Using Project-Based Learning Method to Improve Practice Skills of Video Post-Production Course of Undergraduate Students

Received: 26 February 2025 **Revised: 17 April 2025** **Accepted: 30 April 2025**

Wang Tianqi, Bansomdejchaophaya Rajabhat University
Supaporn Srihamee, Bansomdejchaophaya Rajabhat University
Jittawisut Wimuttipanya, Bansomdejchaophaya Rajabhat University

Abstract: *The objectives of this research were 1) to use project-based learning method to improve the practice skills of video post-production courses of undergraduate students, and 2) to compare students' practice skills of video post-production course before and after the implementation based on project-based learning method. The sample group consisted of 30 freshmen students from Chongqing Vocational College of Media in China, through cluster random sampling. The research instruments included 1) lesson plans based on project-based learning, and 2) practice skills tests: multiple choices and performance assessment. The data were analyzed by mean, standard deviation, and t-test for the dependent samples.*

The results revealed the following:

1. Using project-based learning method to improve the practice skills of the video post-production course. Researcher studied information based on project-based learning method and synthesized into 7 steps: Determining the project theme, Setting project objectives, Planning the project process, Organizing students into groups, Project implementation, Display and communication and Evaluation and reflection. Quality analysis of lesson plans by 3 experts, shown that the overall results were most highly appropriate. After students have learned according to the 3 lesson plans, the average score after learning was 61.23, while the average score before learning was 35.13.

2. The comparison of students' practice skills of video post-production course before and after based on project-based learning method. The result found that students' practice skills scores after learning were higher than before learning statistically significant at the level .01. Therefore, learning by project-based learning method could improve students' practice skills of video post-production course.

Keywords: Project-based Learning Method, Video Post-production course, Undergraduate Students

Introduction

The "General Catalogue of Undergraduate Programs of Ordinary Higher Education Institutions (2020 Edition)" and "List of New Undergraduate Programs Admitted into the Catalogue of Higher Education Institutions (2021)" mainly involve the setting and management of undergraduate majors in higher education in China, including a clear stipulation on art-related majors. They provided official and authoritative references for colleges and universities in planning their curriculum and content for related majors such

as film and television production. Specifically, the film and television production major belonged to the "Broadcast, Film and Television" major under the "Art" category. This classification clearly defined the location of the film and television production major and provided guidance for college and university majors. The government stated that in this catalog, the specific setting, training objectives, and training requirements of the film and television production major must strictly follow the provisions of this major classification. The division of majors was mainly to ensure the systematic and scientific nature of higher education and to enable students to have a clearer understanding of and choose their major fields. For example, if a student had a strong interest and career planning in film and television production, he could choose relevant colleges and majors according to the provisions of this professional catalog and apply for admission and study (Ministry of Human Resources and Social Security, 2019). The professional catalog also provided a basis for the setting of related courses. Colleges and universities needed to refer to the relevant provisions in this catalog when setting related courses to ensure the rationality and advanced nature of teaching content and training objectives. In summary, this professional catalog provided important norms and guidance for the opening, development, and improvement of majors such as film and television production and was one of the basic guiding documents for higher education work (Hebei Provincial Education Examination Institute, 2023).

The significance of the undergraduate film and television post-production course lay in the fact that with the development of society and the increasing demand for high-quality films, television post-production has become a key link in improving the aesthetics and viewing experience of films. Through these courses, students could systematically learn and master the theoretical knowledge and practical skills of film and television post-production, including but not limited to video editing, color correction, special effects production, and sound synthesis (Hu Nannan, 2021). The course of film and television post-production was of paramount importance in the film and television industry today. In video production, it was the key link for integrating and optimizing the raw materials obtained in the preliminary shooting, which could integrate scattered shots into a complete, smooth, and logical film, endowing the film with vitality. For video editing and special effects, by operating professional software, one could cut, color, and add various cool special effects to the picture, greatly enhancing the visual impact and artistic appeal of the video, and making the film stand out. In the stage of completing and outputting the post-production, it could ensure that the film was presented in the appropriate format, resolution, and quality to meet the playback requirements of different platforms. In summary, the course of film and television post-production was an indispensable guarantee for creating high-quality film and television works and had far-reaching significance in promoting the development of the film and television industry (Feng Yanyan, 2017).

