

Urban Renewal and Renovation of Old Buildings from the Perspective of Cultural Output- A Study on the Teaching of Graduation Project Design in Shanghai Sanda University

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Abstract. As urban renewal mode has transformed from massive demolition and reconstruction to stock improvement and upgrading, the environment design major also goes through constant changes to cope with the various problems in urban regeneration. In light of this situation, there is an urgent need to reform the teaching of environmental design courses, including teaching methods and modes. This study focuses on the teaching reform of the design of graduation projects from 2019 to 2022 to illustrate the transformation of training concepts, the teaching reform and selection of graduation projects, the research of teaching mode innovation, multiple teaching methods, various modes of presentation, and the organization and implementation of the teaching process composed of “three dimensions and four links”. The study aims to integrate the course teaching with practices, achieve cultural output and revival in the process of upgrading and renewal, and improve students’ problem-solving capacity and their ability to innovate so that they can be more qualified for future jobs.

1 INTRODUCTION

The urban renewal mode has transformed from massive demolition and reconstruction to stock improvement and upgrading. To better cope with the various problems in urban regeneration, the environment design major keeps changing and developing with the trend and goes through various reforms in teaching methods and modes [1]. With an aim to integrate the course teaching with practices, achieve cultural output and revival in the process of upgrading and renewal, and improve students’ problem-solving capacity and their ability to innovate so that they can be more qualified for future jobs, the environment design major of Shanghai Sanda University attempted to combine commercial mode, cultural characteristic inheritance with skills training in its graduation project design course, and strengthened the connection of the course with society, market, human culture, and science and technology to enrich students’ practical experience.

2 TEACHING REFORM AND SELECTION OF GRADUATION PROJECTS

Graduation project design is the last course for students before they graduate from college, and also a good test of students’ learning results during the past four years [2]. A series of teaching reforms were carried out in the graduation project design course of the environment design major at Shanghai Sanda University. The teaching takes the urban renewal and the renovation of old buildings in Shanghai as a breakthrough and focuses on the revitalization of local cultural output and the social demand of conserving old building materials to transform the training objective and establishment of new teaching modes. In the meanwhile, the graduation project design has become the foundation of the production-learning-research cooperation by teachers, which allows full rein of the integrated development of teaching and learning, and cultural output and revitalization with remarkable reform results. The table below lists the graduation project topics, centering on urban renewal and renovation of old buildings, of Shanghai Sanda University from 2019 to 2022.

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Table 1. Summary of topics selected for the graduation design on urban renewal and old building reconstruction in 2019-2022

Year	Graduation Project	Supervisor
2019	Conversion Design of Old Workshop in Songjiang District of Shanghai into Culture and Art Center	Fan Lingyan, Wang Ye, Wu Dan, Liu Yating
2019	Reconstruction Design of Book Bar in Binjiang Park, Baoshan District, Shanghai	Fan Lingyan, Wang Ye, Wu Dan
2019	Building Improvement Design of Kindergarten No.1 of Xianxia Road in Pudong District, Shanghai	Wang Ye, Liu Yating
2020	Upgrading Design of Research and Development Center of Wuzhou Kilns from the Perspective of Protection of Intangible Cultural Heritage	Liu Yating, Zhao Jie, Wu Dan
2020	Reconstruction and Improvement Design of Peirenli Cultural Blocks in Tangshan in the Context of Cultural and Creative Industries (CCI)	Fan Lingyan, Wu Dan, Liu Yating, Cheng Hong
2021	Reutilization Design of Intangible Cultural Heritage Beijing Courtyard Based on “o+o” Mode	Liu Yating
2021	Transformation and Upgrading of Traditional Local-Style Dwellings in Yangshuo County Based on Inheritance of Local Culture	Liu Yating, Liu Qi, Zhao Jie, Wu Dan
2022	Upgrading Design of Office Building, No. 1013, Beijing West Road, Shanghai	Fan Lingyan, Wu Dan, Liu Yating
2022	Transformation Design of General Merchandise& Broadcasting Base in Yiwu Bonded Area	Fan Lingyan, Liu Yating

Table source: drawn by the author

3 TEACHING MODE INNOVATION

In the teaching of graduation project design, the environment design major at Shanghai Sanda University mainly made innovations in teaching modes from the following three aspects.

