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The role of guided and unguided merging of generative artificial intelligence in design education to enhance the creative productivity of applied design students

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Abstract:

Amid rapid transitions toward digital technologies, significant challenges have emerged in the use of artificial intelligence tools and techniques within higher education—particularly in teaching applied design across various disciplines in the field of applied arts. For students, AI tools have become an engaging and widely accessible experience, while for faculty, they remain a complex and sometimes ambiguous domain requiring thoughtful with In accordance with the nature of each specialty and without harming the fundamentals of traditional applied design teaching methodologies. Despite concerns, AI applications have become easy to access and widely used by students, raising debates about their effectiveness in applied design education. Academically, these tools may threaten the quality of the educational process and hinder the ability to assess students' creative development and understanding of the design process. Therefore, integrating generative AI into applied design curricula must be governed by clear guidelines, overseen by faculty, in terms of appropriate stages of use and program selection—ensuring fairness in evaluation. This leads to the need for a general framework to guide future curriculum development incorporating generative AI.

Research Problem: This study seeks to solve the following research questions: To what extent can artificial intelligence applications be employed to improve the quality of the applied design teaching process? What is the role of artificial intelligence and its applications in developing the creative and innovative aspects and enhancing students' creative productivity? How can the use of artificial intelligence tools and techniques be regulated and integrated into the development of applied design teaching?

Research Objectives: Identify the potentials of artificial intelligence and its applications in the development of teaching and education in applied design. Determine the roles it can play for students to develop and enhance their creative aspects. Establish a general framework for regulating the integration of the potentials of artificial intelligence in teaching and education in applied design to achieve maximum benefit from its use, without harming the natural stages of creative education and their outcomes.

Research Hypotheses: Artificial intelligence and its applications pose risks to the quality of creative growth for students of applied design. Maximum benefit can be achieved if a regulated framework for its use and integration into the teaching and learning process of design is established. The use of artificial intelligence by students will have positive repercussions on the development of their creative and innovative aspects, provided that mechanisms and regulations are established for its integration into the education, monitoring, and evaluation processes at all stages of design. Artificial intelligence can be utilized in the evaluation, monitoring, and improvement of students' creative productivity.

Research Methodology: Descriptive Experimental Method: For a sample of works by students at the Faculty of Applied Arts, October 6 University, specializing in Interior Design and Furniture, in two courses: Architecture 1 (Unsupervised Experiment) and Commercial Buildings 2 (Supervised Experiment), to identify the positives and negatives of the outputs with the aim of validating the research hypotheses, answering the research problem, and achieving its objectives. Inductive and Deductive Method: Using a questionnaire as one of the data collection tools, which is directed at students of the Faculty of Applied Arts, October 6 University, across different departments, aimed at surveying their opinions regarding the extent of benefit derived from using artificial intelligence applications and tools in teaching applied design.

Search results: The integration of artificial intelligence technologies into applied design education is essential and beneficial to enhance the creative productivity of students. The processes of integrating artificial intelligence into the curricula for teaching applied design must be constrained by guidelines and directed by faculty members, whether in the timing of the phases used in the design process or the types of programs used, to ensure fair assessment among students. Artificial intelligence should be included in the courses descriptions for teaching applied design through a specific strategy. Continuous training for both faculty members and students on artificial intelligence techniques and related command engineering is

necessary. Artificial intelligence can be utilized in the evaluation, monitoring, and improvement of students' creative productivity when guidelines for its use are established.

Recommendations: The necessity of readiness to develop the education of applied design in accordance with the developments in AI technologies in the field of design. Adopt AI as a contemporary learning strategy in applied design education. Develop updated teaching strategies incorporating AI into design courses tools. Train faculty to effectively use AI tools to enhance teaching quality. Establish an ethical charter for AI use in design to protect intellectual property rights. Update design curricula to align with the age of AI, empowering students to utilize its tools to ensure design quality.

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