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The Impact of Virtual Teaching and Artificial Intelligence on the Interior Design Field

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ABSTRACT
Nowadays, we are witnessing a transition from the virtual to the physical world, which has applications in interior design studios and art classrooms. Using AI and digital technology, art classrooms allow students to create new ideas. Besides, the research sets out methodologies and rules for digital tools such as virtual reality and artificial intelligence in classrooms. The research aims to study the benefits of educational technology to enhance teaching techniques in the interior design field. The research problem is that the traditional educational environment for interior design students in art colleges does not attract students, ignoring the cultural importance of fine arts, and does not promote modern technological tools like artificial intelligence and virtual reality in interior design programs to develop students' skills. The research follows a descriptive-analytical approach in analyzing the impact of virtual teaching techniques and artificial intelligence. In conclusion, the research concluded that the use of technology in teaching has become an important trend, such as virtual technologies and artificial intelligence, in addition, they have an impact on the productivity of interior design students. Therefore, technologies that enable intelligent interaction and decision-making are included in the category of artificial intelligence.
Keywords - Virtual Reality (VR), Artificial Intelligence (AI), Virtual Techniques, Interior Design.

I. INTRODUCTION

Art embodies the human experience and conveys it in innovative and expressive ways. Students in the fine arts environment have a special nature to teaching. Incorporating art enhances students' abilities to learn new concepts. Virtual technologies and artificial intelligence can be used effectively in teaching the interior design major to communicate ideas effectively.

The field of interior design can be taught through aesthetic development, appreciating different types of art, seeing things from multiple perspectives, expressing ideas about art, appreciating the process of making art, and being more aware of their thinking, which is often the motivation to further explore artmaking. Art teachers should engage students deeply in the classroom, giving students a huge opportunity to think about design and their projects using artificial intelligence (AI). [1]

Art encourages creative thinking by using advanced technologies. Art projects allow freedom of expression to stimulate student creativity. This enhances problem-solving and creative skills. [2] New technology aims to improve human life. Artificial intelligence (AI) is one of the most advanced and important technologies in the field of interior design, and it can go beyond students' imagination by giving unexpected results. [3]

These platforms are software tools used to help users design, visualize, and display. [4] Artificial intelligence can provide alternative ways of creative expression and can lead students to retain ability, knowledge, and creativity. [5] [6]

Through the use of virtual reality, students can better communicate and comprehend one another by seeing themselves and immersing themselves in lifelike 3D worlds. [7] Artificial intelligence is used to provide quick solutions to challenges faced by designers. [8]

The main problem is to face the traditional environment in the interior design education sector. Hence, the study demonstrates a creative environment for students by integrating augmented reality technologies and artificial intelligence to

enhance the performance of interior design students. The study uses the descriptive analytical approach to analyze the impact of virtual teaching techniques and artificial intelligence on teaching art and design courses, then describes these techniques and their impact on the development of the interior design field. The research aims to study modern technologies such as artificial intelligence and virtual reality on interior design programs and analyze the impact of interior design technology on the design process through education and learning in classes. The significance of the research is to study the applications of artificial intelligence in the educational process for interior design students to develop their performance. Many modern applications help students create their designs and various art forms.

Figure. (1,2) Illustrates the interior design from artificial intelligence tools. [9] [10]

The study assumes that modern technologies, such as artificial intelligence and others, have a strong role in the performance of interior design students in producing their projects, developing their skills, and significantly competing in the labor market.

The research demonstrates the strategies of teaching artificial intelligence to fine arts students. Hence, teachers must use a variety of contemporary, integrated, and diversified materials to satisfy the needs of their students and further their areas of interest in learning, including better interior design teaching materials.

In the world of design, virtual reality offers an immersive experience. In addition, studying the necessity of integrating artificial intelligence content into curricula in colleges of art and design in the interior design field.

Figure. (3,4) Illustrates Interior design with artificial intelligence. [11]

II. TRENDS IN INTERIOR DESIGN THAT INTEGRATE ARTIFICIAL INTELLIGENCE

The field of fine arts teaching is ideally suited to digital models of artificial intelligence (AI) and virtual reality (VR). [12] Through a combination of portable projectors, document cameras wireless speakers, and projectors, modern education technology, and artificial intelligence can enhance student engagement and make lessons more interactive.

Students can be provided with online learning resources and digital content-creation tools. [6] Artificial intelligence (AI) has been more prevalent in interior design trends in recent years. [13] In the interior design field, new digital technologies and artificial intelligence permeate the classroom, bringing to light the changing interaction between the art world and technology as a communication tool. The research studies the impact of technology, including artificial intelligence, on the educational environment in the interior design field.