The development of economic globalization promotes the progress of science and technology, and human life changes day by day. The increasing number of teaching resources and the improvement of teaching conditions have challenged the traditional teaching model, and they must be closely linked with developing students' activeness. The traditional teaching model has not aroused enough interest and attention. Applying the project-based learning method to video post-production courses cannot only enrich teachers' theoretical research on teaching mode but also bring new ideas and methods for

classroom teaching. Yang Liu (2021) stated that real-world problems were complex and difficult to address with knowledge from a single discipline. The project-based learning method broke down barriers between subjects and built bridges for knowledge integration. When students worked on projects, they needed to call on knowledge from multiple disciplines, such as language, math, and science, and link them together. Through this process, students built a comprehensive knowledge system and clarified the logical connections between different disciplines. In the future, when faced with diverse and interdisciplinary real-world problems, they could quickly mobilize knowledge resources and provide suitable solutions. Wang Decai and Jiang Lingyun (2017) pointed out that traditional teaching methods often fell into the limitation of theoretical knowledge transmission, and this tendency was especially evident in the undergraduate film and television post-production course was a discipline with an extremely strong practical nature, and students needed to have advanced practical skills and innovative thinking. Zeng Zhu and Xiao Lan (2017) pointed out that the benefits of applying the project-based learning method to undergraduate film and video post-production courses enhance students' practical operation ability and problem-solving abilities. Students needed to start the material shooting in the early stage, apply the photography skills they had learned, choose suitable shooting equipment, scene setting, and camera language to obtain high-quality raw materials. Entering the post-production stage, they needed to be proficient in professional software such as Adobe Premiere Pro for editing. At the same time, during the project's progress, students were bound to encounter various problems, such as lighting problems during material shooting leading to poor picture quality, or unsatisfactory special effects. Faced with these problems, students had no choice but to actively think, refer to materials, and try different solutions. Fan Xiaotian (2021) emphasized that the key to project-based learning was giving students the power to lead their own learning. Traditional teaching often involved a one-way lecture by the teacher and passive learning by the students. However, project-based learning encouraged students to take the lead in planning their progress, setting goals, and controlling the pace. To advance their projects, they actively searched for information, overcame knowledge gaps, and learned to self-assess and adjust. This exercise in autonomy could help students become independent thinkers and proactive learners, which was beneficial for long-term learning and personal development.

In summary, the project-based learning method enhances both teaching conditions and instructional models. The key to project-based learning is empowering students to take ownership of their learning by planning their progress, setting goals, and managing their pace. To advance their projects, they actively searched for information, overcame knowledge gaps, and learned to self-assess and adjust. This exercise in autonomy could help students become independent thinkers and proactive learners, which was beneficial for long-term learning and personal development. Furthermore, it strengthens students' collaboration and communication abilities, making it highly valuable in undergraduate film and video post-production courses. The project-based learning method is of great significance in the undergraduate film and video post-production course.

Research Objective

1. To use the project-based learning method to improve practice skills of video post-production course of undergraduate students.

2. To compare students' practice skills in video post-production courses before and after implementation based on the project-based learning method.

Research Hypotheses

After implementing the project-based learning method, the students' practice skills in the video post-production course were improved obviously.

Literature review

The problem-based learning is to enhance students' practical operation ability and problem-solving ability. The method encouraged students to take the lead in planning their progress, setting goals, and controlling the pace to advance their projects, and students actively searched for information. The researcher has studied the meaning, significance, and elements of the project-based learning method of many academics, which will be presented in the following:

The significance of the project-based learning method

Fan Xiaotian (2021) emphasized that the key to project-based learning was giving students the power to lead their own learning. Traditional teaching often involved a one-way lecture by the teacher and passive learning by the students. However, project-based learning encouraged students to take the lead in planning their progress, setting goals, and controlling the pace. To advance their projects, they actively searched for information, overcame knowledge gaps, and learned to self-assess and adjust. This exercise in autonomy could help students become independent thinkers and proactive learners, which was beneficial for long-term learning and personal development.

