

Innovative Research Workshop Design Teaching Models Based on the Concept of Design by Research

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Abstract: At present, China's design colleges and specialties are constantly pursuing innovation and reform in the development of education and teaching mode, aiming to cultivate more excellent professionals. In the reform and innovation, various teaching methods and modes are used to try to improve students' learning ability and level, with good results. However, there are still some problems and deficiencies. For example, students' innovative and critical consciousness has not been stimulated all the time, and students often do not have deep research on design tasks, which leads to the phenomenon that the quality of design works is difficult to improve. Therefore, guided by the concept of Design by Research, this paper reforms and innovates the traditional teaching method of current design teaching, making teaching modules three-dimensional and diversified, thus stimulating students' independent thinking ability and critical consciousness, maximizing the effect of design teaching, and achieving the goal of training design teaching talents.

1. Introduction

Design by Research (research design) is a unique design research method founded by Dutch architect Rem Koolhaas in the 1990s. It has set off a new wave of architecture and opened up a new situation in Dutch architecture. Its influence has gradually expanded to the completely western architecture and design field. This kind of design method and concept has strong guiding significance for design education. Research-based design refers to the introduction of clear concepts at the beginning of design, the use of objective and critical spirit to investigate and investigate the various possibilities of design, and the change of roles to think about the adaptive groups of design works, and finally the completion of the submission of the manuscript without any possibility [1]. It is rational, holistic, critical and experimental. The so-called rationality mainly refers to the rationality of the research-based design process, which has strong logicity from the preliminary investigation of the design and the analysis and collation of data. In addition, it includes the rationality of concept, which has strict reasoning and clear thinking and runs through the whole design process. Integrity mainly refers to the research-based design, which emphasizes the design with the overall view. Through the collection, collation and analysis of a large amount of information related to the project, designers could keenly grasp the project background and possible breakthroughs. Criticality refers to the practice of research-based design with a certain degree of critical nature. It does not blindly follow the existing theories and rules, but reflects and criticizes the existing theories and rules based on the study of contemporary social needs and cities. Experimental design means that research-based design is an experimental practice, which focuses on rational analysis of social reality problems, puts forward the demand for design from all levels of development based on research, and explores new dimensions of design on this basis [2].

However, Workshop teaching mode has great significance and value in the development of contemporary western classroom teaching, which has had a profound impact on the reform of contemporary classroom teaching. No matter from the innovation of teaching concept or from the level of teaching modernization, it is a teaching method worth studying. The so-called Workshop is an innovative learning method characterized by brainstorming and an interactive teaching method that emphasizes discussion and inspiration. This method originated in the United States and is a

common and common teaching mode and method in the teaching of American and European universities. It is characterized by teacher-led, student-centered and teacher-inspired ways to cultivate students' autonomous learning ability. Taking teachers as the leading means that teachers should grasp the direction of teaching, carry out teaching plans and organize teaching activities. Taking students as the main body means that in classroom teaching activities, teaching tasks should always be completed around students, to achieve "*everything for students, for all students, for all students*"; In addition, it downplays the concept of "*classroom*" and advocates open teaching and project-based teaching.

The above two seem to have some connections, but there are certain differences. Research-based design emphasizes a design idea and method, while studio system emphasizes a teaching mode. They have certain similarities in terms of work and teaching mode, that is, let everyone get together and learn and work together through discussions and other ways. However, from the perspective of designing ideas and methods, research-based design can make the design extreme and create more excellent works, because it is more rational and can stand the test of scrutiny and market. However, the design ideas and methods in the studio teaching method are relatively weak, and the characteristics are not obvious enough. Many design works cannot withstand scrutiny and inspection, and there are too many formal things. Therefore, innovating the teaching mode of studio system based on research-based design concept is more conducive to improving the teaching quality and school-running effect of the design major, and can optimize the design ideas and methods under the studio teaching mode, so that the output works can withstand the market inspection, weakening the current teaching situation that studio system tends to be formalized.

