

A Preliminary Study on the Teaching Link of Case Copying Embedded in the Course of Principle of Public Architecture Design

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Abstract

This paper discusses the course characteristics of the Principles of Public Architectural Design, together with the feasibility and importance of "case copying" embedded in the teaching link of this course. At the same time, this paper introduces the copying methods of architectural cases from three aspects: "tool", "content" and "advanced".

Keywords

Work analysis, case drawing, principles of public architectural design, teaching research, preliminary exploration.

1. The Course Characteristics and Research Background of Principle of Public Architecture Design

The study of architecture involves many aspects, such as architectural art, design principle, architectural technology and so on, among which the "principle of public architectural design" is the core course of architecture specialty. This course is set up in the second year of the university majoring in architecture, its main purpose is to enable students to understand the general laws and characteristics of public architectural design, to learn and master the general principles and methods of public architectural design, and lay the necessary theoretical foundation for the future architectural design.

This course is mainly based on the teaching of architectural theory in most architectural colleges and universities in China. Although there are also case teaching links, there are no clear teaching and homework requirements for students, and the investigation of students' mastery is not specific and comprehensive enough [1]. The architectural design teaching carried out by the five years undergraduate course of architecture is mainly based on various types of public buildings, but the students do not have much contact with excellent architectural cases, and the learning time for excellent architectural cases is obviously not enough. Moreover, there is no specific copying learning and guidance, so it is imperative to set up the teaching link of excellent architectural case copying in this course.

2. The Definition and Significance of Case Copying

2.1. What Is the Case Copying?

In short, case copying is "copying, recording, analyzing and learning the excellent and meaningful drawings of architectural works, transforming them into our own knowledge and techniques, and then applying them to our own design schemes". It is a more advanced method of case learning and accumulation than reading pictures and collecting information hurriedly [2]. The tools for case copying are various, and the forms of expression of copying are not rigid.

2.2. Why Copy the Case?

There is an old Chinese saying, "if you are familiar with 300 Tang poems, you can sing them if you can't write them". It means that if you are familiar with excellent works, you will naturally improve the level of writing, this truth is also applicable to the study of architectural design. The creation of new things does not come out of thin air, but makes a breakthrough on the basis of the original. When a writer has read a large number of books, he will write a good article; when a composer has listened to a great deal of music, he will compose a good piece of music. The study of architectural design is a gradual and circular process, only by the accumulation and training of enough "quantity" can we obtain the improvement of "quality", that is the improvement of architectural design skills.

At the same time, the study of excellent work cases must not only stay at the superficial level of reading pictures, but also copy and draw down the scheme drawings, including the floor plan, profile, elevation and perspective of the building, and so on, add their own analysis diagram on this basis. "What you have learned from paper is not profound, and you must practice it yourself." that's what it says. Case copying is an important means to improve architectural design ability, not just to cope with the exam.

In summary, the purpose and significance of case copying are as follows:

- ① Accumulate design material: how to apply the bright spots learned from the cases of excellent works to our own architectural design.
- ② Improve hand-painting ability: for students majoring in architecture, the importance of hand-painting ability is self-evident. Many students have been using computer graphics since the sophomore year of college, so that students' hand-drawing ability will remain in the cradle stage and can not be improved.
- ③ Cultivate language sense of design: especially the lower students often lack the language sense of design when doing architectural projects, and the programs are not professional. So, how to cultivate the language sense of design and accumulate professional experience? It is achieved by case copying.

3. The Method of Case Copying

3.1. The Selection of Copying Tools

If you want to do a good job, you must use your tools first. Having said that, what kind of tools do you need for copying?

Pen: general pen and needle pen are OK, other types of ink line pen can also be, such as ball pen, sketch pen, neutral pen, meeting pen and so on; in addition, there are pencils and marker pens and so on.

