

Integrating Social Needs and Ideological and Political Education into the Construction of Digital Image and Photography Art Courses

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Abstract: The current digital image and photography art courses face issues such as insufficient ideological and political content, teaching materials disconnected from students' lives, emphasis on theory over practice, and a single assessment method. The course team, guided by "social needs" as the training goal and in accordance with the requirements of ideological and political education in courses and high-quality online course construction, has implemented reforms in clarifying teaching objectives, optimizing ideological and political teaching content, building online teaching resources, enriching practical teaching links, and improving the assessment mechanism. After two years of teaching practice following the completion of these reforms, the teaching content and methods have received positive feedback from students. The construction experience of this course provides reference and guidance for the teaching reform of photography and art design courses in higher education institutions.

Keywords: Photography Course; Ideological and Political Education; High-Quality Online Courses; Blended Teaching Model

1. Introduction

Against the background of the continuous progress of digital technology and the popularization of mobile Internet, smartphones with good shooting capabilities have changed traditional shooting habits and image dissemination methods, enabling everyone to enjoy the fun of photography. "Digital Image and Photography Art" is a professional course in the School of Art and Design at Henan University of Science and Technology. It has

been rated as an excellent online open course and an ideological and political model course at the university level. Nearly 200 students majoring in Design, Fine Arts, and Industrial Design need to take this course every year. Although the digital image and photography art course is close to the lives of college students and has strong practicality, there are also problems such as less ideological and political content, insufficient innovation in teaching models, teaching content being disconnected from students' lives, emphasizing theory over practice, and a single assessment method. The construction of photography courses should continuously improve the level of course construction while grasping the development trends of online education and photography technology and correctly understanding the educational policies.

Liu proposed that in today's era of tremendous technological changes, new technologies such as virtual reality, augmented reality, and artificial intelligence are driving the development of college photography education and the photography industry to a higher level [1]. Wang suggested that in the new media era, photography courses should not be limited to traditional photography teaching but should also extend to digital media art and other fields to provide students with knowledge guarantee for expanding their knowledge and acquiring job skills [2]. Peng et al. proposed that in the digital era, the construction of photography courses should be carried out from aspects such as following the trend, highlighting characteristics, optimizing content, standardizing management, and continuous improvement [3]. Zhu and Tian conducted ideological and political teaching practice in the "Mobile Phone Photography" course by planning ideological and political

content, implementing ideological and political education before, during, and after class [4]. Cao and Wang proposed to enhance the level of college photography education from three aspects: integrating ideological and political content with photography teaching content, constructing an interdisciplinary knowledge system, and developing an industry-university-research education model [5]. The teaching team, referring to the existing research, explores in teaching practice how to take social needs as the training goal, integrate ideological and political content with photography courses well, and build the photography course into a first-class online undergraduate course at a higher level.

2. Methodology

2.1 Revise the Training Objectives Based on Social Needs

The course of "Digital Image and Photography Art" is highly practical. The design and art industries have set higher requirements for image acquisition and editing, calling for more talents with relevant abilities. Through surveys of photography professionals, design companies, and college students, the course team has gained an understanding of the specific needs of employers and college students regarding image capabilities. They have summarized the goals that college students should achieve in terms of knowledge, abilities, and qualities by the end of the course [6].

2.1.1 Knowledge objectives

Shift from camera to mobile phone. Enable students to master the usage of photographic equipment and the basic theories of photography. Since most students don't have professional cameras yet, mobile phones are the primary tool for their daily shooting and creation. During the teaching process, it is necessary to establish the corresponding relationship between the functions of cameras and mobile phones, and introduce various new functions of mobile phone photography.

2.1.2 Ability objectives

Transition from static picture to video. Students are able to formulate shooting plans, select equipment, and set parameters. They can independently complete photo shooting and carry out post-processing. They have the abilities of scriptwriting, video collection, and

post-editing, and are able to independently complete the shooting of short videos.

