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Exploration on PBL Teaching Mode of Principles of Urban and Rural Planning for Architecture Major in Colleges and Universities——Taking Shihezi University as an Example

Baoqing Zhang

College of Water & Architectural Engineering, Shihezi University, Shihezi, 832000, China

Abstract: *With the acceleration of the establishment of land and space planning since 2020, it has a great impact on the urban and rural planning industry. In the teaching of urban and rural planning, the urban and rural planning principle course, which is the essence of urban and rural planning, also needs to be changed greatly. The increase of content makes it difficult to clarify the key and difficult points, and as architectural students of related majors, there is also this problem in learning this course. To solve this problem, this paper takes the architecture major of Shihezi University as an example, and introduces the problem oriented PBL model into the teaching of the principles of urban and rural planning of architecture in 2021, which has produced good results.*

Keywords: *PBL, Principles of urban and rural planning, Teaching mode, Problem orientation*

1. The necessity of exploring teaching mode

At present, there are many drawbacks in the teaching process of urban and rural planning principles of architecture major in Shihezi University: 1. As the industry is currently in the transition period from "urban and rural planning" to "land space planning", the new and old systems are intertwined. For example, the Land Space Planning Law is still in the drafting stage, and the industry can only continue the Urban and Rural Planning Law as its backbone law, However, new policy documents or technical standards have emerged in its special plans. This phenomenon directly leads to the increasing complexity of the teaching content of the principle course, which is easy to confuse the key and difficult points, and students often have difficulty in learning the course; 2. Although there are many similarities between architectural design and urban and rural planning, the differences between the two majors have become increasingly obvious with the reform of planning in recent years, which is mainly reflected in the increasing degree of government intervention in planning and design. This phenomenon makes it difficult for students to understand the design concept of urban and rural planning in learning, and it is often difficult to master the content more deeply through teachers' explanations.The change of industry background and many problems in teaching work also make it particularly important to establish a teaching mode of urban and rural planning principles suitable for architecture majors.

2. Application of PBL teaching mode

PBL (Problem based learning), a problem-based teaching model, originated in the 1950s, is a college education system that gradually trains students' ability to solve problems and learn independently by analyzing real cases or hypothetical problems proposed by teachers [2]. Since it was introduced into Chinese universities at the beginning of this century, it has been applied to the talent training of multiple majors and achieved good results .

Drawing on the experience of the above universities, the author will apply the PBL teaching mode to the teaching of the Principles of Urban and Rural Planning of architecture in Shihezi University in 2021. The course teaching process is mainly divided into four parts: first, according to the requirements of "multi discipline integration" of land spatial planning, the fourth edition of the textbook Principles of Urban and Rural Planning used in the original teaching is abandoned, and the relevant documents of land spatial planning that have been piloted in recent two years are referred to, According to the requirements of the graduation design matrix of the architecture training program of Shihezi University (as shown in

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Figure 1, where M is high fit and H is medium fit) , the teaching content of the principle course is formulated. Secondly, on the basis of content, based on Tencent Conference, Rainclass and other relevant software that were widely used throughout the school during the epidemic, we established WeChat group chat for courses, built a problem oriented information platform, and the teacher made guidance questions for each teaching module according to the training program and relevant requirements in the professional frontier field, and pushed them through the platform. Third, teach the principles of urban and rural planningIt is divided into two parts: teacher talk and class discussion. The pre class oriented questions are deeply taught, and the students are divided into groups to discuss the questions. Fourth, answer students' questions after class in the course WeChat group chat.

	Graduation requirements					
Course title	Ideological quality	Cultural quality	Professional quality	Physical and mental quality	Toolical knowledge	Social science knowledge
Principles of urban and rural planning			M			
Course title	Natural science knowledge	Professional knowledge	Ability to acquire knowledge	Applied knowledge ability	Innovation ability	Expression and coordination ability
Principles of urban and rural planning		H	M			

Figure 1: Graduation Matrix Requirements of Urban and Rural Planning Principles1

In the selection of content, the author divides the course content into four parts: the theoretical system of urban and rural planning (territorial spatial planning), the working system of the preparation and approval system, and the technical method system. On the basis of the original course content, the author adds the relevant content of territorial spatial planning in the preparation and approval system and the technical method system with reference to the trial standards and policy documents of territorial spatial planning issued by the state since 2019. In the process of teaching selection, we strive to achieve "theoretical guidance", "focus on the front" and "highlight the key points", and introduce the relevant real questions of the recent three years' professional qualification examination for registered urban and rural planners to improve the students' theoretical height while cultivating the students' practical application ability of the knowledge learned, so that the content learned can be "both towering and grounded" and "keep pace with the times and keep pace with the front".

