

Thinking on the New Teaching Methods of Architecture Design in the New Era

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Abstract—The characteristics of the course of Architecture Design are discussed in this article, based on the author's work experience. It puts forward some useful suggestions for the teaching reform of the course too, which includes choosing appropriate teaching content, changing the way to formulate the design assignment, developing students' good work habits, applying the design pattern of the teamwork etc. The purpose of this article is to improve the teaching quality of architectural design courses. The content has a good reference value for the teaching reform of related courses.

Keywords—teaching methods, teaching reform, Architecture Design, work habits, teamwork

I. INTRODUCTION

Architecture Design is a basic course for the architecture education in universities. This course is characterized by strong professionalism, fast updating of knowledge, and close connection with the design practice. With the rapid development of urban construction, the society has maintained a strong demand for architectural engineering talents. At the same time, the quality requirements of college students are also constantly improving. New employees must have a solid theoretical foundation and undergo rigorous practical training in order to adapt to the needs of work as soon as possible. Therefore, how to improve the quality of teaching and cultivate qualified personnel that meet the standards of society is a question that every teacher needs to think about. I have been teaching the course of Architecture Design for many years, and deeply feel that we must start from the teaching reform to improve the teaching quality of such course. Here, I only did some preliminary discussions on the teaching methods of Architecture Design.

II. THE TEACHING CONTENT SHOULD BE REASONABLY CHOSEN

Excellent design results from high-quality lectures, so teachers must carefully organize the teaching process. It must focus on explaining the professional knowledge relevant to design, such as the steps of architectural design, architectural structure and materials, etc. It is a guarantee of

high quality design. Unfortunately, many professional textbooks are out of date, especially in the knowledge of building construction. A lot of contents such as prefabricated reinforced concrete stairs and wood windows have been eliminated. However, these contents still exist in various textbooks.

Therefore, teachers should choose the content carefully, and abandon the outdated knowledge so as to keep pace with the times. At the same time, building science is continuously developing, and new technologies are emerging one after another [1]. However, such new knowledge is not covered in existing textbooks. So, teachers need to introduce as many new technologies as possible, such as the curtain wall of the constructions, intelligent buildings, building energy-saving technology, etc. It can not only broaden the horizons of students, but also increase the attraction of the class.

III. THE WAY TO FORMULATE THE ARCHITECTURAL DESIGN ASSIGNMENT

Cultivating students' innovation ability is the ultimate goal of higher education of construction. However, the traditional architectural design course often neglects this, so is the formulation of the architectural design assignments. The design assignment is the guiding document for the whole architectural design training. It reflects both the teaching level of teachers and the teaching orientation. At present, the design assignment is usually formulated by teachers.

The teachers tend to make details and requirements of the design assignment clear. As a result, students can only operate according to assignment, which easily leads to students' thinking inertia and restricts their creativity [2]. It also ignores the individual differences of students. In fact, the contents of many architectural design assignments are debatable in the aspects of the building size and architectural function. Under the constraint of inertial thinking, students tend to stick to the rules and lose their critical spirit. In the actual architectural design, designers usually participate in the preparation of the assignments and the feasibility study of the project.

Therefore, the architectural design training should enable students to have a greater voice in the formulation of design assignments. For example, when instructing students

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to make the staircase structure design, I only specify the function and the layers of the building. But the details of the staircase's size and material are all solved by the students. Students propose their own staircase forms and the design parameters on the basis of a reasonable study of the building types and users' characteristics, and complete the drawings. In this process, students are active participants in the project's formulation rather than the passive performers of the design task. It not only trains students' design skills, but also improves their research ability.

IV. STRENGTHENING THE CULTIVATION OF STUDENTS' GOOD WORK HABITS

According to my work experience in Central-south Architectural Design Institute, the actual architectural design has the characteristics of tight schedule and heavy task. Moreover, the design process needs to be revised repeatedly. So architects must develop good work habits. I would like to share my personal views on this issue.

First, students need to learn the ability of design case survey. Intuition is a major feature of architectural engineering. A lot of complex architectural design can be found in real world, such as the architectural functional layout, building materials and structural handling. It's a very good reference for architects to understand the design tasks. Quite a few complex architectural techniques are difficult to explain clearly only in language. They must be understood by field observation. In addition, it is necessary for designers to conduct a site survey before the project design so as to understand the site's conditions. This is the basis for the later design. In summary, design case survey is not only a learning method, but also an important working method. I often encourage students to pay attention to the surrounding buildings in daily life in order to cultivate their awareness of survey. I told students to take pictures of typical building examples at any time and save them as the data for future use. Furthermore, teachers can also use the building examples as teaching objects and adopt the on-site teaching method to help students understand knowledge. Before going to visit, teachers should make clear the survey requirements to students, so as to improve the efficiency of the survey. In the process, teachers need to explain the difficult problems in depth to prevent the survey from becoming merely formalized. When teaching the course of Architecture Design, I often lead students to visit Wuhan Art Museum, Hubei Provincial Library and so on. Through such activities, students have got rich perceptual knowledge and increased their interest in professional learning. This can get twice the result with half the effort.

