

Research on Architectural Design Teaching under the Cultivation of Applied Talents

He Yan

Changchun University of Architecture and Civil Engineering, Changchun, 130012, China

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Abstract: As the main course of architecture, architectural design runs through undergraduate education and is the main way to cultivate students' engineering design ability and professional quality. Based on the teaching analysis of architectural design course in newly established Architectural Colleges and universities, combined with the training mode of applied talents, the specific teaching reform measures of this course are put forward.

1. Introduction

China is a big developing country, which is experiencing large-scale and high-speed urban and rural construction. There is an urgent need for architectural talents, and the architectural discipline has developed rapidly. In the early 1990s, only a dozen colleges and universities set up architecture major in China. At present, there are 228 architecture colleges and universities with undergraduate architecture specialty, the number of which reaches the peak. As of May 2010, only 44 colleges and departments have passed the undergraduate education evaluation of architecture major. Among them, quite a number of colleges and universities have a short history, lack of teachers and teaching conditions, relatively weak teaching and scientific research level, and no prominent professional characteristics. How to improve the education quality of architecture major in these colleges and universities has become a new problem to be solved. The following is a discussion on the teaching of architectural design course, which is the core content of the local new architectural education.

2. The Concept of Applied Talents

The applied talents refer to the advanced practical talents who face the production, service and management frontline, have certain innovation ability, practical ability and practical problem-solving ability, and apply professional knowledge and skills to social practice(Figure 1)^[1].



Fig.1 Training of Applied Talents

3. Analysis of the Current Situation of Architectural Design Teaching

The reform of teaching contents and methods is the key to cultivate high-quality talents. For students majoring in architecture, design course is the top priority of all courses, which is composed of several design projects with the same teaching purpose and with their own stage characteristics. The traditional teaching mode has been unable to adapt to the development of the times, specifically in the following aspects. ① In the course arrangement of design, the newly established architecture departments often copy the traditional pattern of doing two design topics per semester in the old Architectural Colleges and universities. Most of the design topics are comprehensive design tasks. For the newly established architecture department, there is a big gap between the comprehensive quality of students, teachers, facilities and other conditions with the old universities. A considerable part of students' homework can only be arranged according to the design task book, which has no design connotation or creativity. ② Architectural design is the combination of technology and art. Some students only pay attention to the functional layout and form design of buildings. They think that the students of Architecture Department don't need to waste time on technology. It seems that they can draw a beautiful performance picture. This is mainly due to the lack of basic understanding of the nature of innovation. ③ The amount of information accepted by students is limited by a single teacher's professional direction and academic expertise. The teacher's design style is easy to reflect with the help of student's homework, which can't make students receive comprehensive and diversified professional knowledge. ④ With the large-scale enrollment expansion in Colleges and universities, the teacher-student ratio increases, leading to a teacher in the design class with as many as dozens of students to exchange design, serious lack of time to guide students. ⑤ Students' interest in learning design is not high, they can not experience the beauty and fun of architectural design innovation in a short period of time, feel confused and disappointed, and then have the mood of weariness^[2].

In the face of the current situation, we should reflect on the teaching of architectural design course for the newly established architecture major. If this unscientific method is not guided, it will limit the full play of students' design ability to a certain extent, and it is also easy to cause students to blindly copy and imitate the design scheme, "making cars behind closed doors" and doing design at will. Therefore, it is necessary to reform the main links of the course, pay attention to the cultivation of students' scientific and technological innovation ability, stimulate students' interest in learning professional knowledge, and meet the needs of the society, so as to comprehensively improve the comprehensive ability of students and cultivate applied architectural talents^[3].