2. Application Status of Workshop Teaching Mode for Design Majors

At present, Workshop teaching mode has not been fully implemented in the teaching field of design majors in our country, especially in ordinary colleges and universities, many design classes are mainly taught in the early stage and one-on-one tutoring in the late stage. A small number of colleges and universities use studio-teaching mode, but the teaching methods and ideas in studio teaching mode are different. Most of them tend to be traditional in implementation and lack the initiative to mobilize students. In the teaching process, teachers often introduce students into the classroom, then teach the content, assign homework and basic requirements after class, and then let students begin to prepare homework materials. There is no discussion in this process. In the second stage, the information was reported, and the teacher put forward suggestions for revision. Some students put forward different views and opinions, which is conducive to the further revision of the reporter. One-on-one tutoring followed until the homework was completed. Therefore, in this process, there are no links such as team formation and discussion, let alone the cultivation of critical thinking. Since then, it is difficult for the quality of students' works to make a qualitative leap. Most of them are still working behind closed doors, and the teaching mode of the studio has become an empty shell.

According to the application status of studio teaching mode, an investigation was conducted for representative art colleges and universities in China. Since the reform and opening up, the Central Academy of Fine Arts has been teaching in the form of a studio. Undergraduate students enter the studio to study with their tutors from the third grade, while graduate students enter the studio to study from the first grade. The studio is mainly teacher-led and student-centered, and has achieved better results than previous large classes. The main reason lies in the small number of students and the strong pertinence of teachers, who can help them. In teaching, teachers ask questions, students prepare materials before class, state their creativity in class, teachers comment, and students revise after class, and teachers review and summarize in class. Although this teaching mode has the form of studio, it does not fully realize the function of studio, because students do not fully discuss research-based inspiration design and cultivate critical thinking in the process of participating in teaching. The students are only completing the work according to the guidance of the teacher. Although the teacher considers the uniqueness of the work, this is not the ideal creative point after all. If the teacher organizes discussions on various possibilities in the class, it will have more

unexpected creative effects. It not only emphasizes the leading role of the tutor, but also strengthens the students' ability to think actively and pursue the design limit.