Paper: grid paper and white paper are fine, but transparent paper such as sulphuric acid paper and copy paper is not very recommended. They are indeed more suitable for printing, but they are not a good choice for copying. Grid paper is undoubtedly the best choice, and it will be much more convenient for freehand drawing.

Other tools: triangles, scales, compasses, etc.

3.2. The Selection of Copying Content

We need to copy the architectural cases that are really useful to ourselves, and the architectural cases that meet the conditions of copying should basically meet three conditions-common sense, readability and enlightenment. Common sense means that we have to copy the more common and popular types of buildings; the second thing to consider is readability, which means that we can understand the meaning of the appearance of the building at a glance; the third point is enlightenment, which means that the building plan you want to copy just hits

some of the problems you encounter in your design, in other words, to find a suitable building case with the problem.

Another question is whether the the quick design plan (quiz) of senior students is worth copying? The answer is not to suggest, but rather to advise students to copy the actual project cases. First of all, the the examination time of quick design is relatively short, and there is not enough time to analyze and deliberate on the architectural plan, which leads to more or less problems in the plan. Second, copying the quiz of senior students is not very helpful to improve your design ability, and will even make you lower than the level of the copied plan. "If you set a superior goal, you get a moderate result; if you set a moderate goal, you get a lower result". Moreover, each professional architect has his own style, copying the actual architectural cases can not only let us see more works, but also have a larger range of choices in the design techniques and styles.

3.3. How to Copy in Different Stages?

3.3.1. Copying in the Lower Grades

Students in the lower grades may not have a full and in-depth understanding of architecture. At this stage, they can copy the relatively basic professional books such as "Architectural Space Combination Theory", "Architectural Form, Space and Order", "Architectural Vocabulary", etc., so that they can have a general understanding of the spatial relationship of architecture and some basic handling techniques of physical form, the way architecture responds to the environment, the basic laws of the formation of architectural form, as well as the certain basic concepts for architectural aesthetics, these basic contents are easily ignored by some students who have grandiose aims but puny abilities [3]. With the accumulation of more and more cases, we will slowly find out a certain law, but also can carry out hand-drawn practice in the process of copying.

Other junior or cross-disciplinary students who have just come into contact with architecture will feel that hand-painting skills are poor without case painting training, which is not desirable. The case copying for the purpose of learning architectural design is different from common hand-paintings, and its hand-painting ability is not so high. It's not impossible to practice hand-painting purely, but it's not very helpful in learning how to conceive a building plan. First of all, hand-painting is more based on the effect drawings or photos to draw perspective drawing; second, hand-painted teachers may be from the academy of fine arts, although they have strong hand-drawing ability and good graphic effect, they often skip over the overlapping logic of architectural structure, giving a sense of ambiguity. Through the copying of the whole scheme, learn the ideas and logic in the excellent works. When the case is copied to a certain amount, we will find that our focus on the architectural plan is completely different from that of those who only practice hand-painting.

3.3.2. Copying in Senior Grade

Senior students can copy some of their favorite architectural cases, this part can be divided into two stages: copy the whole scheme; copy the highlights of the scheme.

Copying the whole scheme is time-consuming, but it is a better way to learn. The copy may include: the logical analysis of the formation of the architectural form, response analysis of building to site environment, relationship of building volume, analysis of traffic flow line, material texture and node structure, vertical profile, perspective drawing, isometric view, etc , see Fig. 1-2. From the process of case copying, we can find that the form of architecture is not out of thin air, and the analysis diagram is not casually drawn, it has to analyze and respond to many limited factors such as the site environment [4]. After the examination of the form, it is the plane figure copying: traffic flow line analysis, functional room layout, axis network, column, wall, door, window, furniture layout, scenery, marking symbols and so on. It is certainly not enough to analyze a good architectural case once. Every analysis has a different harvest, and we

have to copy and record the inspiration. The form of copying can be either the sector or the bare-handed.