The research lists a group of technology strategies for teaching interior design and engaging students in creative and research work digitally. Artificial intelligence develops students' skills in design, ideas, colors, materials, drawing, sketches, video, and animation. This provides endless possibilities for other interactive techniques. [12]

Figure. (5,6) Illustrates creative interior design and artificial intelligence. [13] [14]

III. INCORPORATING DIGITAL TECHNOLOGIES INTO INTERIOR DESIGN STUDENTS' LEARNING PROGRAMS

The use of artificial intelligence techniques in educational activities has become more widespread, and research confirms that they will become the focus of education as they can attract the attention of students, especially students in artistic fields such as interior design. [15] [16]

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON DESIGN EDUCATION AND PRACTICE

Artificial intelligence became a part of design education curricula. It is necessary to move towards enhancing student's skills. This transformed the traditional workflow and enabled students to be creative. Enhancing artificial intelligence in design education and its practice is essential to merge technology and creativity, which can be applied in interior design education. [17]

Figure. (7,8) Illustrates interior design with artificial intelligence. [18]

IV. THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE TRANSFORMATION OF INTERIOR DESIGN SPACES

We live in an era where the explosion of virtual, augmented, and mixed reality will become the next frontier of design opportunities. [19] Artificial intelligence (AI) powered design tools simplify tasks, improve layouts, and design the right designs. [7]

V. ARTIFICIAL INTELLIGENCE AND INTERIOR DESIGN TOOLS

Traditionally, interior designers sketch ideas and create two-dimensional (3D) drawings or three-dimensional (3D) models. AI-generated images provide a quicker and more precise method to convey design ideas and concepts. [11] [20] Besides, artificial intelligence-driven interior design tools are revolutionizing the field for both professional students and handicraft enthusiasts. Designers can create various furniture placements, color schemes, and arrangements of spaces. [16] Many design tools are using artificial intelligence (AI), including Planner 5D, Interior AI, and Midjourney. Artificial intelligence technology is used to create realistic presentations of interior design concepts. These technologies allow students to create immersive experiences in their designs (Table 1). [11]

Table. (1) Artificial intelligent tools in interior design.[20]

AI-powered interior design tools [20]		
1	**Planner 5D**	A versatile tool for creating interior designs, floor plans, and 3D.
2	**Interior AI**	An AI-based platform that generates interior design according to preferences.
3	**Midjourney**	The platform allows interior designers to manage their designs.
4	**Decor Matters**	A mobile application that uses artificial intelligence to create designs.
5	**Canva**	A graphic design to help students in the creation of presentations and visual content.
6	**WGSN**	It predicts interior design trends in data and analysis.
7	**Google Indicators**	It can be used to track design trends and popular search terms related to interior design.
8	**Chaos Scans**	A library of realistic materials from Chaos Group presents the textures and finishes used in interior design.
9	**ChatGPT**	AI-developed AI chatbot to incorporate into a website.
10	**Trello**	It can be integrated with AI-powered chatbots like ChatGPT.

Figure. (11,12) Illustrates impressive Interior design by using artificial intelligence. [21]

VI. ENHANCING THE EXPERIENCE OF STUDENTS DURING TEACHING BY USING ARTIFICIAL INTELLIGENCE

The interaction of students with design concepts in immersive ways through artificial intelligence, virtual reality, and augmented reality technologies improves the design process. Whereas augmented reality creates design features on actual spaces, virtual reality generates virtual representations of spaces. [20]

Figure. (9,10) Illustrates generating designs through artificial intelligence. [11]

VII. CREATING AUGMENTED REALITY (AR) AND VIRTUAL REALITY (VR) IN INTERIOR DESIGN STUDIOS

Interior design is a promising and exciting field that can change students' perspectives on interior spaces. [22] Immersive environments can enhance virtual reality environments by creating realistic simulations and intelligent interactions within virtual worlds. [23]

Therefore, students may be able to use some artificial intelligence (AI) designs in their projects to achieve better results. [21]

Artificial intelligence (AI) systems can recommend specific furniture pieces, color palettes, or design elements based on the user's preferences and lifestyle, helping students create unique, personalized designs.

Artificial intelligence (AI) can analyze past design trends and predict future trends, helping post-graduate students and future designers to incorporate current trends into their work. [20] [24]

colleges. [13] in addition to investigating how advanced techniques and technology can create unique designs to evolve technology in interior design education that provides more immersive experiences for students. [24]

Figure. (13,14) Illustrates realistic interior design through artificial intelligence tools. [21]

VIII. TECHNOLOGY IN THE ARTS TEACHING ENVIRONMENT

The research explores how these capabilities can be applied to interior design curricula, redeveloping students' creative processes, and improving educational quality in art and design

Figure. (17,18) Illustrates the details of interior designs through technology. [21]

Figure. (19,20) Illustrates strong designs by technology. [25]

Figure. (15,16) Illustrates imaginative interior design and the power of artificial intelligence to create these perspectives. [21]

IX. Conclusion

In conclusion, students in the interior design field at art and design colleges must become aware of all these technologies while interacting, and integrating the content of artificial intelligence, augmented reality, and virtual reality. Advanced technologies, such as artificial intelligence (AI) tools, can foster greater creativity in the art and design field for students skills. Finally, the integration of advanced technologies elevates teaching approaches and enhances the quality of teaching life in a creative environment, which is art and design.

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