



Current State And Comparative Pedagogical Analysis Of Using Artificial Intelligence In Training Interior Design

Rustamov Kamoliddin Ziyodulla o'g'li

Shahrisabz state pedagogy Institute , Art History department, Uzbekistan

ABSTRACT

This article analyzes modern trends in the use of artificial intelligence (AI) technologies in the process of professional and pedagogical training of future interior design teachers in higher education institutions. The study conducts a comparative pedagogical analysis of traditional pedagogical approaches and innovative educational models using generative AI tools (Midjourney, Stable Diffusion, DALL-E, BIM-integrated AI). The effectiveness of generative models in spatial thinking, composition creation, rapid visualization, and the development of didactic materials is evaluated. Furthermore, the formation of AI literacy among future specialists, issues related to copyright and creative uniqueness (originality), and their pedagogical solutions are highlighted.

KEYWORDS: Interior design, pedagogical education, artificial intelligence, generative AI, comparative analysis, spatial thinking, computer graphics, digital didactics.

INTRODUCTION

In the era of modern digital transformation, the system of training pedagogical personnel in creative and design fields is undergoing fundamental qualitative changes. The interior design specialty requires not only technical and engineering knowledge (drafting, ergonomics, materials science) but also high artistic-aesthetic taste and spatial thinking. Therefore, educators who will teach this subject in the future must possess both classic design skills and the latest digital technologies.

In recent years, the rapid development of generative artificial intelligence technologies (Text-to-Image, AI-assisted CAD/BIM) has changed the design education paradigm. Future teachers must now use artificial intelligence not only as a tool for creating ready-made images but also as a design stage optimizer, an idea generator, and an innovative didactic platform.

Methodology

The following complex of scientific and pedagogical methods was used in the research:

Theoretical-comparative analysis: The curricula and practices of training interior design teachers in foreign (USA, UK, South Korea) and local higher education institutions were analyzed.

Pedagogical observation and modeling: An educational-methodological process model for the integration of AI tools into design stages was developed.

Comparative analysis: Students' task completion speed, the diversity of conceptual ideas, and graphic literacy were compared using the example of traditional and AI-integrated methods.

Results And Discussion

1. Classification of AI tools used in the educational process

AI technologies that future interior design teachers need to master are divided into three groups based on their functional tasks:

Conceptual generation (Moodboards and sketches): Midjourney, Stable Diffusion, Adobe Firefly. Through these tools, students can visualize the project's color palette, lighting scenarios, and stylistic directions in a matter of minutes.

Technical design and optimization: Autodesk Revit AI, Finch3D, Planner 5D. Used for automating ergonomic space planning and calculating sunlight exposure and ventilation parameters.

Pedagogical-didactic tools: ChatGPT, Claude. These serve to develop lesson plans, methodology for project assignments, and assessment criteria (rubrics) for students' work.

2. Comparative analysis of traditional and AI-integrated pedagogical approaches

Parameters	Traditional teaching model	AI-integrated model	Pedagogical effect
Idea generation (Brainstorming)	Hand drawing, searching for analogs on the internet (time-consuming)	Obtaining hundreds of conceptual options in minutes through prompt engineering	Increased creative variability and scope of analysis
Ergonomics and planning	Drawing by hand/CAD, checking standards from books	Automatic optimization using generative algorithms	Saves time, reduces the likelihood of errors
Visual rendering	3ds Max/V-Ray (calculations requiring hours)	Results in seconds via AI render modules (Krea.ai, PromeAI)	Opportunity for quick corrections emerges
Role of the teacher	Information provider, drawings checker	Mentor, critical ideas analyst, curator	Student-centered education
Main problem / risk	Lengthiness of the skill formation process	Student's dependence on ready-made results, risk of plagiarism	Requires strengthening of critical and authorial control

2. Pedagogical problems and solutions in training future teachers

Comparative analyses show that there are a number of systemic barriers when introducing AI technologies into the educational process:

Technological dependence and decline of basic skills: There is a risk that students will rely entirely on AI generators without deeply studying hand-sketching and the basics of composition.

Solution: Restricting the use of AI during the propedeutics and academic drawing stages in the curriculum, applying it only in senior years — during the stages of project concept development and presentation.

Lack of prompt literacy (Prompt Engineering): To create a high-quality design concept, a specialist must be able to accurately express architectural terms, lighting types, and material names.

Solution: Incorporating special courses such as "Artificial Intelligence and Computational Linguistics in Design" into the pedagogical curriculum of the design field.

Academic integrity and copyright issues: AI-generated images can be presented as the student's personal creation.

Solution: Changing assessment criteria: allocating the main score not only to the final render but also to the conceptual stages of the project, including the analytical process report from sketch to the finished state (Design Process Journal).

Conclusion

The use of artificial intelligence in the training of future interior design teachers is a powerful factor that increases educational efficiency. AI reduces the technical workload in traditional design stages and directs students more towards conceptual and critical thinking.

Comparative analysis shows that the most optimal results are achieved through a hybrid synthesis of the classical academic school (hand drawing, laws of composition) and advanced generative AI technologies. To ensure this integration in higher pedagogical education institutions, it is advisable to modernize curricula, introduce new assessment criteria, and systematically improve the digital-didactic competencies of educators.

References

1. Muslimov, N.A., Usmonboyeva, M.H., Sayfurov, D.M., & To'rayev, A.B. (2015). Innovative Educational Technologies [Innovatsion ta'lim texnologiyalari] / Textbook. – Tashkent: "Sano standart" publishing. – 150 p.
2. Bates, T. (2019). Teaching in a Digital Age: Guidelines for designing teaching and learning. Vancouver, BC: Tony Bates Associates Ltd. (Integration of digital didactics and educational technologies).
3. Miao, H., & Su, H. (2023). "The Application of Generative AI in Interior Design: Opportunities and Challenges". Journal of Design and Technology Education, 28(2), 45-59. (Impact of tools like Midjourney and Stable Diffusion on design).
4. Rospigliosi, P. A. (2023). "Artificial intelligence in teaching and learning: what questions should we ask of ChatGPT?". Interactive Learning Environments, 31(1), 1-3. (The role of AI in pedagogy and academic integrity).
5. Cross, N. (2011). Design Thinking: Understanding How Designers Think and Work. Berg Publishers. (Design processes, spatial thinking, and the importance of the "Design Process Journal").

6. Autodesk Education Community (2024). Revit and AI integration for Architecture and Interior Design. Official technical documentation and tutorials. – URL: <https://www.autodesk.com/education>
7. OpenAI Documentation (2024). DALL-E 3 and ChatGPT for Educators: Best Practices and Prompt Engineering. – URL: <https://platform.openai.com/docs>
8. Midjourney Documentation (2024). Prompting guide for architectural and interior concepts. – URL: <https://docs.midjourney.com/>

