experience to interior architecture students.

1. “Oradan Oraya (From Somewhere to Somewhere Else)” by the artist Mehmet Gülerüz, 2007



2. “Manège (meaning “merry-go-round” in French)” by the artist Canan Tolon, 2019



3. “El Küre (Hand Globe)” by the artist Selma Gürbüz as part of her exhibition titled “Dünya Diye Bir Yer (This Place We Call World)”, 2008



Fig. 3 Children’s engagement with the artworks and visibility polygons drawn around the artworks.

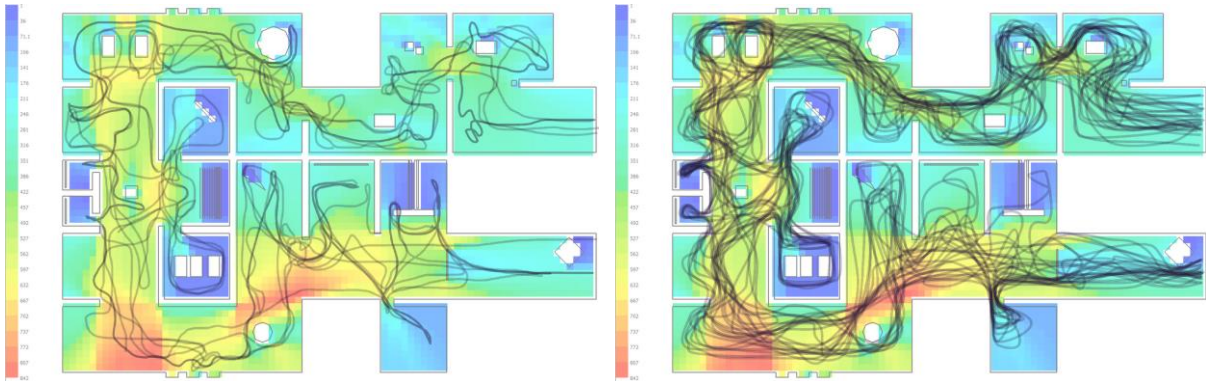


Fig. 4 Left. Children's preferred routes having lower connectivity values. Right. Adults' preferred routes having higher connectivity values.

The study's limitation is that the observation of children's behavior was restricted to a single exhibition space. Future studies could expand by observing in varied spaces to enrich the understanding of how children interact with different spatial settings.

To conclude, this study advocates for the integration of *learning from space* as a core concept in interior architecture education. Based on children's exploratory and interactive behaviors within museum spaces, we propose a pedagogical model that emphasizes inclusive, experiential, and process-oriented learning, allowing the discipline of interior architecture education to extend beyond its traditional boundaries. In reimagining the interior architecture studio as a space for shared curiosity and collaborative discovery, we offer new possibilities for students to *learn from space* by creative exploration, just as children do. Ultimately, this approach could reshape a generation of designers who are aware of the varying spatial needs and behaviors of diverse users and the unique and non-designed ways they engage with space, focusing on flexibility and personalization rather than pre-determined and dictated spatial organizations.

Keywords: child behavior, exhibition space, creative production, learning from space

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EVALUATION OF ENVIRONMENTAL GRAPHICS IN THE VISUAL ATMOSPHERE OF CAFE INTERIORS: A FIELD STUDY ON CAFES IN LEFKE, NORTHERN CYPRUS

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Extended Abstract

Introduction: Coffee is one of the most popular beverages in the world, with an estimated 500 billion cups of coffee consumed each year (Felton, 2018), most of which are consumed in coffee shops and cafes (Motoki, K., Takahashi, A., Spence, C., 2021). Cafes are important public spaces where young people socialize and study throughout the day. A healthy social environment that fosters camaraderie is essential, especially for university students from foreign countries who need to feel like they belong. Designing narrative environments for coherent and meaningful visitor experiences has become an important architectural design skill in recent years. Visual atmospheric features are key design factors for user behaviour and choices by creating a meaningful environment and promoting identity. It has sometimes been suggested that the atmosphere of the space can be more effective than the product itself (Spence et al., 2020). Environmental graphic design is an emerging discipline that combines graphic design and architectural design to create an attractive and narrative visual atmosphere in interior spaces. Technical advances establish the development of Environmental Graphic Design, the needs created by the industrial revolution, urbanization, the creation of consumer culture and its inseparable relationship with art, architecture and cultural movements over time (Poulin, 2012& Ganoti and Laskari, 2023). The environmental graphic design transforms the space into a harmonious design with architectural elements such as colour, scale, material, furniture, lighting elements, and the shape of the space.

Aim: Limited literature exists about how spatial experience in cafes is designed with graphic elements and their collaboration with architectural design elements. As a result, the main aim of this study is to investigate the use of architectural and environmental graphic elements in harmony and make suggestions to create more communicative and socially engaging public spaces related to the topic.

Scope: The research scope included six cafes located in Northern Cyprus, Lefke. This study focusses on the role of visual atmospherics, specifically the importance of using environmental graphic elements, and determines whether graphic design elements are in harmony with architectural design elements. As connected to the study's aim, the selected cafes' interior design color, scale, form, material, furniture, lighting, and finishing properties as architectural data and illustrative, typographic, photographic, and graphic work as graphically investigated.

Limitations: The study has been limited to six popular cafes in Lefke Northern Cyprus, around the European University of Lefke. These cafes (Cactus, Moar, Ambiance, Veranda, Mug, and Bean) were selected because they are always very crowded, and university students spend much time there studying and socializing rather than returning to the university. In this context, the visual atmosphere of cafes plays a crucial role in helping students feel better and work more efficiently during their free

time. To enhance user performance, a multidisciplinary design approach that includes environmental graphic design must be considered when designing these spaces.

Methodology: The study selected six popular cafes around Lefke European University in Northern Cyprus to evaluate how well the environmental graphic design elements harmonize and integrate with the architectural elements in the visual atmosphere of the spaces. The study examined the dimensions of color, scale, form, material, furniture, lighting, and finishing features as architectural data, and illustration, typographic, photographic, and artworks as graphic data using the visual analysis method. Visual analysis was used to investigate the atmospheric data of the spaces through photographs, drawings, or sketches. In connection with this approach, all these visual atmospheric elements in the six selected cafes were examined comparatively in terms of how they gave the space an identity and the linguistic harmony between them.

Findings: In connection with the purpose and focus of the study, visual analysis was made for each café separately, and the architectural elements and the environmental graphics that create the visual atmosphere were observed detailed. The findings indicate that the environmental graphic design in cafés often does not align with the architectural design and is considered independent. The graphic elements are mostly ready-made graphics and are placed by the café owners without professional assistance. Additionally, the illustrations on the walls are often created independently of the architectural design, reflecting the artist's style rather than integrating with the space's overall design.

Conclusion and recommendations: Based on all the studies and results obtained, it was concluded that graphic elements, which have become essential in today's interior design, were separate from architectural design while creating the visual atmosphere of these pilot cafes. Environmental graphic design is not sufficiently recognized in developing countries like Northern Cyprus. Cafe proprietors often use pre-made graphics that do not complement the interior design instead of prioritizing the harmony of other atmospheric elements such as form, color, and placement. Both the interior designer and the cafe owners neglected the importance and the compatibility of the environmental graphic elements with the space. These details are critical components in shaping the visual atmosphere of the space and its interaction with the users.

As a next step, this study can be conducted by surveying the users of these popular cafes. Their choices regarding the space can be analyzed, and thus, which inputs are more important in the atmosphere of the space can be investigated. In addition, the importance of graphic design in interior design can be understood more clearly by measuring the harmony between architectural elements and environmental graphics in other public interiors with the research method used in this article.

Keywords: Cafes Design, Interior Design, Environmental Graphic Design, Visual Atmosphere, Northern Cyprus

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FOSTERING EQUITY AND INCLUSION OF DYSLEXIC STUDENTS IN INTERIOR ARCHITECTURE EDUCATION VIA COLLABORATION: AN OVERVIEW

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Extended Abstract

Equity is at the core of the Sustainable Development Goals (SDGs), particularly aiming to eliminate disparities and ensure equal access to all levels of education for diverse students including the persons with disabilities (UIS, 2024). Equity in education sees all learners as being of equal importance and fosters their inclusion by helping to overcome barriers limiting their presence, participation and achievement. Students with specific learning disorders (SpLDs) or dyslexia, for example, who are classified as having "special educational needs" may be placed in educational settings with certain resources and adaptations, by blending in with the existing structures, attitudes, and environment (UNESCO, 2017). Dyslexia is frequently examined in primary and secondary educational settings, but it remains underexplored in higher education (HE), requiring further investigation.

Introduction: An overview of the scholarly literature in interior architecture education indicates that this subject remains largely unexplored. By shedding light on the experiences of dyslexic HE students and underlining their inclusion and equity, this study intends to contribute to the field of interior architecture. Interior architecture is a human-centred profession with a process that starts from understanding individuals' needs and ends with providing personal solutions (Norman, 1990 cited in Samancioğlu, 2017). Even though the profession is very linked with the individuals' needs; does its education address the needs of every student equally? According to UNESCO's inclusion and equity in educational policy; the central message is simple: "every learner is matters and matters equally" (2017). Do interior architecture educators effectively meet the specific needs of dyslexic students? There is a gap in the scientific literature to answer this question. Numerous studies indicate that higher education educators frequently encounter students labelled with dyslexia but do not feel competent enough or have limited knowledge of how to cope with these students adequately (Pino and Mortari, 2014). Therefore, raising educators' awareness and understanding of dyslexia is an important first step, but it is not the only one that calls for multiple cooperative efforts at different levels and units within higher education institutions.

Aim: The aim of this study in this respect is to put forward the collaborative actions/efforts which could support educators whilst fostering equity and inclusion of dyslexic students into education and seeks to answer the main research question that is: "Do collaborative actions really matters in fostering equity and inclusion of dyslexic students into higher education?"

Scope: The present study aims to address the research topic by synthesising scientific data and shedding light on the collaborative efforts and endeavours of educators, who are regarded as significant pillars of the inclusive environment.

Limitations: This study is limited to the data collected as a result of systematic literature review. The intended audience comprises directors of educational programs and educators aiming to establish an inclusive learning environment. Scientific evidence is limited to HE in general since there is shortage of studies on this subject specific to Interior Architecture Education.

Methodology: Scientific evidence was collected through systematic literature review. Taylor and Francis Online full-text Database was used as the main source of data collection. Dyslexic university students, higher education, teachers and collaboration were used as the keywords of the search. 1,612 results were revealed, and the 26 most related sources were determined for further in-depth overview after 2 staged filtering method. Overview results were then categorised to identify the collaborative actions.

Findings: The results identified four categories of collaborative actions in higher education concerning dyslexic students. Accordingly, firstly, there is a necessity for a holistic approach and an institutional mechanism that promotes the comfortable disclosure of disabilities by students through blind data collection systems, as they often disguise this information (Zorec et al., 2024), which would subsequently become an obstacle to their learning process. Additionally, providing disability resource units, support services or institutionalized alternative assessment possibilities where programs may tailor them according to their unique needs (Reyes et al., 2021) in collaboration with the pertinent institutional units is essential. Various studies highlighted the advantage of embedding Universal Design for Learning (UDL) strategies in the entire institution which would not only constitutes a framework to enhance improvement towards barrier elimination to students' learning and participation but also offers recommendations for instructional strategies to enhance students' executive functioning and promote more inclusive education (García-Campos et al., 2018; Morina, 2022). Secondly, collaborating with other faculties for teacher training programs were indicated for getting equipped with the coping strategies for dismantling the barriers between teaching and learning (Osuna-Juárez et al., 2023). Thirdly, it is critical at the program level to have a counselling unit or support service and a counsellor who can act as a mediator between the student and the teacher (Zorec et al., 2024); which have contributed to the steady increase of students with disabilities in higher education, and the obstacles that impeded achievement will be removed so students can benefit from higher education (Yssel et al, 2016); collaboration with specialists benefits students whilst promote self-esteem and independence in SLD students while allowing them take initiative (Morina, 2022). Fourthly, offering collaborative learning spaces where students may work with their peers can result in positive experiences (Ainscow, 2016). Particularly, interior architecture educational environments provide opportunities to collaborate and fosters learning from each other while collaborating through team works. Disadvantageous students could benefit from collaborating with their peers (Ruengtam, 2012).

Conclusion and recommendations: The results of the research clarified multi-dimensional collaborative actions that is useful in HE but could be embedded in Interior Architecture education as the main pillars of collaboration for fostering inclusive education and equity of students in need. Interior Architecture, as a significant field needs creativity and complex solution and its education is multi-faceted that could be a challenging process for a student with dyslexia. However, as it was mentioned by International Dyslexia Association: “Having dyslexia makes reading, and sometimes other skills, more difficult to acquire, but having dyslexia is not necessarily a barrier to success” (IDA, 2024). The first step is to know how to cope with dyslexic students who are often labelled as “lazy” (Stampoltzis and Polychronopoulou, 2009; Cameron & Billington, 2015). Nevertheless, it is evident that effective strategies on stage could boost their creative skills (Kapoula et al., 2016).

Keywords: Collaboration, Equity, Inclusive Environment, Dyslexic Students, Interior Architecture Education

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RESEARCH WITHIN THE INTERIOR ARCHITECTURE EDUCATION: A PROSPECTIVE AND LONG-NEEDED COLLABORATION WITH SOCIAL SCIENCES

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Extended Abstract

Interior architecture is known as the interplay of human experiences, cultural narratives, and social dynamics, it is a discipline that extends beyond the aesthetic arrangement of space. Interior architecture education often focuses on theoretical lectures, design thinking during the studio discipline, and hands-on practice within internships throughout the curriculum. Professional practice of interior architecture is being introduced via certain lectures and office internships, yet, the very beginning of the design development on gathering data for the sake of meeting the requirements of the project problem is often overlooked. The initial problem-solving should not be limited to conceptual design development, architectural representations, and back-and-forth feedback. As professional interior architect candidates, the students can be offered and taught a set of possible research methods that foster data collection about the prospective occupants of the designed space, which is missing in undergraduate education.

