Exploration on the Teaching of Residential District Planning and Design Curriculum Based on the Concept of Open Education

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Abstract. Against the backdrop of socio-economic development and the transformation of the construction industry, traditional architectural education models are becoming increasingly unsuitable for the current social demand for talent. This article analyzes the drawbacks of the traditional teaching mode of residential area planning and design courses, applies open education concepts, and proposes improvement measures from the teaching objectives, teaching content, teaching methods, and learning evaluation of the course to promote the cultivation of students' comprehensive abilities.

Keywords: open education, Teaching objectives, Teaching practice.

1 Introduction

“Residential Area Planning and Design "is one of the core courses for the fourth year of undergraduate architecture majors in universities. The course covers a wide range of knowledge and has strong practicality; At the same time, China's urban construction has entered a period of high-quality development from a period of rapid development. With the development of the social economy, the living needs of residents have also undergone significant changes.

The rapid development of information technology and the rise of artificial intelligence in today's society have not only greatly changed people's production and lifestyle, but also accelerated the intersection and cross-border integration of technological development. In traditional teaching models, it is difficult for students to grasp the needs of today's society and the development trends of the industry, and design works are difficult to meet people's needs. In 2017, the Ministry of Education proposed the concept of "new engineering", requiring a focus on national development strategies, comprehensive deepening of engineering education reform, and continuous improvement of talent cultivation models and methods. Faced with the new situation, traditional teaching models are bound to be optimized.

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2 The Connotation of the Open Education Concept

The concept of open education has a long history. The essence of the concept of open education is to break some of the limitations or constraints of existing higher education, update or reconstruct the elements of the education system, make higher education more inclusive, developmental, and innovative, and meet new learning needs. [1]

The application of the open education concept in higher education mainly has two aspects. On the one hand, it is a way to apply the concept of open education from the perspective of disciplines and majors to analyze the establishment of professional curriculum systems, and the updating of teaching content and models; On the other hand, it is to explore how to use open educational concepts to optimize teaching content, organizational forms, methods, and evaluation in specific course teaching practices; But they failed to reposition the teaching objectives with the concept of open education. Teaching objectives are a prerequisite for conducting other teaching work. Due to the current period of transformation and upgrading in China's construction industry, and the rise of information technology and artificial intelligence, the demand for talent in society has undergone significant changes; Therefore, teaching objectives should also be updated promptly to adapt to the development of the situation, which is also the embodiment of the concept of open education in educational practice. Only with clear teaching objectives can other teaching work be carried out more effectively.

The following is a discussion on the teaching objectives, teaching content, teaching methods, and teaching evaluation of residential area planning courses during the industry transformation period based on the concept of open education.

3 Update teaching objectives

3.1 From imparting knowledge to cultivating comprehensive abilities

In traditional residential planning and design courses, the focus of teaching is to enable students to master professional basic knowledge and drawing expression skills; To meet the professional requirements of architectural designers. With the current transformation and upgrading of the construction industry, the demand for architectural design talents in the market has significantly decreased, and many students have not engaged in the construction- related industry. [2] In 2017, the Ministry of Education of China proposed the concept of new engineering courses, indicating the direction of engineering education reform in China. The concept points out that the construction concept is to respond to changes and shape the future, cultivating diversified and innovative outstanding engineering talents in the future. [3] Therefore, the teaching objectives of the course must be updated to adapt to the current situation and should not be limited to the professional requirements of architectural designers. The focus of teaching objectives should shift from imparting knowledge to cultivating learning, collaboration, and innovation abilities. [4]

3.2 Determine teaching methods based on teaching objectives

The course is usually divided into four stages: theoretical teaching, site research, scheme design, and front drawing. At different stages of course teaching, different teaching methods are adopted based on teaching objectives.

In the theoretical teaching stage, teachers should change the teaching method in which teachers lead students to passively accept knowledge in the classroom, guide students to discover problems from life experiences and social hotspots, use various educational resources to learn relevant knowledge, build their knowledge system to comprehensively analyze problems, and guide research. This not only improves students' ability to actively learn, but also promotes the cultivation of innovation ability.

In the early stage of research, tools such as flipped classrooms can be used to introduce students to the relevant knowledge of the research combined with practical cases. By collecting data and discussing in groups, a research outline can be formulated to clarify the research purpose; In the research, students are divided into groups to determine the research project and content, summarize the research materials, and complete the research report; Finally, conduct a research report for the entire class, with students and teachers commenting on the research results. Throughout the research process, students play a leading role. Pay attention to cultivating students' social research ability, problem-solving ability, comprehensive problem-solving ability, and teamwork ability. During the research process, teachers only provide guidance when students need it. Cultivate students' communication, cooperation, and logical analysis abilities through research.