3.1 Transition from simple design to problem-solving

The graduation projects used to put too much emphasis on design while the teaching content lost touch with production and learning, both the teaching mode and theory got separated from practice, and students' capacity failed to meet the demands of enterprises. And the reformed teaching of the graduation project design is based on the commercial background (including enterprise participation, actual commercial projects, and market environment analysis). The teaching now makes full use of the geographical and regional economic advantages of Sanda University and Shanghai, takes a large number of old factory buildings, old community building projects, and relevant Shanghai enterprises as a basis, adopts the “backward research method”, directly

meets the staffing requirements of enterprises, and builds a real teaching situation of commercial project, and pays attention to the preservation and sorting of the original industrial relics in Shanghai to bridge the learning and practicing. These reform measures can boost cultural revival and output and improve students' capacities in practicing, researching, and innovation to make them qualified personnel for the cultural and creative industry and enterprises.

3.2 Transition from supervisor guidance to diversified teaching

The reform also breaks the mode of teachers leading the study and making the decision and remold teachers into facilitators and program coordinators [3]. And the graduation project design is carried out in ways of brainstorming, special lectures, and group review. Firstly, in the brainstorming process, teachers present the issues to be discussed by students and do not intervene or make a judgmental evaluation of the debate until students reach a conclusion. Secondly, industry specialists or design directors will be invited on a regular basis to give special lectures to enable students to know more about cutting-edge information and hot topics. In addition, the

group report and review ensure that teachers can supervise and keep students on their track in the project implementation process. Lastly, the establishment of the teaching system of “three dimensions and four links”, namely the integration of theories, practices, and applications and the coordinated development of cognitive ability, practical ability, integration ability, and innovation ability, enhances the transition of the teaching of graduation project design from supervisor guidance to diversified teaching.

3.3 Transition from traditional display to numerous forms

The display forms of graduation projects of environment design major became enriched in recent years, not only including the traditional ones such as text-based boards but also the emerging ones, including animated video, virtual reality (VR), spatial script stories, and web page bidding documents. All these different types of display forms help to output and revitalize cultures. For example, the VR dynamic display was used in the project Upgrading Design of Research and Development Center of Wuzhou Kilns from the Perspective of Protection of Intangible Cultural Heritage, the corresponding smartphone application was made along with the environment design display of the project Reutilization Design of Intangible Cultural Heritage Beijing Courtyard Based on “o+o” Mode to fully present design content. As for the project Upgrading Design of Office Building, No. 1013, Beijing West Road, Shanghai, which started from the reconstruction of old office buildings, Shanghai culture was revived and inherited through immersive theater performance. And the project Transformation Design of General Merchandise & Broadcasting Base in Yiwu Bonded Area established the VR live telecast platform to improve the broadcasting function.

4 TEACHING PROCESS

The teaching of graduation projects of urban renewal and renovation of old buildings can be carried out in three

Table 2. Construction of the Teaching Mode of “Three Dimensions and Four Links”

Three dimensions	Four links	Commercial background College-enterprise Cooperation	Course content	Process visualization
Theoretical dimension	Link 1: cognition and experience B+C+PV	Take enterprise/ commercial programs as the basis On-site investigation and inspection of old buildings	Assign tasks and work schedule	Investigation report Concept images and texts Knowledge map Scientific graphics
			Investigation analysis and information collection	
			Information exchange and knowledge mastery	
Practical dimension	Link 2: analysis and planning B+D+PV Link 3: selection and practice B+I+PV	Enterprise/ commercial real programs Business mentor lecture/ guidance	Selection of design elements Design concept and plan finalization Sketch deliberation and special planning	Design draft/ practice process Plane drawing and 3-D drawing 3-D rendering Indoor and outdoor design diagram

dimensions and four links, each of which is combined with practical commercial programs, research, investigation, and analysis of the business environment, revitalization of local culture, and guidance from business mentors. With the usage of the visualization of the teaching process and schoolwork achievements, the indigenized, personalized, and maneuverable teaching mode for graduation projects is set up. In other words, under the background of cultural output and commercialization (including analysis and sorting of cultural heritages, the participation of enterprises, practical commercial programs, and market environment analysis), the course guidance is implemented in the way of visualizing the work process, and the new teaching mode of “three dimensions and four links” for graduation projects takes skills integration as the object. What’s more, the introduction of the real-world project experience works to develop environment design-major students’ capacities from three levels, namely the lateral one (theories), longitudinal one (practice), and vertical one (application). The course teaching will be perfected with better effects in cultivating students’ innovation and practice abilities and getting them readied for future careers (please refer to Figure 1 and Figure 2 for more details).