4. Architectural Design Teaching under the Cultivation of Applied Talents

4.1 Employment Oriented Curriculum Content

From the analysis of the employment situation of efficient students in recent years, it can be found that most of them are employed in small and medium-sized design institutes and offices, engaged in a large number of common civil architectural design work. As far as possible, the topic selection of the design course should be linked with the future work, and the design of small and medium-sized public buildings and residential buildings should be taken as appropriate. For example, office buildings, passenger stations, community centers, planning and design of green residential areas with an area of 70000 square meters are suitable topics. On the one hand, it can directly prepare students for their future work, so that students can be competent for the work at the fastest speed, avoid detours, and realize the talent training goal of application-oriented talents serving the society. On the other hand, these topics are closer to students' daily life, reduce the difficulty of scheme design, help students find and study design problems in multiple ways, and alleviate the shortage of teachers to a certain extent. Referring to some mature practices of foreign architectural education, the course content is arranged by combining long-term and short-term topics. In the teaching, we should strengthen the constraint conditions of the design site, and try to choose the real site in the region to reflect the regional characteristics, so that students can deepen

the understanding of the learning content in the field experience, and gradually establish the concept that the building is closely connected with the specific environment and the City, and be familiar with and master the local building laws and regulations. At the beginning of the project, students are required to make on-the-spot investigation, visit and visit the rich relevant building examples in Nanjing, collect data through networking and professional journals, questionnaire survey, case analysis, etc., and publicly discuss the research reports of each group, which is conducive to the expansion of students' design ideas and the logic of their ideas^[4].

At present, due to the intervention of foreign design forces in domestic architectural practice, a large number of new materials and new technologies are pouring in and constantly being adopted. Architectural art and technology are more closely linked together. Architects are the bridge between users and engineering technology, and the spokesperson of users. They should put forward relevant design requirements from the perspective of users' needs and psychological needs. In view of the current students' relatively weak awareness of architectural technology, this paper aims to teach some technical knowledge, such as: fire code, code for planning and design of urban residential area, general principles of civil building design, barrier free design, design points of different types of buildings, layout of structural system, setting of equipment rooms, and construction practices. For example, the specific arrangement of the junior design course is: two 6.5 week topics and two fast problem weeks for intensive training are arranged in the first semester, and the long questions of one semester are arranged in the next semester to design the whole process in depth and detail, so that students can really understand. Three different bases are adopted in the planning and design of green residential areas in the next semester of junior high school. The design environment and requirements are all authentic. Students are required to conduct research in groups from various factors such as environment, climate, resources, market, culture, etc., and visit famous cultural parks, London City, crescent lake, and real estate fair, Full investigation, production analysis report, put forward clear and powerful planning and design concept. Each student chooses two residential buildings in their own planning and design scheme to develop it into architectural design. The design of single housing must be based on the concept, principle, density and the relationship with the surrounding environment. At the same time, residential unit design and residential area planning should also reflect students' understanding of the concept of green building. In the appropriate stage of the semester, the design of fast questions related to residential areas, such as commercial facilities, kindergartens, primary schools, clubs, sales department, etc., should be interposed to strengthen students' understanding of residential planning and deepen the design of residential areas^[5].

4.2 Increase the Interaction between “Teaching” and “Learning”

In terms of teaching methods, the interaction between “teaching” and “learning” should be further enhanced on the basis of “master apprentice” teaching method, with emphasis on students' participation. The current students are generally the post-90s, with strong self-awareness and good public expression ability. In the early stage of the project, the students are free to form a group of 3-5 people for preliminary research. Each group of students selects representatives to report the research results in the form of multimedia demonstration, and they are free to ask questions. As the saying goes, “three minutes on stage, ten years off the stage”; students will seriously collect relevant information and actively think about it. This form helps teachers to understand students' thinking. At the same time, each student's thinking, language and form expression can become the information source of other students, enriching the relevant teaching information. In the middle and later stage of the project, 2-3 group discussion classes are organized. Each student should introduce his own scheme and problems. Other students should make their own evaluation on the scheme and put forward solutions. The teacher should guide the students to fully exchange their ideas and solutions. In the discussion class, the students are the main body of the classroom, and the teachers become the participants and listeners, which stimulates the students' initiative in learning and moderately publicizes the students' personality. After each discussion class, the teacher should give a summary speech to help students summarize the content of the discussion. In this way, a large

number of “master apprentice” teaching is transformed into group discussion, self-evaluation, mutual evaluation and other interactive heuristic teaching, which can make up for the disadvantages of the imbalance of teacher-student ratio and the limitation of two-way communication and interaction between teachers and students^[6].