This study aims to present a prospective comprehensive course (extension) model for the curriculum of interior architecture education that “the designer” can develop and apply the social scientific research methods (specifically qualitative and quantitative approaches) before or during the design development of project problems according to the requirements of the problem. This course and/or course extension would help the student understand the importance of one-to-one meetings with the prospective occupants, clients, owners of the physical space, etc. Instead of taking measurements of the given physical space and concentrating on the conceptual development at the start of the project problem solving, means of social science research methods can help collect the data for interior architecture components. Possible questions to be answered are as follows: What are the needs of the occupants in the given space? What are the demands on general atmospheric qualities? What are the preferences of certain light, color, and texture applications on the finishings?

The role of qualitative research methods in interior architecture education cannot be overstated. Techniques such as in-depth interviews and focus groups may offer invaluable insights into occupant experiences and needs. These methods promote a deeper understanding of how occupants interact with their surroundings, and, what are the qualities of the desired atmosphere that they want to occupy in. By engaging with diverse users through these interviews, students can cultivate empathy and incorporate different perspectives into their main design interventions, enriching their creative design development processes.

In-depth interviews, which are unstructured, non-directive, and informal survey methods (Neumann, 341) may facilitate a direct dialogue between designers and (prospective) occupants, allowing students to grasp the main picture of client expectations. Focus groups, on the other hand, foster collaborative discussions among participants (Neumann, 471) and may highlight collective tendencies that inform interior architectural decision-making. For instance, through these group discussion settings, students can design inclusive environments that cater to various requirements, thereby enhancing equity in spatial design.

Research methods that foster the implementation of human-centered design, which means meeting ergonomic, social, psychological, and anthropological aspects (Buchanan, 2001, 37) while designing, are crucial in the education of interior architecture. This is why, ethnographic methods, characterized by immersive observation and participation, would enable students to explore the lived experiences of people within spaces of different functions (hospitality, health, retail, educational, etc.). This approach

aligns with human-centered design principles, wherein designers actively engage with occupants to uncover their daily interactions with spaces. Ethnography allows for the identification of patterns and practices that may not be immediately apparent, thereby guiding students in creating environments that promote well-being, functionality, and security in terms of feeling content.

Whereas quantitative research methods, data mining and surveys serve as critical tools for gathering and analyzing information. In interior architecture, these methodologies can identify trends, preferences, and behavioral patterns across wider occupant groups. For example, a survey assessing user satisfaction with different functions of interior spaces can yield actionable insights that influence design choices. In addition, with the help of content analysis, students can learn to select themes, frameworks, and ideologies that shape the narrative around interior architecture. By incorporating statistical analysis into their design-studio coursework, students can learn not only to collect and interpret data but also to ground their design propositions in empirical evidence, reinforcing the validity of their work within both academic and professional contexts.

Integrating these social scientific research methods into the educational framework provides a culture of inquiry among interior architect candidates. Interior architecture students would become proficient at questioning assumptions and analyzing context within their design problematic. Moreover, the interdisciplinary nature of interior architecture necessitates methodologies that draw from diverse disciplines, including sociology, psychology, and anthropology. By embracing social scientific research methods, interior architecture educators can foster interdisciplinary collaboration, encouraging students to integrate insights from various domains into their design approach.

In conclusion, integrating social scientific research methods into interior architecture education is essential for nurturing well-rounded, socially aware, and critically engaged to human-centered design interior designers. By utilizing qualitative and quantitative methods such as in-depth interviews, focus groups, ethnography, data mining, and content analysis, interior architecture educators can enhance the learning experience, bridging theory and practice. Such emphasis and addition to the curricula would ultimately lead to more thoughtful, inclusive, and impactful design practices that reflect the multi-layered needs of society in the 21st century. Through this research-oriented approach, future interior architects will emerge as advocates for evidence-based design, driven by a profound understanding of the social and cognitive dynamics that shape the interior spaces that are and will be occupied.

Keywords: Interior Architecture, Research methodologies, Professional design practice, Social Sciences, Interior Spaces

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PERCEPTION OF "VOID" AT THE INTERSECTION OF INTERIOR ARCHITECTURE AND SCULPTURE DISCIPLINES

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Extended Abstract

Introduction: Interior architecture is the shaping of space in the user's focus. It is a discipline that questions ergonomics, function, form and material. It has the power to manage perception and psychology by activating the senses. Sculpture, on the other hand, is a discipline that is based on form as a result of human imagination. They are three-dimensional artistic expressions created by shaping matter.

The common denominator of interior architecture and sculpture is matter and space. The concept of void plays a role in the formation of matter and space. The concept of void is addressed through the meaning of "presence" that it creates in matter and space, as opposed to the meaning of "absence".

Sculpture needs matter to exist. Space needs void to exist by being limited. However, the intervention made to matter and space ultimately shapes the void. Sculpture and space are disciplines managed in void.

If void is limited to the extent that humans can perceive, space is formed. Every void whose boundaries are perceived is space. In this direction, sculpture can be located within space or can form the space itself.

In light of professional questions focused on creative thinking, it is aimed for students to get acquainted with the space within the void whose boundaries they create. Students will search for traces of space in the void created by the sculptural material they design without any concern for space and will become aware of the requirements. The new life scenario will bring with it all the concerns that should be felt in the formation of space. Ergonomics and function will be questioned and the boundaries of the void will be pushed. It will become impossible to trace conventional architectural forms.

Aim: Questions such as "Is an interdisciplinary education approach model possible in the interior architecture department?", "How is the design process shaped as a result of collaboration?" are being sought. It is aimed to carry out codes and collaborations that will contribute to the essence of interior architecture on a common ground and to contribute to education.

Interdisciplinary common grounds should be processed in order to capture new dynamics in education. This study is necessary in terms of supporting creative thinking in interior architecture education by targeting the common ground.

Scope: The relevant study was conducted with 34 students enrolled in the interior architecture undergraduate program within the scope of the 1st year spring semester introduction to interior architecture course. The process was managed by preparing a course leaflet and the works of successful students were evaluated.

Limitations: Only addressing the concept of void and transforming it into the content of the "introduction to interior architecture" course are both theoretical and methodological limitations of this study. In this direction, the course content is transformed into a conceptual and applied field of study.

Methodology: A literature review was conducted with the qualitative research method. The studies were classified and addressed with the content analysis method. The definitions of the disciplines were made, their common grounds were expressed and attention was drawn to the concept of void. A conceptual process was developed for matter, space and void. The contributions of the common denominator are presented by expressing them through student work. The research method supports the development of the conceptual process. It is also suitable for preparing the basis for applied work.

Findings: Students were expected to both design the space and create space by perceiving the boundaries of the void. Thus, the student undertook the task of both material and spatial shaping. It was observed that the students gained experience-oriented design skills in the subjects of matter, void, space, scale, user, needs and environment. In the process that started with the shaping of matter, the student continued to shape the void by touching it. This method, which was quite valuable, supported the development of creative thinking. The student searched for traces of space in the void and had the opportunity to encounter professional questions.

Conclusion and recommendations: The denominators of design disciplines cannot be carried out independently of each other. Uluçay, who draws attention to the use of the element of space in all art fields, draws attention to the importance of common denominators by saying, “Just as an art movement takes place in problem solving as a concept in design, space is also used as an element in art.” (Uluçay, 2017: 2255).

Bozdayı states that void is not an element that only belongs to space. Before questioning the space in which the sculpture is located, he draws attention to the space created by the sculpture within itself. “Because sculpture is a volume that creates space within itself with its boundaries before the space outside it” (Sarı, 2010: 17). Sculpture contributes to the awareness of problems in terms of interior architecture. It eliminates rigid boundaries and encourages the questioning of space. The void perceived in the voids obtained by the disintegration of the mass that constitutes the matter both exists within the matter and shapes the matter. With the effect of the element of void, these two disciplines intertwine and develop multi-dimensional thinking.

The sculpture took on the role of a space and the void it created supported the idea of designing a living/experiential space. It was concluded that an interdisciplinary education model was possible by transforming this approach into course content.

The transformation of matter shaped by different inspirations into a living/experiential space within the scope of space-oriented, individual-specific, environmental awareness and basic design criteria constitutes the subject of the course content. The concerns created by matter designed without space anxiety in the spatialization process are important in terms of interior architecture education. Interdisciplinary conceptual collaboration shapes the design process quite successfully in managing professional concerns.

Interdisciplinary conceptual collaboration shapes the design process quite successfully in managing professional concerns. It is recommended to all researchers to process the common denominators of design disciplines and transform them into course content in order to provide students with a multi-faceted perspective.

Keywords: Space, Place, Sculpture, Interior Architecture, Education

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THE INTERSECTION OF INTERIOR ARCHITECTURE AND SOCIAL ENTREPRENEURSHIP: EXAMINATION OF THE HARMONY CREATIVE HUB PROJECT

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Extended Abstract

The UNCTAD/UNESCO (2014) classification of creative industries assigns interior design to the design area and the functional creativity category. The professional practice of interior design combines a comprehensive creative and functional approach to creativity with design-oriented thinking and production. Due to its ability to generate creative solutions from an interdisciplinary perspective, the interior design profession relies heavily on problem-solving skills, creativity, and innovation, critical and analytical thinking, collaboration, and teamwork with other professional disciplines. The components of professional consciousness in interior design include understanding the definition and scope of the profession, its impact on society, the responsibility aspect of design, adherence to professional ethics, mastering modern technological solutions, cultivating cultural and artistic consciousness, contributing to society, and identifying skills and areas of expertise. In this context, the field of interior design not only influences design and practice but also influences people's quality of life. This depth and responsibility are understood via professional awareness. In this way, highly conscious interior architects approach their work more consciously, provide better advice to their clients, and strengthen the reputation of their profession. The profession of interior design requires close collaboration with numerous other disciplines. The technical and artistic aspects of interior design are supported by the specialist areas associated with these professions, and also collaboration with a multidisciplinary team is necessary. In the practice of interior design, the conceptual assessment that emphasizes collaboration and impact is also critical to the creation of outcomes such as spaces, products, and services. The profession of interior architects requires close collaboration with numerous other disciplines. The technical and artistic aspects of interior design are supported by disciplines associated with these professions. Multidisciplinary professionals who can work together to create aesthetically pleasing and functional spaces that meet the needs of occupants. Effective communication and collaboration with other professional groups is therefore essential. When analyzing the social impact dimension of the produced space, product, or service or their influence on conceptual background processes, the professional practice of interior design about the effects on individual or social users in post-production processes is in contrast solely to the tangible performance that produced directly promotes social interaction (Kilmer and Kilmer, 2024). Particularly because the practice of interior design encompasses both functional creativity and design disciplines, the combination of social responsibility and design enables the creation of projects that benefit society and produce sustainable solutions (Phillips et al., 2014).

Regardless of the space, service, or product, creating designs that are both socially and environmentally sensitive and work at the intersection of these two crucial areas has a greater impact on users of the results. Socially conscious design not only improves the quality of life of people and societies but also raises awareness of the need to protect the environment and its resources (Borstein, 2007). In this context, the professional practice of

interior architecture and social entrepreneurship can intersect in potent ways by integrating design principles with the mission of generating social impact (Branch, 1984; Colenberg et al., 2023). In this situation, integrating design principles to achieve social impact can lead to a powerful interface between the professional practice of interior design and social entrepreneurship. The idea of social entrepreneurship has gained popularity both globally and in Turkey (British Council, Turkey, 2019), especially in recent years, and initiatives to improve the goods and services produced are still evolving (Borstein and Davis, 2010). An entrepreneurial approach called “social entrepreneurship” develops innovative, lasting, and useful solutions to social, cultural, or environmental problems. “Social entrepreneurship” combines profit and social benefit, management skills, and social responsibility. The success of social entrepreneurs is determined by the positive impact they have on society rather than their financial gain (Aktaş and Akdeve, 2024).

As part of the social entrepreneurship project “Harmony Creative Hub,” launched as part of the “10 Creative Fellows: Youth Impact in the Creative Industry” program, this research examines the methods and results of the discipline of interior design in the field of social entrepreneurship. To promote the professional practice of interior design among the public, academic community, and industry, the project aims to support the development of professional awareness and relevant partnerships. It also highlights the importance of the potential for civic development and social responsibility that is closely linked to this profession. The aim of the “Harmony Creative Hub” project is to create a community for young people across the interior design profession under the umbrella of the creative industry. In addition to functioning as a social enterprise, this established ecosystem supports the connectivity of the interior design profession and raises the profile of young people to create space at the intersection of social entrepreneurship, creative industries, and advocacy. Also, this project serves as a model for the further development of socially conscious professional practice in interior design. The target group for this project was identified as young professionals in the field of interior design as well as students, graduates, and doctoral students.

The main results of the project were examined from four different outputs. These include the following: (1) design and manufacture of a handbook kit; (2) establishing a digital platform; (3) conducting a mapping study; and (4) starting a podcast channel. However, the analysis scope of this research has limitations, and only the focus of the analysis of podcast and handbook kit content was covered. The Harmony Creative Hub project was examined in this research using a case study approach, which is a qualitative research method. The scope of the project initially included a review of the literature on “social entrepreneurship,” “social responsibility,” “interior design practice,” and “interior design education.” The research, articles, book content, and projects in this area were examined. The interior design education topics covered following this literature review formed the basis for developing the contents of the handbook kit. Project and application management, research and critical thinking, design and creativity, technology and application, art and aesthetics, the relationship between people and space, sustainability and environmental awareness, and multidisciplinary studies are some of the areas that make up interior design education (Özsavaş, 2011). Depending on the scope of the project, focus group interviews and individual interviews were also carried out. Five individual interviewees in various design fields, including architects, industrial designers, illustrators/artists, and interior architects, participated in individual interviews, and three groups participated in focus group interviews (with research participant consent forms). Following the individual interviews, the data was analyzed, written down, and also, as part of the group interviews, presented as a manifesto in research. Also, data were recorded in audio and paper.