2.1.3 Quality objectives

Shift from photography skills to comprehensive abilities. Through various practices, enhance the aesthetic abilities of students majoring in design and fine arts in terms of light and shadow, color, and composition, and improve their innovative thinking and expressive skills. During group shooting and presentation, strengthen communication and expression abilities, and foster a good team spirit and sense of social responsibility.

2.2 Optimize Course Content Based on Professional Abilities

Based on the professional abilities required in the field of imaging for design and fine arts majors determined through research by the teaching team, a new framework for course teaching content has been constructed, as shown in Table 1. Ideological and political education in courses is the core of this teaching reform, and ideological and political content has been added to each chapter. Streamline basic photography teaching and focus on new photography technologies and development trends. Importance is attached to the role of mobile phones in college students' photography practice, and various new functions of mobile phone photography are introduced to stimulate students' interest and creativity. Add a special topic on photography in Chapter 7 and place more emphasis on the cultivation of photographic aesthetic abilities. In the teaching of post-processing in photography, the teaching of post-processing on mobile phones and the content of AI post-processing have been included. There was no content on short video teaching before the teaching reform, but after the reform, Chapter 9 on short video appreciation, shooting, and editing has been added.

3. Results and Discussion

3.1 Selection of Ideological and Political Teaching Content

The content of "ideological and political education in courses" should be reasonably integrated into teaching, and the teaching content of "ideological and political education in courses" should be organically incorporated

into various links such as classroom teaching, after-class assignments, practical training, and social practices [7]. In higher education, by exploring the ideological and political elements contained in professional courses, ideological and political education is carried out for college students, so that all teachers and courses shoulder the sacred mission of nurturing the soul and educating people [8]. When selecting ideological and political cases for photography courses, the teachers of the team avoid directly explanations of ideological

and political theories. Strengthen the relevance between ideological and political education cases and photography teaching content, enabling students to naturally absorb ideological and political content while learning photography knowledge. Through photography works with ideological and political characteristics, students' patriotic feelings are inspired, their sense of national pride is enhanced, and they are guided to establish correct worldviews, values, and outlooks on life [9].

Table 1. Comparison of Teaching Contents before and after the Reform of Digital Image and Photography Art Course

Ability training	Teaching content before the reform	Teaching content after the reform	The changes in teaching content
Photography Foundation	Chapter 1: The History of Photography Chapter 2: Camera Lens Chapter 3: Shutter Chapter 4: Using Digital Cameras	Chapter 1: The History and Trends of Photography Chapter 2: Camera Lens Chapter 3: Shutter Chapter 4: Using Digital Cameras	Increase the content of ideological and political education Streamline photography foundation content Introduce new technologies and development trends Attach importance to the role of mobile phones in photography
Photographic Aesthetics	Chapter 5: Lighting for Photography Chapter 6: Photographic Composition	Chapter 5: Lighting for Photography Chapter 6: Photographic Composition Chapter 7: Special Topic Photography	Increase the content of ideological and political education Attach importance to the cultivation of photographic aesthetic ability
Post-processing in photography	Chapter 7 Techniques for Post-processing Digital Photos	Chapter 8: Post-processing of Photos on Mobile and Computer	Add mobile phone photo post-processing teaching AI photo processing
Video Shooting	No short video teaching content	Chapter 9: Short Video Appreciation, Shooting and Editing	Increase the content of ideological and political education Increase short video appreciation teaching Add short video shooting and editing tutorials

3.1.1 Ideological and political teaching content with Chinese characteristics

In the selection of photography cases, 70% of the photography works have been replaced with Chinese characteristics. These works reflect the achievements of China's modernization reforms in various aspects such as people's daily lives, industrial production, medical security, sports competitions, and ecological environment, as shown in Figure 1. Select works of renowned Chinese photographers such as Lang Jingshan, Chen Fuli, and Wei Dezhong to form more representative teaching cases, and enhance students' photographic aesthetic level through the appreciation of classic photography works.