4.3 Actively Organize Innovative Activities to Reflect the Learning Effectiveness of the Second Classroom

Students' participation in extracurricular scientific and technological activities is regarded as an important part of innovation education. Guiding students to participate in various extracurricular science and technology competitions, such as the school's thinking innovation competition and national college students' design competition, the students' practice, hands-on ability, design and drawing ability have been tested, their comprehensive application ability has been trained, their competitive consciousness has been enhanced, and their creative enthusiasm has been further stimulated. Guide students to apply for university level university students' science and technology innovation fund and Jiangsu University Students' practice and innovation training plan; encourage students to practice in construction units and go out to inspect buildings in combination with summer college students' social practice activities; guide students to pay attention to professional fields and social life focus issues, and think about architecture from a broader perspective. The learning effectiveness of the second classroom is fully reflected in innovative scientific and technological activities, and has become an obvious feature of applied talents training^[7].

4.4 Based on the Regional Advantages, Strengthen the Communication with Other Architectural Colleges and Universities

The product of architecture is the tangible product. Architecture should not only adapt to the unique natural environment of the region, but also integrate and inherit the local architectural culture. Architectural teaching also needs to explore the cultural connotation of local architecture. Huadu District of Guangzhou city has rich and colorful historical and cultural resources, including the former residence of Hong Xiuquan, the former residence of Longtou village, Tanbu Town, the ancient building complex of senior officials' ancestral hall, etc. in addition, there is the yuanxuan Taoist temple of religious and cultural buildings. Its magnificent architecture is the leading Taoist Holy Land in the province. Relying on the profound and splendid local architectural culture of Lingnan area, Huadu area has a unique strong cultural and historical flavor, and is an important part of Lingnan regional culture. For example, Nanjing is the earliest building discipline base in China and the birthplace of Modern Architectural Education in China. At present, the universities offering architecture major include Southeast University, Nanjing University, Nanjing University of technology, etc. these schools have a long history, rich discipline details and strong discipline team strength. We encourage our students to go into these institutions to have face-to-face exchanges with their students, watch architectural works exhibitions, listen to academic reports, broaden their horizons and deepen their understanding of architecture, which effectively makes up for the weak foundation of the new institutions. The students of architecture major need to acquire a lot of knowledge of architecture and related knowledge. Academic exchange is an effective way to acquire these knowledge. Hold special academic lectures and invite well-known experts and scholars from these universities to give lectures, so that students can gradually understand the development trend and academic frontier views of the current construction industry, broaden their knowledge and improve their design ideas and skills.

4.5 Unified Standards for Design Evaluation and Promotion of Scientific Norms

Architectural design courses are the main courses of architecture specialty, and are the basic training courses with the most credits, the longest class hours and the strongest continuity, including design basis, architectural design, graduation design, actual measurement, design institute practice and other design practice courses. The implementation and results of design courses are directly related to students' professional ability and whether they can graduate and obtain degrees on time. Therefore, the scoring results of architectural design courses are particularly important. However,

the current general scoring method is for teachers to grade according to their own experience and personal style, which is more subjective. Considering the current situation of full-time and part-time teachers in the college, in order to ensure the fairness and accuracy of the evaluation of design homework, the school of architecture has widely solicited teachers' suggestions and formulated the grading standards for architectural design course assignments. And adopt the method of group preliminary evaluation and collective general evaluation to evaluate the course work from the aspects of site design, general layout, traffic flow line, functional zoning, room layout, facade design, section drawing, specification requirements, drawing expression and other aspects, so as to make the grading of architectural design courses more quantitative and scientific, reduce subjective factors and improve the objective score level(Figure 2)^[8].



Fig.2 Teaching of Architectural Design

5. Conclusion

The above is the author's experience in the teaching of architectural design course in the new situation. The teaching reform of this type of college is a complex and long-term systematic project, which should be coordinated and integrated in many aspects. More like-minded colleagues should learn from each other and work together to cultivate excellent architectural talents.

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Name of Project: Research and Practice on Establishing the Training Mode of “3S Type” Talents in Architectural Design Specialties with the “One Horizontal and Many Vertical” Multidisciplinary Integrated Development (3S: Solid basis, Sound professional, Simple style).

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Number of Project: Ji Jiao Gao Zi[2018]40.

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