| **RESEARCH ARTICLE**

Research on the Application of "Reflection Design" Concept in Architectural Review Course

Sun Xiaoye[1] ✉ Wang Xiaojian[2] and Wang Zixuan[3]

[123]School of Architecture and Art, Hebei University of Engineering, Handan 056038，China: Handan Key Laboratory of Architectural Physics and Regional Architectural Protection Technology，Handan 056038，China

Corresponding Author: Sun Xiaoye, **E-mail**: 550698243@qq.com

| **ABSTRACT**

At present, Chinese architectural education overemphasizes the pursuit of formal design teaching goals, lack of rational and humanistic analysis, resulting in students ignoring the understanding of the essence of architecture, thus staying in the stage of schema imitation. Rafael Moneo's architectural theory advocates the practicality of concrete analysis of concrete problems. The purpose of this study was, through the study of Rafael Moneo's architectural design ideas and works, establish a teaching course based on the concept of "reflection design ", which provides a theoretical and practical basis for future architectural review courses. Quantitative data were collected through questionnaires and verified the validity of the "reflection design" theory by experimental method. The study revealed that "reflective design "theory can be effectively applied in architectural review courses so that students would have their own understanding of design rather than blindly follow it. The theory improves teaching quality in architectural review courses. In view of these results, the study recommends that design be pertinent, and the teaching of architectural review courses should focus on combining students' practice and theory.

| **KEYWORDS**

Rafael Moneo, Reflective Design, Architectural Criticism, Architectural Education

| **ARTICLE INFORMATION**

1. Introduction

Rafael Moneo once said: "Once a building is completed, the architect's existence will soon disappear, and the building will have its own life." The world-renowned architect and educator from Spain with He has a deep understanding of the essence of architecture, advocates different coping methods for different schemes, abandons the practice of adding personal colors to show style and emphasizes the importance of solving practical problems from the perspective of users. Through his works, we can see an architect's persistent pursuit of the permanence of architecture and the unremitting exploration of the essence of architecture. Facing an increasingly diverse and complex world, Moneo did not follow the trend but formed his own set of design concepts - "reflected design". That is to say, through the full cognition of the site, buildings, construction methods, and materials, the design idea reflects the actual feeling in a targeted manner (Lin et al. 2005).

2. Literature Review

Architectural criticism course is a kind of speculative teaching that deepens architectural theoretical knowledge and cultivates rational thinking ability [2]. In the past classroom lectures, students were organized to evaluate, criticize or supplement a certain example in terms of historical background, technical means, appearance, etc., so as to help students understand the design concepts and ideas behind the building and put the "unspeakable" The specific objects are transformed into topics that can be discussed [3]. However, the phenomenon of "teacher's discussion and students' blind obedience" often occurs in the classroom. Students lack the ability to think independently, lack the analysis of architectural rationality and humanism, and it is difficult to dig deep into the connotation of the essence of architecture, so they often feel confused about future design. "Do not follow its spirit

but imitate its shape", which objectively restricts the innovative improvement of architecture teaching. Therefore, it is an important subject of architectural criticism teaching to search for a teaching mode that is conducive to students' in-depth thinking about the nature of architecture.

The in-depth advancement of the high-tech industry has led to an increasing number of construction projects advocating "trend" and "unconventional". However, only focuses on the surface innovation of style and form but ignores people's needs for function, cost, and structural rationality. Schultz believes: "The ever-emerging and refurbished styles are a hoax, a source of turning serious themes into the civic, synonymous with 'flash' and 'fashionable' (Mao, n.d)" Architecture is essentially a combination of rational practice. As a result of the joint effect of history and humanities, the architectural review course should also balance the integration of the two perspectives, but the content of the architectural review course is often in the form of various historical symbols, ignoring the importance of targeted practice. Limitations of practical experience. Moneo's concept of "reflection design" attaches great importance to the thinking of the essential content of architecture. He not only draws on the nutrition and inspiration of history and humanities but also interprets his design works in rational practice. Therefore, starting from Moneo's "reflection design" concept, understanding the reflection practice method in the design process and the corresponding design concept is an effective teaching mode for students to deeply understand the essence of architecture in the course of architectural review.

3. Methodology

This research adopts the research method of practice method and questionnaire survey. Architectural criticism teaching and its corresponding literature reading, field investigation, and thesis writing courses run through the knowledge system and practice system cultivated by the architectural discipline [Tong. 2021]. In order to promote the goal of the "reflection design" teaching mode, the curriculum arrangement includes "text interpretation", "case study," and "criticism practice" throughout the entire architectural review teaching process (see Table 1). Through the progressive teaching stage module arrangement, the original fixed and dogmatic architectural review teaching mode is broken. While comprehending classic architectural works, students can extract concise design methods and concepts from them and form their own set of thinking about the essence of architecture that combines rationality and humanity, thereby stimulating students' creativity and improving learning initiative and independence.