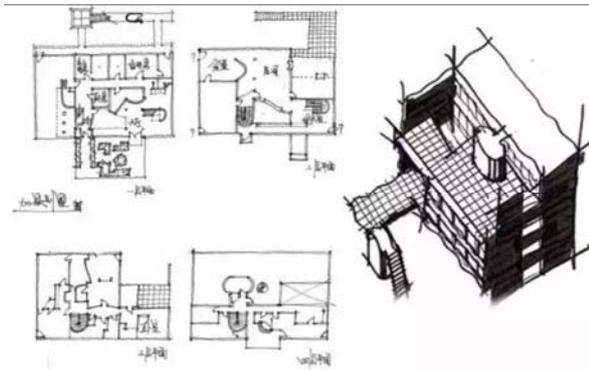


Fig 1. Copying of Gachet Villa

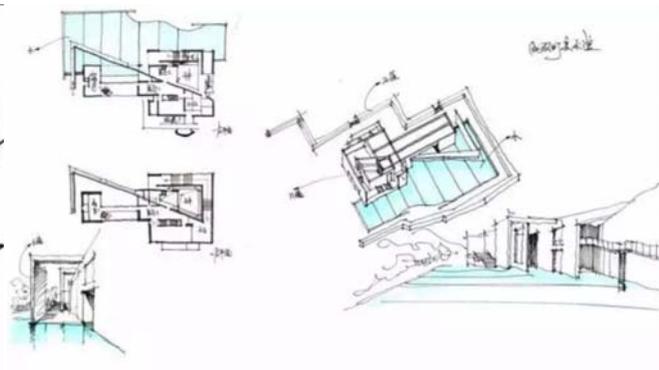


Fig 2. Copying of Nariwa Museum

Sometimes when we get a building case, we don't want to spend a lot of time copying it, so we can choose the design highlights in the case to copy. First read the building as a whole, then find out the highlights, and finally copy it down, these three steps are very important. In addition to the bright spot space, we also need to accumulate a certain basic node space. For example: what kind of layout of the toilet, what are the different forms of the lecture hall, how to design the entrance, how to do the foyer, what kind of combination of toilet and stairs, and so on. Summarize and sort out by type, such as: the treatment of mountain buildings, how to arrange food and beverage buildings more interesting, different shapes of site treatment, and so on [5]. There are also students who copy the structural details of the building nodes, which is also good, this is not for you to draw the design details in the construction book, but the node structure in the case you copied. Therefore, when we are copying a building case, it is also suggested that we draw it when we see a more special structural detail.

4. Conclusion

Will you do the design after copying some architectural cases? This is obviously not enough, the study of the principles of public building design is a repeated process. Therefore, the copied architectural cases should be repeatedly imitated and analyzed, until the more skilled use of the design techniques and design principles.

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References

- [1] Wei Rong: Teaching Reform Based on the Combination of traditional Curriculum Techniques and Case Analysis: A Case Study of Architectural Design Foundation, Fujian Architecture, Vol. 235 (2018) No.1, p.94-97.
- [2] Gao Changzheng, Lu Meijun: Research on Modular Teaching of Architectural Preliminary Course, Higher Architectural Education, Vol. 22 (2013) No.5, p.95-98.
- [3] Li Fang: Research on the Course of Architectural Design in Lower Grades Guided by Result Analysis, Decoration, Vol. 307 (2018) No.11, p.136-137. J. Liu, E.L. Chen and Z.T. He: Journal of Shi Jia Zhuang Railway Institute (Natural Science), Vol. 22 (2009) No. 4, p.40-42.

- [4] Shen Gang: Teaching Exploration and Reform of the Principles of Public Architectural Design, Fujian Architecture, Vol. 235 (2018) No.1, p.91-93.
- [5] Zhao Yang: Exploration of Spatial Experiential Teaching of Principles of Public Architectural Design, Shanxi Architecture, Vol. 40 (2014) No.20, p.268-269.