Curriculum reform and thinking of preliminary design of Architecture Specialty Based on the requirements of large-scale enrollment and first-class curriculum construction——Take students as the center and improve professional cognition as the goal

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Abstract: Under the policy background of large-scale enrollment and first-class curriculum construction, with the goal of improving professional cognition, this paper has carried out the teaching reform of the preliminary design course of Architecture Specialty in our college, and formed a "3 + X + 1" cognitive model to promote knowledge cognition, value cognition and goal cognition; The "core + two key points" structure is used to associate and optimize the teaching content, and the reform measures and ways to guide and promote the involvement of virtual simulation technology in teaching are based on the "design experiment" concept and the "mutual learning" mode of school enterprise linkage, grade linkage and class linkage. At the same time, the teaching effect of curriculum reform is investigated in the form of questionnaire, which highlights the problems and contradictions in teaching reform. Through the survey data, the causes of the above problems are analyzed, the enlightenment is obtained, and the countermeasures are put forward.

1. Curriculum reform background

The urban and rural planning and architecture majors of our college have implemented the general enrollment policy since 2020. The diversion node is in the second semester, and the diversion principle is "voluntary". In the survey of Freshmen's intention to choose a major, only 9% of the students have a clear understanding of the selected specialty, 68% of the students have a superficial understanding, while 23% of the students have a complete blank understanding of the major. It can be seen that students; cognition of their major is quite vague. China has carried out large-scale enrollment for more than 40 years. A large number of investigations and studies show that when students have a low degree of cognition of the major, there are still blindness and conformity in the face of the "secondary choice" of the major, which is contrary to the implementation purpose of the policy. Therefore, our college urgently needs to improve students; professional cognition and help students make rational choices through first-year courses and corresponding measures.

As the only design practice course in grade one, preliminary design can build a basic professional knowledge framework for students, understand and train basic professional skills and cultivate students; basic professional quality. It is an important way for students to form perceptual and basic cognition of their major. Therefore, the curriculum team has reformed the curriculum with the goal of improving professional cognition.

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2. Curriculum reform measures

2.1 Ideological and political education into the course, and the "3 + X + 1" cognitive model guides the reform ideas

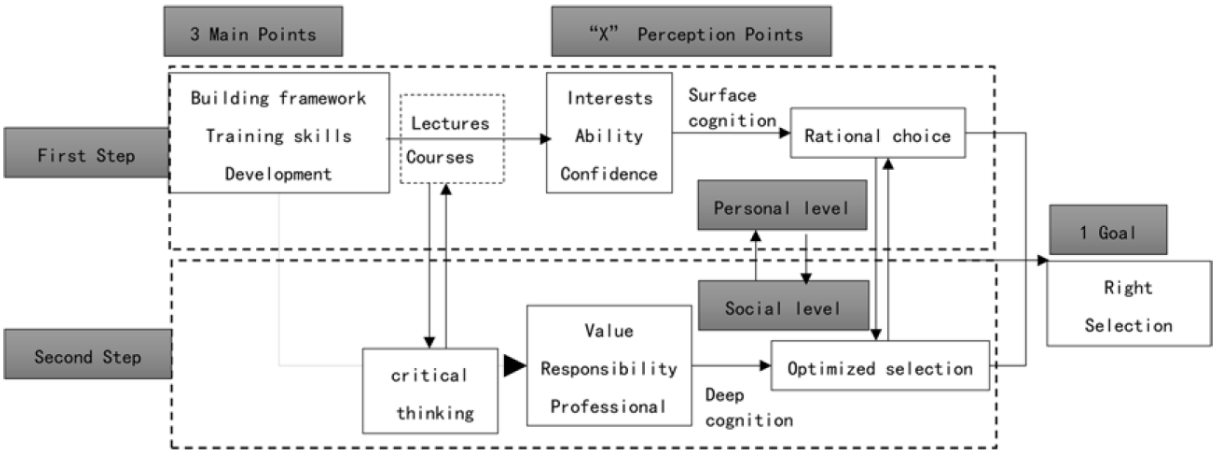

Figure 1. The"3+X+1"cognitivemodel

For freshmen, there are two main factors affecting their choice of major: one is the judgment of whether they have the ability to successfully complete their studies and the action judgment of whether they can achieve their academic goals through certain learning methods [2];The second is the recognition of future career, including professional value, professional norms and positive professional attitude, and is willing to actively engage in professional learning [3].The above factors are the definition and connotation of professional identity. Through the research, it is found that improving professional identity plays a great role in promoting students; choice of major, establishing learning objectives and forming learning motivation [4].Therefore, we put forward the "3 + X + 1" cognitive model (as shown in Figure 1), hoping to form a value education process from practical experience to theoretical cognition through the teaching of professional knowledge, skill training and quality training, combined with lectures, salons and lectures, so that students can "externalize" the values confirmed in theory into objective practical behavior [5],Help students make correct professional choices from multiple levels.