2.1. Preparation before class

In the pre class stage, the instructor is required to set guidance questions in the established social or teaching platform (mainly WeChat group chat, Tencent conference) based on the content of the lecture, and upload the pre lecture content and questions to the platform through the platform about a week before the class, and the lecture content and questions of each part are distributed one by one. Students can download materials and guide questions by themselves. Before the class, they can predict the content and discuss the problems through the corresponding electronic terminal equipment. At the beginning of the class, they will be informed that students should be reasonably grouped based on the requirements of class discussion, with about 5-7 people in each group. They can negotiate the combination by themselves, and understand the difficulties of the teaching content according to their own learning situation. Teachers regularly communicate with students before class through the platform, understand students' preview and problem discussion, reasonably select teaching methods, and plan teaching time to prepare lessons.[3]

2.2. Classroom teaching

At the presentation stage, teachers need to determine the key and difficult points of the teaching according to the requirements of the syllabus and the teaching calendar, in combination with the communication with students before the class, roughly divide the time of a class (2 class hours for each class in Shihezi University, 45 minutes for each class hour), [4]coordinate the occupation time of each content and problem module, and change the old teaching process of single PPT by teachers, In combination with the pre class preparation to ask students about their understanding of the teaching

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content, so as to improve students' enthusiasm for learning the course.

In the classroom discussion stage, the teacher will plan 15-20 minutes for each lecture, and will discuss the guided questions according to the discussion groups assigned in advance. In the last part of the course content, namely, the teaching of practical cases, the teacher can plan for a longer time for discussion. In class discussion, each student is required to express his/her own views on the problem through narration. In the process of discussion, teachers must pay attention to and pay attention to students' discussion attitude and ideas, correct bad learning attitude in time, and remind students of wrong ideas in time. In the discussion of cases on practical topics, we will discuss cases for about 30 minutes in this lecture as a whole, and at the same time, teachers will give guidance on the applicable industry standards and technical specifications for various issues.[5]

At the end of the two parts, the teacher needs to sum up the students' discussion of problems in combination with the understanding of the students' preview before the class, and evaluate each group, so as to improve the enthusiasm of students' discussion of problems and enable students to master the key and difficult points described in the classroom in an active and relaxed atmosphere.

2.3. Answer questions after class

After After each lecture, the teacher will arrange homework according to the teaching progress, urge students to complete homework in time through social software, collect students' doubts in homework in time, and guide students who have questions through WeChat group chat or email, so as to improve the quality of students' homework.

While urging students to complete their homework, teachers should collect all the students' homework in a timely manner and evaluate the homework according to the completion of each student, praise the students who have completed well or reflected the professional quality of planning and design in the platform and share their learning in a timely manner, and contact the students who have completed poorly to correct them in a timely manner, so as to prevent the failure of the course or the sudden attack before the examination.

2.4. Final examination

Due to the adoption of the new model, the usual score of the course of urban and rural planning principles in the final examination of this year has been correspondingly increased, from the previous 30% to 40%. The content of the usual score has also been changed from the past two parts of classroom attendance and classroom discussion to four parts of classroom attendance, pre class preview, classroom discussion and after-school homework, Among them, pre class preview and class discussion involving orientation issues account for 30% of the distribution, while after-class homework and class attendance account for 20% respectively. The adjustment of the assessment standard is conducive to students' active participation in pre class preparation and class, changing the phenomenon of students' "cramming" to cope with the exam before the exam, and also improving their enthusiasm for learning.

3. After class evaluation

After finishing the teaching of this round of principle courses, the author found that the adoption of the new mode and the increase in the proportion of peacetime scores greatly improved the enthusiasm of students to learn principle courses through a questionnaire survey among students and the review of examinations at the end of the semester, The application of PBL mode also enables students to easily establish the content framework of the course of urban and rural planning principles in their brain while guiding and discussing problems. Through the establishment of the framework, their understanding of the industry is greatly deepened, although some students still spend a long time in the specific recitation process, However, compared with the previous teaching rounds, it has been significantly improved.

4. Conclusion

With the establishment of land and space planning, the scope of content involved in the future work of urban and rural planning industry will greatly exceed that of the past, which will also greatly increase the breadth of teaching knowledge of the principles of urban and rural planning. As a characteristic course of architecture, it is often necessary to "remove the rough and store the fine" when teaching future

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architects of related majors, so as to accurately find out the key content and set problems, The setting and discussion of questions can also deepen students' impression of the course, improve their enthusiasm for learning, and thus have a deeper understanding of architecture related majors.

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