In conclusion, the Harmony Creative Hub project offers a first step towards creating models that can influence the professional practice of interior design from the areas of social responsibility and social entrepreneurship. By actively involving young interior designers, these models will become more accurate, better known, and socially useful to the public, industry, and academia. This project makes a difference in society by examining the professional discipline of interior design at the intersection of social entrepreneurship and social responsibility potential. In the long term, it designs processes that incorporate values such as equality and sustainability. The project created as an interior architect during the fellowship process is intended to become a research model in the professional practice of interior design once the research is completed. It will also help future fields of study by analyzing the research needs in the field of interior design with concepts such as social responsibility and social entrepreneurship.

Keywords: Interior architecture, Higher Education, Qualitative research method, Social responsibility, Creating shared value

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FROM TEXT TO SPACE: A COGNITIVE MAPPING APPROACH IN INTERIOR ARCHITECTURE EDUCATION

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Extended Abstract

Introduction: Interior architecture actively influences users' behavior, feelings, and well-being by designing the environment. Therefore, designers conduct research on how users perceive and experience spaces. Architecture offers ideas for spaces that could be described in the literature, inspiring architecture with imagined spaces' power. In this context, the text uses space as a representation. This study focused on the 'Cognitive Mapping from Text to Space' educational event, funded by the TUBITAK 2237-A Scientific Education Activity Support Program. The education event was carried out over a two-day period, from November 11 to 12, 2023, under the guidance of nine educators.

Aim: This study aimed to examine the content of the "Cognitive Mapping from Text to Space" educational activity designed for design students to learn the cognitive mapping method. This educational activity aimed to understand and visualize abstract but perceptible concepts related to space. One of the main goals of the educational activity was to develop an approach that encourages creative thinking and interdisciplinary collaboration in design education. The educational event's aim, methods, and primary structure were analyzed in this context.

Scope: The education event consisted of nine workshops. The following headings were chosen for the design of the education event: production of text, production of space, methods of transforming text into space, and cognitive mapping. The first stage of the education event focused on text production, including the underlying elements of text formation, character development, and the creation of fiction. The production of space constituted the second stage of the education event. For a designer, space is an empty canvas of the mind. However, its relationship with other concepts emerges when life occurs within it. Therefore, space production is perceptual, experiential, vital, and design-oriented. The visualization of the story and the expression of thought were included within the scope of the education. The third stage involved methods of transforming text into space, one of which is the use of technology. In the context of this event, artificial intelligence applications were technological tools that enabled the relationship between text and space. While using artificial intelligence applications, mythology was also used as a tool for visual creation. The last stage of the educational activity was designed using a cognitive mapping approach. In this context, mental, theoretical, narrative, figurative, perceptual, imaginal, functional, indexical, relational, and interactional maps were included in the education event.

Limitations: The event occurred at KTO Karatay University Faculty of Fine Arts and Design on 11–12 November 2023, with nineteen participants. These participants were undergraduate and graduate students from various universities who expressed an interest in design. The event team comprised nine educators and four assistant educators, collectively organizing nine workshops. While the study focuses on the design and methodology of the event, the evaluation of cognitive mapping works is excluded from the scope. Additionally, the limited number of participants and the two-day event

duration constrained the outputs' depth and comprehensiveness. These limitations may have affected the generalizability and scalability of the findings.

Methodology: The activity was based on the cognitive mapping method, a form of mental representation that helps individuals acquire, encode, store, recall, and decode information about the relative positions and qualities of phenomena in their spatial environments. Representation was achieved through two-dimensional methods like language and drawing and three-dimensional methods like models. Cognitive mapping helps designers adopt a systematic approach to the problem statement, enabling them to recognize concepts, phenomena, and designs at a higher level. Similarly, it provides a systematic approach to the design development phase and understanding the outcome. The two-day educational event covered the fundamental knowledge and practices of understanding the cognitive mapping approach. Class hours were defined for educators to deliver theoretical knowledge and facilitate practical applications. On the first day, training was provided on text generation, creation of space, text-collage, and space, AI applications for transforming text into visuals, and illustration training from stories to visuals. Text was transformed into art on the second day, and the relationship between imaginary space and mythology was studied. A workshop was conducted where participants utilized cognitive mapping as a method.

Findings: The education event united nineteen participants from different disciplines and thirteen educators. Thus, interdisciplinary collaboration was promoted. Through this interaction, participants and educators explored beyond their disciplines, acquired new viewpoints, and stimulated creativity. Participants observed a variety of approaches to problem identification and solution. Through this experience, they recognized their ability to think in multiple dimensions. Participants and educators fostered more empathetic and open communication by attempting to comprehend diverse terminologies and approaches. A comparison was made between the design approaches of various disciplines. Shared characteristics were recognized. Recognizing and expressing the invisible concepts of space led to expanding spatial perception. The concept of space was framed within the context of lived experiences. Interactive workshops were designed to enhance the development of a culture that values critical thinking and feedback. Through this, participants and educators contributed new viewpoints to their fields of study.

Conclusion and recommendations: The education event served as a platform for uniting participants and educators from diverse design backgrounds. The outcomes of each workshop highlighted the multidimensional nature of the relationship between text and space. Participants explored the multisensory characteristics of space through various interpretations, redefining it as a dynamic, life-sustaining void shaped by users' perceptions, transcending the confines of its three-dimensional physicality.

The workshops revealed the potential for translating text into space and vice versa, opening up innovative possibilities. This interdisciplinary interaction fostered significant gains, including new perspectives, enhanced creativity, a deeper understanding of different disciplines, improved critical thinking, and the establishment of a robust feedback culture.

However, the limited two-hour duration of each workshop posed challenges, making it difficult for participants to develop their work comprehensively. It is recommended that such events be extended beyond the current two-day timeframe. A longer format, such as two weeks, would allow participants to delve deeper into their projects and cultivate stronger relationships with educators, enabling more meaningful and impactful collaborations.

Keywords: interior architecture education, cognitive mapping, space, text, TÜBİTAK 2237-A.

BIBLIOMETRIC ANALYSIS OF TECHNOLOGIES IN THE DISCIPLINE OF INTERIOR ARCHITECTURE

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Extended Abstract

Introduction: Interior Architecture is a profession with multiple dimensions, requiring the synthesis of practical and theoretical knowledge. It is a dynamic field because it is directly connected to social needs and expectations. Professional skills and knowledge are constantly evolving in response to social changes and demands. Consequently, Interior Architecture education must remain closely aligned with the sector's evolving requirements. The education curriculum should be regularly reconstructed according to industry requirements.

Distribution of the time spent by Interior Architecture graduates after graduation until they find their first job, by month: Before graduation (%19.9), 0-6 months (%31.6), 6-12 months (%17.9), 12+ months (%30.6) (Presidency of the Republic of Turkey Human Resources Office, CBİKO). (There is no distinction between Interior Architecture-Interior Architecture and Environmental Design in the distribution). If industry expectations for technology are determined and the curriculum is reconstructed accordingly, an increase in the employment of Interior Architects may be seen.

There are many studies in the literature on the relationship between Interior Architecture and technology (Savaş & Aslan, 2019; Yıldırım & Demirarslan, 2019; Nas & Kavut, 2023). Interior architecture and virtual reality are some of the most discussed topics (Yıldırım & Demirarslan, 2019; Nas & Kavut, 2023). For bibliometric analysis, WoS (Burkut, 2023) or Scopus (Nas & Kavut, 2023) indexes can be used with different targets.

Literature review is a crucial tool for examining and categorizing information within a specific field of study. The number of scientific studies has increased significantly. It is challenging to efficiently review large amounts of data. Conventional analytical methods, such as narrative analysis and meta-analysis, are laborious and time-consuming to examine a field. In contrast, bibliometric analysis can detect meaningful patterns from large amounts of data. It reveals the structure of the field and the dynamics that form it. It analyzes the relationships between items such as journals, articles, authors, and words, by dividing them into groups (Öztürk & Gürler, 2021, pp.1-2). As defined by Yılmaz (2019, p. 48), bibliometrics is "the statistical/quantitative examination of the development and distribution of a certain literature." One of the tools used in the visualization of bibliometric networks is VOSviewer (Artsin, 2020, p. 344). VOSviewer offers a range of analytical options, including co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation. Keyword items can be analyzed with the co-occurrence map. (Jan van Eck & Waltman, 2023, p. 26).

Aim: This study aims to conduct a bibliometric analysis of publications on technology in Interior Architecture. By determining the most prominent technologies, a framework of current technologies that should be included in the curriculum will be created. With the research findings, it will be possible for academics to create an educational curriculum that is suitable for industry expectations. As a result of the restructured curriculum, there may be an increase in the employment of Interior Architects.

The research will seek answers to these questions: "What are the most cited publications on technology in Interior Architecture?", "How are publications and citations distributed over time?", "In which categories are publications on the use of technology in Interior Architecture found in this database?", "What are the leading departments and affiliations in the literature?", "What disciplines is Interior Architecture currently collaborating with?", "What are the current prominent technologies in the profession of Interior Architecture?"

Scope: There are numerous databases available for use. The research is within the scope of publications in Web of Science, which indexes studies in different scientific fields. The Web of Science search was completed on September 4, 2024. The study comprises the publications in the database for the last ten years (2015-2024). The data is limited by keywords and search term-operator structure. Bibliometric analysis includes publications in which the specified keywords are used in the abstract (AB).

Limitations: The numerical data presented in this study were obtained from publications in the Web of Science database. It should be noted that the findings cannot be generalized to other databases.

Methodology: The research was conducted using scanning, which is one of the quantitative research methods. The numerical data of the publications were examined with bibliometric analysis. The study includes a four-stage methodology. In the first stage, the database and the visual mapping application were decided. The keywords to be used in the research were determined.

The profession is referred to internationally in two different ways *Interior Design* and *Interior Architecture*. In Türkiye, the field is referred to as either *Interior Architecture* or *Interior Architecture and Environmental Design* (Ertuğrul & Kaptan, 2019, p. 226). The scan was created in accordance with these terms. In the second stage of the study, data were collected with a keyword query. There are 352 results in WoS index keywords of ((AB=("Interior Architecture*" OR "Interior Architecture and Environmental Design*" OR "Interior Design*")) AND AB=(Technology*)). Upon selecting those conducted in the last ten years, 255 studies remain. In the third stage, the publication year, citation, document type, author, WoS category, index, institution and department information of 255 studies were analyzed. In the fourth stage, a co-occurrence analysis was performed on the data obtained from the WoS database using VOSviewer 1.6.20.

Findings: The co-occurrence analysis shows that technologies such as 3D Printing, Virtual Reality, CAD (Computer Aided Design), Augmented Reality, and BIM (Building Information Modeling) have come to the fore in Interior Architecture in the last ten years. In the Web of Science categories, Education Educational Research, Architecture, Engineering Electrical Electronic, Computer Science Information Systems, and Computer Science Artificial Intelligence stand out. Research in the field of technology is indirect evidence of the interest and need for technology.

Conclusion and recommendations: As a result, a general framework for the use of technology in Interior Architecture has been obtained. It is known that there are studies on CAD, Virtual Reality, and Augmented Reality in Interior Architecture education. These studies should continue to increase, and technologies such as 3D Printing and BIM discovered in the study should be integrated into the Interior Architecture curriculum. Future researchers are recommended to work on the integration of these technologies into education.

Keywords: Interior Architecture, Technologies in Interior Architecture, Bibliometric Analysis, WoS Database, VOSviewer

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THE INTERSECTION OF SPORTS ARCHITECTURE AND DIGITAL TECHNOLOGIES: A BIBLIOMETRIC REVIEW FROM ARTIFICIAL INTELLIGENCE AND METAVERSE PERSPECTIVES

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Extended Abstract

Introduction: Today, the connections between sports architecture and digital technologies from the perspective of artificial intelligence and metaverse are interesting. Because these transitions lead to significant changes in design and experience processes and draw attention as a fast-moving field. The focus on architectural aesthetics, performance and spectator comfort in sports venues, together with technological developments, reveals that sports architecture has undergone a radical transformation. One of these transformations is artificial intelligence and Metaverse technologies. These technologies are important in terms of bringing innovative approaches to the design, use and management processes of sports architecture. This study, which examines the interactions between sports architecture and digital technologies in depth, is thought to contribute to filling an important gap in the literature and understanding current practices and developments in sports architecture.

Aim: In the literature, there is no bibliometric analysis that addresses the effects of digital technologies on sports architecture from a holistic perspective. This research aims to fill the gap in examining the interaction of sport architecture between artificial intelligence, metaverse and digital technologies through bibliometric analysis. This study is based on the following questions and hypotheses: 1. Integration of Technologies: How are AI and metaverse technologies integrated into sports architecture? H₁: The integration of AI and the metaverse will enhance design efficiency and user experience in sports architecture. 2. Innovations in Design: What innovations do these technologies bring to the design and development processes of sports facilities? H₂: AI applications will facilitate data-driven design solutions, while the metaverse will provide immersive experiences for design validation. 3. Impact on Education: How do these integrations impact architectural education and the interior design of sports venues? H₃: The adoption of digital technologies will necessitate updates to architectural curricula, emphasizing technological proficiency. 4. Challenges of Integration: What challenges arise from this technological integration? H₄: The rapid pace of technological change may outstrip the ability of traditional architectural practices to adapt. Hence, the aim of this study is to examine the relationship between sports architecture and digital technologies from the perspective of artificial intelligence and metaverse, exploring current knowledge areas and future research opportunities.

Scope: This bibliometric study analyzes the relationship between sports architecture and digital technologies, focusing on AI and the metaverse. Key definitions will be provided, discussing the potential effects of these technologies, including their advantages and disadvantages. The research will present numerical data, identifying trends and significant areas for future inquiry.

Limitations: This bibliometric study, which covers the academic literature on the integration of sport architecture with artificial intelligence, metaverse and digital technologies, is limited to 474 data (Title, abstract, keyword plus and author keywords) obtained from an advanced crawl of the Web of Science (WoS) database on 14.09.2024. In this context, the studies in other data sources were not included in this analysis, which constituted the limitation of the study. Another limitation is the use of English language keywords covering general themes. The absence of any other constraints demonstrates that this study represents a wide range of literature and enriches the range of data analysed.