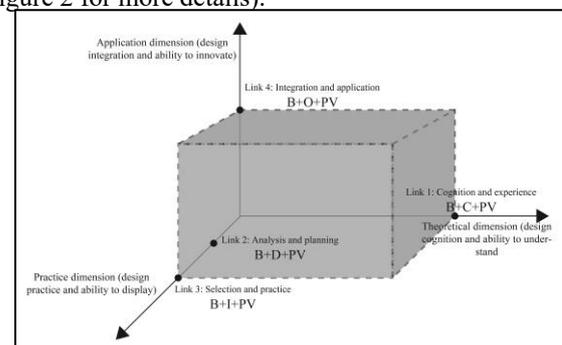


Fig. 1. New Teaching Mode of “Three Dimensions and Four Links”

Photo source: drawn by the author

Application dimension	Link 4: Integration and application B+O+PV	Model design of real old buildings Business mentor assessment	Model building Assessment and review Self-examination	Design exhibition Course feedback questionnaire
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Table source: drawn by the author

4.1 Cognition and experience

For theoretical cognition and experience, students are required to understand the basic concepts, characteristics, and design process of renovation and upgrading of old buildings, comprehend the design types and style classification, investigate the market and customer demands, and collect, store, and sort the original materials of industrial relics in Shanghai. The emphasis of the study is the survey and planning, analysis of users and market environment, the relationship between the original structure of the old buildings and new functional zoning, and the graphical representation of the visualization of the working process before the urban renewal, which attempts to develop students' skills of cognition, observation, and analysis.

Firstly, the commissioner of the design company cooperating with our school or the project director defines the content of the design task along with teachers. The projects, including the old workshops, industrial relics, and old communities, are from the real world for research. Secondly, the outdoor investigation is assigned to students, and the analyte is mainly composed of the status quo of the external environment, users, thematic concepts, and visual images, which lays a foundation for students to be familiar with the project. Besides, students are organized to visit the completed renovation of old buildings while business mentors are there for an illustration to arouse students' interest in these topics, thus fulfilling the teaching purpose in the primary stage. After the investigation, students can use visualized graphics to collate and exchange information for better results.

4.2 Analysis and planning

In analysis and planning, students summarize and refine the content from the previous link. Focusing on the task, students are divided into several groups to whip brainstorm and discuss the specific subjects. Students need to understand the key points, such as customer needs, space layout, and functional relationships, of the old building reconstruction design, and meet customers' needs and vision with creative artistic techniques [4]. At the same time, business mentors need to be part of the teaching in this process and simulate real work scenarios in the form of workshops. As Party A or a customer, business mentors can question students' design proposals, which allows students to internalize and transfer knowledge through this situational teaching, pick out appropriate design elements and concepts after the discussion, and then optimize and deepen their research. The visualized charts of the group's divergent thinking-mind map and design plan, are evaluated by teachers and business mentors to make students realize the

uninvolved points so that they can refine and determine the final plan.

4.3 Selection and practice

Following the previous two stages where students master the design theories of renovation and upgrading of old buildings and have a deep understanding of renovation methods and schemes, the next part is about the specific steps conceived by students. In this process, students' self-learning ability and presentation skills of using graphics will be enhanced, and they will explore, discover, and solve problems independently since the teachers' role shifts from a supervisor to a facilitator. With the focus on whether the plan can meet customers' needs or not, the corporate mentors are invited and take the role of Party A or customers to assess and adjust students' design schemes and bring in the development trend and professional knowledge into the class to make students' works satisfy the social and market demands in two dimensions, namely business value and cultural rejuvenation.

4.4 Integration and application

All content of the previous three stages is integrated, applied, and sublimated in this stage. The concentration is on assisting students to transform their two-dimensional graphic design scheme to three-dimensional material objects and practical projects and make a visualized display of the original materials of industrial relics in Shanghai after analysis and sorting. The purpose is to foster students' sense of space and scale and their ability to perceive the environment and carry out practical operations when students design the three-dimensional transformation models of the old buildings. As for course assessment, business mentors will be involved to assess the students' plans on their technicality and availability in meeting business requirements. Excellent schemes will be directly incubated and implemented in real life, or they will be recorded in the form of a thesis to be published with the help of teachers, which could be a valuable experience for students' future work.

5 CONCLUSION

The graduation project design of the environment design major of Shanghai Shanda University has incorporated a large number of real projects related to urban renewal and old building renovation to cope with the constant changes in the market and society. And a series of reforms to the graduation project design were made under the new guidance of talent training. The teaching reform and practice associated with the graduation project were implemented to improve the student's

comprehensive ability to innovate and analyze and solve problems. Students can be more competent to fulfill the position requirements. In the meanwhile, the purpose of cultural output and revival has been achieved through the project design.

When designing the plan for urban renewal and reconstruction of old buildings, students are aware of the importance of protecting and outputting culture, and their sense of duty and mission of urban renewal are evoked [5]. Teachers have also accumulated plenty of academic research materials and made great achievements in their teaching process. The subsequent teaching of graduation project design will concentrate on the reform of teaching methods based on “AI” and “5G+” smart teaching to meet new social and cultural challenges and achieve sustainable development of teaching.

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