

Research on the Integration of Project-style Teaching in Landscape Design Course of Environmental Art Design Major

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Abstract: With the acceleration of the urbanization process, people's requirements for the quality of living environment continue to improve, and environmental awareness is also enhanced. In this context, landscape design, as an important means to improve the urban environment and enhance the quality of life of residents, plays an increasingly important role in the higher education system. However, the traditional teaching mode often focuses on the teaching of theoretical knowledge, ignoring the practical operation link, resulting in students often powerless in the face of practical projects, and it is difficult to meet the current industry's demand for compound talents who know both theory and rich practical experience. In order to cope with this challenge, the teaching model and method need to be innovated. As a project-based teaching method, which emphasizes practicality and innovation, project-based teaching has attracted much attention in education circles at home and abroad in recent years. By allowing students to participate in real or simulated project design and practice, the method closely combines theoretical knowledge with practical operation, so as to effectively stimulate students' interest in learning and improve learning results. This paper deeply discusses how to effectively integrate project-style teaching into landscape design course of environmental art design major. Through elaborating the concept, characteristics and advantages of project-style teaching, it puts forward a series of targeted improvement strategies. These strategies aim to help relevant educators make better use of project-based teaching methods, so as to cultivate more environmental art design talents with solid theoretical foundation, excellent practical ability and innovative ability, so as to inject new vitality into the sustainable development of China's landscape design industry. The results show that project-based teaching plays an important role in improving students' comprehensive quality and meeting the needs of the industry.

1. Introduction

With the acceleration of urbanization and the improvement of people's demand for quality of life, landscape design courses of environmental art and design are playing an increasingly important role in higher education. Landscape architecture teaching is a discipline combining art practice and design theory, so practice-based teaching mode has become the focus. However, the traditional teaching methods often pay attention to the teaching of theoretical knowledge and neglect the cultivation of students' practical ability. Therefore, how to integrate project-style teaching in landscape design courses of environmental art and design major to enhance students' practical ability and innovative ability has become an important topic of current teaching reform.

2. Application of project-based teaching in landscape design courses of environmental art design major

2.1 Concept and characteristics of project-based teaching

Project-based teaching is a teaching method with project as the core, emphasizing that students learn knowledge and skills in practical projects. By combining theoretical knowledge with practice, it enables students to master knowledge and skills in the process of solving practical problems^[1]. Project teaching has the following characteristics: First, it is practical. Project-based teaching focuses on practical links, allowing students to learn and master knowledge in the process of solving practical problems. This teaching method can improve students' practical ability and problem-solving ability. Second, comprehensive. Project-based teaching usually involves knowledge and skills in multiple subject areas and requires students to comprehensively apply what they have learned to solve problems, which helps to cultivate students' interdisciplinary thinking and comprehensive ability^[2]. Third, autonomy. In project-based teaching, students need to complete the planning, design, implementation and evaluation of the project independently, which is helpful to cultivate students' independent learning ability and innovation ability. Fourth, cooperation. Project-based teaching usually requires students to work in teams to complete projects, which helps to develop students' teamwork and communication skills.

2.2 Advantages of project-based teaching

(1) Combine theory with practice

The core of project-based teaching is to combine theoretical knowledge with practice. Through the design and implementation of specific projects, students can understand and master theoretical knowledge in practice^[3]. Landscape design is not only art design, but also involves the knowledge of environmental science, architecture, botany and other disciplines. Project-based teaching can integrate the knowledge of these different disciplines, so that students can comprehensively improve their comprehensive ability in practical operation.

In teaching design, the project and course teaching are combined to guide students to design practice through actual project cases, and to improve students' design innovation consciousness and design practice ability through project practice. For example, teachers can select a real landscape design project and let students design in groups, from demand analysis, site investigation, design concept to program implementation and final evaluation, and participate in the whole process. This approach not only allows students to deeply understand the application of theoretical knowledge in practical projects, but also exercises their teamwork and problem-solving skills.

(2) Cultivate students' innovative ability

Project-based teaching focuses on cultivating students' innovative thinking and problem-solving

ability. Through the design of practical projects, students need to think independently, explore independently, and come up with innovative design solutions. In this process, teachers need to guide students to conduct market research, case analysis, design thinking training, etc., to stimulate students' creativity and imagination^[4]. For example, in the landscape design project of a community park, teachers can guide students to think about how to meet the needs of community residents and how to enhance the overall image of the community through landscape design. Students can propose a variety of design options, and through discussion and evaluation, continuously optimize and improve the design options. In this process, students' innovative thinking and problem-solving ability have been effectively exercised and improved.