Methodology: The study employs bibliometric analysis to assess the integration of sports architecture with AI and digital technologies. An advanced search of the Web of Science (WoS) database was performed, yielding 474 relevant publications from 1999 to 2024. This search utilized a comprehensive set of keywords related to sports architecture and digital technologies. The analysis was conducted using the VOSviewer program to examine citation patterns, publication trends, and keyword usage.

Findings: The findings reveal a marked increase in publications since 2009, indicating a growing scholarly interest in the intersection of sports architecture and digital technologies. The study hypothesizes that these technologies will lead to innovative approaches in the design and management of sports facilities, enhancing both operational effectiveness and user engagement. Furthermore, the metaverse may facilitate the creation of virtual models for interior design, allowing for improved planning and user experience assessments. Notably, AI, the metaverse, and digital technologies are identified as critical enablers of innovative design solutions and enhanced interior environments in sports facilities. These technologies promote data-driven approaches that can transform project development and management processes. The research hypothesizes that these technologies will lead to innovative approaches in designing and managing sports facilities. AI may facilitate the creation of data-driven design solutions, while the metaverse may enable virtual models for interior design, allowing architects to visualize and refine concepts effectively.

Conclusion and recommendations: It is concluded that Metaverse can add a new dimension to the evaluation of the effectiveness of the interior design of sports facilities created by interior architects. As a result, it is thought that this study will contribute as an informative resource for researchers interested in the integration of artificial intelligence, metaverse and digital technologies in the architectural design of sports venues. This study highlights the critical importance of integrating AI and the metaverse into sports architecture. The results suggest that these technologies enhance design processes and foster innovative approaches to venue management. By providing a foundational resource for understanding the implications of these technologies, this research aims to inform both practitioners and scholars. The insights gained can guide future architectural practices, ensuring that sports venues are functional and responsive to evolving user needs. Further research is needed to explore the long-term impacts of these technologies on architectural education and practice. Staying informed about technological advancements will be crucial for architects and designers aiming to lead in this dynamic field. The relationship between sports architecture and digital technologies is complex and multifaceted. AI enhances design optimization through data analysis, enabling architects to make informed decisions regarding layouts, materials, and sustainability. Machine learning algorithms can analyze crowd dynamics, improving safety and experience in sports venues. Conversely, the metaverse provides immersive environments for user engagement and design exploration. Virtual walkthroughs allow stakeholders to experience designs before construction, fostering collaboration and user feedback. This capability enhances the design process, ensuring that the final product meets user needs and expectations.

Keywords: artificial intelligence, digital technology, interior architecture, metaverse, sport architecture

EXPLORING DYNAMIC INTERIOR ADAPTATIONS: POTENTIAL CONTRIBUTIONS OF ADDITIVE MANUFACTURING IN INTERIOR DESIGN EDUCATION

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Extended Abstract

In recent years, interior design has increasingly embraced digital technologies that enable the creation of dynamic, adaptive, and personalized spaces. The role of digital technologies in interior design is reflected in four main areas: digital design (drawing, modeling, presentation), digital manufacturing (CNC, 3D printing, laser scanning), parametric design and virtual reality, and digital space design (cyberspace and fluid design) (Demirarslan & Demirarslan, 2020). These advancements make design processes more efficient and allow designers to develop more creative and functional solutions. Among these technologies, additive manufacturing (AM), commonly known as 3D printing, stands out for its significant potential to transform interior design education.

This study aims to explore the potential contributions of additive manufacturing technology to interior design education, focusing on its impact on the design process, its role in fostering creative thinking, and its capacity to create dynamic and adaptive spaces while supporting the development of innovative perspective in education. By examining the applications of 3D printing at the interior scale in university research laboratories, this study provides a comprehensive review of the educational impacts of this technology. The methodology includes qualitative methods, such as literature review and analysis of existing studies, to assess the contributions of 3D printing technology to interior design education. However, the study acknowledges certain limitations, such as the limited number of practical examples examined, which may affect the generalizability of the findings.

Notable projects in interior design education using 3D printing include ETH Zurich's *Digital Grottesque*

II (URL 1), UC Berkeley's *Bloom Pavilion* (URL 2), University College London's *Voxel Chair v1.0* (URL 3), and IAAC's *3D Printed Home Furniture* (Institute for Advanced Architecture of Catalonia (URL 4). These projects contribute to interior design education by enhancing creative prototyping, integrating parametric design, enabling customization, promoting sustainability, introducing innovative technologies, and demonstrating interdisciplinary approaches. The work of Greenhalgh (2016) further supports this by showing how the incorporation of 3D printing into design education curricula significantly enhances students' creativity and makes design processes more efficient and effective. Compared to traditional prototyping methods, 3D printing technology allows for faster and more precise model creation, providing students with the opportunity to develop more dynamic and functional designs (Greenhalgh, 2016). This capability supports students in generating more innovative and adaptive solutions throughout their design processes. According to Gonchar (2016), 3D printing technology contributes to education by accelerating design processes, facilitating prototype creation, providing opportunities for innovative projects, allowing students to experience complex geometries, offering real-world project experiences through industry collaborations, and promoting sustainability through reduced material waste.

Moreover, three-dimensional printing technology enables the discovery of original forms in interior design and facilitates the realization of designs that cannot be achieved through traditional molding methods. Additionally, additive manufacturing can reduce construction time and costs, providing greater design flexibility and customization (Gbr, 2023). This technology significantly contributes to sustainability by enabling faster and more precise construction processes, reducing labor costs, minimizing material waste, and promoting the use of recyclable materials (Beyahan & Selçuk, 2018). In interior design education, leveraging the advantages of additive manufacturing, such as flexibility and customization, allows for the creation of sustainable and innovative designs, thus providing a more comprehensive educational experience both practically and theoretically.

Looking more broadly, 3D printing technology supports the exploration of unique forms in furniture and interior design, allows the creation of previously unattainable designs, and serves as an

environmentally friendly production method that generates less waste. It provides new opportunities for designers, encourages creative thinking, and contributes to the development of innovative professions in design education (Et Proto, 2020). Nasir et al. (2022) highlight that while some view 3D printers as tools for on-site production of building components, others consider them as transformative technologies for the construction industry. This distinction emphasizes the broader potential of 3D printing, not only in revolutionizing traditional construction methods but also in shaping the future of design education by offering new ways to integrate technology into learning environments.

Consequently, the study reveals that additive manufacturing technology significantly enhances interior design education. It accelerates the prototyping process and improves accuracy, enabling students to create more dynamic and functional designs. The integration of 3D printing into curricula provides a comprehensive, hands-on educational experience, fostering creative thinking and innovation. Notable projects highlight its role in creative prototyping and customization, while its sustainability benefits include reducing material waste and promoting recyclable materials. Overall, the findings suggest that 3D printing offers contributions to both the practical and theoretical aspects of interior design education and advocate for its broader adoption in educational settings.

Keywords: Additive Manufacturing, 3D Printing, Interior Design Education, Creative Prototyping

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FROM PROFESSIONAL DESIGNER TO DESIGN STUDENT: CREATIVE LESSONS IN THE METAVERSE UNIVERSE

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Extended Abstract

Interior architecture education is a process that, while aiming for students to produce aesthetic and innovative solutions by considering user requirements, also encourages their development of creative and original designs. During the educational process, students are required to work within the rules and limitations of the physical world. It is thought that traditional design education creates an obstacle to fully unleashing students' imagination, due to the limitations imposed by our physical reality.

Based on the question, 'Can the virtual universe offer a new and creative learning environment that goes beyond traditional boundaries?', this research investigates the potential of the Metaverse to offer designers and students a limitless creative space beyond the physical world. It is thought that the Metaverse can transcend the boundaries of reality, redefine creativity in a digital and virtual environment, and play a revolutionary role in education.

The Metaverse, which is a virtual space where digital and physical realities converge, is transforming the way design is approached. The Metaverse offers unprecedented opportunities for professional designers and design students to explore creativity, experiment with new ideas, and forge new collaborations. The Metaverse, in its current form, demonstrates that by providing an environment independent of the limitations of the physical world, gravity, materials, or spatial relationships can be experimented with in ways that are not possible in reality. This free environment allows designers and students to unleash their imaginations and develop bold and innovative designs. Therefore, the Metaverse serves as a laboratory that enhances designers' creative thinking capacities, while encouraging students to develop their creative ideas. Designing in the Metaverse provides opportunities for exploration and experimentation, free from the risks posed by mistakes or failures.

In light of this information, the design selection prepared by professional designers for the Metaverse will be analysed based on the determined parameters within the scope of the research. The research consists of two stages. In the first stage, a systematic literature review will be conducted on the key concepts of the study, which are interior architecture education, creativity, and the virtual universe Metaverse. The second stage involves the analysis of the projects exhibited digitally at the first Metaverse Architecture Biennale, themed 'Presence of the Future,' based on the determined parameters. The sample group will be limited to 30 projects exhibited at the Metaverse Architecture Biennale. The selection of the sample supports the focused structure of the research, which aims to understand the creative potential of the Metaverse and its applications in education. The analysis of the projects will be conducted by focusing on the principles of Gestalt perception theory and the Space-Defining Elements and Qualities of architectural space outlined in Francis D.K. Ching's book 'Architecture: Form, Space, and Order. The Gestalt perception theory will be used to evaluate the visual integrity, composition, and perceptual relationships of the projects; Ching's principles will form the basis for defining space, organising spatial elements, and evaluating the quality of architectural elements. The defined analysis parameters are as follows;

- **The Principles of Gestalt Perception Theory:**
 - Completion, Proximity, Continuity, Simplicity, Figure-Ground, Similarity
- **Ching's Space-Defining Elements:**

- **Horizontal Space Elements:** Base plane, Elevated base plane, Depressed base plane, Overhead plane.
- **Vertical Space Elements:** Vertical linear elements (column), Single vertical plane (wall).
- **Openings:** Within planes, At corners, Between planes.
- **Ching's Qualities of Architectural Space:**
 - **Qualities of Architectural Space:** Color, Texture (material), Proportion, Scale, Degree of Enclosure, Lighting.

The analysis aims to conclude that the Metaverse is not just a tool or environment for design, but a transformative space that reshapes our thoughts on creativity.

In the context of interior architecture education, this research is significant in terms of how the Metaverse enhances the educational journeys of interior architecture students and educators, provides an immersive learning environment, and reshapes and transforms thoughts on creativity. In this regard, it is believed that technological tools and virtual environments, beyond just computer-aided drawing, can be integrated into courses that trigger creative action, especially in project courses, which play a key role in interior architecture curricula. Considering the learning methods and tools used by Generation Z and the upcoming Alpha Generation, the integration of virtual reality and augmented reality technologies into educational processes will be inevitable. By embracing the teachings of the Metaverse, professionals and students alike can unlock new levels of creativity and push the boundaries of what is possible in design.

Keywords: design education, creativity, metaverse, virtual universe, perception

THE BRICK WALL LEAKING FROM AN ARCHITECTURAL STUDIO WORK

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Extended Abstract

Industrialization, mass production, and the rapid shift in consumer habits have brought a pivotal change, not only in the natural environment but also in local cultures and crafts. One of the most prominent impacts in the field of architecture has been the transition of construction from a local activity to one increasingly tied to centralized production mechanisms. Within this context, the emphasis on the experience of "material" in Gropius's Bauhaus education was a crucial step towards recentralizing the architect's role in an environment inclined towards centralization (Bayer, Gropius, & Gropius, 1975). Here, "material" refers both to the individual components that constitute a structure and to the tectonic assembly arising from their cumulative arrangement. As tectonic structures evolve, the manifestations of material also change. From the viewpoint of Gideon, this evolution does not signify a fundamental shift in "essence" before the industrial revolution (Giedionci, 1959). The practical experience derived from the nature of materials was traditionally passed down through a master-apprentice relationship.

At the beginning of the 20th century, construction with industrial materials like steel and reinforced concrete lacked a traditional framework. One of the challenges was the significant role of an industrial market in transferring practical experience, which influenced and guided construction practices. The relationship between the designer and material, transitioning from master-apprentice to studio experience, has increasingly become dependent on the opportunities provided by the industrial market. The integration of digital tools into architectural education offers architects the potential to enhance material capabilities and achieve flexible designs; however, it simultaneously reduces the designer's direct interaction with materials, reinforcing an architecture of centralization driven by market demands. Throughout the 20th century, architectural academies have predominantly emphasized industrial materials and construction techniques through programs designed to support this trend. Consequently, natural materials and construction techniques, such as wood, brick, stone, and adobe, have not been foregrounded except in specific construction practices. This study aims to create a space within architectural education focused on material-oriented design processes, exploring their impact on design activities. The chosen material for this exploration is brick.

Brick is one of the oldest human-made building materials. Its usage across various cultures has accrued a semantic richness depending on the pattern, size, and application method. The terminology of brickwork, from Ottoman "almaşık duvar" to Roman opus testaceum, exemplifies this accumulation. This heritage partly explains why prominent 20th-century architects like Wright, Aalto, Lewerentz, and Kahn associated their works or directly linked brick with identity or construction tradition. However, in contemporary times, brick construction is largely an industrial activity, shaped by the possibilities and limitations it presents. In this context, this study seeks to answer the following questions:

- Do archetypal brick bonds still hold relevance in contemporary construction practices?
- Do advanced technological conditions allow for greater freedom in the forms of brick bonds?
- How does the function of a wall influence the pattern of brickwork?
- Can material-oriented studies contribute to diversity in design?
- How do material-oriented studies enrich studio education?
- What is the impact of material-oriented studies on material knowledge, spatial perception, and scaling in studio education?