Yang Liu (2021) stated that real-world problems were complex and difficult to address with knowledge from a single discipline. The project-based learning method broke down barriers between subjects and built bridges for knowledge integration. When students worked on projects, they needed to call on knowledge from multiple disciplines, such as language, math, and science, and link them together. Through this process, students built a comprehensive knowledge system and clarified the logical connections between different disciplines. In the future, when faced with diverse and interdisciplinary real-world problems, they could quickly mobilize knowledge resources and provide suitable solutions.

Gao Hongqi (2024) pointed out that project-based learning was often conducted in groups, creating an environment for students to work together. Group members had a common goal and must clearly define their roles based on their strengths to work together effectively. During this process, they exchanged ideas, shared resources, and refined their communication skills. When conflicts arose, they must reasonably negotiate and reach a consensus. Long-term experience in teamwork allowed students to master the process and methods of cooperation, develop a sense of collective identity, and effectively integrate into teams in the future, whether in the workplace or in social activities, to help achieve their goals.

Zhao Qiaoyan (2024) stated that there was a gap between book knowledge and real-world application, and project-based learning effectively filled this gap. Students immersed themselves in projects and faced real-world problems head-on, applying the theoretical knowledge they had learned. Through hands-on experience, they accurately grasped the scope and application of the knowledge they had learned, and tested their

learning outcomes; they could also have a direct sense of the practical value of knowledge and overcome the drawbacks of rote learning. This encouraged knowledge internalization and enhanced students' practical skills in solving real-world problems, laying a foundation for their future life and work.

To sum up, the project-based learning method emphasizes the development of autonomous learning skills by giving students the power to learn and allowing them to break away from the passive listening mode. It also effectively promotes the integration of interdisciplinary knowledge, breaking down barriers between subjects, and helping students build a comprehensive knowledge system to tackle complex problems.

The elements of project-based learning method

The project-based learning method is a step-by-step method designed to guide students from perception to creation through a series of careful steps to fully grasp knowledge and develop their practice skills. Project-based learning method includes the following components:

Teng Jun, et al. (2018) pointed out that the seven steps of the project-based learning method included: Step 1: Determining the project theme. Determining the project theme is the first step in project-based learning, which requires careful consideration of various factors. Step 2: Establishing project objectives. The project goals serve as a beacon, guiding the entire project forward, and must be clear, specific, and measurable. Step 3: Planning the project process. Planning the project workflow is key to efficient project progress, which should be carried out systematically, meticulously, and flexibly. Step 4: Organizing students into groups. Effective grouping is a good way to stimulate team energy. Step 5: Project implementation. The implementation phase is the core stage where the preliminary planning is put into practice, and the roles of teachers and students are more focused in this stage. Step 6: Display and communication. The presentation and exchange session aims to elevate the project outcomes and expand the depth and breadth of learning. Step 7: Evaluation and reflection. Evaluation and reflection are the wrap-up tasks that summarize project experiences and fill in gaps, which are related to the optimization and upgrading of subsequent projects.

Hu Jiayi (2019) paid attention to the seven important aspects of the project-based learning method: Step 1: Selecting the theme. At the beginning of a project, choosing a topic is a crucial first step. Step 2: Setting project objectives. Clearly defining project goals is crucial to project success. Step 3: Designing the project process. When designing a project workflow, consider time planning, task allocation, and resource allocation. Step 4: Organizing students into groups. Grouping students is the foundation for project collaboration. Step 5: Project implementation. Regular progress checks should be conducted to adjust strategies in a timely manner to ensure the project is carried out smoothly. Step 6: Exhibition and interaction. After the project is completed, an exhibition and interactive session will be organized to allow students to showcase their achievements and share their experiences. Step 7: Review and meditation. During the project wrap-up stage, the teacher should organize students to conduct self-evaluation and peer evaluation, reviewing the gains and losses of the project process.