(3) Improve the overall quality of students

Project teaching can improve students' comprehensive quality through the practice of real projects. Students need to master various skills in practice, such as design drawing, material selection, construction techniques, etc. At the same time, students also need to have good communication skills, teamwork skills and project management skills. For example, in a landscape design project for a city square, students need to communicate with Party A, the construction side, the supervisor and other aspects to ensure the smooth implementation of the design scheme. In this process, students need to learn how to deal with different people, how to communicate and coordinate effectively. At the same time, students also need to have the ability of project management, including schedule control, cost control, quality control, etc. The exercise of these abilities can improve students' comprehensive quality and lay a solid foundation for their future career development.

2.3 The specific application of project-based teaching in landscape design courses for environmental art and design majors

(1) Course design

In the course design, we can take project-based teaching as the main line and combine theoretical knowledge with practice. By designing a series of course tasks related to practical projects, students can learn and master knowledge in the process of completing tasks. At the same time, the course content can be continuously updated according to the needs of the industry and the characteristics of students to ensure the timeliness and practicality of the course content.

(2) Teaching methods

In the teaching method, we can use project-based teaching method, such as case analysis, simulation project and so on. Through the introduction of practical cases, students are asked to analyze the problems and solutions in the cases, thereby deepening their understanding of theoretical knowledge^[5]. At the same time, students can be organized to design and implement simulation projects, so that students can learn and master knowledge in practice. This teaching method can stimulate students' learning interest and initiative, improve students' practical ability and innovation ability.

(3) Teaching resources

In terms of teaching resources, cases and materials related to practical projects can be actively developed to provide students with rich learning resources. At the same time, we can cooperate with industry enterprises, invite enterprise experts to participate in teaching, and provide students with teaching content and practice opportunities closer to the actual industry. In addition, advanced teaching equipment and software, such as virtual reality technology and three-dimensional modeling software, can be used to improve the teaching effect and the learning experience of students.

(4) Evaluation system

In terms of evaluation system, a diversified evaluation system can be established to comprehensively evaluate students' ability level. In addition to the traditional examination evaluation, we can also introduce project evaluation, team evaluation and other methods. The ability level of students is comprehensively evaluated by evaluating their performance in projects, teamwork ability, innovation ability and other aspects^[6]. This kind of evaluation system can reflect the actual ability level of students more objectively and help to promote the all-round development of students.

3. Improvement path of landscape design courses integrating project-style teaching for environmental art and design majors

3.1 Optimize the curriculum system and strengthen interdisciplinary integration

In order to significantly improve the teaching effectiveness of landscape design courses in environmental art and design majors, it is necessary to optimize the curriculum system and emphasize the seamless connection between theory and practice. This process can be implemented through a series of specific strategies: First, the integration of curriculum content aims to break the boundaries of the original decentralized curriculum and build a clear and logical curriculum system^[7]. For example, by closely integrating basic theories such as principles of landscape design and history of landscape design with landscape design practice courses, a curriculum system containing both profound theoretical heritage and practical operation is formed, which can effectively promote students' in-depth understanding and comprehensive mastery of the basic principles and skills of landscape design. Secondly, in view of the fact that the landscape design course of the environmental art design major extensively involves the knowledge and skills of architecture, urban planning, ecology and other disciplinary fields, enhancing the interdisciplinary integration has become a key part of improving the teaching quality. By organically integrating interdisciplinary knowledge such as spatial layout principles of architecture, urban development concepts of urban planning and environmental protection strategies of ecology into landscape design courses, students can not only broaden their knowledge horizons, but also effectively train their interdisciplinary thinking mode and ability to comprehensively apply knowledge to solve practical problems.

3.2 Innovate teaching methods and improve teaching effect

Project-based pedagogy is a project-centered approach that emphasizes that students learn knowledge and skills in practical projects. In the landscape design courses of environmental art and design major, project-based teaching method can be adopted to allow students to participate in the design and implementation of practical projects to improve their practical ability and problem-solving ability (FIG. 1).