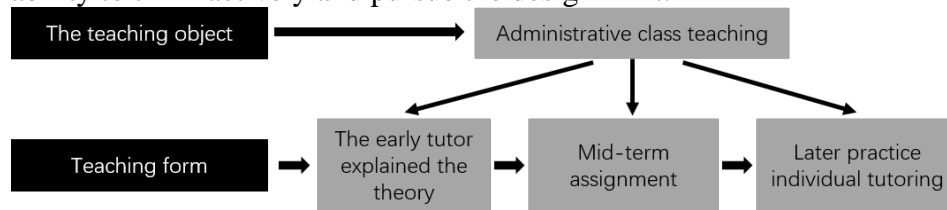


Fig.1 Design Traditional Teaching Model Diagram

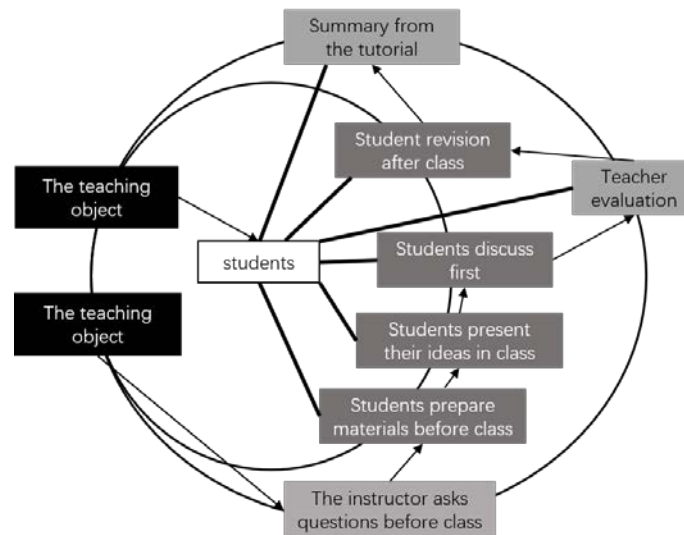


Fig.2 Design Studio Teaching Model Diagram

3. Rational Reflection on Workshop Teaching Mode

From the survey results of the current teaching modes of the above two more representative art colleges, it is found that the studio teaching for design majors in our country has certain advantages, but it also faces some problems to be solved, such as the lack of rational, holistic, critical and experimental teaching ideas mentioned above, which does not provide students with the opportunity to stimulate inspiration, weakens the importance of experiments, and does not limit design thinking enough. The main reason for this phenomenon lies in the influence of the traditional teaching mode, which makes the teaching methods, teaching objectives, teaching thinking and other aspects still in a conveying mode.

3.1 Studio Teaching Model Tends to Form, There is No Substantial Effect

The purpose of the studio teaching mode is to take the studio as the carrier, integrate the curriculum, classroom and production practice, transform the traditional closed teaching in schools into an open teaching oriented to production practice, take the curriculum knowledge as the basis, take the reference of professional technology as the core, take professional teachers or famous teachers as the guide, take the undertaking of technical projects as the main task, combine production and teaching closely, and let teachers lead students to complete the training of comprehensive professional technology in the process of undertaking and completing production technical projects [3]. As a teaching mode, the establishment of the studio has opened a new door for the teaching of design majors, providing a place for students to exchange ideas. Students can choose the appropriate tutors according to their favorite research directions carry out specialized studies, save resources and avoid blind study. Teachers can also achieve the goal of targeted inheritance of education and carry forward their academic system. However, in the actual teaching process, most teachers only carry on blindly and lack further innovation. Teachers do not obviously remind students to be critical and pioneering [4]. Students are only using their own methods to

design, and have not had many discussions with classmates and teachers to stimulate inspiration to find the greatest possible design. In the process of completing the homework, it was not rational enough, there was no very strict investigation link, the data analysis results were not accurate enough, and the design works were naturally full of loopholes. The studio will only come together to discuss a certain project of the mentor, but the design process has returned to self-isolation, often doing a lot of useless work and getting twice the result with half the effort. Therefore, the studio did not play a substantive role. This phenomenon also has a lot to do with traditional learning thinking. Now students grow up under a traditional education and teaching. Most of them are not very talkative and have poor communication skills. It is difficult to change their learning thinking mode in a short time.

3.2 Studio Teaching Task is Not Clear, Leading to Blind Students to Learn

The task of studio teaching is to train students to have unique design innovation ability, design ideas and employment ability to adapt to the society after completing the basic course content study. Design majors generally begin to study in the tutor's studio after entering the third grade of undergraduate course. The main contents of study are graduation creation and graduation thesis. In this way, students have a lot of time to study graduation creation and thesis, which seems to be a very good thing. However, students learn less about other courses, and the courses in the studio are mainly arranged according to the situation of each studio instructor to complete the study. However, most of the teaching plans arranged by the instructors are based on their own research direction, so there are many randomness in the curriculum arrangement, the teaching tasks are not clear, and the students' natural learning tasks are blind. In addition, due to the occupation of time by the studio from the big plan, students have less time to study other courses, and students no longer care about elective courses, and elective courses are basically conducted in accordance with the traditional teaching mode, the teacher explained the theoretical knowledge first, then arranged homework, homework or students go down to complete, there is no sufficient discussion, the teaching effect is general. Since then, the students are in a contradictory and ambiguous teaching task and do not know how to arrange their own time. Apart from graduation thesis and creation, they do not know whether to study in the studio or to arrange their own time to study other courses. Under the perceptual and randomized arrangement of such courses, the students cannot study at ease. In the end, the students only pay attention to the study of graduation thesis and creation in the later year of college, while the study of other courses is no longer paid attention to, resulting in incomplete study of subject knowledge, which is not conducive to the long-term development in the future. The teaching in the studio does not seem to affect the students' own study and understanding of design too much. Therefore, the coordination and communication between the teaching tasks of the studio system and those of the school need further discussion.

