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Challenges, Responses, and Future Outlook for Photography Education in Higher Education in the Era of Digital Intelligence

—With Insights from the Film and Television Photography and Production Program at Xi'an Mingde Institute of Technology

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Abstract: With the advent of the comprehensive digital era, the knowledge framework, technical means, and talent cultivation strategies of photography education have been completely restructured. This article, through extensive review of research literature and materials on the reform of photography teaching in universities, analyzes the problems encountered in the current photography teaching process, and summarizes the existing issues in photography teaching at the present stage from five aspects: teaching philosophy, curriculum design, practical teaching, faculty building, and evaluation methods. At the same time, this article proposes new ideas and perspectives such as the integration of AIGC technology. This will enhance the overall level of industry-academia integration, and incorporating course ideological education. The research results show that current photography teaching reform is making efforts in three directions simultaneously: "from technology to ability", "from image to film", and "from classroom to the entire process". Xi'an Mingde Institute of Technology's Film and Photography Production major has launched a unique "Yuguo Master Class". This curriculum system adopts the project-based teaching method. This will provide theoretical and practical reference basis for the construction of photography majors in other private universities. The future photography teaching needs to find a balance point between technology and humanities. At the same time, relevant universities need to establish a comprehensive training system including creation, dissemination, and skills.

Keywords: Xi'an Mingde Institute of Technology; Digitalization; AIGC; Industry-education Integration; Photography Teaching; Teaching Reform

1. Introduction

Photography technology is undergoing a revolution, and the current photography paradigm is changing from traditional optical chemistry to digital intelligence at this stage. In 2025, China photography magazine opened a new column called "precipitation, start again". This column is to explore and discuss the core problems and challenges encountered in the critical period of the transformation of Chinese photography education. In this era, we found that there are only about 65 photography majors with undergraduate enrollment in China, which is more than half of the number in the past. This is not only a problem of shrinking, but also the survival problem of the traditional photography education mode in the era of digital intelligence. In 2024, the Film and Photography Production major of Xi'an Mingde Institute of technology ranked very high, ranking

among the top 32 universities in China and the first among the private universities in Shaanxi Province. Behind this achievement is the renovation system of Xi'an Mingde Institute of technology, which has introduced the Bai Yuguo photography education team with 27 years of education, and actively promoted the construction of the "production, learning, research and application" training system. The experience of Xi'an Mingde Institute of technology tells us that private colleges and universities can also form differentiated competitive advantages in the transformation of photography education.

This study attempts to sort out the ideas and practice of the research on photography teaching reform in colleges and universities. After summing up the common difficulties and coping paths, it comprehensively integrates the school running practice of Xi'an Mingde Institute of technology, and explores the direction of photography teaching improvement in the digital intelligence era, with a view to providing reference examples for similar colleges and universities.

2. The Five Structural Contradictions in College Photography Teaching

At present, there are five structural contradictions in photography teaching in universities.

(1) Outdated teaching philosophy: The gap in concepts between the shift from "technology-oriented" to "communication-oriented" approaches.

Wei Haoliang pointed out that in some universities, photography teaching still adheres to traditional concepts. It is usually focusing on the creative techniques of the documentary photography while neglecting the cultivation of image dissemination awareness and skills. "Teachers in the teaching process mostly pay attention to whether students' photos are artistic and realistic, but rarely guide students to think about the dissemination value, dissemination methods and dissemination channels of the works." Sheng Chunyu also further analyzed that "Traditional teaching neglects integrating the connection and interaction between photography and other media forms into the teaching process. Students cannot well understand the dissemination laws and characteristics of photography in the new media environment." This ideological backwardness has led to the fact that the photos created by students "pay too much attention to artistic expression, neglect the dissemination effect, and cannot fully play the social role of documentary photography."

(2) Course content is disjointed: Misalignment between static thinking and dynamic demands.

