

# A Digital Intelligence Enabled Curriculum Competition Practice Mechanism for Film and Television Art Education in Guangdong Universities

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**Abstract:** The rapid development of artificial intelligence, virtual production, extended reality, and other digital-intelligence technologies is transforming the production logic of the film and television industry. This transformation creates new requirements for film and television art education, especially for foundational courses that must cultivate visual storytelling, spatial modeling, digital production literacy, and practical execution. Taking Fundamentals of Film and Television Art at Zhujiang College, South China Agricultural University as a case, this study proposes a curriculum-competition-practice integration mechanism for Guangdong universities in the era of digital intelligence. The mechanism restructures conventional drawing, color, and design-drafting instruction into outcome-oriented modules, embeds AI-assisted design and virtual scene construction into project-based classroom tasks, transforms competition topics into course assessments, and introduces real enterprise and cultural-tourism projects from the Guangdong-Hong Kong-Macao Greater Bay Area into teaching practice. Based on literature analysis, curriculum diagnosis, case analysis, student work review, and reflective teaching records, the study shows that the proposed mechanism can address three persistent problems in traditional film and television art courses: the separation between technique and creativity, the gap between classroom learning and industry workflow, and the weakness of process-based evaluation. The paper contributes a replicable educational framework for integrating digital-intelligence technology, competition-driven learning, and situated practice in applied art education.

**Keywords:** Digital Intelligence; Film and Television Art; Curriculum-Competition-Practice Integration; AI-Assisted Design; Virtual Scene Construction; Outcome-Based Education; Guangdong Universities

**Published:** Jun 29, 2026

**DOI:** <https://doi.org/10.62177/jetp.v3i2.1502>

## 1. Introduction

Film and television art education is entering a period of structural change. The industry is moving from hand-drawn scenery, manual modeling, and linear production toward digital scenography, virtual production, AI-assisted image generation, and cross-media visual development. In the Guangdong-Hong Kong-Macao Greater Bay Area, where film, television, cultural tourism, short-form drama, commercial performance, and digital media industries are developing in parallel, universities are expected to cultivate art professionals who understand aesthetic expression, digital tools, production collaboration, and practical implementation.

Fundamentals of Film and Television Art is a core introductory course for students in drama directing, cinematography, production, and visual design. Its function is not merely to train students in basic techniques, but to help them understand how visual language supports narrative, atmosphere, character, and spatial meaning. In the age of digital intelligence, this course must also help students connect artistic judgment with AI-assisted design, virtual scene construction, lighting simulation, and collaborative production workflows.

This study focuses on the topic Research on the Curriculum-Competition-Practice Integrated Education Mechanism of Fundamentals of Film and Television Art in Guangdong Universities in the Digital-Intelligence Era. It uses Zhujiang College, South China Agricultural University as the implementation context and proposes a three-dimensional mechanism summarized as classroom foundation, competition catalysis, and practice implementation. The study is guided by constructivist learning theory and outcome-based education (OBE).

The contribution of this paper is threefold. First, it clarifies the transformation of film and television art education under digital intelligence and new quality productivity. Second, it constructs an implementable mechanism that connects course modules, competition tasks, enterprise projects, and research reflection. Third, it provides a case-based evaluation framework for applied universities seeking to reform foundational art courses through AI-assisted design and industry-education collaboration.

## 2. Related Work and Theoretical Background

Digital media has changed the relationship between art design and production. Virtual production, XR stages, digital lighting, previsualization, and AI-generated content allow film and television artists to test space, color, atmosphere, and scene logic before physical construction. The core ability of film and television art professionals is therefore expanding from hand skills to the coordination of narrative interpretation, spatial design, technological operation, and production communication.

Prior studies on new liberal arts, applied universities, and art education reform emphasize student-centered learning, industry-education collaboration, competition-driven learning, and outcome-oriented evaluation. In art and design programs, youth teaching competitions and new liberal arts construction have been discussed as important drivers of curriculum renewal<sup>[1,2]</sup>. Discipline competitions can also support student ability cultivation and project-driven teaching reform by providing external standards, real deadlines, and public evaluation criteria<sup>[3,4]</sup>, while practical teaching mechanisms connect classroom learning with innovation, entrepreneurship, and applied project experience<sup>[5]</sup>.

Constructivist learning theory supports the use of authentic projects, collaborative tasks, and reflective inquiry. OBE provides another design principle: course objectives should be defined according to the abilities students are expected to demonstrate at the end of learning. Existing studies on practical innovation-oriented, outcome-oriented art education reform and student-growth-centered classroom teaching also support this ability-based reform direction<sup>[6,7]</sup>. For Fundamentals of Film and Television Art, the target outcomes include visual narrative construction, spatial atmosphere design, digital tool application, model or set implementation, teamwork, and reflective evaluation.

## 3. Research Context and Method

This study adopts a design-based case study method. The research object is the reform of Fundamentals of Film and Television Art at the School of Design, Zhujiang College, South China Agricultural University. The course is located in a private applied university context and serves as a foundation for drama directing and related film and television programs.

