

Integrated Project Library Exploration in Landscape Design Teaching for Environmental Design Majors

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Abstract: To enhance our talent cultivation model through “school-enterprise cooperation and industry-teaching fusion”, we aim to improve the “4321” Industry-Education Integration System. This includes actively promoting the use of case banks and project banks in teaching to develop students’ practical engineering skills through hands-on application of professional knowledge. Additionally, landscape design courses emphasize practical learning experiences to implement the fundamental goal of “cultivating morality”. Guided by enhancing students’ practical skills, we ensure alignment with course objectives and professional training requirements, emphasizing the seamless integration of theory and practice.

Keywords: Integrated project library; Environmental design specialty; Teaching practice

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1. Introduction

To achieve Chongqing’s vision of becoming a “beautiful place with clear water”, we need to implement municipal policies aligned with the city government’s “Three Major Battles” and the “Eight Action Plans”. These efforts are part of the urban enhancement action plan, focusing on the central urban area known as “100 Kilometers of Two Rivers and Four Banks”. This area aims to exemplify the city’s brand as a “City of Mountains and Water—A Beautiful Place” where the harmony of “mountains, water, city, and bridges” showcases the city’s unique beauty and identity ^[1].

2. Project source of landscape design for comprehensive project library

The project site is located in Chongqing City’s north bank of the Yangtze River, specifically the Diaoyuzui Peninsula in the southeast corner of Dadukou District. Covering 7.92 square kilometers with a riverbank spanning 10.26 kilometers, this area is part of Chongqing’s main urban zone and is recognized as the city’s “second peninsula”. The Diaoyuzui Peninsula location in the main city of Chongqing has a smaller degree of

riverfront land development but good traffic accessibility and ecological environment status ^[2]. The waterfront public space design of Chongqing Diaoyuzui Peninsula Diaoyu Most Ferry Plot can effectively improve the quality of the landscape along the river, and at the same time can be used as a model of ecological area design in the upper reaches of the Yangtze River ^[3].

Based on this, the project will begin with the exploration of natural resources, history, and culture of the Diaoyuzui Peninsula. It will integrate these findings with the on-site research to focus on the ecological adaptive design of the area, effectively improving the urban-water disconnection issues and enhancing the landscape quality along the river.

3. Project use of landscape design for comprehensive project library

After the completion of this project, it will be used by students in the “Landscape Design Comprehensive Practical Training” course in their 7th semester. This course is for undergraduate majors in landscape design and construction direction of environmental design. After researching each plot on the site and drafting an initial plan, students will conceptualize the analysis covering traffic, functional, and landscape structures. The site layout, vertical design, and traffic system design are finalized from the initial draft concept. Subsequently, students will further refine their design approach, addressing identified issues to complete the site plan, detailed node design, local perspectives, and aerial views.

4. Reasons for the selection of landscape design for the comprehensive project library

“Landscape Design Comprehensive Practical Training” is a practical course for environmental design majors. The course takes the project as the carrier, which has the characteristics of strong comprehensiveness and practicability. The course takes outdoor public space landscape design as the research object and makes comprehensive use of the case study method, project practice method, and summary method to master the principles and methods of public space landscape design. Students are required to master the basic theoretical knowledge of landscape design including design techniques and steps. They should be able to independently develop public space landscape project ideas, conceptual designs, and project presentations. This lays the foundation for students to excel in their internships and employment later.

In the face of limited resources, serious environmental pollution, ecosystem degradation, and other serious problems, the 19th Communist Party of China (CPC) National Congress report proposed to accelerate the reform of the ecological civilization system and build a beautiful China. Recently, in the current context and disciplinary background, waterfront space has become an important issue in the field of architecture and planning research in China ^[4].

The “Chongqing Main City Two Rivers and Four Banks Governance Enhancement Program” aims to transform the Diaoyuzui Peninsula into the Yangtze River Cultural and Artistic Bay Area. The plan is under consideration by the Planning Bureau. Studying the vitality of the city’s waterfront public spaces in ecological civilization construction aims to better meet people’s needs for a higher quality of life and is crucial for creating a beautiful China. Looking at the above relevant policies, the topic has significance due to the weak support of the current actual project of the course. The riverfront space renewal project of Diaoyuzui Peninsula in Dadukou, Chongqing, has a high degree of matching with the practical course, which can guarantee the teaching effect and the construction of the project is fully justified.

5. Construction of the main content and implementation conditions

According to the general idea of Chongqing Municipality's long-term plan "Work for 5 Years, Watch for 10 Years, and Plan for 30 Years", the "two rivers and four banks" of the main urban zone will be transformed into a scenic ecological belt and three-dimensional urban landscape belt. This will align with Chongqing's status as a centrally-administered municipality, a national central city, and a modern metropolis. The area will feature convenient and shared recreation spaces and a humanistic style aiming to create a top-tier international waterfront area that embodies the spirit of the mountains and rivers. It will be designed for optimal living, working, and traveling. To achieve the "international first-class waterfront belt" standard, showcasing Chongqing as a "City of Landscape-Beautiful Place", it needs to ensure that the "two rivers and four banks" achieve "smooth river, clear water, green shore, beautiful scenery". This initiative is part of the broader "City of Mountains and Water-A Beautiful Place" vision ^[5]. This project is based on the process of the Riverfront Space Renewal Project of Diaoyuzui Peninsula in Dadukou, Chongqing, and based on the course design guidebook and practical task book, the specific project content system is constructed and divided into four practical modules. Generally, the construction content of the following project modules is mainly a course design guidebook, practical project materials, and supporting lesson plans and courseware.