Lu Mingyang discovered in the fashion photography course that most university courses still focus on traditional techniques for training. "It enables students to solidly master the skills of composition and light control, but there is a lack of comprehensive teaching on advanced digital photo editing and virtual scene construction, and no complete digital creation system has been formed." Jiang Yu also raised the same question: "The teaching content lacks operability and professionalism." Wei Haoliang even directly pointed out that the teaching content "is still mainly based on traditional documentary photography, emphasizing the shooting and post-processing of static images, and involves little in new forms of works such as short-video documentary, graphic-text combined documentary, and documentary creation." Taking Xi'an Mingde Institute of Technology as an example, its curriculum has included advanced courses such as "Digital Film Technology", "Virtual Production Technology", and "Multimedia Creation", and through the "Hugo Master Class", it has launched a direction of film and multimedia production, "emphasizing visuality, communication, timeliness, intuitiveness, and wide coverage", which is a transformation from static thinking to dynamic thinking.

(3) Weakness in practical teaching: The gap between simulation training and real scenarios.

Many scholars have pointed out the same issue,

which is that practical teaching is overly focused on "simulation". Pan Xia believes that the commercial photography teaching in private universities has the problem that "the practical teaching is basically just a formality and does not combine with the actual operation environment". Wang Chunyu and Mi Guangfeng, through the investigation of Shandong Huaxu Institute of Technology, concluded that : "More than 70% of the practical tasks are preset by the teachers as standard operations, and students have very few opportunities to design and create by themselves." Wang Huan also mentioned that the school-enterprise cooperation is "shallow", "merely providing internship places for enterprises, without conducting in-depth cooperation such as technological research and development, and jointly developing courses".

(4) Insufficient teaching staff capabilities: Imbalance between academic qualifications and industry experience.

The issue of faculty quality is also the most obvious weakness of private universities. Pan Xia directly pointed out: "Many photography teachers in private universities are 'essentially filled by traditional art design, painting and other professional teachers. Although these teachers have very solid professional knowledge and teaching experience in their own fields, they have not received systematic professional training in photography technology and lack practical operation experience and background.' " Wang Huan also proposed that "Some vocational colleges often require teachers to be masters or doctors when recruiting, but do not consider industry work experience as a hard requirement." Therefore, teachers "follow the academic route from university to university, without industry work experience." Xi'an Mingde Institute of Technology has a distinctive feature in terms of faculty building. The leading figure of this major is the famous photographer and national first-class photographer - Professor Bai YuGuo. His faculty team has both academic background and industry experience: Teacher Zhu Yu is a documentary director, his works have won honors at the White Lotus Award of Shanghai Television Festival; Teacher Jia Xiaolan participated in the production of the film "The Land of Life", which won the Silver Bear Award at the 75th Berlin International Film Festival; Teacher Niu Tong's photography work "Express Delivery" was selected for the main competition of the Leica Oscar Barnack Photography Award. Such a "creative" faculty situation has provided inspiration for private universities.

(5) Evaluation system is monotonous: The contradiction between summative evaluation and process-oriented development.

Sheng Chunyu believes that the current evaluation system places too much emphasis on the final project scores and the assessment of theoretical knowledge in daily life, with the proportion of process evaluation being too low. Moreover, the evaluation subjects are mainly the teaching staff, lacking evaluations from multiple perspectives such as enterprise mentors and industry clients. Wang Chunyu and Mi Guangfeng proposed that "the evaluation overly focuses on whether the technical parameters are correct, while neglecting the comprehensive evaluation of students' creative expression, narrative ability, and teamwork skills." This "emphasizing results but neglecting the process; emphasizing technology but neglecting qualities" evaluation model is not conducive to the development of students' various abilities.

3. Four Frontiers of Photography Teaching Reform

In the face of these difficulties, the academic community and the industry are exploring various reform approaches.

(1) AIGC Technology Integration: Transition from "Recording Reality" to "Creating Reality" .

AIGC technology represents a new variable in the reform of photography teaching. Shen Xinran introduced AIGC into the teaching of photography lighting, based on the dual encoding theory, creating a prompt word engineering that generates light and shadow grammar, virtual preview that reduces the

cost of failed experiments, and an educational strategy of reverse analysis to imitate real-world lighting, "mirroring reality". This will make the logic of light and shadow visible. Wang Chunyu and Mi Guangfeng proposed that for the innovation of applied undergraduate courses, it is necessary to comprehensively sort out advanced technologies such as AIGC and ultra-high-definition video production, and set up new teaching units like "Intelligent Image Generation", "Ultra-High-Definition Filming Technology", and "Immersive Image Narration", "Making the proportion of front-end technology courses reach more than 30%". Each university has formed cases through exploration. The Film and Television Photography and Production Department of Wuhan University, in the basic photography course, uses AI for assisted teaching. Students "take the photos they took themselves to the AI generation tool", "place the original photos and the AI-generated images together for discussion on the logic of light and shadow between reality and illusion, composition selection, and visual narration". This makes AI a "mirror", "seeing that the essence of photography is observation, selection, and creation". The Photography Department of Sichuan Media College localized StableDiffusion3.0 and developed a "virtual shooting assistant" system based on RunwayAI.