Table 1 "Reflection Design" Teaching Mode Course Module

Course	Teaching objectives	Teaching content
text interpretation	Understand and master the value of Moneo's "Reflective Design" philosophy.	Analysis of Moneo's design project; Moneo's "reflection design" idea and theoretical research.
Case investigation	Investigate and analyze architectural design methods of classic architectural cases, and form certain design comments and summary ideas.	According to the concept of "reflection design", select representative architectural cases for analysis; According to the summary content, extract the essential factors.
Practice	Master the design case operation method and carry out the practice.	Use the practice form of thesis writing and commenting to reasonably comment on relevant buildings and deeply understand the connotation of buildings.

3.1 text interpretation

Moneo's design works focus on responding to specific project issues. As an advocate of pragmatism, his "reflection design" is concentrated on architectural design strategies [6]. However, students are constrained by the blind exploration of new learning modes such as interdisciplinary integration, digital informatization, and intelligence, resulting in the disconnection of architectural theory and practice so that they lack attention to history and humanity and ignore the essential meaning of architecture. In fact, Mr. Yang Tingbao, the linker, and pioneer of my country's modern architectural education, has long insisted on advocating the teaching path of linking theory with practice and encouraged students to accept the edification of the humanistic environment in the projects they actually participated in (Wu, 2004). The concept of "reflection design" of architecture has long been reflected in my country's architectural education system, but the era of rapid development has led to a weak foundation of students' professional thinking, which has also caused the continuity of theory and practice.

In the stage of text interpretation, the research is carried out using the graphic method, and the refinement of the concept of "reflection design" is the focus of teaching research. Take the National Roman Museum of Merida, and the expansion of Murcia City Hall as examples, both of which are the practice of adding and renovating on the basis of historical buildings are fundamentally

different. The National Roman Museum is built on the ruins of history, and it echoes ancient Roman architecture well in the way of construction and the use of materials (Figure 1, Figure 2).

The extension of the city hall of Murcia reflects his attitude towards the urban place, integrating the building with the surrounding environment while retaining its characteristics; the new building forms a confrontation with the cathedral opposite, reflecting the citizens of Murcia and the city. The right of the government (Figure 3), and the building surface is stacked with stone, the building surface is randomly defined horizontally and vertically, like a beating note (Figure 4), and the old and new buildings are equal in height in the horizontal direction, reflecting the A continuation of history (Figure 5).
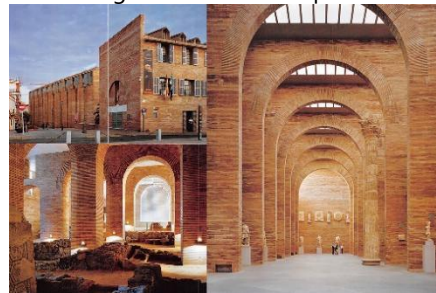

Fig. 1 Museum floor plan

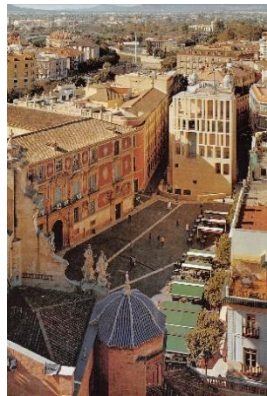Fig. 2 National Roman Museum of Merida

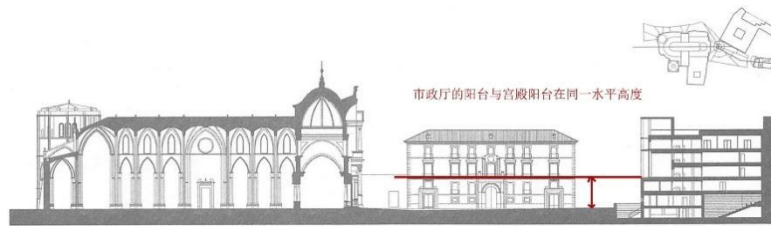Fig. 3 Town Hall and Church

Fig. 4 Town Hall and Church

Fig. 5 The height of the balcony of the city hall and the palace is the same horizontally

Therefore, in the process of text interpretation, understand Moneo's design strategies for different places and historical backgrounds, and use flexible and diverse methods to solve problems in the design process. It is the focus and difficulty of this stage of teaching. In this way, students are encouraged to take an objective and rational attitude to solving practical problems when dealing with problems and to promote students to gradually deepen their understanding of the essence of architecture through a keen analysis of architectural problems.