To address these questions, material-focused design studies within the architecture studio will serve as the foundation. Students will be guided in creating various wall patterns using brick modules,

allowing for both structural and formal analysis of these configurations (Table 1). This approach is essential for deepening material knowledge and integrating it into the design process. The methodology of the study consists of the following steps:

- **Theoretical and Historical Analysis:** In the initial phase, students examine the historical development of brick and bonding techniques, as well as their applications in contemporary architecture. Theoretical insights are provided to enable students to develop a more comprehensive understanding of traditional brick wall designs.
- **Design and Modeling:** Students are supplied with 1:10 scale model bricks and are tasked with developing six types of wall models using various bonding techniques (Table 1). This phase encourages exploration of different arrangement techniques (e.g., solid walls, protruding walls, perforated walls).
- **Application:** In this phase, a selected brick wall pattern is constructed at a 1:10 scale using cement mortar to replicate an actual wall. During construction, layout techniques are applied, cement mix is tested, and any weaknesses that emerge are addressed.
- **Observation and Evaluation:** The construction process and bonding patterns are observed, and the outcomes are critically evaluated. At this stage, students document their findings and experiences through posters.

These studies have laid the foundation for exploring the formal and structural potentials of brick. In today's architectural landscape, the rapid pace of large-scale construction—if aesthetic considerations are set aside—contributes to brick's limited use as a purely constructive material. Instead, it is often employed with industrially manufactured secondary materials or used merely as a cladding material. This shift has fostered a degree of freedom in contemporary brick wall formations, as well as in the student projects presented here. Brickwork can be somewhat constrained depending on the wall's position and the functional requirements it must meet.

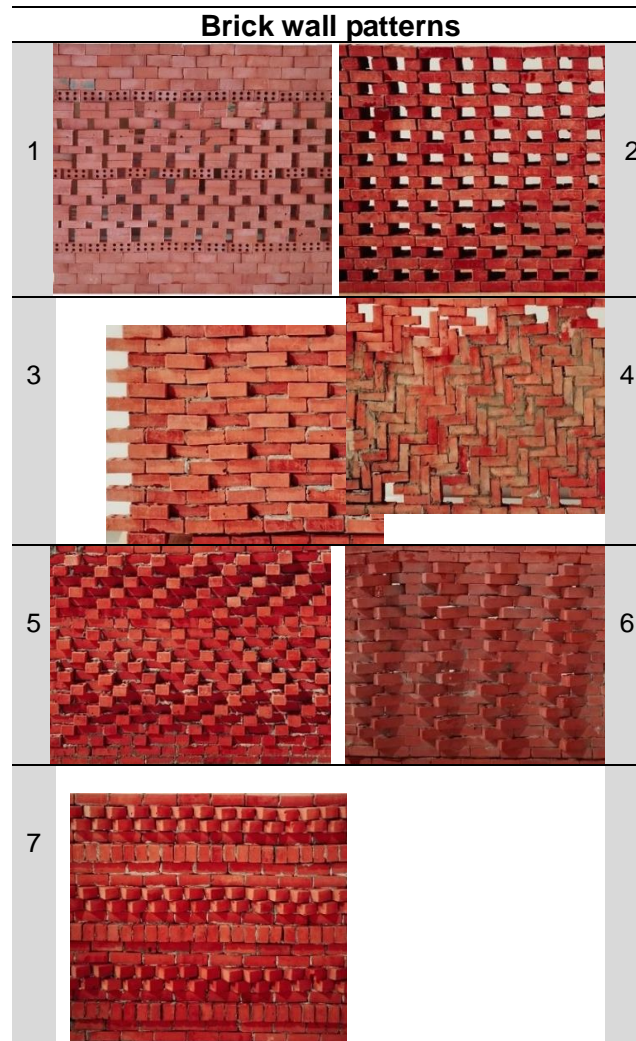
The brick wall experience, despite its limitations, underscores the importance of material and practical experience in architectural education. In Turkey, architecture programs often focus on ambitious projects framed in idealistic terms, which may limit deeper exploration of local character and construction. In this context, material-focused studies offer a means to enhance formal diversity. Moreover, this approach may contribute to the broader discourse on sustainable architecture in Turkey. Incorporating material studies into studio education enables students to:

- Engage in the design process with a more holistic perspective,
- Develop analytical thinking skills,
- Apply theoretical knowledge in practice,
Enhance their proficiency in material use.

In conclusion, material-focused approaches in architectural education not only encourage aesthetic exploration but also foster an understanding of cultural and historical contexts. Such studies offer students an opportunity to gain deeper insights into local construction traditions and to develop sustainable design practices, contributing to a more comprehensive and sustainable foundation for architectural education.

Keywords: Architectural studio, architectural education, brick, material

Table 1
Wall Patterns Obtained at the End of the Brick Work



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SCULPTING INTERIORS: THE POCHE' WALL AS A BASIC METHOD FOR INTERIOR DESIGN EDUCATION

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Extended Abstract

Throughout history, interior design and architecture have always been associated with arts and crafts. Various types of crafts such as stonemasonry, carpentry, pottery, glass making, weaving, etc. played a significant role in shaping interiors for different purposes (Kuleeva et al., 2021: 2). Among these, sculpting stone has been the most influential one since the ancient period, not simply creating sculptures surrounded by interior space but giving a sculptural shape to both structural and non-structural elements as an integral part of the interior. Carving the interiors in a sculptural sensitivity seems to have peaked in the Renaissance. For example, the St. Peter's Cathedral in Rome is a free-standing building, the structural elements of which were carved in 'poché' to create a continuity between the interior and exterior (Kass, 1987: 45). A similar approach could be seen in Louis Kahn's reinforced concrete architecture, in which the poché was interpreted using structural forms that absorb service spaces and transitional passageways (Kass, 1987: 51).

The French term 'poché' literally meaning 'pocket', indicates the blackened parts of a plan or a section filled with cut-out parts of a structure, i.e. walls, columns, etc. (Rowe and Slutsky, 1997: 118). In the pre-modern era, the poché wall emerged from plans and extended across the section "to embrace interior volumes". However, the innovations of frame construction in the modern era led to the dissolution of the wall into independent skins creating a free plan (Kass, 1987: 45). Peterson (1980) defines this transformation as "the loss of (natural) space", or space creating its opposite as "anti-space". Meisenheimer (2011: 628) criticizes this "thin-skin ideology" of early modern architecture and emphasizes the potential of pre-modern "coat-pockets of the building body", articulated in recesses, projections, and cavities, enabling transitions between the outside and the inside. We argue that the poché wall can be quite a useful method for interior design in terms of considering the wall not merely a defining boundary or a two-dimensional surface but exploring its potential as a habitable space.

The arts and crafts have also been implemented in design education since the early 19th century. The Beaux-Arts School (1819) was the first institution where practical education offered craft training in which the students learned to work with different materials such as stone, timber, metal, clay, and glass. Craft training was also a significant part of the interdisciplinary curricular structure of the Weimar Bauhaus School (1918), where the students worked with stone, wood, metal, clay, glass, and textiles in material workshops at an advanced level (Pasin, 2017: 1271). However, in contemporary

interior design education which advocates pure modernist design, crafting and applying those materials is mostly considered a surface treatment on walls, and the potential of the structural wall, particularly stone masonry, providing a habitable and permeable *poché* that balances space/anti-space, as well as exterior/interior is rather overlooked.

This study considers the *poché* wall a unique design method that fosters creativity through a collaboration between sculpting and interior design. It concentrates on the outcomes of the final design project held in the last three academic years as part of the studio course ‘INAR 1120 Basic Design for Interior Architecture II’ in the Department of Interior Architecture and Environmental Design at Yaşar University, namely ‘Sculpted: A Tribute to ...’. In this 7-week project, the students were required to design an imaginary public void that will function as a center dedicated to a famous sculptor. They were asked to behave as space sculptors by applying the *poché* method to the existing walls at the site and to reshape these walls by additions, subtractions, rotations, divisions, breakages, and carvings, without destroying their tectonic quality and structural capacity. These manipulations were initially expected to teach fundamentals of interior design such as spatial fits, the use of natural light, interior circulation, and materiality. A further aim of the studio was to create new spatial opportunities for the users while physically contacting the wall and realizing various activities.

This study, based on comparative analyses of selected student projects, aims to manifest the benefits of using the *poché* wall as a basic design method for interior design education. The analyses are based on the fundamentals of interior design mentioned above, which are considered separate design parameters, shaping the interiors in each project. Multiple graphic media such as plans, sections, interior elevations, 3D views, interior photos, and models present that the students followed almost similar approaches to the implementation of the *poché* wall throughout their design processes. Most of them designed habitable interiors shaped by static and dynamic fits, light wells in display nichés, and contrasting surfaces, while a few of them further explored the potentials of the wall in creating free and rhythmic openings, corridors embedded inside the wall or extending towards the spatial boundaries, as well as harmonious materials on wall and floor surfaces.

Our comparative analyses have shown that the *poché* wall could be considered a core paradigm for learning the fundamentals of interior design such as spatial fits, lighting, circulation, furniture, and materiality, and achieving the common objectives of interior design education. However, as our analyses have revealed, further explorations of the *poché* wall are required to rethink these fundamentals in a holistic manner, rather than distinct space-shaping parameters. We conclude that such an approach may not only enable the students to comprehend and internalize these fundamentals at the beginning of their interior design education but also to utilize them at an advanced level in the following years.

Keywords: sculpting, interiors, *poché* wall, interior design education

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STRUCTURING COLLABORATION AND CREATIVITY IN HEALTHCARE SPACE DESIGN: ENHANCING STUDENT LEARNING IN INTERIOR ARCHITECTURE EDUCATION THROUGH A METHODOLOGICAL APPROACH

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Extended Abstract

Introduction: In interior architecture education, fostering collaboration and creativity while addressing complex, real-world design problems is essential for preparing students for professional practice (Lee et al., 2020; Orr and Shreeve, 2017). Healthcare design, specifically for spaces like obstetrics and neonatal hospitals, presents unique challenges that require students to navigate interdisciplinary complexities, adhere to the applied national and international regulatory codes (Facility Guidelines Institute, 2014; 2018; T.C. Sağlık Bakanlığı, 2010; Joint Commission on Accreditation of Healthcare Organizations, 2015), and apply creative solutions. Previous studies on interior architecture education have focused on creative problem-solving and collaboration, but there is a lack of research exploring how structured methodologies can enhance student learning in complex healthcare design projects. This study fills that gap by examining how a structured design process, incorporating sketch exams, mini juries, and project integration, can foster student creativity, collaboration, and problem-solving skills in healthcare design. By grounding the methodology in existing design and education theory, this study contributes to the ongoing discussion on how best to prepare students for the complexities of healthcare environments in professional practice.

Aim: The aim of this study is to explore how the structured methodology of a design course—incorporating sketch exams, mini juries, and project integration—enhances student learning outcomes in the context of complex healthcare design projects in interior architecture education. The study specifically seeks to answer: **How does a structured methodology improve students' creative problem-solving and collaboration in healthcare facility design, and how do these skills align with professional healthcare design standards?**

Scope: The study focuses on a fourth-year interior architecture course where students are tasked with designing a 10-bed obstetrics and neonatal branch hospital. The course involves collaboration with healthcare professionals, design disciplines, and regulatory standards, providing a comprehensive platform for assessing the impact of structured learning on student performance. Key elements include sketch exams, interdisciplinary mini juries, and a final integrated project that adheres to healthcare-specific regulatory codes. Throughout the course, students are lectured by a professional architect with extensive experience in healthcare design, providing valuable real-world insights. Additionally, students receive feedback not only from design instructors but also from medical doctors (MDs) and other professionals during mini juries and the final jury, ensuring a well-rounded understanding of healthcare facility needs (Meyer and Norman, 2020).

Limitations: The primary limitation of the study is its focus on a single academic course within one institution. The findings may not be generalizable to all interior architecture programs. Additionally, the study's scope is limited to healthcare facility design, which, while complex, may not fully capture how structured methodologies apply to other types of design projects. The course involves collaboration

with healthcare professionals, but access to broader interdisciplinary collaboration beyond healthcare (e.g., with engineers or architects) is limited in this context.

Methodology: The study adopts a structured pedagogical approach to healthcare design education by segmenting the subject matter into distinct components, each corresponding to a weekly focus. Students are expected to synthesize these individual elements into a cohesive, integrated design by the conclusion of the course. In this framework, sketch exams serve a dual purpose: they not only provide feedback relevant to the associated lectures but also function as reflective tools for ‘reflection-in-action,’ guiding the development of a comprehensive and integrated hospital plan as the final design outcome. The process is divided into three phases:

1. **Sketch Exams and Lecture Integration:** Weekly lectures introduce students to healthcare design complexities, which are immediately followed by sketch exams requiring students to apply theoretical knowledge to real-world design problems. The sketch exams emphasize creativity and adherence to healthcare standards.
2. **Mini Juries and Iterative Feedback:** After each sketch exam, students present their designs in mini juries, where they receive interdisciplinary feedback from peers and instructors, including the architect-instructor and healthcare experts such as MDs. This iterative process (Jonassen, 2008) allows students to integrate feedback into their designs, improving their problem-solving abilities and collaborative skills.
3. **Final Project Evaluation:** Students submit final integrated projects, which are evaluated using a quantitative assessment based on national and international healthcare design codes. The evaluation measures the extent to which students apply creative solutions while adhering to regulatory standards in spatial design.

A **thematic analysis** of student feedback will assess how the structured methodology fosters learning, while a **comparative analysis** of design iterations will track students' progress in handling complex healthcare requirements. A **correlational analysis** will explore the relationship between feedback engagement and final project performance.

Findings: Preliminary findings indicate that students who actively engage with the structured methodology demonstrate improved creative problem-solving skills and a deeper understanding of healthcare design standards. The sketch exams are found to help students break down complex healthcare design problems, while the mini juries—featuring feedback from the architect and healthcare professionals—enhance collaboration by providing real-time, interdisciplinary input. The iterative process allows students to refine their designs continuously, resulting in final submissions that align more closely with professional healthcare standards. The expected final findings suggest a positive correlation between active engagement with feedback and higher final project scores, demonstrating that structured problem solving enhances both creativity and adherence to codes.