(2) Deepening of industry-academia integration: "School-enterprise cooperation" has evolved into "School-government-enterprise-industry cooperation".

Wang Huan proposed the "three integration, three connection, and three collaboration" mechanism under the "new dual-high" background, which involves using real projects as the training carriers to form a cooperative talent cultivation mechanism of curriculum integration, practice integration, and teacher integration; connecting the education chain with the industry chain, the talent chain with the innovation chain, and the teaching chain with the job chain; collaborating between schools and enterprises for education, collaboration among schools for development, and collaborative innovation among industry, academia, and research. At the same time, he proposed to build "two wings and one institute", namely, to create a micro-drama industry-academia integration community, a digital creative culture municipal industry-academia joint venture, and a digital and intelligent imaging creation industry college. This will provide an overall framework for the industry-academia integration of the photography and videography major. Wang Chunyu and Mi Guangfeng formed a second-class classroom collaborative education system with "school - enterprise - student" as the tripartite entity, and improved the real enterprise projects for teaching and then applied them in practice. The situation of Xi'an Mingde Institute of Technology shows that nearly one-third of the students joined the photography associations or societies at the provincial, municipal, and district levels, and their achievements participated in the Silk Road National Youth International Photography Exhibition, received awards in the Xinhua News Agency's "Exploring the Beauty of China" activity. This demonstrates the practical effect of industry-academia integration.

(3) Integration of Ideological Education in the Curriculum: From "Technical Training" to "Value Formation".

In terms of value orientation, the "Imagery Narrative Practice" course at Guangzhou Southern University deeply integrates AIGC tools and the entire process of image creation. It also "embeds ideological and political elements such as patriotism, intangible cultural heritage preservation, and craftsmanship spirit into the curriculum framework". This will form a three-dimensional goal of "knowledge + skills + cultivation". Wang Nan led students in the "Photography Color Theory" course to integrate color theory with cultural attributes, conducting color visual translations under themes such as "Mid-Autumn Festival reunion" and "wedding", guiding students to progress from "knowing the geometric color model" to "understanding how this model establishes meaning in a specific cultural context".

(4) Promoting Teaching through Competitions: From "Classroom Evaluation" to "Diverse Evaluation".

Some universities have attempted to incorporate the competition mechanism into the teaching evaluation system. The photography course at Zhengzhou City Vocational College uses the competition as a benchmark, re-structuring the traditional classroom into a "theory + practice + evaluation" model. They also adopt a dual-track approach of "professional review + public voting", with the number of page views on the exhibition page exceeding 20,000 and the number of votes reaching over 7,000. Xi'an Mingde Institute of Technology has also integrated competitions with practical teaching. Professional teachers lead students to participate in activities such as the National College Students Advertising Art Competition and the Zhejiang Province College Students Photography Competition. These actions will establish a corresponding relationship between the course content and the skills competition.

4. Triple Logic of Photography Teaching Reform

Based on the above discussions, the reform of photography teaching in the digital age has three deep-level shifts.

(1) From "Technical Transmission" to "Capacity Building".

Traditional photography teaching mainly focuses on the techniques, emphasizing whether students can "take pictures". In the digital age, teaching should shift towards capability building. Besides technical skills such as composition and lighting, there are also comprehensive abilities like visual planning, cross-media narrative, and new media operation. Wei Haoliang's "creativity + dissemination" integrated teaching model and Sheng Chunyu's emphasis on "cross-media literacy" are all part of this shift. Shen Xinran's research shows that in the AIGC era, "photography education cannot only teach techniques, but also needs to teach digitalization and intellectual property rights".

(2) From "Static Images" to "Dynamic Videos".

