

FROM TOOL TO CO-CREATOR: REFORM PRINCIPLES FOR AI-INTEGRATED ART AND DESIGN EDUCATION IN CHINESE AND UZBEKISTANI UNIVERSITIES



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Abstract. *The proliferation of Artificial Intelligence Generated Content (AIGC) tools—Midjourney, Stable Diffusion, and DALL-E 3 being the most conspicuous examples—has precipitated something rather more serious than a mere technological upgrade in art and design practice. It amounts, we would argue, to a wholesale restructuring of industrial logic and working methods. For university-level art and design education in China and Uzbekistan, the implications are difficult to overstate. Both systems now face the uncomfortable necessity of rethinking their pedagogical foundations.*

Keywords: *artificial intelligence, art and design education, pedagogical reform, human-machine collaboration, comparative education.*

1. Introduction

There is a tendency, when writing about technology and education, to lapse into either boosterism or dystopian alarm. We have tried to avoid both. The tools matter, certainly. Midjourney, Stable Diffusion, and DALL-E 3 are not marginal experiments; they are now embedded in the day-to-day workflow of design studios from Shanghai to Tashkent. A junior designer can generate, in an afternoon, a volume of visual proposals that would have taken a team weeks to produce by hand. The question is what this capacity means for how we train designers in the first place.

In China, the problem is perhaps more acute than policymakers have acknowledged. For two decades, art and design curricula have been organized around software competence: AutoCAD for drafting, 3ds Max for modeling, V-Ray for rendering, Photoshop for post-production. Student portfolios are judged, in large measure, by speed and precision of execution. When an AI system can execute—faster, and with greater stylistic range—the very tasks that once defined professional competence, the pedagogical model collapses from the bottom up. Not immediately, of course. Employers still ask for these skills. But the half-life of such training grows shorter each year.

Uzbekistan presents a different but related difficulty. The institutional inheritance is Soviet: rigorous technical training, strong emphasis on applied arts (ceramics, textile design, architectural decoration), and a pedagogical culture that values manual mastery as a moral as well as

professional attribute. The Kamoliddin Behzod National Institute of Painting and Design, where the present research was conducted, exemplifies this tradition. AI integration here is not a matter of updating software tutorials; it requires negotiating a deeper tension between technological modernization and the preservation of craft traditions that carry significant cultural weight—some recognized by UNESCO as intangible heritage.

Both countries, then, face a version of the same question: what should art and design education do when the skills it has historically taught become, in large part, automatable? Our answer, developed over three years of comparative fieldwork and policy analysis, is that the field must reconceptualize AI not as a tool to be mastered but as a partner to be directed. This is not a semantic distinction. It implies a shift from skill-based to competency-based pedagogy, from instructor-centered to student-centered learning, and from product-oriented to process-oriented assessment. It also implies, as we shall argue, a particular theoretical grounding that has been missing from much of the existing literature on AI in art education.

The policy context is worth noting briefly. China's State Council issued its Next Generation Artificial Intelligence Development Plan in 2017 (Document No. 35), with explicit mandates for educational integration. Uzbekistan's Presidential Decree PP-212, issued July 2025, directs the Ministry of Higher and Secondary Specialized Education to modernize fine and applied arts programs through "advanced digital technologies," including AI-driven design methods. These documents provide the institutional mandate for reform; they do not, however, specify how reform should proceed. That is the gap this paper attempts to fill.

Our contribution is threefold. First, we offer a comparative framework for analyzing AI integration in two systems that are rarely examined together. Second, we synthesize three educational theories—distributed cognition, constructivist learning, and situated cognition—into a unified foundation for art and design pedagogy in the AI era. Third, we propose a concrete pedagogical model (the Strategy-Execution dual-loop) and a set of implementation strategies that have been tested, in preliminary form, through faculty workshops at our own institution and partner universities in Guangdong Province.

2. Theoretical Foundations

The literature on AI in education has grown voluminous, but much of it treats art and design as an afterthought—a special case of general educational technology. We think this is a mistake. Art and design education has its own epistemology, its own relationship to material practice, and its own historical resistance to purely instrumental rationality. Any theoretical framework must take these specificities seriously.

Hutchins's (1995) work on distributed cognition has been widely cited in educational technology, though often in a diluted form. The core insight, as we understand it, is that thinking does not happen exclusively inside individual heads. It happens across artifacts, social arrangements, and environmental structures. A navigator using a chart, a compass, and the advice of a colleague is not "using tools to think"; the thinking is, in some meaningful sense, happening in the system composed of person-plus-tools-plus-colleague.

What does this mean for AI in the design studio? It means that when a student uses Midjourney to generate visual concepts, the cognitive work of conceptualization is distributed across the student's intentions, the AI's generative model, the prompt formulation, and the iterative selection process. The student is not "using" AI any more than the navigator is "using" the compass. Both are participating in a cognitive system whose outputs exceed what any component could produce alone. This is not a metaphor; it is, if Hutchins is right, an ontological claim about where cognition is located.

For pedagogy, the implication is that we should not be teaching students to "use" AI tools. We should be teaching them to participate effectively in human-machine cognitive systems. This requires, among other things, understanding the limitations and biases of the machine component—what it can and cannot "know," where its training data ends and its generative extrapolation begins. These are not technical skills in the conventional sense. They are meta-cognitive capacities.

Conclusion

Artificial intelligence has relieved educators and students of substantial volumes of mechanical, repetitive knowledge transmission and skill drill. Whether this relief becomes an opportunity or a loss depends on what is done with the time and cognitive space that AI opens up. Our argument, developed through comparative analysis of Chinese and Uzbekistani art and design education, is that the space should be used for higher-order capacities: critical thinking, creative imagination, emotional resonance, and value judgment. These are not luxuries; they are the core competencies that distinguish human creative work from machine pattern generation.

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