Conclusion and recommendations: This study shows that a structured pedagogical approach—incorporating sketch exams, mini juries, and interdisciplinary collaboration—enhances student learning outcomes in healthcare design projects. By fostering creativity within a framework of regulatory adherence, students are better prepared to tackle real-world challenges in professional healthcare design. The involvement of an experienced healthcare architect, alongside feedback from MDs and other professionals, ensures that students gain practical insights and develop solutions that meet real-world standards. The study highlights the importance of structured feedback in developing students' problem-solving skills and ability to collaborate across disciplines. Future research should explore how this structured approach can be adapted to other complex design challenges within interior architecture education, extending beyond the context of healthcare. Additionally, educators are encouraged to integrate more interdisciplinary collaboration (e.g., with engineers or urban planners) to further enrich the learning experience. Moreover, further studies are warranted on the function of lecturing within design courses, particularly examining instances where students are tasked with independently sourcing technical information and finding appropriate design solutions. Such studies should consider the impact of instructor competency on learning outcomes, as a high level of expertise in the subject matter has the potential to significantly enhance students' educational experiences and design capabilities.

Keywords: Interior Architecture Education, Healthcare Design, Complex Problem Solving, Interdisciplinary Collaboration, Structured Pedagogy

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DYNAMIC SKETCHING: RETHINKING ARCHITECTURAL REPRESENTATION THROUGH TSCHUMI'S TRILOGY

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Extended Abstract

Today's architecture, like today's world, is dynamic; it relies on the user's experience. Architectural representations, however, remain largely static. This static nature of traditional architectural representations suggests the need for a reimagined sketching method grounded in its dynamic and exploratory qualities. All senses perceive a space intertwined with its movements and events. The visual image of a space cannot be separated from its situational existence (Pallasmaa et al., 2006). Thus, it is insufficient to represent architecture as solely a visual entity. Architectural visualizations, such as illustrations of volumes, plans, sections, and axonometric drawings, often fall short of representing the experiential qualities of a space. Architectural perception depends significantly on the activities occurring within a space (Tschumi, 2012).

Traditional architectural representations, including plans, sections, and axonometric drawings, often need to capture the experiential qualities of a space. They are static and need to convey the dynamic nature of architecture fully. This limitation is shared by both 'talking' visualizations, created for communication, and 'thinking' visualizations, created as part of the ideation process. Sketching, however, is not merely a reflection of an image in one's mind; it is an active process that helps generate the idea itself (Goldschmidt, 1991). Sketching and ideation occur simultaneously (Yakın, 2015). As a tool for creativity, it reflects uncertainty and exploration, offering new perspectives and enabling discoveries in the design process (Purcell et al., 1998). Consequently, the static nature of traditional architectural representations suggests the need for a reimagined sketching method grounded in its dynamic and exploratory qualities.

Like other visualization tools, sketching involves processes of elimination and selection, raising the concept of flexibility. When representing a phenomenon, the presenter transfers a selective amount of information to the receiver. Different drawings with various styles and combinations of information can narrate the same phenomenon. Likewise, same visual can represent different phenomena depending on interpretation.

This uncertain yet expressive quality of sketching points to its flexibility in expression, guiding research on altering architectural sketching. The psychological term "expressive flexibility" refers to modifying expressions—suppressing or enhancing them—to communicate effectively (Westphal et al., 2010). From an architectural perspective, this suggests a sketching method that allows dynamic selection and alteration of information. This method could make sketching more adaptable and reflective of architecture's experiential aspects. Establishing this method requires a dual focus: one on the usage-based processes (selection and alteration) and another on the content-based aspects (what and how to select/alter). This leads to examining relevant case studies.

The study aims to develop a theoretical framework grounded in the inherent qualities of both sketching and architecture to evolve sketching into a core visualization technique that better captures the dynamic nature of architecture. Additionally, it seeks to engage students, designers, and educators by integrating insights from disciplines such as psychology and film. This interdisciplinary approach enriches the study, bringing diverse perspectives and methodologies to the research process. The role of sketches and visualizations within the design process is examined, focusing on their potential to convey spatial experience more effectively.

The methodology encompasses five main stages, each designed to ensure the thoroughness and reliability of the research. The first stage involves establishing a theoretical framework by conducting a literature review on expressive flexibility and analyzing key works by Tschumi, Moholy-Nagy, and Eisenstein. This stage sets out conceptual criteria for dynamic sketching and expressive flexibility. The second stage analyzes case studies, particularly Tschumi's Manhattan Transcripts, Moholy-Nagy's stage directions, and Eisenstein's film scripts. These works are examined through Tschumi's framework of movement, object, and event, identifying strategies for dynamic representation. Then, a dynamic sketching method is developed by creating a guide and exercises informed by case study insights. The method is then pilot-tested with architecture students or practitioners, who will use the guide to produce sketches based on architectural scenarios. After assessing the method's effectiveness with focus group sessions with participants, in the final stage, the method is refined based on evaluation results and compared to traditional sketching techniques. A comparative study is conducted where participants apply both methods to identical architectural scenarios. Blind evaluations by architecture educators or experts determine which approach better conveys dynamic spatial qualities. This iterative process results in a final version of the method and a comparative analysis highlighting its advantages and areas for future improvement.

The case study is based on Tschumi's movement, object, and event trilogy. His pioneering work in The Manhattan Transcripts explores how space can be expressed through experience, making his approach an essential reference. His studies highlight architecture's inadequately expressed dynamic qualities. As noted in The Manhattan Transcripts, Tschumi's approach is influenced by the works of Eisenstein and Moholy-Nagy (Tschumi, 1994). While Tschumi developed a multilayered, subjective narrative style, this study rethinks his trilogy to propose a more objective, guideline-based method for sketching. In this regard, chosen works are analyzed through Tschumi's movement, object, and event categories to generate insights into how information is selected and conveyed. Eisenstein's storyboards and Moholy-Nagy's stage directions share a directive intent, representing movements within a timeline, with notations created by themselves. Their methods suggest ways to express Tschumi's trilogy dynamically without illustrating every moment. They achieve this through objective, directive-like descriptions.

This research establishes a theoretical framework by exploring the relationship between sketching and flexibility and analyzing examples from Eisenstein and Moholy-Nagy through Tschumi's lens. Building on insights from the case studies, the study develops a guide-like method for dynamic sketching to create flexible and experiential representations of architectural space. This framework and the proposed method seek to enhance creative actions during the concept phase of architectural design, fostering more experiential and realistic thinking while strengthening team collaboration.

The comparison of dynamic sketching with traditional methods offers valuable insights into reinterpreting the spatial trilogy. While this study focuses on a select range of disciplines and case studies, future research should expand into additional fields and experimental approaches to refine the sketching method further. By combining theoretical research, case study analysis, and comparative testing, this study lays the groundwork for a conceptual framework and introduces innovative perspectives on architectural visualization.

Keywords: architectural representation, visualization, expressive flexibility, sketch, design creativity

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DEFINING DESIGN STRATEGIES FOR DIGITAL NOMADS: A COMBINED COLIVING AND COWORKING DESIGN PROPOSAL IN ISTANBUL

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Extended Abstract

At the core of interior design and architecture education lies the design studio, a focal point of the education process where students think about real-world problems to create innovative solutions. As a design-based graduate program, the core of the International Interior Architecture and Design Master's Program (IMIAD) at Istanbul Technical University is also comprised of project courses. The last project module in the 3rd semester of the program, which is the Interior Architecture Project III, is based on students' thesis studies. This course adopts a research-based design methodology (Cordan, 2017) to develop their thesis projects. This paper will present the research-based design process and exemplify a design studio experience through a design proposal in Istanbul.

The design proposal focuses on a combined coliving and coworking space, which is preferred by the increasing number of digital nomads who have adopted a mobile and free lifestyle with globalization. The development of information and communication technologies has made digital nomadism (Hall et al., 2019) possible as a rapidly growing mobility and a new social phenomenon (Simova, 2023, as cited in Hannonen, 2020), allowing people to work with a laptop wherever there is an internet connection and engage in tourist activities without being tied to an office or home. As Orel (2019, p. 218) noted, Makimoto and Manners (1997) first used the term “digital nomad” and defined the individual as a mobile worker who moves between urban and inter-urban environments and chooses different areas to work. Pieter Levels, founder of Nomadlist (nomadlist.com), a popular digital nomad platform, predicted that by 2035, more than half of the working population will consist of freelancers and that the digital nomad population will reach one billion people (Hannonen, 2020, as cited in Jacobs & Gussekloo, 2016).

Digital nomads' accommodation preferences are based on short-term living facilities that combine/integrate coliving and coworking spaces (Cordan and Basarir, 2023). This particular type of accommodation offers solutions to digital nomads' needs by offering reliable internet connection, common areas, socializing activities, shared workspace, and a variety of accommodation options. As a result, the number of these spaces has increased significantly in parallel with the rise of the digital nomad lifestyle. As Hall et al. stated (2019), based on research by Altringer (2015), the number of coworking spaces worldwide has increased rapidly to meet the needs of digital nomads. Considering this rapid increase and future expectations, it is clear that the need for accommodation and workspace for digital nomads will also increase.

This study aims to define the design strategies for interior spaces of the combined coliving and coworking spaces according to the needs of digital nomads. The research questions of the study are as follows: 'What are the needs of digital nomads? What are the design strategies for combining coliving and coworking spaces? According to the literature review, studies on digital nomadism are concentrated in the fields of social sciences, technology, business, management, economy, culture and tourism, while studies on architecture and interior architecture are insufficient. Within the scope of the study, the concept of digital nomadism and the combined coliving and coworking spaces shaped by the user needs of digital nomads will be examined within the framework of the interior architecture discipline. Istanbul was chosen as a case of the study due to the increasing interest of digital nomads. The method of the study is based on literature review, sample examination and semi-structured interviews. A literature review was conducted to be familiar to the terminology and to search the

existing studies. In the sample examination of the study, three examples from popular digital nomad's tourism destinations were examined in order to reveal the design parameters for interior solutions combining coliving and coworking spaces.

The study conducted semi-structured online interviews with eight participants who had adopted a digital nomad lifestyle and had been in Istanbul for a short time as a digital nomad both national and international backgrounds. The interviews revealed that their accommodation preferences in Istanbul were short-term house rentals due to the lack of coliving and coworking options, while their workspace preferences were isolated spaces where they could focus on their work and shared socializing space. It was also found that they valued a homey atmosphere and a local vibe in the living spaces, that accommodation spaces should be adaptable for personalization.

In the light of the obtained data from literature review, sample examination, and interviews, a coliving and coworking design proposal was proposed. Kuzguncuk neighbourhood in Istanbul was chosen as the case of the study for application phase. Kuzguncuk is known for its activities, multiculturalism, cosmopolitan and vibrant atmosphere, interaction with nature, and the ability to establish connections with locals in a calm environment. The design proposal includes flexible spaces for socialising, coworking and different accommodation options, which were two single rooms and one double room based on needs of digital nomads obtained through interviews. Additionally, the design proposal consists of modular interfaces, which allows the rooms adaptable to meet the personal needs of digital nomads and offer spaces suitable for personalization.

One of the limitations of the study is that the research participants were limited to those who came to Istanbul. Another limitation of the study is that there are not enough studies on the spatial needs of digital nomads. In this sense, the results of the study will contribute to future research both theoretically and practically and help designers design according to the needs of digital nomads by filling the gap in the literature on the spatial and social needs of digital nomads.

Keywords: co-living, co-working, design strategies, design studio, digital nomadism

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STRUCTURING THE DESIGN PROCESS OF CONVERTIBLE HOUSING MODULES THROUGH USING ADAPTABLE TEXT ANALYTICS

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Extended Abstract

Introduction: The design process for convertible housing modules can be achieved through both practical projects and theoretical exercises. This study focuses on adaptable text analytics and convertible housing modules. The goal is to structure the design process of convertible housing modules using adaptable text analytics. The study is critical because it expands the architectural possibilities for text analytics applications developed with the help of artificial intelligence. In the future, artificial intelligence will be directly involved in design processes, matching the efficient design approaches in production processes through text analysis. The historical relationship between architecture and texts is deeply rooted, as architectural design has long been influenced by the written word, with texts serving as both a medium for expressing design ideas and a framework for understanding the complexities of spatial and structural relationships. The evolution of architectural thought has consistently intertwined with textual analysis, reflecting a dynamic interplay between language and built environments. For instance, the study by Chen and Kitagawa emphasizes how architects utilize language as a critical component in their design processes, suggesting that writing is not merely a tool for documentation but a fundamental aspect of conceptualizing and articulating architectural ideas (Chen & Kitagawa, 2023). This notion aligns with the historical perspective that architecture is as much about the ideas conveyed through texts as it is about the physical structures themselves. The historical context of architecture also reveals a continuous evolution in design methodologies, where the integration of technology and text analytics plays a pivotal role. The work of Hao and Weng highlights the importance of modular functionalities in text mining, which can be paralleled with architectural practices that embrace modular design principles to foster adaptability and innovation (Hao & Weng, 2015). This historical perspective underscores the significance of texts in shaping architectural discourse and practice, as they provide the foundational ideas that inform design processes. Furthermore, the historical relationship between architecture and texts can be traced through various architectural movements that have emphasized the importance of language in shaping design philosophy. For example, the exploration of "Chineseness" in architectural design, as discussed by Chen and Kitagawa, reflects how cultural narratives and textual descriptions influence architectural identity and expression (Chen & Kitagawa, 2019). This historical lens reveals that the interplay between text and architecture is not only a matter of practical design but also a reflection of cultural and societal values.

Aim: The primary goal of the study is to outline a specific plan for achieving efficient design processes in future architectural projects using adaptable text analytics. In this context, convertible housing modules have been identified as a key focus because they embody both a detailed production process and reflect multiple contemporary architectural strategies.

Scope: The scope of the study is centered on the design texts of applied projects created in the past twenty years, which are prominent in the context of contemporary techniques. Text analytics involves analyzing and extracting useful information from written data, which can support structuring the design process by identifying key patterns, requirements, and trends relevant to housing module designs. Data mining is the process of discovering patterns and insights from large datasets, which can help in structuring the design process by uncovering useful design trends, user needs, and adaptable housing solutions from extensive data. Architectural text includes written content about architectural concepts, principles, and design guidelines, which can be analyzed to guide the design of flexible housing modules by extracting adaptable strategies and best practices. Adaptable text refers to content that can be customized or adjusted for different applications, and it can aid in structuring design by

allowing text analytics to focus on specific, flexible elements crucial for designing convertible housing. The structuring of convertible housing modules using adaptable text analytics builds on a long-standing relationship between architecture and texts, where written guidelines, theories, and recorded observations have historically shaped, informed, and evolved architectural design practices.

