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An Exploration of Innovative Teaching Practices in AIGC from a SWOT Analysis Perspective-Taking the Tourism and Cultural Landscape Design Course as an Example

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Abstract: Currently, the integration of generative artificial intelligence into practical teaching for design-oriented courses is undergoing a shift from "technical skill training" to "human-machine collaboration". Based on practical teaching experience of the university-level Tourism and Cultural Landscape Design course, this study adopts field research and sample comparison methods to explore innovative applications of AI-empowered teaching approaches. It addresses structural contradictions under the rural cultural-tourism context, including high costs of field investigations, limited sample coverage, homogenized design proposals, insufficient data support and monotonous outcome presentation. A teaching reference case is constructed through SWOT analysis, whose analytical framework can serve as a reference for the intelligent transformation of similar design courses.

1. Introduction

From the "AI-Empowered Education Initiative" issued by the Ministry of Education in 2024, to the Opinions on Further Implementing the "AI+" Initiative released by the State Council in August 2025, and further to the circular of the "AI+Education" Action Plan jointly issued by the Ministry of Education and other authorities in April 2026, policy orientations have become increasingly explicit: intelligent technologies shall be integrated into all elements, whole processes and full scenarios of education and teaching. For art and design majors, such requirement cannot be merely confined to tool demonstration; instead, it shall be implemented as verifiable reconstruction of curriculum objectives, teaching organization and assessment modes.

As a core course for Environmental Design, Tourism and Cultural Landscape Design has highlighted structural contradictions after deepening the theme of "boosting rural cultural tourism". Restricted by funds and class hours, students face insufficient sample coverage; design proposals tend to fall into schematic imitation and result in creative homogenization; there lacks methodological support for extracting cultural genes. Course assessment should revolve around project deliverables, combining research reports, design schemes, implementation effect evaluation and other components to comprehensively examine students' capabilities in investigation,

conceptual design, teamwork and design implementation[2].

The advancement of generative artificial intelligence effectively drives the digital teaching transformation of higher education[3]. Existing studies on AIGC-enabled teaching mostly remain at macro-level discussions, risk governance or single-point applications within STEM disciplines. While AI-empowered education represents an inevitable historical trend, practical teaching for design disciplines still sees research gaps[4].

2. Theoretical Foundation and Analytical Framework

The operational form of SWOT Analysis refers to the TOWS Matrix proposed by Heinz Weihrich in 1982. It matches external threats and opportunities with internal weaknesses and strengths to generate four types of strategic portfolios: SO (Growth-oriented), WO (Turnaround-oriented), ST (Diversification-oriented) and WT (Defense-oriented)[5]. Taking Lingxiushan Forest Park in Shishi City as the research subject, Yu Xiaoqing applied this framework to sort out strengths such as location and resource endowments as well as weaknesses including complicated community relations and extensive operation, which verified its effectiveness in diagnosing cultural-tourism scenarios[6].

For diagnostic demands in the initial stage of teaching reform, its structured logic and cross-analysis of internal and external factors support preliminary judgment on research topics. Its merit lies in shifting debates from the stance of "whether AIGC should be adopted" to strategic choices concerning "how and where to apply AIGC". As Zheng Qinghua noted, artificial intelligence in education is not simple technology transplantation, but reshaping of epistemology and methodology[4].

This study regards AIGC as an endogenous variable of the teaching system rather than an external add-on tool. It couples AIGC with teaching objectives, contents, methodologies and evaluation criteria to promote the shift of teaching structure from a teacher-centered stable pattern to a dynamic human-machine collaborative pattern. Methodologically, generative capacity supports multi-scenario simulation, reasoning capacity assists factor analysis, and interactive capacity runs through feedback and iteration throughout the whole process.

Art and design talents shall meet new demands of rural development, aligning with training objectives of "asking incisive questions, conducting critical appraisal and achieving effective integration". Risks such as academic integrity violations, data privacy leakage and value deviation shall be constrained under the principles of "technology for good" and "education-oriented". In the new intelligent ecosystem, higher education institutions shall guide trends properly and prevent students from over-reliance on artificial intelligence. This explains why threats (T) are incorporated as a defense mechanism within the analytical framework[3].

In the spring semester of 2025, supported by the "Lingxiu Cup" competition co-hosted by the university and local authorities, students conducted field investigations in Lingxiushan Mountain. They revised their deliverables in class in accordance with the planning requirements of the town government. The competition facilitated design integration between universities and local communities, brought classroom education into real-world contexts, and greatly stimulated students' desire for exploration.

3. Current Status of Practical Course Teaching and SWOT Diagnosis

There exists no unified definition for Tourism and Cultural Landscape Design in existing literature, with frequent conceptual confusions among cultural landscape, tourism landscape and historical landscape[7]. Its theoretical origins lie in two dimensions. On the one hand, the concept of "cultural landscape" was formally adopted and included in the World Heritage List at the 16th

session of the World Heritage Committee in 1992, defining landscape as “the combined works of nature and humankind”[8]. On the other hand, tourism landscape planning and design transforms landscape from an object for appreciation into evaluable and design-able tourism attractions[9]. Meanwhile, the proposition and dissemination of the Landscape Gene Theory provide methodological support for spatial translation of regional cultural elements[10].