Zhu Chengqi (2023) mentioned that the seven important aspects of the project-based learning method were interrelated, which together constituted a complete teaching system. These seven areas were as follows: Step 1: Determining the project theme. The initial step

in launching a project is to identify a clear and captivating theme. Step 2: Establishing project objectives. Once the project theme is established, the next step is to outline specific goals. Step 3: Scheduling the project process. Crafting a comprehensive project timeline is crucial for smooth project progression. Step 4: Assembling students into groups. Effective grouping is vital for enhancing project efficiency and quality. Step 5: Project fulfillment. Regular progress checks should be conducted to promptly identify and resolve issues. Step 6: Display and communication. After project completion, organizing a presentation and exchange event is essential. Step 7: Evaluation and reflection. The evaluation and reflection phase after project completion is crucial for enhancing students' self-awareness and development capabilities.

Liu Jianjun (2023) stated that the project-based learning method was a teaching method aimed at training teachers to practice and reflect on their teaching skills by simulating a real class environment. Step 1: Determining the project theme. Initiating project-based learning begins with meticulously determining the project theme. Step 2: Setting project objectives. The project goals function as a guiding compass, steering the entire endeavor. They must be precise, well-defined, and measurable. Step 3: Planning the project process. Efficient project progression hinges on meticulous process planning. Step 4: Forming student groups. Effective grouping can harness team synergy. Step 5: Project implementation. The implementation phase is where planning meets action. Step 6: Demonstration and exchange. The session dedicated to presenting and exchanging project outcomes is pivotal for elevating these achievements and broadening the educational experience. Step 7: Critique and contemplation. Evaluation and reflection serve as the culminating phases, encapsulating project insights and identifying areas for improvement, thereby facilitating the refinement and enhancement of future endeavors.

Huang Zhou (2024) stated that the project-based learning method was a kind of teaching method for the purpose of teacher training, which was usually used to cultivate and improve teachers' teaching skills. Project-based learning method consisted of the following seven main components: Step 1: Fixing the theme. Precise themes that align with the curriculum and students' cognitive levels are identified, themes that are related to the key subjects of the curriculum while also considering interest, practicality, and fun. Step 2: Setting project objectives. Stay focused on the topic and break down clear and measurable learning objectives. The objectives should cover knowledge acquisition, skill improvement, and cultivation of dispositions, such as understanding of subject concepts, refinement of practical techniques, and development of critical thinking and autonomous learning ability. Step 3: Planning the project process. Coordinate the various stages of the project, divide them into start, progress, and completion phases, and allocate time accordingly. Step 4: Organizing students into groups. Taking into account students' grades, personalities, and specialties, the groups are divided according to the principle of complementary advantages, with an appropriate number of members in each group. Step 5: Project performance. Students work in groups to carry out the project practice according to the process. Step 6: Display and communication. Set up a dedicated display area or use an online platform for group presentations of project products. Step 7: Evaluation and reflection. Teachers and students evaluate the results based on predetermined standards, scoring on dimensions such as quality of outcomes, teamwork, and individual contributions.

Video post-production course

1. Video production

Video production is essential for laying a solid foundation for any video post-production project. In the age of digital media, video production has become an important means for college students to express their creativity and convey information. Students will learn to conceptualize, plan, and design storyboards, which is crucial in determining the direction of the video production as follows: (1) video camera techniques, (2) composition techniques, (3) video shooting techniques, and (4) storyboarding.

2. Video editing and special effects

Video editing and special effects play a vital role in modern media production, advertising campaigns, film production, television programming, social media content creation, and online education. Video editing and special effects not only enhance the visual experience but also enhance the storytelling and the audience's immersion. The teacher explained the concept of video editing and special effects and demonstrated (1) Material arrangement and management, (2) Video editing and splicing (3) 3D special effects, and (4) Post special effects.

3. Post-production finishing and output

Project-based learning method plays a significant role in improving college students' post-production completion and output. It can not only enhance students' practical ability and project experience, promote team cooperation and communication skills, cultivate innovative thinking and problem-solving skills, but also improve time management and work efficiency, broaden knowledge and maintain learning motivation. Therefore, colleges and universities should actively promote project-based learning methods in the teaching of film and television post-production and other related majors, so as to cultivate more excellent post-production talents.

The teacher explained the concept of post-production finishing and output as follows: (1) Text addition; (2) Sound processing; (3) Preview and correction; and (4) Export and distribution.