Limitations: The diversification of scenarios in the production of convertible housing modules increases due to uncertainties about the diversity of target users. However, using text analytics and artificial intelligence to obtain some combinations can lead to spatial outputs that are eclectic and ignore function. Therefore, it may be necessary to integrate additional coding processes to exclude problematic combinations from the layouts.

Methodology: The methodology is based on evaluating design texts from projects created in the last twenty years. It focuses on contemporary techniques using text analytics. The main goal is to provide various workflows for structuring the design process of convertible housing modules based on prominent paradigms. Moreover, the adaptability of architectural concepts can be enhanced through the integration of advanced text analytics, as seen in the work on modular architectures for text entailment (Padó et al., 2013). This approach illustrates how the decomposition of complex systems into manageable components allows for greater flexibility and responsiveness to changing design requirements. Such a framework resonates with historical architectural practices where adaptability has been key to addressing the evolving needs of society, thereby reinforcing the notion that texts and architecture are inextricably linked.

Findings: The study's findings indicate that certain keywords are highlighted through flexible text analytics. These keywords demonstrate that the essential aspects of the design process can be captured not only in structuring the design of convertible housing modules, but also in all keyword analyses used to identify focus areas and clustering points in the workflow.

Conclusion and recommendations: It has been observed that using text analytics, data mining, architectural text, and adaptable text has a significant impact on defining and associating spaces in convertible housing design processes. This suggests a new methodology in which text analytics studies, often implicit in design phases and focusing on the role of functional clusters in spatial representation, can be considered as a critical phase of the design processes. Consequently, it is expected that the design processes of the near future will incorporate text analytics tools as a parallel, semi-autonomous workspace. In conclusion, framing the design process of convertible housing modules through adaptable text analytics within a historical context reveals a rich tapestry of interactions between architecture and texts. This relationship has evolved over time, highlighting the critical role that language plays in shaping architectural thought, practice, and adaptability, ultimately contributing to the ongoing dialogue between the built environment and the narratives that define it.

Keywords: text analytics, data mining, architectural text, adaptable text, convertible housing

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TRANSITION DESIGN FOR SUSTAINABLE INTERIORS: A NEW APPROACH FOR RESIDENTIAL DESIGN PRACTICE

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Extended Abstract

Designers often dream about the future but struggle to predict the long-term effects of their actions. This tension is reflected in the short-term focus of many interior design projects, where immediate functional and aesthetic concerns overshadow considerations of sustainability and longevity. Transition Design is an emerging sustainability framework that emphasises foresight, systems thinking, and allows emerging designers to consider the implications of their projects over larger timescales. As a methodology, Transition Design has rarely been applied to interior design. This study fills a critical gap by exploring how Transition Design can reshape the interior design process, fostering more sustainable practices in the industry.

This study seeks to answer the question: How can Transition Design be applied as a methodology to support interior design processes to be more sustainable? The research also examines broader educational implications, addressing how interdisciplinary approaches can enhance interior architecture and design education. It aims to explore whether collaboration with other disciplines can better equip designers to address the industry's transition and how this shift impacts both design skills and creative thinking. Designers and researchers, Terri Irwin (Irwin, 2012, 2015, 2018; Irwin et al., 2020), Cameron Tonkinwise (Irwin et al., 2020; Tonkinwise, 2015) and Gideon Kossoff (Irwin et al., 2020), began introducing transition design as a framework for designers over a decade ago. Transition design draws on socio-technical transitions theory and social practice theory to consider how societies change, and therefore how they might become more sustainable (Irwin et al., 2020; Loorbach et al., 2017). As an emerging methodology, transition design has yet to be applied to residential interior design; this study hopes to explore how this methodology could expand interior design practice.

The study is situated within the scope of the Australian interior design industry, focusing specifically on the integration of Transition Design principles to foster sustainability. It also explores the potential for interdisciplinary education within interior architecture, examining collaborations with environmental science, sociology, psychology, and technology. The research aims to contribute to both the academic and professional communities by offering insights into the future of design skills and educational practices.

This study is limited to the perspectives of Australian interior design industry, it may not fully address global variations in practice or educational approaches. Additionally, the study focuses on the conceptual framework of Transition Design and its potential applications rather than conducting extensive empirical testing. As the research is conceptual in nature, the findings will be exploratory and speculative, requiring further validation through applied research.

The study employs a qualitative, theoretical approach to explore Transition Design as a methodology for sustainable interior design practices. A scoping review of existing future-focused studies in both Transition Design and interior architecture will form the core of the research, providing a basis for proposing new frameworks. A scoping review is the chosen method to provide an overview of existing research and explore the potential of Transition Design as a methodology for interior design. A scoping review is an appropriate method when a topic has not been extensively reviewed or the topic is complex and interdisciplinary (Mays et al., 2001). This conceptual analysis will be supplemented by case studies of existing design projects that demonstrate the application of Transition Design to existing design projects in related but different fields such as service design and visual communication design. These are design fields that are adjacent to interior design, and follow similar processes. Reflection is needed on these case studies to determine the potential viability of

Transition Design in its application to interior design. The interdisciplinary aspect of the study will draw from educational theory to evaluate how this field can influence and enhance interior architecture education. The scoping review is limited as any conclusions drawn will require further study (Pham et al., 2014).

Although final findings are yet to be determined, the study anticipates that the application of Transition Design will offer a structured approach for interior designers to better anticipate the long-term impacts of their decisions, leading to more sustainable and climate resilient designs. Additionally, interdisciplinary collaborations in education are expected to result in a more holistic approach to problem-solving, integrating creative thinking with sustainability and sociology. The study predicts that a scoping review will provide a direction for future research to explore how this interdisciplinary approach has been successfully applied to other design disciplines. This study proposes that transition design could be further explored in education to allow emerging interior designers to enter the workforce with enhanced foresight, adaptability, and critical thinking skills. Proposing transition design as a methodology for interior design education and practice may better equip new designers for the evolving demands of the industry and the planet.

The study concludes that Transition Design is a promising methodology for transitioning to sustainable practice within design pedagogy and the interior design industry. By embedding foresight and systems thinking into interior design processes, the industry can become more future-oriented. Furthermore, interdisciplinary collaborations in education are essential for preparing interior architects and designers to navigate the complexities of sustainability, human behaviour, and technological advancement. The study recommends that educators and practitioners adopt a more interdisciplinary approach to the design process and professional practice, integrating lessons from Transition Design to foster a new generation of designers ready to address the challenges of tomorrow.

Keywords: transition design, interior design process, climate interior design

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INTEGRATED DESIGN OF SPACE WITH BUILDING PHYSICS CONTROL PRINCIPLES IN INTERIOR ARCHITECTURE EDUCATION

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Extended Abstract

Evaluating interior design together with physical environmental control is important for integrated design. "Integrated design" is the work carried out by architectural, interior architecture, static, mechanical, installation and electrical designers coming together from the first stages of the design process. It can also be thought of as a more active implementation of sustainable design within the scope of integrated design objectives. Among the precautions to be taken before integrated design:

1. Reducing heat loss and gain in buildings
2. Widespread use of alternative, renewable energies.
3. Alternative systems have high annual efficiency.
4. Designing buildings in accordance with "Zero energy" targets. [1]

In addition to the design aspects of a space, supporting physical environmental control criteria in terms of lighting, acoustics and thermal comfort conditions are complementary elements. These three basic elements aim at the simultaneous analysis of the design-analysis stages. In the study, the importance of physical environmental control mechanisms in buildings in interior architecture education is discussed within the scope of "integrated design". In interior architecture education, physical environmental control examines the effects of indoor environmental quality and indoor user comfort. Within the scope of this interaction, it becomes imperative to have close connections with sustainability. Physical environmental control, which aims to increase the quality of life and comfort in interior spaces, also indicates the importance of the environmental approach in accreditation standards (CIDA - Council for Interior Design Accreditation and IDEC - Interior Design Educators Council). According to the international standards determined by CIDA, there is the statement "Criteria 12: Environmental control systems: According to the criterion; graduate interior designers use the principles of lighting, acoustics, thermal comfort and indoor air quality to increase the health, safety, welfare and performance of the users of the building". Physical environment control training consisting of lighting, acoustics, heat-humidity control, thermal comfort and fire topics should be one of the decision-making points of the architectural design process. The design process starts with schematic design. Design stages are continued with the scenario structure created depending on the type of building function. The main subject of the study, "Lighting" from the building physics components, supports the concepts of vision and perception with theories. It defines natural and artificial lighting techniques and brings solutions on using light functionally in the interior. "Acoustics" aims to ensure that the sounds in the volume reach all listeners in the best conditions and noise control. "Thermal comfort" ensures the adjustment of indoor comfort and homogenization in terms of thermal. "Static, mechanical and electrical installation design" carries out studies on the design of electrical installation mechanisms, especially ventilation and air conditioning systems.

These areas that interact with each other in the field of building optimization will be evaluated within the scope of the study. The relationship between the subheadings of interior architecture education and the creation of building physics comfort conditions in interior spaces will be determined. The requirements of all these specialized areas will be revealed with their advantages and disadvantages with the design phase. With the method to be considered, the findings of all other factors related to scale, layout and integrated design of interior spaces will be collected under a single roof. The study will be created with restrictions and scaling limitations according to the functions of interior spaces. In this way, the study on which complementary area affects which point in the interior space will be deepened.

Within the scope of this study, a wet area project design designed by students of Beykoz University Interior Architecture and Environmental Design Department in the scope of Heating-Cooling, Installation and Acoustics course in the 2023-2024 Spring semester will be evaluated as a case study.

Student studies will be analyzed by comparing how they were handled in terms of interior architecture design and physical environment control criteria, and how the resulting projects blended both topics.

The results of the student projects will be evaluated in detail under the titles of design - energy consumption, design - renewable energy use and design - use of alternative systems. In this way, it is planned to be a preliminary preparation for the processes that progress with more innovative solutions.

In this study, which aims to present a modern approach to the traditional interior design concept, interior design will be addressed within the scope of integrated design. When evaluated in terms of all the criteria addressed (lighting, acoustics, thermal comfort, statics, mechanics, etc.), integration updates should be made more frequently in interior design education. Thanks to the studies to be carried out on the adaptation of technological data to the interior space, areas that prioritize user comfort will be revealed. In this way, building automation applications in interior design will be able to progress with more innovative and healthy approaches.

Keywords: Building automation, integrated design, interior design education, physical environmental control design, system integration.

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ANALYSIS OF ARCHITECTURE AND INTERIOR ARCHITECTURE EDUCATION IN TERMS OF SUSTAINABLE DEVELOPMENT GOALS: A CASE STUDY

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Extended Abstract

Introduction

Universities play a crucial role in advancing sustainable development by equipping future leaders with the skills necessary to address global challenges. Integrating sustainability into architectural programs is essential for cultivating professionals who prioritize sustainable design. Boarin et al. (2020) noted that the integration of sustainability in architectural education varies globally, affecting students' perceptions and their capacity to implement sustainable practices. The United Nations' Sustainable Development Goals (SDGs) provide a framework for embedding sustainability into educational curricula (United Nations, 2015). Institutions must incorporate these goals and engage students in sustainability initiatives, fostering a culture that extends beyond the classroom. This approach ensures students are prepared to tackle complex sustainability challenges (Leal Filho et al., 2019). A strategic approach is needed to revise educational content, promote interdisciplinary collaboration, and engage the academic community in sustainability practices (Albareda-Tiana et al., 2018).

In this context, evaluating how specific institutions align their programs with the SDGs can provide understanding of their potential to foster sustainable practices. This study evaluates the alignment of the Architecture and Interior Architecture programs at Arel University with the SDGs, emphasizing higher education's potential to promote sustainable practices in the built environment.

Aim

The primary aim of this research is to evaluate the alignment of the Architecture and Interior Architecture curricula at Istanbul Arel University with the SDGs. This study assesses how effectively these programs equip students to engage with sustainable development by examining curriculum content and course learning outcomes. Furthermore, the research investigates the extent to which educators influence students' perceptions and understanding of the SDGs as embedded in course outcomes. By focusing on these aspects, the study aims to identify the strengths and weaknesses of the current educational curriculum and provide actionable recommendations for enhancing sustainability within the curriculum. Ultimately, this research aspires to offer valuable perspectives on the effectiveness of these programs in preparing students to contribute meaningfully to sustainable development.

Scope

This study conducts a thorough analysis of the curricula for the Architecture and Interior Architecture programs at Istanbul Arel University, specifically examining course learning outcomes in relation to the SDGs. It includes qualitative data gathered from interviews with instructors and surveys of both students and instructors to understand their perceptions of the curriculum's effectiveness. The findings will guide recommendations aimed at improving the educational programs and better aligning them with sustainability goals.

Limitations

This study is focused specifically on Istanbul Arel University Faculty of Architecture and may not apply to other institutions. Because the research is qualitative, the findings rely on subjective interpretations from interviews and surveys, which may introduce bias. Additionally, the changing nature of educational programs and the evolving understanding of sustainability could affect the relevance of the findings over time. Future research could broaden the scope to include comparisons with other universities and programs.

Methodology

This study employs a qualitative research methodology through a three-phase process incorporating document analysis, semi-structured interviews, and questionnaires. The initial phase consists of a comprehensive document analysis of the curricula for the Architecture and Interior Architecture programs. In the second phase, faculty instructors participate in semi-structured interviews to evaluate how their course learning outcomes align with the Sustainable Development Goals (SDGs) and their associated targets. The final phase involves the administration of two distinct questionnaires: the instructor questionnaire evaluates the alignment of course learning outcomes with the SDGs using a 10-point scale, while the student questionnaire assesses both their SDG knowledge and their perception of how effectively their coursework has enhanced their understanding of and engagement with sustainable development, also utilizing a 10-point scale. This methodological approach enables a comprehensive assessment of sustainability integration within the curriculum.