Developed upon the above theories, the course Tourism and Cultural Landscape Design takes landscape spaces with tourism-attracting functions as research objects, and prioritizes identification, translation and spatial expression of regional cultural elements. Its teaching objectives cover cognition, skills and value dimensions, and practical class hours are mainly allocated to field investigations, scheme design and public defense. AIGC can be readily embedded into these procedures.

3.1 Current Status of Practical Course Teaching



Figure 1: SWOT Analysis Diagram of Lingxiushan Mountain Source: Drawings completed by students instructed in the Spring Semester of 2024-2025

Minnan University of Science and Technology is located in the core zone of Minnan culture. Shishi City boasts rich cultural-tourism resources including Lingxiushan Forest Park, Gugu Tower and Bagua Street, which provide field sites for on-site teaching. Centering on real-world projects such as “Landscape Improvement Project of Lingxiu Reservoir”, the course translates research outcomes into teaching input. Students carry out on-site surveys, collect data and submit design proposals. Their works have won awards in competitions including the “Jasmine Blossoms” Design Competition, exhibitions hosted by Fujian Artists Association, the “Zhuangzhong Cup” National University Student Environmental Design Competition, National Finals of Future Designer

Competition, Oriental Star Creativity Design Competition and China Creative Design Grand Prix. These achievements partially validate the effectiveness of project-oriented teaching and research-driven teaching.

Furthermore, the curriculum team transforms field research data from the university-level science and technology innovation team "Beautiful Rural Construction and Spatial Design" and research findings on the evolution of Minnan rural landscapes into teaching cases. Under real academic research contexts, undergraduate students acquire investigative thinking structured by SWOT analysis (See Figure 1).

Such practices lay organizational and empirical foundations for balancing local contextual features and academic standards after introducing AIGC. Nevertheless, reflections against rural revitalization and digital education requirements reveal deficiencies in existing practical teaching:

Investigation is dimension-limited. Undergraduates require tremendous efforts to systematically comprehend deep-seated information such as spatial evolution mechanisms and residents' construction behaviors of Minnan rural areas within constrained class hours. Though teachers' guidance can inspire diverse conceptual directions for creative generation, students are weak in implementation-oriented thinking. Proposals tend to fall into the stereotype of "copying urban landscape models for rural contexts", while regional cultural expression remains superficial symbol collage. Evaluation and feedback are delayed. There lacks follow-up connections after government presentations and competition participation. Teacher-dominated assessment fails to fully cover indicators such as depth of SWOT diagnosis and cultural compatibility.

3.2 SWOT Diagnostic Analysis

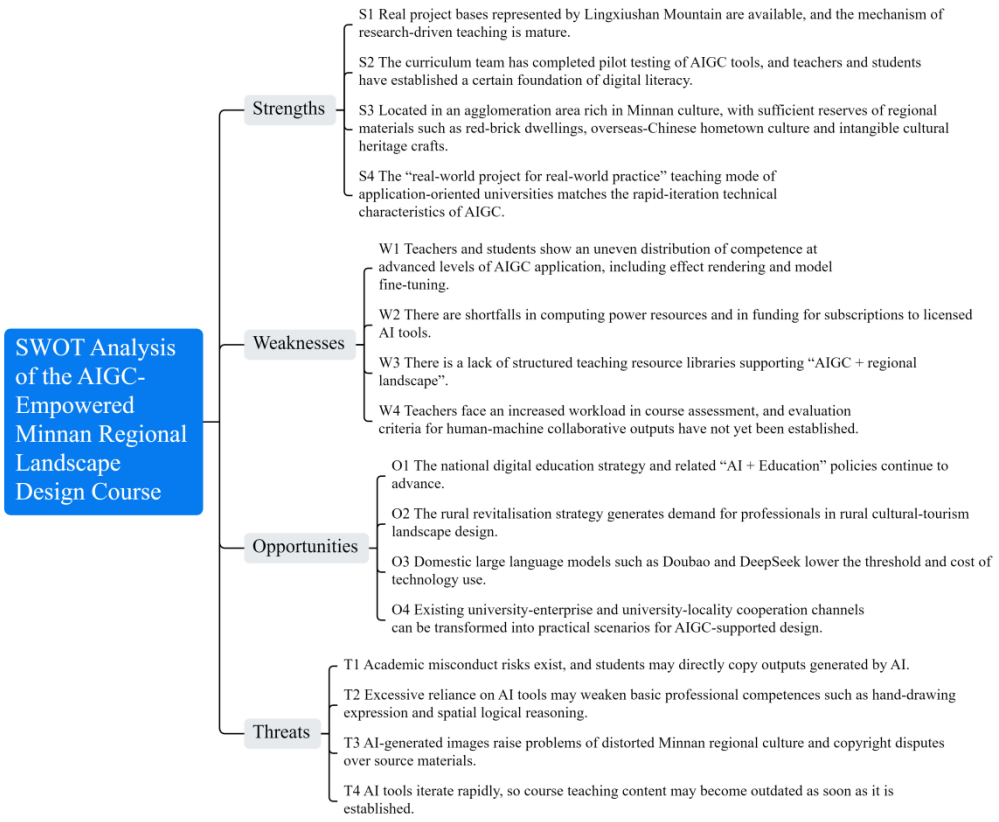

Figure 2: Mind Map of AIGC-Empowered Minnan Regional Landscape Design Course SWOT Diagnosis Source: Drawn by the authors