Research Methodology

The population

There were 60 freshmen students, majoring in fine arts with 2 classes from Chongqing Vocational College of Media, Chongqing City, China, in the second semester of the academic year 2023. (There were mixed abilities in each class: high level, medium level, and low level.)

The sample group

Through a cluster random sampling, there were 30 freshmen students, majoring in fine arts with 1 class from Chongqing Vocational College of Media, Chongqing City, China, in the second semester of the academic year 2023.

Research Instrument

Using the project-based learning method to improve practice skills of video post-production course of undergraduate students.

1. Lesson plan based on project-based learning method

1.1 Study the proposal of practice skill of video post-production course to serve as a guideline for developing the lesson plan in this research and study guidelines for

teaching based on project-based learning method from many academics: Teng Jun, et al. (2018), Hu Jiayi (2019), Zhu Chengqi (2023), Liu Jianjun (2023), and Huang Zhou (2024) to design details in the teaching method.

1.2 Create 3 lesson plans on the subject. Unit 1: Video production (11 hours); Unit 2: Video editing and special effects (11 hours); and Unit 3: Post-production finishing and output (11 hours). By designing lesson plans using the project-based learning method, each lesson plan specified the details of the topics as follows: 1) Determining the project theme, 2) Setting project objectives, 3) Planning the project process, 4) Organizing students into groups, 5) Project implementation, 6) Display and communication, and 7) Evaluation and reflection.

1.3 Following the revision of the lesson plans, the researcher had them reviewed by 3 experts to confirm the accuracy of the content and the comprehensiveness of the plans. Additionally, the Index of Item Objective Congruence (IOC) was calculated, and the result of the lesson plans had an IOC = 1.00 for all contents.

2. Practice skills test of video post-production course

The video post-production course uses the project-based learning method to improve the practice skills of the video post-production course of undergraduate students: 1) Video production: video camera techniques, composition techniques, video shooting techniques, and storyboarding. 2) Video editing and special effects: material arrangement and management, video editing and splicing, 3D special effects, and post-special effects. 3) Post-production finishing and output: text addition, sound processing, preview and correction, and export and distribution. The researcher created the multiple-choice test to evaluate students' understanding concept of each content and performance assessment for students' practice skills. The steps in creating and determining the quality of the practice skills test are as follows:

2.1 Multiple-choice test

2.1.1 Study the theory about how to create multiple-choice questions for the concept knowledge of each content were 1) Video production, 2) Video editing and special effects, and 3) Post-production finishing and output, which were totally 30 items to measure the concept knowledge of video post-production course of undergraduate students. The scoring criteria are 1 point for a correct answer and 0 point for a wrong answer.

2.1.2 Improve and revise items test that have been verified by experts. Then took it to try out with students who were not a sample group of 30 freshmen students to calculate the quality of the test. The difficulty value (p) was selected in the range 0.20-0.80 and discrimination power (r) was selected in the range 0.20-1.00 (Landis, J. R., & Koch, G. G. 1977). The results of the quality analysis of the questions found that there were 30 questions: 1) video production, there were 11 questions (p = 0.57-0.80, r = 0.20-0.53), 2) video editing and special effects, there were 9 questions (p = 0.37-0.77, r = 0.20-0.80), and 3) post-production finishing and output, there were 10 questions (p = 0.33-0.80, r = 0.20-0.73). And reliability of the test by Kuder Richardson's method (KR-20) at 0.94.

2.2 Performance assessment of video post-production course

Procedures for creating the performance assessment, which is a practical test, included 3 contents and 19 items with steps to create and find quality as follows:

2.2.1 Studied the theory, principles, and methods of performance assessment from documents, textbooks, and created the performance assessment by authentic assessments on 3 criterial of score: Good (3), Medium (2) and Low (1) for practice skills: 1) Video production, 2) Video editing and special effects, and 3) Post-production finishing and output.

2.2.2 The performance assessment criteria are submitted to three experts for measurement and examination. These experts conduct a check on the content validity and work out the Index of Item Objective Congruence (IOC). The result found that at 1.00 for all questions. Then took it to try out with 30 students who were not a sample group and calculated the quality of confidence values in performance assessment analysis the reliability by Cronbach's Coefficient Alpha method at 0.77.