2.2 Reform the teaching contents and methods in combination with the requirements of first-class curriculum construction

In the initial survey on the choice image of Freshmen major, only 13% of the students who choose the major of planning, because compared with architectural design, urban and rural planning is an unfamiliar, abstract and less cognitive professional field. Therefore, the basic content of "planning" needs to be added to the course of "preliminary design", so that students can make professional choices with relatively complete cognition. However, the change of content is also accompanied by the increase of learning difficulty, and the teaching means also need to be broken through and innovated to deal with it, which has no small challenge to teachers and students. This corresponds to the requirements of first-class curriculum construction and the standard of "gender once". The curriculum group takes this as the guiding principle and method to reform the teaching.

(1) Make the content better - highlight the key points and clarify the objectives

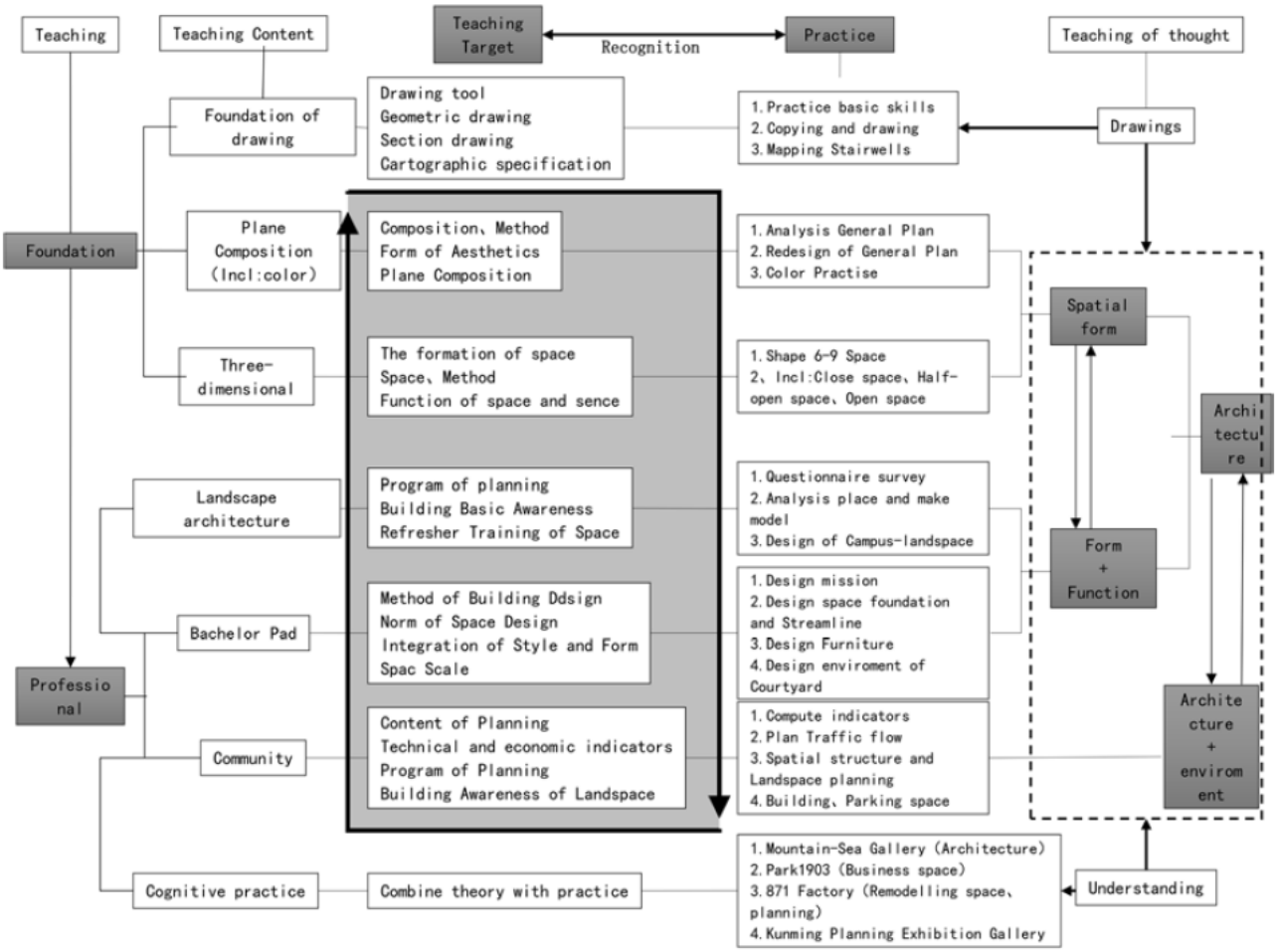

Figure 2. Teaching ideas and contents

According to the principle of "thick foundation and wide caliber" for large-scale enrollment, two stages of general knowledge foundation and professional cognition are formed. The basic stage of general education includes three core contents: architectural drawing, vision, modeling and spatial design; In the professional cognition stage, through the design practice of public rest space and residential space, strengthen the understanding and application of general basic knowledge, understand the program logic of planning and design, establish the integrated design thinking of planning, landscape and architecture, and master certain learning and working methods. As shown in Figure 2, the course content forms a structural mode of "core + two wings". Its core content consists of five parts: plane composition, three-dimensional composition, landscape architectural sketches, single apartment design and residential group planning. The sequence arrangement has close logical connection and in-depth progress of content, but also strengthens mutual understanding, supplemented by architectural drawings for scheme expression and drawing performance, Guide students from shallow to deep and from small to large to construct the knowledge framework and the logic of ability and quality needs, so as to form surface cognition. At the same time, the design practice is carried out with the rest and living space with a high degree of familiarity, combined with the cognitive practice link, so as to help students understand the professional content and form professional cognition and identity.

(2) Making students busy -- virtual simulation technology involved in homework process

In recent years, the application of virtual simulation technology has become the mainstream trend of teaching reform in architecture specialty. Its characteristics of scene, visualization and construction of immersive teaching environment are conducive to students; understanding of theoretical knowledge and perception of space environment; The rich materials and resources and simple operation of rendering software are conducive to students; achievement expression and good grades, and improve students; interest in learning and sense of achievement. However, the use of computer graphics

software in Grade 1 has no precedent in our college, and there are many foreseeable difficulties. Combined with many years of teaching experience, we take the following measures to solve the corresponding problems.