Following the triangulation principle of "literature review-teacher-student interview-expert consultation", candidate factors are first extracted from course archives and policy documents. Semi-structured interviews are then conducted with 10 enrolled students from two classes and 3 professional teachers to eliminate low-frequency factors. Finally, three experts specialized in design education and rural cultural tourism score the importance of each factor, and key factors are retained as shown in Figure 2.

Based on the above teaching reflections and SWOT matrix construction, practical pathways are formulated for subsequent teaching experiments. Drawing on prior teaching experience, competition-oriented deliverables are retained, while AIGC-intervened teaching exploration is added. Critical thinking training improves design depth and implementation awareness among students. Diversified teaching pathways introduce process-oriented evaluation, monitor students' general learning directions, develop student self-evaluation systems, and realize integrated teaching design.

4. Practical Outcomes and Research Reflections



Figure 3: Partial SWOT Analysis Diagrams of Bagua Street, Shishi City Completed by Students instructed in the Spring Semester of 2025-2026 Source: Drawings completed by students instructed in the Spring Semester of 2025-2026 (partial excerpts)

In the spring semester of 2026, the curriculum team adjusted classroom rhythms and task arrangements based on previous pilot experience. Practical teaching was relocated to Bagua Street, an ancient historical block in Shishi City, where students conducted immersive field investigations. The curriculum was implemented across two teaching classes majoring in Environmental Design.

Students expanded information dimensions in SWOT diagnostic reports, conducting analysis from perspectives including policy, local contexts and population groups. Their design proposals translated Minnan regional culture through cultural-gene translation instead of superficial symbol collage[10]. The "dual-track comparison" approach enabled students to recognize AIGC's strengths in efficiency and divergent ideation as well as its deficiencies in cultural depth, which improved the quality of class debates. Some students held that AIGC broadened the scope of scheme comparison, while others argued that the cultural authenticity of AIGC-generated content "must be checked by teachers and on-site investigations". Coexistence of the two types of feedback indicates emerging checks and balances between technical rationality and humanistic judgment in classroom teaching.

The pilot practice expanded output effects of research-driven teaching. Students further developed course assignments for competitions and won hierarchical awards in events including Oriental Star Creativity Design Competition and China Creative Design Grand Prix. Selected outstanding proposals were submitted to partner villages as reference for decision-making, realizing preliminary integration of teaching value and social value. Guided by SWOT analysis, students demonstrated deeper understanding of local contextual features and more thoughtful design outcomes (See Figure 3).

Taking renovation integrating old and new streets of Bagua Street in Shishi City as the research subject, the course first adopted large-language models to sort out mode pedigrees of village spatial evolution. Image-generation tools were then utilized to simulate multiple architectural renovation schemes within the "style control line". Student groups carried out zonal targeted design, and leveraged urban-rural gaps as driving forces for design[1].

The above outcomes are qualitative judgments derived from work analysis, student reflection journals and teacher observations, which await quantitative verification with larger sample sizes.

5. Conclusions

The introduction of AIGC into practical teaching of Tourism and Cultural Landscape Design is neither mere tool addition nor passive risk aversion, but systematic teaching adjustment coordinated with strategic thinking. This study responds to academic concerns over ethical risks via "dual-track comparison" and "teacher-AI-student" tripartite evaluation, and proposes operable teaching governance arrangements. By embedding Minnan cultural resources and research-driven teaching mechanisms into intelligent teaching procedures, technical tools are integrated with local cultural heritage. Only by adhering to the tenet of "local culture as essence, intelligent technology as application, and critical thinking as guiding principle" can AIGC empower rather than dilute the value of practical teaching.

It is difficult to completely isolate net effects of AIGC on SWOT analysis depth and design competence from confounding factors such as students' prior knowledge base and practical hours, which need to be verified through experimental designs. External validity of this single-university case also requires cross-institutional replication tests. While concrete factor items in the SWOT-based analytical kernel can be adjusted according to institutional resource endowments, its value proposition of "local culture as essence" is also applicable to adjacent majors including Architecture and Landscape Architecture.

Future research may integrate VR/AR with AIGC to build an immersive "digital twin" teaching platform for rural cultural-tourism landscapes. Longitudinal evidence chains mapping "curriculum-job" competence requirements can also be established by tracking AIGC application performance of graduates in cultural-tourism industries.

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