3.3 Studio-Teaching Methods Are Too Single; Resulting in students' Innovative Thinking Has Not Been Better Trained

Teaching method is the general name of the behavior adopted by teachers and students in teaching activities in order to achieve teaching objectives and teaching tasks. Teaching methods embody specific values of education and teaching. They point to the realization of specific teaching objectives and requirements. They are restricted by specific teaching contents and specific teaching organization forms [5]. At present, some art colleges and universities have only realized targeted learning with their tutors under the studio study of tutorial system, and have not done too much research on teaching methods. Some tutors are trying to use some new teaching methods to expand students' thinking and vision, for example, by turning over the classroom, massive open online course and other teaching modes, using discussion method, on-site teaching method, and task-driven method and so on to strengthen students' discussion, practice and critical consciousness. There are still some instructors who continue to use traditional teaching methods in teaching, which has lost the significance of the studio. In some workshops, students lack collective discussion, the guidance of teachers is not in place, students' thinking can not be opened, and good ideas cannot come out. In other workshops, due to the dominant position of teachers, students do not speak out

freely, and the discussion is only superficial. Many students discuss under the control of teachers' thinking, and students are not critical in front of teachers. Such learning results are often not objective, scientific, innovative, and have few personal real views. In the homework session, the design works cannot be considered, because the students do not have the previous training of innovative thinking or are conformist. The works naturally do not have fresh blood. In addition, many students do not pass the previous research, do not have data analysis and collation, but only do divergent imagination according to the teachers' ideas and intentions. Therefore, such design works will not be convincing.

4. Practice of Workshop Design Teaching Reform under the Guidance of Design by Research Concept

The characteristics of research-based design concept can make up for the disadvantages of studio teaching mode. First, setting up research-based thematic learning can make up for the blind learning of the studio. Second, a critical discussion-based teaching process can make up for the phenomenon of students working in separate camps behind closed doors and creating more creative works using the common wisdom of students. Third, starting from research, encourage students to think creatively, respect objective facts, encourage students to think rationally, investigate and study, practice bravely, look for various possibilities of creation and pursue the integrity of the design process.

4.1 Increase Research-Based Design Learning Methods to Improve the Quality of Learning

Under the studio teaching mode, research-based design learning methods should be added so that students can think about the content of learning with problems and run through it, instead of just staying on graduation creation and graduation thesis. They should be extended to various professional courses to form good learning habits, so that research can promote innovation, innovation can enhance competitiveness, and excellent talents can be trained for China's design industry. This is exactly what our society needs now. Just as general secretary Xi Jinping put forward, *"only the innovator advances, only the innovator is strong, only the innovator wins"*. We start from the foundation of training talents, let students form a habit of thinking and research, and innovation is just around the corner. As a teacher, we should start with the syllabus, write the research-based design learning method into the syllabus, and guide the specific teaching. In the course arrangement, we should set aside the research, thinking and research link, so that students can study with the theme, continuously explore, make the thinking develop to the extreme, and make the design possible. For example, the teacher first proposes the problem to be studied, and asks the students to conduct preliminary data collation and collection before class, and then explains and discusses the problem in class, and puts forward different views, and then enters into the big collision of ideas. For example, use brainstorming to get students to discover new ideas. Finally, the teacher will make an objective summary, put forward criticism, arrange the content to be completed after class, and enter the second stage of research discussion and study. After this repetition, at the design idea's peak, the discussion is over and into the design and production phase. By applying this method to the whole design and emphasizing the integrity of the learning process, the quality of learning will inevitably improve.