3.1.2 Ideological and political teaching content with regional characteristics

The reform of the teaching content of the photography course should incorporate the

characteristics of regional culture. Henan University of Science and Technology is located in Luoyang, Henan. Henan is the birthplace of Chinese civilization. Luoyang is one of the first batch of national historical and cultural cities and a renowned tourist city. When preparing the photography teaching content, we created photography cases with Luoyang local characteristics, such as "Viewing Luoyang through Photography Works", "How to Photograph Flowers", and "How to Photograph Hanfu Photos", to increase students' sense of identity with regional culture, as shown in Figure 2.

3.1.3 Ideological and political content with campus characteristics

Enhancing students' interest in course is the key to guiding them to master the course well. Most of college students' learning, socializing, and resting activities are carried out on

campus. Ideological and political content that is close to campus life is more acceptable to college students. When preparing teaching cases, examples related to students' daily lives, such as how to photograph campus scenes, how to photograph performances, and how to

photograph graduation photos, have been added, as shown in Figure 3. These cases enable students to intuitively feel the role of photography in life, and to comprehend, learn, participate in, and fall in love with photography from the inside out [3].

Classroom presentation					
Teaching content	Shutter speed Photography composition	Shutter speed Sports Photography	Landscape Photography Photography composition	Shutter speed Sports Photography	Portrait photography Photography composition
Education objectives	The spirit of professionalism	The spirit of striving hard	Cultural confidence	Love for life	The spirit of dedication

Figure 1. Integration of Ideological and Political Photography Works with Course Content




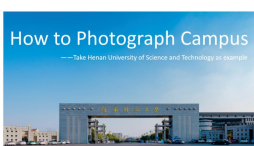


Ideological and political teaching content with regional characteristics			
Ideological and political teaching content with campus characteristics			

Figure 2. Examples of the "How to Photograph" Series Tutorials and political content on students.

3.2 Integration of Ideological and Political Content and Photography Teaching

For key ideological and political education cases, a "Ideological and Political Case Teaching Table" should be created, with advance planning done in aspects such as ideological and political introduction, course theory, integration points of ideology and politics, education objectives, and classroom discussions, as shown in Table 2. When explaining ideological and political cases, start from the photography theory and explain from aspects such as the historical background of the event, the creative ideas of the work, and the content of expression, avoiding slogans and theoretical lectures. Through the appreciation of works and discussions among students, enhance the influence of ideological

3.3 Online and Offline Learning Resource Development





Relying on the Chaoxing Learning Platform, the teaching team has integrated teaching resources into a set of complete and modern online teaching learning resources, achieving the sharing of multiple resources and knowledge exchange. The main learning resources include:

3.3.1 Online learning resources

The constructed online learning resources include various forms such as theoretical teaching videos, experimental teaching videos, PPT courseware, teaching plans, practical case studies, student classroom activities, and supplementary resources.

Table 2. Ideological and Political Case Teaching Table

Ideological and political content introduction	The Historical Background of the Construction of the Red Flag Canal In the 1950s, the problem of water shortage seriously affected the lives of the people in Lin County. During the construction of the Red Flag Canal, over a thousand mountain tops were leveled, more than two hundred tunnels were dug, and the earth and stone excavated and piled up reached over 15 million cubic meters.			
The title of work	Yang Gui walked at the forefront of the canal construction army.	Thousands of soldiers and horses climb the Taihang Mountains	Excavate the Shuguang Cave	Take out the danger from the air

Photo exhibition				
Course theory	45-degree side light	90 - degree side light	Bottom light	Side backlight
Integration points of ideology and politics	The leader takes the lead.	During the difficult times of the country, they fear no hardships and dangers, and thousands upon thousands of soldiers march towards the Taihang Mountains.	The leader is at the construction frontline.	Eliminate potential dangers and ensure construction safety.
Education objectives	One should have a sense of responsibility in work and study.	The leaders should solve the difficulties of the people.	Loyalty, integrity and accountability are the core qualities of leadership.	Safety production is no small matter.
Classroom discussions	Guide the students to discuss from the perspectives of "How did Mr Wei Dezhong take these wonderful photos?", "The promotional role of excellent photographic works". Through the discussion of these works, help the students deepen their understanding of photographic creation and the ideological and political spirit contained in the works.			