Second, we must guide students to learn how to use architectural design materials. When I was working in the architectural design institute, I had a lot of reference materials around me. I had to consult a series of related materials in the process of design. Therefore, it is very important for students to get familiar with this way of work as soon as possible, which is critical to their career. The following points should be emphasized on this issue. On one

hand, it's necessary to tell students the types of design materials from the professional view and help them sort out the relevant content. In the teaching of professional courses, I insist on sorting out the important materials involved in the beginning and let students prepare. Taking the course of Building Construction as an example, I summary the important materials into three categories: codes for architectural design, architectural design standard atlas and drawings of design examples. This will help students establish the concept of design information system, which will benefit them for life. On the other hand, we should tell students the timeliness of the design materials. The characteristics of the construction project determine that the relevant materials and information are constantly updated and adjusted. For example, the code of design on building fire protection and prevention has been updated several times. When the new version is published, the old version is invalid. Therefore, it is important to remind students to pay attention to the update of the professional design data and learn to download the latest codes for architectural design.

Finally, it is necessary to cultivate student's habit of taking notes on work. Students majoring in Architecture are mainly engaged in design work after graduation. The important experience of doing such kind of work well is to take notes at any time, which is also my experience in the architectural design institute for many years. The so-called work notes contain two contents. One is the opinions and requirements of the clients in the process of design. These contents may be trivial, but directly reflect the clients' ideas, which must be written down and analyzed in time. The other is the personal work experience. Moreover, the work notebook needs to be carried at any time to take note. This habit must be taught early. It will benefit students for life.

V. SET UP DESIGN TEAM AND ADOPT THE COOPERATIVE TRAINING MODE

The design process of the actual construction projects is completed by the cooperation of different professional designers. The final design work must be the achievement of teamwork. College students have to be familiar with the working methods of cooperation and cultivate teamwork awareness in order to meet the requirements of the future work [3]. Looking back on the current teaching of design courses, the evaluation of students is generally based on individual performance. So, the design is usually carried out in an individual unit. During the whole process of training, each student is in the closed state. Everyone completes the design work by himself and seldom communicates with each other.

We must vigorously advocate the open and cooperative training mode, so as to train qualified talents for the society. First of all, it needs to change the way to evaluate students' achievements. Team-work should be allowed in the architectural design courses. The design team can jointly complete a set of works. Scores of the members of a same team should be consistent and different teams' scores need to be distinguished, so as to stimulate the enthusiasm of all

teams.

At the same time, the premise of adopting the cooperative design mode is to set up design teams. The process should rationally determine the size of the group. It should take into account factors such as the workload and length of design cycle. If there are too few team members, it is difficult to give full play to the advantages of the cooperation. On the contrary, too many members in a team will lead to overstaffing. According to my experience, the team size control is more suitable for two or three members. The design team can be combined freely. However, teachers need to make a dynamic adjustment to the team members so as to avoid the disparity in team strength.

In the process of cooperation, the way of project leader can be adopted. At the beginning, team members can select the leader of the group. Then, he takes the lead in dividing the task into several parts. After that, team members can be responsible for different part of the work according to their abilities and characteristics. Finally, the team finishes the final design work after discussion and modification. Teachers should guide students to properly deal with the relationship between collective interests and personal interests in the whole process [4].

On one hand, we should fully mobilize the enthusiasm of each member and avoid the internal contradiction caused by uneven distribution of workload. On the other hand, we must cultivate the spirit of collective. Each one should know the whole process of design so as to avoid the training defects caused by division of task. According to the above ideas, I consciously divided the class into several groups when teaching the design course. All design trainings were carried out in a teamwork manner. Students responded well to the mode and the quality of the design work has been

significantly improved.

VI. CONCLUSION

The teaching of Architecture Design has the characteristics of comprehensive, flexible and practical. To improve the quality of teaching, we must consider the two aspects of both teaching and learning. On one hand, teachers must strictly manage the class, impose strict requirements on the students' design, and cannot let the design guide be only the formality [5]. On the other hand, teachers should enhance their responsibility too and constantly adjust the teaching ideas as well as teaching methods, so as to stimulate students' interest in design training and improve the quality of teaching ultimately. Only in this way, can we cultivate qualified talents that meet the needs of the society.

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