5.1. Pre-analysis and design theme conception module

Through this module, students are trained in pre-program research ability and design conception ability to master the research method of waterfront landscape design. Specific contents include topography, landscape pattern, natural vegetation, internal traffic, and landscape view. Additionally, cultural resources, future traffic, peripheral industries, and regional positioning are considered. This involves urban spatial structure extension and preliminary analysis, focusing on site topography, resource characteristics, and cultural aspects. Natural landscapes are emphasized alongside the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for future development, drawing from relevant case studies to inform clear design concepts expressed through analysis diagrams ^[6]. The pre-analysis module includes:

- (1) Determine the research object and objectives of the specific design plot, emphasizing water resource protection and expanded use.
- (2) Overall landscape structure analysis: speculate the design concept, divide the functional zoning, sort out the landscape sequence, analyze the tour route, etc. In addition to landscape detail analysis: pavement type and composition analysis, plant type and landscaping analysis, site vertical design, infrastructure analysis, etc.
- (3) Advantages and suggestions for improvement: summarize the design advantages and make design suggestions for the deficiencies (with schematic analysis). Analyze the functions and forms of the land layout around the riverfront, the skyline of the riverfront, and the berms. Make it clear that the riverfront urban design project can optimize the urban environment and enhance the cultural value of urban water bodies.
- (4) Form your design concepts and program ideas by learning from the best design cases.

5.2. General plan design module

Through this module, students are trained in the method and ability to put forward the leading design ideas from the current situation of the site and the future development plan. This encourages them to present the conceptual sketch successfully. Specific contents are guided by the formation of the preliminary program, which is the first draft design. This is then combined with the enhancing cognitive restructuring and optimizing component

layout of the integrated program, which is the second draft. Thus, the general plan design module consists of:

- (1) Preliminary program (first draft design): traffic organization, function division, landscape sequence, etc.
- (2) Excavate the site's topographical qualities: resource characteristics, humanities, and natural landscape, analysis of the SWOT of the superior planning and future development with relevant case studies as the source of design ideas, and clear expression of design ideas in the form of analytical diagrams.
- (3) Integrate the advantages and disadvantages of the group members' programs and determine the development direction of the program: landscape design of the land within the green line on both sides of the riverfront, and urban design composed of the local and hinterland area along the riverfront. Followed by studying the status quo of the mudflat and the mountain, sorting out the corresponding problems, and putting forward the solution paths.
- (4) In-depth program: starting from the general plan layout, vertical design, ecological design, traffic system, etc., to form a more reasonable and refined program.

5.3. Sectional elevation drawing and effect drawing design module

Through this module, students are trained on elevation or landscape unfolding surface, site section drawings, all kinds of effect drawing expression, and design methods and abilities. Specific contents are to analyze the diagram, general plan, and all kinds of effect drawing expression and design. This module includes:

- (1) 1-2 bird's eye view, 1-2 elevation or landscape unfolding surface, and 1-2 site section.
- (2) Several local perspectives and the location of the index map.
- (3) Classify the elements of the overall design study according to their role in shaping the city's characteristics and the geographic environment properties, clarify the role of each element in the overall environment, urban operation, living conditions of residents, regional cultural characteristics, etc., and form a waterfront public space landscape design that can be carried out independently.

5.4. Project analysis report writing, results presentation, exhibition board design and production module

Through this module, students are trained to be good at integrating multi-dimensional modifications into spatial design and expression of drawings. Additionally, they are trained in oral presentation and reporting skills to express the team's design ideas and to improve their adaptability to future work. This allows them to put forward modification opinions and instructions to the group proposal from multiple perspectives, and practice the ability to sort out and integrate the main opinions. Specific contents include text writing of design specifications, the production and layout of display panels, and the production of PowerPoint for reporting and defense. This module consists of:

- (1) Using Photoshop, Autodesk 3ds Max, or other software to express the results visually.
- (2) Report the program's results by detailing the design concept, plan and space layout, and important node composition.
- (3) Exhibition board or PowerPoint production that includes interpretation of the current situation (including but not limited to the upper planning, site traffic, the current land and buildings, topography, hydrology, vegetation, etc.), planning interpretation (traffic, land, industry, etc.), case study (excerpts from the cutting-edge theories, the desirability of a typical case for analysis, refinement, summary), design concepts (justification, analysis of diagrams for the form), general layout, design layout and design of the program, and so on. As well as the general plan, design description, economic and technical indicators (floor area, land area, green space rate, etc.), related analysis (functional analysis, traffic

analysis, landscape analysis, vertical analysis, barge analysis, etc.), elevation or landscape expansion, site section, bird's eye view, and local perspective.

6. Summary of implementation measures

This project design develops implementation countermeasures from two aspects of the characteristic theme and overall design strategy of the Diaoyuzui Peninsula riverfront area.

- (1) According to the project design documents and related information, current norms, regulations, and relevant technical standards, research results, analysis and argumentation, problem excavation, and insight, conceptual program design to complete the overall program design, public space enhancing design and comprehensive performance design of the riverfront area of Diaoyuzui Peninsula Area in Dadukou District.
- (2) Digging deep into the development limitations of the area and putting forward problem-oriented design proposals according to the objectives of the overall design, analyzing the basic situation of the current environment of the design site, and putting forward specific and clear research contents on the construction activities of the site.
- (3) Consider the ecological sustainability of the site in depth, and refine the design to complete the waterfront landscape design of Diaoyuzui Peninsula Area in Dadukou District.
- (4) Comprehensively utilize the current height difference and natural resources, and organically lay out the environmental relationship of the site.
- (5) Effectively explore the ecological sustainable design intervention, design key paths, and effectively promote biodiversity.
- (6) The main design strategy from the city's unique natural, historical, and cultural characteristics to present the theme of the waterfront landscape design of the Diaoyuzui Peninsula area in Dadukou District.

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The author declares no conflict of interest.

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