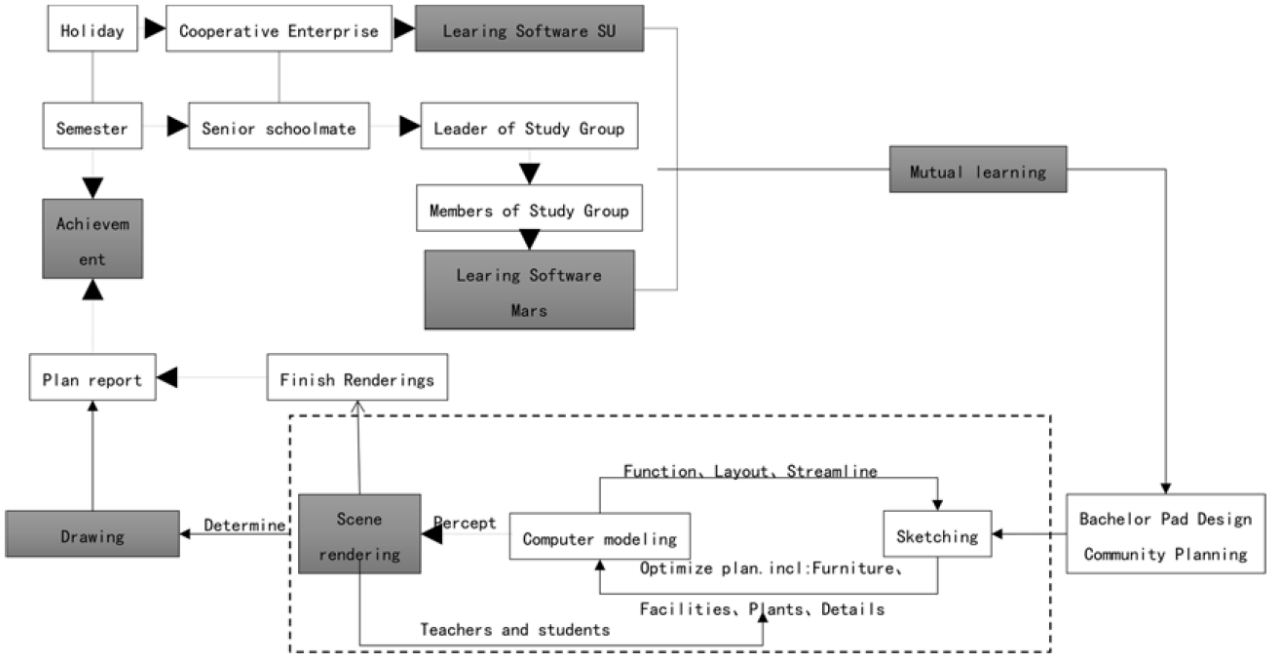

Figure 3. Design of virtual simulation technology in Teaching

First, the mutual aid learning mode of school enterprise linkage, grade linkage and class linkage. There are no corresponding courses and class hours to teach the operation of computer graphics software in the first grade of our college. This part of the content can only be self-taught by students after class. As shown in Figure 3, we contacted the cooperative enterprise to conduct modeling software training for students in the mode of video teaching + online Q & A during the holidays, so as to facilitate students to look back and exchange questions from time to time. After the school starts, 5-6 team leaders will be selected in the class on the principle of voluntariness. Senior students will train them in Mars software, and then the team leader will train 5-6 members of this group. This "mutual learning" model can not only solve the problem of insufficient teacher ratio, help students flexibly allocate learning time, but also improve the class learning atmosphere and cohesion. Practice has proved that the teaching method of linking off campus and on campus, holidays and semesters is suitable for the basic operation of cartographic software at this stage.

Second, the selection of job content involved in virtual simulation technology. The production of virtual simulation scene needs to be based on computer modeling, but students; learning time is short, and the scheme quality will be affected due to the limitation of software operation ability. Considering the time period, requirements and objectives of each part of the homework, the course group chooses to practice the intervention of virtual simulation technology in the single apartment design and group planning homework in the second semester. The first reason for the choice is that the single apartment design operation uses a square box for operation, which is in line with the students; computer drawing level at this stage; Secondly, the single building model drawn can be used in the subsequent planning homework, which reduces the burden on students.

Third, virtual simulation is involved in the design of teaching links. The teaching link design involved in the virtual simulation scene is shown in Figure 3. The students; operation process is divided into four stages: in the first stage, the scheme sketch must be drawn by hand to communicate with the teacher to form a reasonable function, streamline layout and beautiful modeling design; In the second stage, computer modeling will be carried out for the preliminary finalized scheme, furniture, facilities, landscape design, filling materials, etc. through the improvement of details, immersive perceptual space, and their own scheme will be continuously optimized and improved in this process; In the third stage, after the scheme is modified, the front drawing shall be drawn by hand according to the

requirements; In the fourth stage, the scheme is reported in combination with drawings and computer scenes to obtain the results of the operation. The design of this link is based on the concept of "design experiment" and takes the virtual simulation scene as the medium to form a "student-centered" experiential active learning, so that students can perceive and evaluate their own or other people schemes, and then put forward modification opinions, get rid of the traditional way of Teachers; one speech, and improve students; subjective initiative.

It should be emphasized that the core objectives of preliminary design course are two: one is to understand the formation principle of space and the factors and methods of cognitive space formation, and the other is to train the basic skills of hand-painted expression. The application of computer graphics is only an aid to achieve the goal, and we can't put the cart before the horse in practice. Therefore, we highlight the teaching purpose of the course through the proportion of scores in each stage and the final manifestation of results.

3. Epilogue

Under the background of large-scale enrollment, the course of preliminary design aims to improve students; professional awareness, takes the requirements of first-class curriculum construction as the standard, actively carries out teaching reform and strives to create an efficient classroom. After one years teaching, 72% of the 72 people chose their majors on the grounds of "like, interested" and "think it is suitable for themselves" at the diversion node.26 people finally chose the major of urban and rural planning, accounting for 36%, which is about three times higher than 13% in the preliminary intention survey. Practice shows that the course of preliminary design plays a positive role in improving students; professional cognition and rationally facing the "second choice".

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