Data Collection

This research was experimental research according to the group pretest and posttest design, the data collection is as follows:

1. Organize a test prior to the start of the experiment to learn how students learn to evaluate student role learning objectives and the benefits of participating in practice skill tests and learning activities during the experiment.
2. Test before teaching (Pretest) with 30 freshmen students, which was a sample group, and check the score record to analyze the data.
3. The course is divided into 3 units, a total of 33 hours, and the study period was from July 2023 to December 2024.
4. Test after teaching (Posttest) with 30 freshmen students, which was a sample group, and check the score record for further data analysis.

Research Results

The purpose of the research were 1) to use project-based learning methods to improve the practice skills of video post-production courses of undergraduate students, and 2) to compare students' practice skills of video post-production courses before and after implementation based on project-based learning method.

1. Using project-based learning method can improve the practice skill of the video post-production course. The researcher has studied the information base on project-based learning method synthesized into 7 steps to improve practice skills: 1) Determining the project theme, 2) Setting project objectives, 3) Planning the project process, 4) Organizing students into groups, 5) Project implementation, 6) Display and communication, and 7) Evaluation and reflection. Quality analysis of lesson plans by 3 experts, shown that the overall results were most suitable. After sample group students have learned according to the lesson plans the result showed that, the practice skills score of video post-production course before and after using project-based learning method, the average score before learning was 35.13, the average score after learning was 61.23. The scores after learning were higher than those before learning. It shows that teaching by using the project-based learning method could improve students' scores of practice skills in the video post-production course.

2. The comparison of students' practice skills of video post-production course before and after the implementation based on the project-based learning method to analyze the data using average statistics, standard deviation, and t-test for dependent samples which

the data analysis results are shown in Table 1.

Table 1 The comparison of students' practice skills scores of video post-production courses before and after implementation based on project-based learning method.

Practice skills	Testing	n	Full score	$\bar{X}$	SD.	df	t	p
Video production	pretest	30	35	14.23	1.55	29	25.83**	.00
	posttest	30	35	23.80	1.58			
Video editing special effects	pretest	30	27	11.47	1.41	29	28.46**	.00
	posttest	30	27	19.53	1.11			
Finishing and output	pretest	30	25	9.43	1.70	29	22.47**	.00
	posttest	30	25	17.90	1.71			
Total	pretest	30	87	35.13	3.03	29	37.53**	.00
	posttest	30	87	61.23	3.04			

**p≤.01

From Table 1, The results in Table 1 indicate that students' practice skills scores after learning were significantly higher than before learning. When considering the results of data analysis classified by contents. The result found that the practice skills score of students after learning is higher than before learning statistically significant at the level .01 for all contents. Therefore, learning by using the project-based learning method could improve students' practice skills of video post-production courses.

Research Discussion

The research resulted from using the project-based learning method to improve the practice skills of the video post-production course on 30 freshmen students from Chongqing Vocational College of Media, China. The researcher could be discussed as follows:

1. The improvement of practice skills by using project-based learning method. The researcher studied documents and related research on project-based learning method theory from many researchers and synthesized them into 7 steps which were used for 3 lesson plans. The practice skills score of video post-production course before and after using project-based learning method, the average score before learning was 35.13, the average score after learning was 61.23. The scores after learning were higher than those before learning. It's because the project-based learning method was very important to practical operation and problem-solving, this is because project-based learning as a learning approach based on experience. Students acquired knowledge and skills through hands-on activities and personal experiences while working on projects. He emphasized the close connection between education and life, and project-based learning was a way to simulate real-life situations, allowing students to understand the practical uses of knowledge while solving real-world problems and developing their practical skills and sense of social responsibility (Chen Hui, 2015). It's consistent with Zeng Zhu & Xiao Lan (2017) pointed

out that the benefits of applying project-based learning method to the undergraduate film and video post-production course enhance students' practical operation ability and problem-solving ability. And consistent with Lin Jie (2022) project-based learning as a collaborative learning experience, students worked in groups to complete projects, during which they communicated with each other, divided tasks, and take responsibility for the results of the project together. This learning method could cultivate students' teamwork spirit, communication skills, and leadership abilities. Because of this, during the project implementation process, faced with the challenges of lighting and composition in shooting and the complex tasks of material selection, editing rhythm, and special effects synthesis in post-production, students must actively learn and apply various professional knowledge and software tools, thereby effectively improving their film and television post-production practical skills. At the same time, in the display and exchange, evaluation and reflection stages, students can gain new inspiration from others' works and opinions and continuously improve their work.