The data sources include curriculum documents, teaching reflection records, student work, teacher observation, enterprise cooperation cases, competition-task analysis, and literature related to art education reform. The study also draws on the college's cooperation with organizations such as Guangzhou Haoyang Electronics, Guangdong Radio and Television, and Zhu Ying Culture Group, as well as real projects such as AI micro-dramas and cultural-tourism visual design. This design is consistent with film and television art education research that emphasizes practical interaction between film and television bases and classrooms<sup>[8]</sup>.

Table 1. Research design and evidence sources

Research Component	Purpose	Evidence Used
Literature analysis	Clarify digital transformation, competition-driven learning, OBE, and art education reform	Studies on digital media, art curriculum reform, competitions, and student-centered education
Curriculum diagnosis	Identify gaps in existing teaching	Course documents, observations, learning tasks, and assessment methods
Case analysis	Examine classroom, competition, and practice integration	Student works, enterprise projects, cultural-tourism projects, and competition topics
Reflective evaluation	Assess implementation effects and limits	Teacher reflection, student artifact review, and process-based indicators

#### 4. Current Problems in Fundamentals of Film and Television Art

The reform begins with a diagnosis of the existing course. First, the curriculum system does not update quickly enough to match the iteration of film and television art technology. Although the college has digital and virtual production facilities, students still need clearer guidance on how these resources correspond to real industrial workflows, including virtual lighting, AI-assisted scene generation, and digital stage design.

Second, teaching resources and training conditions are limited. Film and television art requires physical scenery, costume and makeup experiments, prop production, lighting tests, and spatial model construction. These activities are costly and difficult to organize at scale in applied universities. Without an integrated mechanism, some practical sessions remain at the level of design proposals rather than entering real production or near-real simulation.

Third, course content is fragmented. Students may learn sketching, color, software, drafting, design theory, and scene analysis as separate units, but still lack the ability to apply these skills systematically in a complex project. Fourth, assessment remains too narrow. Conventional evaluation often focuses on final drawings or individual assignments, while real professional competence includes process management, narrative interpretation, teamwork, material selection, digital tool use, and adaptation to feedback.

Table 2. Problems in the existing course and reform responses

Problem	Observed Manifestation	Mechanism Response
Content lag	Course modules update more slowly than AI, XR, virtual production, and digital lighting workflows	Add AI-assisted design, virtual scene construction, and digital production literacy modules
Weak practice	Assignments remain fictional or conceptual and lack production constraints	Introduce enterprise projects, cultural-tourism scenarios, and AI micro-drama tasks
Fragmented skills	Students master single techniques but struggle in integrated projects	Use project-based modules centered on script interpretation and visual atmosphere
Narrow assessment	Final works are evaluated without sufficient process evidence	Combine competition criteria, project records, peer review, mentor feedback, and reflection

#### 5. Design of the Curriculum-Competition-Practice Mechanism

The proposed mechanism is organized around the logic of classroom foundation, competition catalysis, practice implementation, and research reflection. Although the topic is summarized as curriculum-competition-practice integration, the reform also includes a research-feedback dimension because students and teachers need to transform practical problems into reflective inquiry.

At the classroom level, the course breaks down the barriers between sketching, color, design drafting, lighting cognition, material experiment, and spatial modeling. Instead of asking students to complete isolated technique exercises, the reformed course organizes modules around the question of how to construct a visual atmosphere for a given script. Digital-intelligence modules are embedded into traditional foundations, including AI-assisted design for ideation, mood-board generation, visual

reference comparison, style exploration, virtual scene construction, and digital lighting preview. This responds to the broader integration of art and technology in the digital media era<sup>[9]</sup> and also strengthens students' understanding of color expression and visual metaphor in film art design<sup>[10]</sup>.

At the competition level, the reform changes the role of competitions from optional extracurricular activities to structured learning tasks. Topics from national digital art design competitions, future designer contests, and industry events can be introduced into midterm and final assessment. Students work in teams to move from script analysis to concept design, from digital visualization to physical model, and from classroom critique to competition-oriented presentation.

At the practice level, the course relies on the college's school-enterprise cooperation resources and the cultural ecology of the Greater Bay Area. Real projects such as AI micro-dramas, short-form drama scenes, cultural-tourism installations, and Lingnan cultural symbol translation are brought into teaching. Students participate in costume, makeup, prop design, on-site set design, model construction, and visual presentation under the guidance of teachers and industry mentors.

Table 3. Curriculum-competition-practice mechanism for Fundamentals of Film and Television Art

Dimension	Main Task	Digital-Intelligence Element	Expected Learning Outcome
Curriculum	Modular and project-based learning around script visual atmosphere	AI-assisted ideation, virtual scene construction, digital lighting preview	Visual storytelling and spatial modeling
Competition	Embed competition topics into coursework and final assessment	Digital art presentation and competition portfolio construction	Creative pressure, teamwork, iterative refinement
Practice	Introduce enterprise and cultural-tourism projects	AI micro-drama workflow and digital scene documentation	Production awareness and material execution
Research	Convert practice problems into inquiry topics	Digital archive, reflective logs, case analysis	Theoretical reflection and academic communication

## 6. Case Evidence from Student Works and Course Practice

Student works provide visible evidence of the transition from technique-centered exercises to integrated visual production. In the reformed course, students are required to interpret a narrative situation, identify visual metaphors, design atmosphere, choose materials, and construct physical or digital scene prototypes. The works shown below demonstrate how students move from planar design toward spatial scene construction and filmic visual thinking.