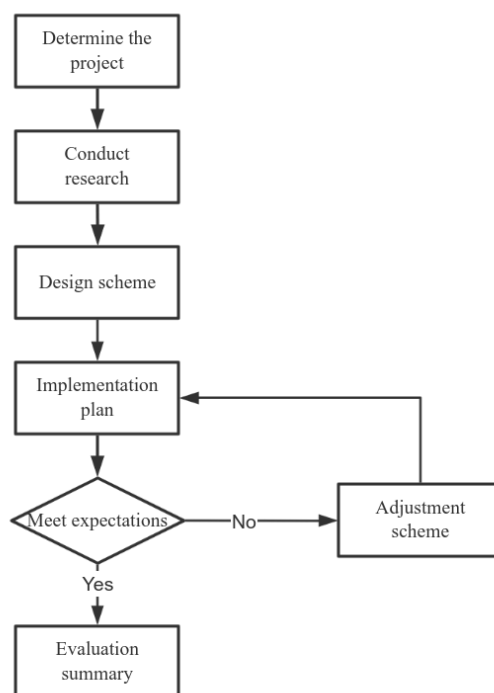


Figure 1. Implementation process of project-based teaching

At the same time, the introduction of flipped classroom mode can further optimize the learning process, which subverts the traditional teaching process and requires students to independently preview theoretical knowledge through video tutorials and reading materials before class, while the class time is mainly used for group discussion, practical operation and problem solving. Such arrangement not only enhances the interactive learning. It has also significantly improved teaching efficiency and quality^[8]. The use of virtual reality technology is also an effective means to improve the teaching quality, which can simulate a highly realistic environment and provide an intuitive and vivid learning platform for students majoring in environmental art and design. In the landscape design course, students can deeply explore the actual effect of the design scheme through virtual reality technology and observe every detail. Thus a more comprehensive and in-depth understanding of the essence of landscape design.

3.3 Improve the professional quality of teachers and strengthen the construction of teachers

Improving the professional quality of teachers is a solid cornerstone to ensure the effective integration of project-based teaching in landscape design courses for environmental art and design majors. Therefore, we need to take a series of measures to strengthen teachers' professional ability and teaching level. The primary task is to organize regular teacher training activities, which should cover multiple dimensions such as teaching concepts, advanced teaching methods and efficient teaching techniques, with the aim of helping teachers to fully and deeply understand the core concepts and implementation strategies of project-based teaching, so as to flexibly apply them in actual teaching and effectively improve teaching effect and learning efficiency^[9]. At the same time, teachers are actively encouraged to participate in the design and implementation of practical projects. Through hands-on practice, teachers can not only enhance their practical ability and problem-solving skills, but also more accurately grasp the latest trends of industry development and actual work processes, and then integrate these valuable practical experience and real cases into

daily teaching, so that the teaching content is closer to the actual needs. It is also crucial to establish a complete teacher incentive mechanism. Through the establishment of teaching excellence awards, scientific research achievement awards and other forms of awards, teachers' enthusiasm and creativity are fully stimulated, and they are encouraged to actively participate in teaching reform and scientific research, so as to jointly promote the in-depth exploration and practice of landscape design courses of environmental art and design major on the path of project-based teaching^[10].

3.4 Strengthen practical teaching links to improve students' practical ability

In the course setting of environmental art design major, in order to improve students' practical ability and problem-solving ability more effectively, the proportion of practical courses should be significantly increased. This means that in curriculum planning, more opportunities should be arranged for students to participate in the design and implementation of practical projects, so that they can deepen the understanding and application of theoretical knowledge in practice. Actively establish cooperative relations with enterprises to jointly carry out the design and implementation of practical projects, so that students have the opportunity to participate in these projects throughout the process, so that they can not only learn and master knowledge in the process of solving real problems, but also have a deeper insight into the needs of the industry and the actual work process, which is of great benefit to their practical ability and problem solving ability. In addition, holding practical competitions regularly, such as landscape design competition, architectural design competition, etc., is also an effective way to improve students' practical ability and innovation ability. These competitions can not only stimulate students' innovative spirit and enhance their sense of competition, but also exercise their design thinking and practical skills in actual combat, laying a solid foundation for their future career.

3.5 Establish project-based teaching resource library to promote resource sharing

Integrate high-quality teaching resources inside and outside the school, including teaching cases, teaching videos, teaching courseware, etc. Through the integration of high-quality teaching resources, teachers can be provided with more abundant teaching materials and improve the teaching effect and learning efficiency. At the same time, with the help of modern information technology, a fully functional online learning platform has been built, and the carefully constructed project-based teaching resource library has been uploaded to the platform for the majority of students to carry out independent learning and in-depth reference. The establishment of this platform has greatly promoted the sharing and exchange of teaching resources, enabling students to break through the limitations of time and space and obtain the required learning resources anytime and anywhere, which has greatly improved the convenience and flexibility of learning. In order to ensure the timeliness and practicability of the resources, the project-based teaching resource library needs to be updated regularly to keep up with the latest trends and trends of the development of the industry, so as to ensure that students can timely understand the cutting-edge knowledge and skills of the industry and lay a solid foundation for their future development.