In addition to retaining the original teaching mode of individual guidance during the sketch design stage, teachers from majors such as architectural physics, architectural construction, urban planning, and experts from enterprises can also be invited to give special lectures or answer questions to students, promoting their mastery and application of professional knowledge, understanding the development trends of the industry, and improving their comprehensive ability to solve practical problems.

Encourage students to use advanced software and technology to experience and express various forms of solutions in the positive image stage, such as 3D printing, virtual reality, etc., optimize traditional teaching modes, improve students' digital abilities, and adapt to the needs of industry development.

4 Reconstruction of teaching content

4.1 Limitations of current teaching content

In traditional teaching, the teaching content mainly focuses on professional theoretical knowledge, lacking guidance on social, economic, humanistic and other related knowledge as well as research methods. When students analyze and solve problems, the lack of correct methods and theoretical knowledge support is extremely detrimental to the cultivation of students' innovative thinking.

4.2 Principles for Reconstructing Teaching Content

After experiencing rapid urbanization, China's real estate industry has ushered in a period of transformation, with many disciplines constantly emerging with new technologies and concepts. Therefore, in teaching, relevant knowledge should be explained based on current social hotspots such as green buildings, urban renewal, and population aging, combined with practical cases, to help students understand how these factors affect design. Enable students to build a knowledge system and apply knowledge to solve problems during the process of discovering and solving problems.

Therefore, the reconstruction of teaching content should be based on the principle of adapting to task-driven teaching forms. Students are the main body in constructing knowledge frameworks, and teachers provide support for students' knowledge acquisition.

4.3 Develop an open-ended task book

The formulation of design tasks should start from the actual problems of current social and urban development, strengthen their overall design thinking training in complex urban environments, and thereby improve their comprehensive design ability and professional ethics. The development of task books should be jointly completed by students and teachers. Teachers only limit the scale and basic control indicators of the task book, and students can choose the construction site themselves. Through research and analysis, design concepts can be determined to improve the design task book. In addition, the task of designing competitions can also be introduced into the classroom, which not only enhances students' learning initiative but also helps to cultivate innovative abilities.

4.4 Building an Open Teaching Platform

The purpose of building an open teaching platform is to integrate educational resources, strengthen subject integration, and promote school-enterprise cooperation. [5] An open teaching platform not only includes various online learning resources, but also a teaching team composed of multidisciplinary teachers and enterprise experts. Teachers guide students to make reasonable use of the teaching platform, promote students to comprehensively grasp knowledge of relevant disciplines and professional fields, timely understand industry trends, and adapt to the needs of social and economic development.

5 A diverse learning evaluation system

Evaluating students' learning process is an important component of curriculum teaching. By evaluating the learning process, we can identify problems that exist in students' learning process, adjust teaching content and methods promptly, improve students' learning process, and improve learning quality.

5.1 Disadvantages of the current evaluation system

In traditional evaluation systems, students' final design results are the main objects of learning evaluation. It is difficult to objectively evaluate students' level of participation, coordination ability, and innovation awareness in the learning process. The evaluation subject is single and greatly influenced by subjective factors. The content of the evaluation was not provided to students in the teaching process, which played a role in improving their learning methods.

5.2 Measures and principles for developing an evaluation system

To make learning evaluation more objective and effective, on the one hand, it can increase the number of evaluators and change the current situation of a single evaluator. Students, relevant professional teachers, and enterprise experts can all participate in the evaluation process, jointly formulate evaluation standards, and evaluate the learning process together, making the evaluation results more objective. The forms of evaluation objects should also be diverse, not limited to design drawings, and students' coordination and expression abilities in the learning process can be evaluated. On the other hand, incorporating learning evaluation into the curriculum teaching process. For example, learning evaluation can be conducted through methods such as defense and exhibitions. Through learning evaluation, students can improve their learning process and promote their ability development. Teachers make timely adjustments to educational content and methods based on students' learning situations. Ultimately, promotes the cultivation of innovative talents. [6]

Therefore, the development of an evaluation system should adhere to the principles of diversified evaluation subjects and dynamic evaluation objects, achieve objective and fair evaluation, and promote the cultivation of students' comprehensive abilities. This is also a concrete manifestation of the concept of open education.

6 Conclusion

The concept of open education has been widely applied in the field of higher education. Against the backdrop of current industry transformation and significant changes in social needs, we should first update our teaching objectives with an open educational philosophy. The determination of teaching objectives should be guided by ability development. The cultivation of abilities should adapt to the needs of social development and should not be limited by the guidance of professional abilities. The development of the teaching content, teaching methods, teaching organization form, and evaluation system of the course should be a concrete manifestation of the teaching objectives and continuously improve with the changes in social needs. In today's rapidly changing society, only by comprehensively and dynamically applying the concept of open education to the teaching process can we cultivate talents who can adapt to social development.

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