The first case emphasizes atmosphere construction through low-key lighting, spatial hierarchy, architectural symbolism, and model photography. The second case emphasizes material texture, local commercial space, wall surface aging, cable details, and environmental realism. These works indicate that students are not merely completing static drawing exercises, but are learning to construct filmic spaces through camera perspective, lighting, scale, and narrative implication.

## 7. Evaluation Framework and Findings

Because the current project is an educational mechanism study rather than a controlled experiment, the evaluation focuses on structured qualitative evidence and process-based indicators. The framework evaluates four categories of outcome: visual narrative ability, digital-intelligence literacy, practical execution, and reflective research awareness. Each category can be observed through course tasks, competition portfolios, project records, teacher and mentor comments, and student reflections.

The initial findings can be summarized in three aspects. First, the mechanism reduces the separation between technique and creativity. When basic skills are reorganized around script interpretation and atmosphere construction, students understand why drawing, color, model making, and digital tools matter. Second, the mechanism narrows the gap between learning and industry. Competition topics and enterprise projects introduce deadlines, presentation standards, collaboration, and feasibility constraints. Third, the mechanism expands evaluation from final products to learning processes.

The reform also reveals limitations. The integration of AI and virtual production requires teachers to update their own technical and pedagogical competence. Enterprise projects must be selected carefully so that they match students' developmental level. Competition tasks can motivate students, but they may also create excessive pressure if they are not aligned with course objectives. Moreover, process-based assessment requires more time and clearer rubrics than conventional grading.

Figure 1. Student scene-model work emphasizing atmosphere, spatial depth, and visual narrative.



Figure 2. Student practice work showing material texture, local scene detail, and production-oriented modeling.



Table 4. Evaluation indicators for the integrated mechanism

Outcome Category	Indicator	Evidence Form
Visual narrative	Translate script meaning into scene atmosphere, color, texture, and spatial hierarchy	Concept boards, scene models, model photography, design explanation
Digital-intelligence literacy	Use AI and digital tools for reference generation, scene preview, and iterative design	AI-use records, virtual scene drafts, manual-digital comparison
Practical execution	Complete material tests, props, models, on-site design, and teamwork under constraints	Project records, mentor feedback, competition submissions
Reflective inquiry	Identify design problems and transform them into research questions	Reflection logs, case reports, cultural-symbol analysis

## 8. Discussion

The proposed mechanism is especially relevant to Guangdong universities because the Greater Bay Area has a dense ecology of film and television production, digital media enterprises, cultural-tourism projects, stage performance, and short-form video industries. Applied universities can use this regional ecology as a teaching resource and build a network that connects foundation courses, competitions, enterprises, cultural projects, and research reflection.

AI-assisted design should not be understood as a shortcut that replaces artistic training. In foundational art education, AI is most valuable when it becomes a tool for comparison, ideation, visualization, and iteration. Students still need to learn composition, color, scale, material, light, and narrative logic. The curriculum should therefore require students to compare AI-generated references with manual sketches, explain why particular visual choices are adopted or rejected, and transform digital inspiration into feasible spatial design.

The study suggests that course reform should be understood as part of a larger talent cultivation mechanism. If the classroom builds foundations, competitions activate creativity, practice develops execution, and research reflection deepens theory, then students can gradually form the compound competence required by new quality productivity: aesthetic sensitivity, technical literacy, practical ability, innovation consciousness, and professional responsibility.

## 9. Conclusion

This paper proposed a digital-intelligence-enabled curriculum-competition-practice mechanism for Fundamentals of Film and Television Art in Guangdong universities. Based on the reform context of Zhujiang College, South China Agricultural University, the study identified key problems in the traditional course, including content lag, weak practice, fragmented skills, and narrow assessment. It then designed an integrated mechanism that connects modular classroom teaching, competition-driven learning, enterprise and cultural-tourism practice, and research reflection.

The mechanism provides a practical pathway for transforming foundational film and television art education from technique-centered training toward comprehensive visual production competence. It helps students connect art basics with script interpretation, digital-intelligence tools, scene construction, competition standards, and industry workflows. Future research should collect pre-test and post-test data, analyze AI-use logs, and conduct interviews with students, teachers, and enterprise mentors to further validate the scalability of the mechanism.

## Funding

This paper is based on the project Research on the Application of the Three-in-One Model of Guangdong Film and Television Higher Education under the Background of Digital Intelligence and New Quality Productivity, Project No. 24GQN60.the 2024 higher education research project of the "14th Five-Year Plan" of the Guangdong Association of Higher Education.

## Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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