3.3.2 Offline learning resources

The School of Art and Design has built a photography laboratory, providing a wealth of equipment such as cameras, lenses, lighting, and props. Students can operate various shooting equipment in the laboratory and complete photography experiments.

3.3.3 Practice resources

Practice resources are divided into three categories: theoretical exercises, photography experiments, and shooting practices. For theoretical exercises, there are interactive test questions in teaching videos and post-class unit knowledge tests. All the cases of photography experiments have been made into online videos to facilitate students' review and self-study. The shooting practice assignments include individual practice shooting assignments, group practice assignments, comprehensive shooting projects, etc.

3.3.4 Q&A and consultation channels

Send group notifications through class

announcements on Chaoxing Learning Platform. Solve students' individual problems through online private messages. A small number of students also communicate with teachers by WeChat.

3.4 Organize Teaching Based on Students' Needs

The application of the OBE concept helps students apply what they have learned to practical use and better adapt to the job requirements in the market [10]. The teaching team continuously explores the combination model of online teaching, classroom teaching, and practical teaching during the teaching practice, and promotes the reform of the "online + offline" blended teaching method driven by projects, so as to achieve the expected ideal teaching results of the photography course [6]. The online and offline teaching arrangements for this course are shown in Table 3.

Table 3. The Online and Offline Teaching Arrangements of Digital Image and Photographic Art

Teaching method	Teaching stage	Teachers' teaching activities	Students' learning activities
Online learning	Online learning before class	Release the learning resources of the chapter Mark students' theoretical test assignments Mark students' practical test assignments	Autonomous learning Complete the theoretical test Take photos and upload them to the system
Offline learning	Classroom theoretical teaching	Sort out the content of the chapter Explain the key knowledge Organize students to display their	Review chapter knowledge Photo display Students comment and

		photographic works. The teacher comments on the students' works.	communicate with each other
Offline learning	Classroom experimental /practical teaching	Classroom experiment demonstration Guide students in their experiments. Mark experiment reports Lead the classmates to conduct outdoor photography practice.	Indoor photography experiment Outdoor photography practice Write a experiment report
Offline learning	Photography practice after class	Publish an individual photography practice project Publish a group photography practice project Release the major assignment project Assignment marking and problem feedback	Complete personal photography assignments The team completes the team photography assignment Submit assignments online Excellent assignments display Grading, evaluation, reflection. Excellent assignments are made into "student classrooms".
Online learning	Reflections on teaching after class	Issue survey questionnaires Analyze the questionnaire results Reflect on and improve teaching content and methods	Participate in questionnaire research

3.5 Reform of the Photography Practice System

3.5.1 Rich photography practice teaching system

After adopting online and offline mixed teaching, the time of offline teaching will be reduced. Some students will be distracted when conducting online theoretical learning. It is necessary to establish a rich photography practice system, and through diverse practical assignments, students can systematically understand the course content and have good photography practice ability.

Students of each major must complete the study of unit photography practice, indoor photography experiment, and group photography practice. The major assignment

projects are designed by teachers according to professional characteristics, as shown in Table 4.

3.5.2 Theoretical knowledge and photography practice are closely integrated

The principles of OBE concept curriculum design are reflected in three aspects: student-centered, output-oriented, and continuous improvement [11]. According to the theoretical content of each chapter, the shooting practice project is designed. A unit teaching mode of "theoretical learning - online knowledge test - offline photography practice - classroom explanation, communication - student classroom" is established to form a complete closed loop from theoretical knowledge to photography practice.

Table 4. Photography Practice System

Practice category	Unit photography practice	Indoor photography experiment	Group Practice	The major assignment projects	
				Professional practice assignments	General purpose assignment topic
Practice name	Focal length exercise Shutter Practice Light practice Campus building photography practice Time-lapse photography practice Photo post-processing exercise	Portrait photography exercise Product photography exercise	Personal portrait photography practice Group portrait photography practice	Industrial design professional assignments Product design professional assignments Environmental design professional assignments Visual communication professional assignments Animation professional assignments Painting professional assignments	Short videos on college life

Taking the learning of shutter speed as an example, after students have completed the self-study of theoretical knowledge and the online knowledge test, they will then carry out photography practice. After the teacher grades the assignments, excellent photos will be selected and the students will be asked to

present them in class. For the most outstanding assignments, students are required to make them into teaching videos for the "Student Classroom" to showcase their creative ideas and shooting effects, which is convenient for future students to refer to and learn from, as shown in Figure 3.