2. The comparison of students' practice skills before and after the implementation based on project-based learning method. The result indicated that the scores on practice skills of students after learning were higher than before learning statistically significant at the level .01. It's consistent with Han Hongyang (2015) application of project-based teaching method in film and video post-production course, which selected 70 undergraduates and divided them into two groups, with 35 students in each group. The experimental group adopted a project-based learning approach, with the theme of "Science Fiction Microfilm Special Effects Production." Students formed teams to draft scripts, apply special effects, and fine-tune videos. The control group continued to receive conventional classroom instruction. Before and after the teaching, both groups completed the same type of short film. A professional team scored the films based on the dimensions of visual effects, editing fluidity, and creativity. The scores of the experimental group's scores significantly improved after the teaching, with a $P<0.05$. In contrast, the mean value of the control group changed minimally, highlighting the outstanding effect of the project-based learning method on improving teaching quality. Qiu Ping (2016) pointed out that this teaching case involved 80 undergraduates who were randomly divided into an experimental group and a control group, with 40 students in each group. The experimental group adopted a project-based learning approach, focusing on the "post-production of urban promotional short videos" project. Teachers provided guidance throughout the process and regularly organized showcases and exchanges of achievements. The control group followed the traditional theoretical teaching model. Before and after the teaching, students in both groups made urban-themed short videos. Professionals were invited to score them based on dimensions such as picture quality, editing logic, and output effects. The results showed that the average score of the experimental group significantly improved, while the analysis of variance indicated that the teaching effect was remarkable; the scores of the control group showed little fluctuation, highlighting the advantages of project-based learning. And consistent with Han Lin (2024) the project-based learning emphasizes driving learning with real projects, allowing students to learn by doing and actively acquire and integrate knowledge, deeply tapping into the technical potential. Two classes of 40 students from the same grade and with similar computer foundation were selected. One class was designated as the experimental group, while the other was the control group. The post-test

data statistics showed that the average score of the experimental group was 85, while the average score of the control group was 70. The results of the independent sample t-test showed that the t value satisfied $p < 0.05$, indicating that there was a significant difference in computer-assisted deep learning ability between the experimental group and the control group, and the students' ability in the experimental group was significantly improved, verifying the advantages of the project-based learning method.

In summary, the project-based learning was integration of knowledge from multiple fields, prompting students to integrate what they have learned, effectively train their problem-solving ability and creative thinking, enabling them to better cope with the complex and changing actual situation. In addition, collaborating in groups to complete projects helps to cultivate students' team spirit and communication and interpersonal skills, making them better adapt to future work scenarios.

Research Suggestion

General recommendation

1. Design project themes and processes carefully, the project theme should be closely related to the hot topics and actual needs of the film and television industry, including the stages of preliminary planning, material collection, editing and synthesis, special effects addition, and post-production debugging. Clearly define the students' learning objectives and tasks at each stage and guide them to gradually master the skills of film and television post-production.

2. Strengthen team collaboration and communication mechanisms. Divide students into groups to work on projects, with group size limited to 4-6 people, and ensure that members have complementary skills. Set up regular group discussion meetings, where students report on project progress, and share problems encountered and solutions. Encourage team members to evaluate each other's work and offer constructive feedback.

3. The evaluation system should cover team collaboration evaluation focuses on the degree of coordination between team members and the rationality of their roles. The personal growth evaluation evaluates the students' skill improvement and problem-solving ability during the project process.

Suggestions for future research

1. Expand project dimensions by integrating cutting-edge technologies to stay up-to-date with emerging technologies in the film and television industry, such as virtual reality (VR), augmented reality (AR), and artificial intelligence-assisted editing using project-based learning.

2. Study cross-disciplinary collaboration enriches the post-production course in film and television and other disciplines, such as collaborating with computer science to optimize film rendering projects using project-based learning.

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