3.2 Case investigation

Architect Richard Meier, who is widely popular among students and imitates his style, is a representative of the "white school" of modern architecture. His works show pure form and rational thinking, which is very in line with modern teaching. Features. Taking Smith House as an example, the southeast of the site is the beautiful coast of Long Island. He determined the axis relationship of the house according to the characteristics of the site. When looking at the house from the road, you can see a slope channel to the northwest and follow the guidelines of the slope to enter. Inside the house, it reflects the organic connection between the building and the site (Figure 6). In the case study stage, students independently summarize the essential connotation factors of architecture according to architectural cases, which is the key and difficult point of this stage. This stage can promote students' autonomous thinking ability and maintain a correct design attitude [8]. The essential factors of architecture listed by students include the relationship between architecture and site, the relationship between architecture and people, architecture and history, architectural and functional requirements, architectural construction methods, architectural form, and color, etc. (Figure 7), and through the architectural design of classic cases, The operation mode extracts the issues that should be considered in the design. All in all, when students independently extract the essential connotation factors in architectural design, they can get the corresponding thinking more accurately, and to a certain extent, they can improve the ability of architectural rational cognition and humanistic care.
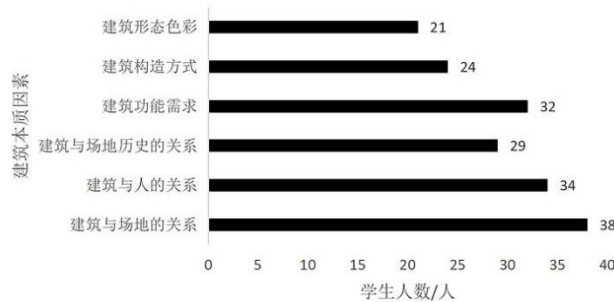

Fig. 6 Smith House

Fig. 7 The essential factors of architecture extracted by students

4. Results and Discussion

The commentary practice stage is used to strengthen students' logical and rational thinking ability, and they can express their opinions fluently in a professional language. Transform one's own understanding of a building into a practice of specific operation or written language expression. Among them, the extraction of the essence, the thinking of specific architectural issues, and the corresponding strategy of "reflection design" are the key and difficult points of the review practice. The extraction of essence is the foundation of critique practice. In the early stage of case exploration, students' summary and refinement of design techniques have an important impact on subsequent rethinking and the formation of independent thinking standards. Every architecture student has a different understanding of architecture, so they should have their own unique understanding angle and gradually form their own design review concept on this basis so as to maintain a clear and rational mind in the complex external environment. Thinking about specific architectural issues and corresponding design strategies are the basis for students to deeply interpret the classic cases of master architects. Lectures and research that do not seek deep understanding will only be in the superficial form of architecture.

5. Conclusion

Moneo's attitude towards architecture and its surrounding environment has set an example for our future study and design - we should abandon blind obedience, develop the ability to think independently, uphold an objective, rational and humanistic attitude, and treat every project with an objective, rational and humanistic attitude. A specific operational project should find a flexible and universal solution. There is a saying in Tao Te Ching, a famous Chinese Taoist book: "If great success is lacking, its use will not be harmful; if great success is rushing, its use will be endless. Great uprightness is like bowing; great skill is like clumsy, and great debate is sloppy. Victory over heat, tranquility is the righteousness of the world." "The Great Clumsiness to the Beautiful" is a wonderful overview of "reflection design". The seemingly simple or even stupid form contains Vientiane Senluo's methods and thinking.

The architectural criticism teaching mode based on "reflection design", as a method to assist students in deeply understanding the design strategies of excellent architectural works, focuses on improving students' autonomy, independence, and critical thinking ability, abandons blind and superficial imitation and focuses on In terms of thinking about the essence of architecture, and through the three-stage teaching module design of text interpretation, case study and commentary practice, students are strengthened to establish architectural design values and architectural design responsibility. Through an in-depth study of Moneo's design ideas, we found that architects should not only find different problems in each project but also solve problems in an objective and practical way of operation, which is the "reflection" of reality in design. The relevant teaching modules have been generally recognized by the students and have achieved good performance in the teaching process. The limitation of this study is that there is no comparison of multiple experimental groups, the students have not formed a complete theoretical and practical system, and more practical design research is needed.

We need to practice through Rafael Moneo's "Reflective Design" theory for further research. This way, we will have a deeper understanding of the architecture review course and achieve the teaching goals.

Conflicts of Interest: The authors declare no conflict of interest.

ORCID iD Sun Xiaoye: https://orcid.org/0000-0001-6120-0258

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1]   Lin, and Wu Y. (2005). Interactive Teaching Experiment of Architectural Review Course. *Higher Engineering Education Research, (02):108-109.*

[2]   Li H, and Shen Y. (2019). Conceptual Analysis: The Speculative Practice of Architectural Review. *Architects, (05): 4-6.*

[3]   Lu K. (2013). Research on "Reflection Design" of Rafael Moneo's architectural works. (M.D.)Thesis. Huazhong University of Science and Technology.

[4]   Mao H, Chen Q, and Du C. (n.d) From emotion to reason: Research on the teaching model of Chinese garden history based on archetypal cognition. *Chinese Garden, 33(04): 63-67.*

[5]   Tong M. (2021). Architectural Education. *Journal of Architecture, (10):113.*

[6]   Wang Y, and Liao Q. (2020) Thoughts and Expressions: Reflections on the Teaching of Public Building Design. *Journal of Langfang Normal University (Natural Science Edition), v.20; No.98(04):126-128.*

[7]   Wu F. (2004). Reflective design" exploration - Rafael Moneo architectural design thought and research. (M.D.)Thesis. Zhejiang University.

[8]   Wei C. (1990). Research on Architectural Typology. *Huazhong Architecture, (02):81-96.*