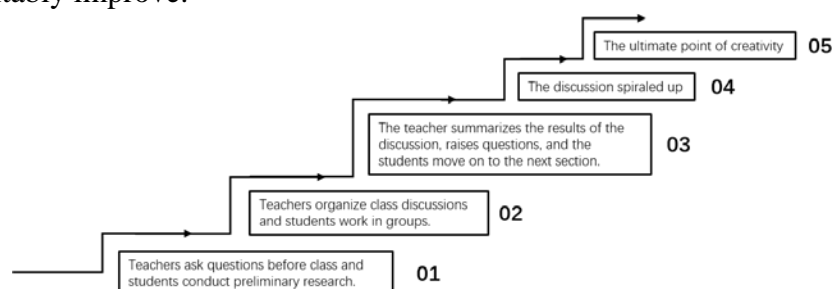


Fig.3 Teaching Pattern Diagram of Research Design

4.2 Refinement of Discussion-Based Teaching Methods to Enhance the Practical Significance of the Discussion

The discussion-based teaching method is the core of research-based teaching. It mainly stimulates students' brains through discussion, enables students to express their own opinions, completes the collision in creativity, and seeks for better creativity. Under the current educational situation in our country, students often admire themselves and think that their ideas are the best. In fact, after discussion, better ideas will emerge. Therefore, in general, students do not want to think deeply after their thinking has developed to a certain extent, resulting in the works not being better. Looking at all kinds of design competitions in the world, there are few winners in the excellent design competitions in our country. This has something to do with China's national conditions. In China's fast-moving trend, students are almost unwilling to leave too much time for effective discussion and exchange. They only need to accept information to complete tasks, overstretch physical work and repeat labor, which makes it difficult for us to enjoy the passion, joy and sense of accomplishment brought to us during the creative process and the completion of a work. With the expansion of design education in our country, the quality of education is declining year by year, with fewer and fewer excellent students and gradually moving towards a popular education mode. People's overall design literacy and aesthetics have improved, but there are no top design talents. Therefore, we should strengthen the innovation of studio teaching mode, change the current situation, and find better ways for our design education. In addition, on the other hand, the increase in the number of students is also more conducive to the development of discussion links. The strength of the masses is endless. We can organize better discussion groups and have meaningful discussions. In addition to the discussion-based teaching method, the teacher of Confucius, founder of the Confucian school in China, asked himself and answered his own questions. The teacher asked and the students answered. To guide students to ask, the teacher answered these three methods, and Socrates midwifery teaching method, its advantage is that it can effectively stimulate students' thinking activities, promote them to actively seek answers, and mobilize students' interest in learning. This teaching method is similar to the research-based design concept in that it throws out questions to inspire people to think and let them find out the answers together. Finally, through the contradictions and conflicts between the questions, we have finally clarified our thinking and found the answers. In our design teaching, the teacher throws out questions to enable students to think on their own initiative and look for a breakthrough in creativity, while the teacher keeps asking questions to enable students to understand the connection between creativity and finally achieve our expected results. As Socrates said, *"The point of view was originally in the heart of the other party, but it was only because of physical obstacles that it could not be clearly expressed."*

5. Conclusion

In today's situation where eastern and western cultures blend and influence each other, educational concepts, capital, materials and information have already flowed around the world. As a training of design talents, one must have a global vision to meet the challenges of society. Continuous discussion, rational thinking, practice and infinite possibilities of ultimate exploration in design teaching are the new directions for future design education. As most art and design colleges and majors in our country, they should adjust measures to local conditions and combine with reality to realize the reform and innovation of the new teaching mode of studio system design guided by the concept of research-based design, so as to make it more conducive to the training of design talents. It is also hoped that every school can give strong support in terms of policies and teachers to develop a more reasonable studio-teaching mode, formulate a scientific student teaching plan and arrange a reasonable curriculum structure. This will provide more solid support for the realization and implementation of the new teaching mode of studio system design.

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