3.6 Construct project-based teaching evaluation system to promote continuous improvement

Clarify the evaluation objectives of project-based teaching, including the consideration of students' knowledge mastery, practical ability improvement, teamwork ability and innovation ability, so as to ensure the pertinence and effectiveness of the evaluation system. According to these evaluation objectives, a set of detailed and specific evaluation criteria is formulated, including evaluation indicators, evaluation methods and evaluation weights to ensure the objectivity and

fairness of the evaluation process. On this basis, it is very important to construct a diversified evaluation system, which should not only include traditional examination evaluation methods, but also introduce new evaluation methods such as project evaluation and team evaluation, so as to comprehensively and deeply evaluate students' ability level through various ways such as student self-evaluation, mutual evaluation and teacher evaluation. Including their specific performance in the project, teamwork ability, innovative thinking and so on. Timely and effective feedback of evaluation results should also not be ignored, which helps students to clearly understand their learning status and existing problems, so as to timely adjust learning strategies and methods, further improve learning effect and efficiency, and provide a solid foundation for continuous improvement of teaching (Table 1).

Table 1. Project-based teaching evaluation system

Evaluation dimension	Evaluation index	Evaluation method	Evaluation weight
Knowledge mastery	Mastery of theoretical knowledge	Tests, assignments, class performance	30%
Improvement of practical ability	Project completion, practical operation ability	Project display, practical operation assessment	40%
Teamwork ability	Team division of labor, communication and cooperation ability	Team evaluation, teacher evaluation	20%
Innovation ability	Innovative thinking and innovative ability	Innovation point display, creative evaluation	10%

4. Conclusion

This paper discusses the improvement path of integrating project-based teaching in landscape design courses of environmental art design major, and analyzes the advantages and implementation strategies of project-based teaching. Through the research, it is found that project-based teaching can effectively improve students' practical ability, innovative ability and comprehensive quality. In the future teaching, we should continue to promote and improve the project-based teaching model, and apply it to more landscape design courses. With the continuous development of society and the continuous improvement of people's requirements for quality of life, landscape design will play an increasingly important role in urban construction. Therefore, we need to constantly update and improve the teaching methods and means of landscape design to adapt to the needs and development of The Times. It is believed that in the future teaching, project-based teaching mode will play a more important role and make greater contributions to training more excellent environmental art design talents.

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References

- [1] Ni L. *Integrated Project Library Exploration in Landscape Design Teaching for Environmental Design Majors*[J]. *Journal of Architectural Research and Development*, 2024, 8(4): 51-56.
- [2] Li L, Liu F. *Teaching Reform in Plant Landscape Design Courses Based on Project-Driven Approach*[J]. *Journal of Higher Education Teaching*, 2024, 1(2).
- [3] Fu Z, Yan L, Li Y. *Research and Practice of Project-based Teaching Reform of Landscape Design*[J]. *Art and Design*, 2023, 6(6).
- [4] Knoll M. *The project method: Its vocational education Origin and international development*[J]. *Journal Of Industrial Teacher Education*, 1997, 43(3): 59-80.
- [5] Kilpatrick W H. *The project method*[J]. *Teachers College Record*, 1918(19): 319-335.
- [6] Leonard J W. *The project method in postindustrial education*[J]. *Journal Of Curriculum Studies*, 1997, 29(4): 391-406.
- [7] David J L. *What research says about/project-based learning*[J]. *Educational Leadership Teaching Students To Think*, 2008, 65(5): 80-82.
- [8] Gopalan C, Whittington D K, Daugherty S, et al. *Exploring the Shift from Traditional Lectures to Flipped Teaching in Rural Nursing Programs*[J]. *Teaching and Learning in Nursing*, 2024, 19(4): e703-e708.
- [9] Albery H B. *A study of the project method in education (No.2)* [M]. Columbus, OH: Ohio State University Press, 1927: 19-20.
- [10] Chiang C L, Lee H. *The effect of project-based learning on learning motivation and problem solving ability of vocational high school Students*[J]. *International Journal Of Information and Education Technology*, 2016, 6(9): 709-712.