When the form of image dissemination undergoes changes, photography teaching also needs to break away from the limitation of "static images". Xi'an Mingde Institute of Technology offers two directions: "Film and Multimedia Production" and "Digital Film Photography Technology". Its courses include "Basic Film Production", "Audio-Visual Language", "Documentary Creation", "Short Video Art", etc. The "static + dynamic" training concept is reflected in this. The photography department of Harbin Normal University moved the practical teaching of "Architectural Photography" to the historical and cultural districts, allowing students to reprocess their photographic works into short videos and spread them through new media channels. "The likes, shares, and other traffic data are used to evaluate the quality of the assignments", such operations belong to typical transformation forms.

(3) From "Classroom Training" to "Full-Process Project".

Project-based teaching is replacing the traditional classroom training. Professional teachers from Xi'an Mingde Institute of Technology have "incorporated the practical experience from the front line of film and television production into daily teaching in the form of projects". Students participated in the creation and shooting of the documentary "The Land of Clouds" (which was broadcast on the Shanghai Documentary Channel's "Documentary and Humanities" program during prime time), and conducted on-site investigations and learning at the filming location of the movie "Guarding 1314". Sichuan Media College proposed the design concept of "project-based learning", stating that "it transforms students from 'having to learn' to 'wanting to learn'". Through full participation, students can establish a complete cognition from the creative planning to production and dissemination.

5. Case Study

The photography and production major of Xi'an Mingde Institute of Technology has provided a very good reference for other private universities.

Historical experience advantage. The origin of this major at Xi'an Mingde Institute of Technology can be traced back to the Hugo Photography School established in 1998, led by renowned photographer Professor Bai Hugo. It has a 27-year history of image education. They adopted the "whole establishment transfer" method, which effectively solved the problem of long time and insufficient professional accumulation in the establishment of teachers for private universities. The 2024 Soft Science ranking shows that this major ranks 32nd among Chinese universities and is ranked first among private universities in Shaanxi Province. This fully proves that this method is effective.

"Double-qualified" faculty structure advantage. Professional teachers with academic qualifications and industry experience: Professor Bai Hugo is a national first-class photographer, with a footprint across seven continents; Teacher Zhu Yu directed the documentary "Mountains Creating Clouds", which won the Shanghai Television Festival White Lotus Award for Best Director; Teacher Jia Xiaolan participated in the art design of the work "The Place of Life", which won the Silver Bear Award at the Berlin Film Festival. "Project-based teaching" has the support of real industries.

Mechanism innovation of project-based teaching. Professional teachers incorporate film and television production practice projects into the teaching, "achieving the integration of theory and practice". Students participate in documentary shooting, watch films, and also engage in school-enterprise cooperation projects. Approximately 30% of the students have joined provincial and municipal photography associations, and students' photography works have won awards in the Silk Road National Youth International Photography Exhibition and Xinhua News Agency's "Searching for Beauty in China" and other activities.

Of course, the reform of this major is still ongoing. How to ensure the advanced nature of the course content in the context of accelerated technological updates, and how to further deepen cooperation with the industry are all issues that are worth further consideration.

6. Conclusion

The deep-seated issue behind the reform of photography teaching is how to strike a balance between technical rationality and humanistic spirit. The "pyramid-shaped" course construction logic is that the bottom layer is basic skills, the middle layer is AI tools, and the top layer is creative thinking. The three layers progress in a stepwise manner and support each other. Such a structure is inspiring. The unique value of photography education does not lie in teaching students how to use a certain device or software, but in cultivating their ability to "see", their vision to "see" the world, their understanding of this society, and the warmth of this emotion. As Shen Xinran said, AIGC technology should serve as an "effective scaffold" under the collaborative model of "human brain creative drive +AI rehearsal assistance + manual operation completion", rather than a tool to replace creativity. Looking to the future, photography teaching in colleges and universities should continue to make efforts in the following aspects: First, a three-dimensional integrated curriculum system of "creation + dissemination + technology" should be established to meet the needs of the industry for compound talents. Second, promote the mechanism of integrating industry and education, and incorporate real project systems into teaching. Thirdly, adopt new technologies such as AIGC cautiously but proactively, and while enhancing teaching efficiency, adhere to creative ethics and academic integrity. Only in this way can photography education achieve the goal of "capturing The Times and cultivating people for the future".

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