Findings

The completed questionnaires from the Interior Architecture and Architecture departments, along with student feedback, provide valuable insights into the alignment of each curriculum with the SDGs. Both departments exhibit a strong commitment to sustainability, with average scores for learning outcomes related to the SDGs being approximately 7 for Interior Architecture and 7.5 for Architecture, indicating effective integration of sustainability principles, with Architecture showing a slight advantage. However, student responses reveal a notable gap in awareness and understanding of the SDGs, particularly among those who have not been exposed to relevant university courses or external resources.

In Interior Architecture, learning outcomes associated with Goal 11: Sustainable Cities and Communities and Goal 12: Responsible Consumption and Production received scores between 5 and 8, reflecting a focus on urban planning. The Architecture department similarly emphasized these goals, with scores ranging from 6 to 9, particularly highlighting Goal 4: Quality Education. Despite these positive indicators, student feedback suggests that more explicit connections between coursework and the SDGs could enhance understanding and engagement.

Both departments identified the need for improved innovation and interdisciplinary collaboration. Interior Architecture scored lower on Goal 9: Industry, Innovation, and Infrastructure, while Architecture noted the necessity for more practical experiences in urban planning. Furthermore, many students reported limited or no knowledge of SDG-related content, underscoring the need for comprehensive education on these topics. Instructors from both departments advocate for real-world case studies and continuous curriculum development to adapt to evolving sustainability standards. Addressing the identified gaps in student awareness and understanding will be crucial for preparing students for sustainable design challenges and fostering a deeper understanding of global sustainability issues.

Conclusion and Recommendations

This study highlights the urgent need to align the Architecture and Interior Architecture curricula at Istanbul Arel University with the SDGs to enhance students' understanding and engagement with sustainable development. While students possess a foundational awareness of sustainability issues, there is a significant opportunity to deepen this understanding through comprehensive curriculum integration.

To address these gaps, Istanbul Arel University should develop a cohesive strategy for embedding SDGs across all courses, ensuring sustainability is a core component of the educational experience. Promoting interdisciplinary collaboration is essential, encouraging departments to integrate environmental, social, and economic dimensions of sustainability into architectural education. Increasing practical applications through hands-on projects and case studies will enable students to apply sustainability concepts in real-world scenarios.

Additionally, expanding faculty development by providing training and resources will empower educators to effectively teach and integrate sustainability concepts into their courses. Engaging with external partners, such as industry professionals and organizations, will expose students to current sustainability practices and challenges.

By implementing these recommendations, Istanbul Arel University can better prepare its students to become leaders in sustainable development, equipped with the knowledge and skills necessary to address global challenges while fostering sustainable practices within the built environment.

Keywords: Sustainable Development Goals (SDGs), Architecture, Interior Architecture, Higher Education, Curriculum Integration

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INTERIOR DESIGN EDUCATION IN THE CONTEXT OF CLIMATE CHANGE: A SYSTEMATIC ASSESSMENT OF EXISTING CAPACITY IN TURKIYE (TURKEY)

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Extended Abstract

The climate change we experience today has been seen as an anthropogenic process (Shepherd et al., 2022). The observed increase in the global mean temperature, and related weather and climate extremes (such as droughts, heavy precipitation, storm surges, heatwaves, etc.) are strongly attributed to the results of human actions that cause a dramatic increase in the greenhouse gas (GHS) emissions in the atmosphere (IPCC, 1995, 2008, 2014; IPCC & WMO, 1992; Watson & UNEP, 2003). Actions related to the built environment are responsible for 40% of these emissions (Cole & Hamilton, 2024). While the construction industry and architects are aware of their carbon footprints and therefore, in search of sustainable solutions, the interior design industry does not share this awareness. Recent studies indicate that the discipline of interior design (ID), and its related actors such as interior designers (“Why Interior Designers Must Fight Climate Change,” n.d.), ID students (Alves et al., 2018), and ID scholars are not fully aware of their roles in the context of climate change, although interior design practices are responsible for a significant share of the total emissions of the built environment (Cole & Hamilton, 2024).

To limit global warming at +1.5-2°C, actors of the built environment, institutions, and authorities should act. This climate action includes mitigation efforts, transformational adaptation, and dealing with loss and damage. Yet, global effort and finance are not distributed equally between these actions (IPCC, 2023; Leichenko & O’Brien, 2024; Otto & Fabian, 2023). To achieve the Sustainable Development Goals (SDGs) (*THE 17 GOALS | Sustainable Development*, 2015) of the United Nations in this matter, adaptation activities should get the required attention from both scholars and policymakers.

In this framework, the term adaptive capacity (AC) that refers to the potential or ability of a system, community, or region to adapt (IPCC, 2012, p. 201; Smit & Pilifosova, 2003), becomes prominent. Assessing the existing capacity of individuals, institutions, and entities can provide guidance to cope with the impacts of climate change.

Therefore this study aims to assess the existing capacity of ID education in Turkiye in the context of climate change via a systematic evaluation to determine the awareness levels of higher education institutes, including the actors of ID scholars and ID students, in Turkiye.

To achieve that, systematic literature review is employed as the data collection methodology. However, due to the lack of scientific publications (such as articles, papers, or research projects) in the nexus of climate change and ID education in Turkiye, the scope of the systematic review has extended to include curriculums of ID departments (for both undergraduate and graduate levels) and the theses which were conducted within the related programs. This systematic assessment aims to be inclusive, therefore, an integrated approach is adopted. To assess the curriculums, all offered courses (core, departmental elective, university elective, etc.) are examined to define the bigger scope that an ID student is facing throughout his/her education. Similarly, all conducted theses in Turkiye within the related graduate programs are included without any limitation in year or scope.

However, even though they are the backbone of ID curriculums, design-based courses (such as design projects) are only evaluated according to their most recent course content documents on the departments’ web pages. This is a limitation of this study since the syllabuses and the main subject of

design courses can change every semester. Nevertheless, the information on changed course contents is not reachable for most of the ID departments (through their web pages or official social media). Therefore, only the most recent ones are included in the systematic assessment process.

In the assessment process, two categories are formed to evaluate the data: climate change-focused (CC-focused) and climate change-related (CC-related). While the CC-focused courses and theses directly address anthropogenic climate change, CC-related ones address sub-units or key concepts that contribute to climate action but do not necessarily cover CC itself. Therefore, CC-related courses and theses are categorized according to their main subjects: (1) adaptation, (2) sustainability, and (3) resilience.

As a result of the systematic assessment of curriculums and theses with various inclusion and exclusion criteria throughout the steps: in the curriculums of 85 undergraduate programs (Department of Interior Architecture, *n.41* (*İç Mimarlık Programı Bulunan Tüm Üniversiteler | YÖK Lisans Atlası*, 2024); Department of Interior Architecture and Environmental Design, *n.43* (*İç Mimarlık ve Çevre Tasarımı Programı Bulunan Tüm Üniversiteler | YÖK Lisans Atlası*, 2024)) in the Republic of Türkiye (TC) and the Turkish Republic of Northern Cyprus (TRNC), only 5 courses are determined as CC-focused while 247 are observed to be CC-related. In parallel with this, among all the offered courses of 46 graduate programs (master's, *n.33*; Ph.D., *n.9*; D.A., *n.4*) in TC no CC-focused course is observed while 52 are determined to be CC-related. Similarly, among 1922 theses that were conducted in TC in the ID discipline, only one is spotted to be CC-focused while 190 are categorized as CC-related.

Nevertheless, it is important to note that all CC-focused courses are categorized as university electives which indicates that there are no offered courses by ID departments themselves that connect design education to climate change impacts. A significant amount of CC-related courses are observed to have adaptation (conservation, adaptive re-use; *n.301*) as their main subjects. This is followed by sustainability (green architecture, eco-architecture, sustainable architecture, etc.; *n.166*), and resilience (disasters, climate; *n.20*). Correspondingly, CC-related theses are determined to have sustainability (green architecture, eco-architecture, sustainable architecture, climate, etc.; *n.204*), adaptation (adaptive re-use; *n.192*), and resilience (disaster, *n.11*).

The significantly limited number of CC-focused courses and theses address the lack of existing capacity in ID education in Türkiye. Since the students are not offered a chance to combine their design knowledge to cope with CC impacts, it is consistent to have almost no theses and scientific publications on the subject in Türkiye. Nevertheless, the high number of adaptation and sustainability-based courses and theses indicate a potential. Since ID discipline has an adaptive capacity in its nature, it is important to evaluate, build, and activate this capacity to cope with the impacts of CC via increasing awareness.

Keywords: climate change, interior design education, adaptive capacity, assessment

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THE ROLE OF DESIGN COMPETITIONS IN INTERIOR ARCHITECTURAL PEDAGOGY: THE EXPERIENCE OF THE “TURKISH PAVILION” IN BARCELONA

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Extended Abstract

Introduction: Design competitions have long been an integral part of architectural education, providing students with opportunities to develop creative problem-solving, design thinking, and professional-level project management skills. However, in recent years, participation in competitions has increasingly become a process based more on students' personal preferences and motivations (Eriş & Ağan, 2021; Banerjee & Loukaitou-Sideris, 1990). This situation indicates that the integration of competitions into the educational curriculum has weakened. In a field like interior architecture education, where practical experience is as important as theoretical knowledge, using design competitions as a pedagogical tool can significantly contribute to preparing students for their future professional careers. As examined by Vanhee et al. (2021) and Eriş and Ağan (2021), there is not yet a comprehensive guide on the pedagogy of interior architecture education in the literature, nor is there sufficient research on how design competitions can be effectively integrated into interior architecture pedagogy. Additionally, interior architecture education often overlooks any linkage between academia and industry (Camacho & Alexandre, 2019). All of these factors make studies on competition-based productions and industry collaborations in interior architecture education valuable.

Aim: This study aims to explore how design competitions can be adapted into interior architecture education and how this process can be shaped through a university-industry collaboration model. This model bridges the gap between academic learning and professional practice, enabling students to gain real-world experience. The research particularly focuses on how competitions enhance students' creative problem-solving abilities and how the competencies gained through these processes can be transferred to professional practice. Additionally, the study examines how incorporating competitions into educational processes helps students develop their ability to solve complex design problems, leading to the production of more original and innovative solutions.

Scope: In this context, the design competition for the "Turkish Pavilion" at The 32nd Annual European Association for International Education (EAIE) Conference and Exhibition, held in Barcelona, was analyzed as a case study. This competition was organized by the Foreign Economic Relations Board (DEIK) following a call made to the fine arts faculties of universities participating in the exhibition, and DEIK coordinated the participation of 25 foundation universities from Turkey. After evaluations conducted by DEIK officials, the design submitted by students from Istanbul Medipol University was selected for implementation.

Research assistants from the Department of Interior Architecture and Environmental Design were assigned to manage the process on behalf of the university and selected a team of five students to participate in the competition. Initially, the students were divided into two groups—one with two members and the other with three—and each group developed a separate design for the pavilion. Following the presentation of both designs, DEIK identified the strengths of each and, based on client requirements, the two groups were merged to create a final design incorporating the strongest elements of both. This process helped students understand the importance of integrating client

feedback into their designs and provided them with experience in professional-level design revisions. The final design was implemented by a local team in Barcelona, while the university team maintained communication to ensure the project adhered to the original vision and client requirements.

An important outcome of the competition was the registration of the students' designs through the Turkish Patent and Trademark Office (TÜRKPATENT), facilitated by Medipol University's Technology Transfer Office (TTO). This process allowed the students to graduate with a registered design, strengthening their portfolios and providing them with a competitive advantage in the job market. The university-industry collaboration not only protected the students' intellectual property but also emphasized the importance of formalizing creative outputs.

Methodology: To better understand the impact of the competition on the students, semi-structured interviews were conducted with the five participants. The interviews were analyzed using thematic analysis, revealing recurring themes and patterns in the students' experiences.

Findings: The analysis identified both positive and negative aspects of the competition process. Students reported that the competition provided them with a new perspective on the design process and taught them how to quickly adapt to client feedback. The competitive nature of the project pushed students to challenge themselves and create standout designs. Additionally, the competition emphasized the importance of the stages from concept to implementation, helping students better understand the practical steps involved in professional projects.

Students also highlighted the importance of teamwork. The collaborative nature of the charette improved their communication and coordination skills. Working closely with a client provided invaluable experience in professional design processes. However, students also faced some challenges. The limited time frame, in particular, hindered the full development of conceptual ideas. The accelerated nature of the competition forced students to prioritize certain aspects of the design, which limited deeper conceptual exploration. Furthermore, issues with the equitable distribution of tasks within the team occasionally led to tensions and inefficiency.

Another challenge for students was the discontinuities between different stages of the competition. After the initial designs were selected, a lack of continuity in feedback caused delays in the process. Some students expressed concerns that the skills they developed during the competition might not be fully utilized in future projects, which could limit the long-term benefits of the experience.

Limitations: The limitations of this study are also significant in this context. The research was conducted with only five students, which limits the generalizability of the findings. Additionally, the short duration of the competition restricted the opportunity for conceptual design development. These findings should be supported by further research involving larger student groups and longer-term projects.

Conclusion and recommendations: In conclusion, this study demonstrates that integrating design competitions into interior architectural pedagogy plays a critical role in developing both creative and professional skills in students. Incorporating competitions as part of the curriculum provides students with the opportunity to apply theoretical knowledge in practical settings, resulting in a comprehensive educational experience. The charette model, in particular, offers a framework for students to respond to real-world pressures and demands. The importance of university-industry collaborations, exemplified by Medipol University's Technology Transfer Office, lies in protecting students' creative work and ensuring they gain recognition before entering the professional world.

These findings underscore the necessity of more widespread integration of design competitions into interior architecture education, supported by strong university-industry partnerships. This approach not

only helps students develop the skills necessary for professional life but also bridges the gap between academic learning and professional practice.

Keywords: design competitions, university-industry collaborations, interior architectural pedagogy, charette model

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PHOTOS

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