Figure 3. The Complete Process of Unit Theoretical and Practical Education

The online teaching content of each chapter has been transformed from the traditional form of only theoretical teaching videos into three forms of teaching videos: theoretical teaching, photography example teaching, and student classroom teaching. The complete teaching content helps students understand how photographic theories can be applied to photographic practice and provides them with intuitive references in the assignment.

3.5.3 Group comprehensive practical assignment

In order to enhance students' practical ability and their ability to master complex scenes, as well as to increase communication and interaction among students, a group portrait assignment has been designed. During the process of completing the assignment,

students are required to conduct the assignment in groups, take individual photos of each student and group photos, and use software for the post-processing of the photos, as shown in Figure 4.

The group shooting assignments are submitted and displayed on the Chaoxing teaching platform. Scores are given through three evaluation methods: teacher evaluation (80%), peer evaluation within the group (10%), and peer evaluation between groups (10%). The teacher will select excellent works for display in the class. Students' participation in the evaluation of group assignments not only serves as a reminder to improve their skills but also promotes mutual communication among students.



Figure 4. Excellent Practical Assignments of Group Portrait by Students

3.6 Reform of the Course Evaluation System

Previously, in the course grade evaluation, major assignments accounted for 70% of the total grade, photography experiments

accounted for 20%, and daily performance accounted for 10%. The excessive proportion of major assignment scores in the total grade led students to neglect daily shooting assignments. In line with the unified requirements of the school, after the reform,

the proportion of daily performance in the total grade has been increased to 40%, the proportion of major assignments has been reduced to 50%, and photography experiments still account for 10%. As a result, students now attach greater importance to daily shooting and theoretical accumulation.

The assessment of daily performance is divided into two parts: online and offline. The assessment of the online part mainly assesses students' learning duration of course videos, the number of times of chapter learning, online theoretical tests, sign-ins and interactive tests. The assessment of the offline part of the performance includes unit photography practice, comprehensive group photography practice and individual major assignments.

4. Conclusion

After the completion of the construction of the high-quality online course of Digital Image and Photography Art, it has undergone two years of teaching practice. Good teaching reform effects have been achieved in the following aspects:

(1) With "ideological and political education" as the core, a large number of high-quality teaching contents of ideological and political pictures and videos have been added, and attention has been paid to the integration of ideological and political contents and photography theories. The teaching plans and teaching videos have been systematically upgraded.

(2) In teaching, a variety of teaching methods have been implemented, including network video courseware teaching, classroom teaching, photography experiments, shooting practices, and student classroom. These diverse teaching methods have effectively encouraged students to develop the habit of active learning.

(3) The goal of ability cultivation has been transformed from static picture shooting and modification to laying a solid foundation for static picture and having preliminary video capabilities.

(4) The photography teaching content with regional characteristics and the characteristics of college life, as well as the assignment settings close to college life, are well received by college students.

With the change of college students' learning

styles and the continuous advancement of technology, the course also has the following deficiencies:

(1) Some students are not highly self-disciplined in online learning, and there are cases where they do other things while playing the teaching videos. These students are unable to fully master the knowledge in the teaching videos, and this is directly reflected in their low scores in the online unit knowledge tests.

(2) With the rapid development of AIGC (Generative Artificial Intelligence), many tools that can be used for the production and editing of imaging content have emerged. The teachers in the team do not have a comprehensive and in-depth grasp of these new tools yet. In the future, the usage of more AI tools will be integrated into the course.

The problems existing in the teaching will be gradually solved by the teachers of the team in future curriculum reforms and practices, so as to achieve better teaching results in the courses of Digital Image and Photography Art.

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