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The Reform Scheme of Landscape Architecture Curriculum Under the Guidance of KAS System

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Abstract—In order to solve the problems of lack of practical ability and unreasonable setting of teaching contents and teaching resources in the process of training landscape architecture professionals, the KAS system of American vocational training is introduced to guide the reform of landscape architecture curriculum. According to the demand of vocational post ability, increase the Studio replacement course and stipulate its system. The purpose of this paper is to run the talent examination mechanism combined with the studio platform under the KAS system, and to set up the internal evaluation feedback system of landscape architecture teaching in a scientific cycle. The results of this study will eventually be put into a scientific and reasonable class teaching system to help realize the teaching reform of landscape design courses and achieve the goal of training landscape architecture talents.

Keywords—KAS system, landscape architecture courses, reform in education, talent training

I. INTRODUCTION

With the steady development of urbanization in China, the demand for professional talents in landscape architecture is increasing day by day. Landscape architecture curriculum system is an important carrier for training professionals. Combined with the problems existing in the teaching of landscape architecture course, this paper introduces the KAS model of American vocational training, analyzes its guiding significance to landscape architecture teaching, constructs the KAS goal of landscape architecture course ,which includes professional knowledge, basic ability and professional skill, and puts forward the teaching reform measures of landscape architecture course based on KAS model, in order to improve the teaching quality of landscape architecture course and train qualified landscape architecture professionals[1].

II. PROBLEMS AND SHORTCOMINGS IN THE CURRICULUM DESIGN OF LANDSCAPE ARCHITECTURE SPECIALTY AT THE PRESENT STAGE

A. Unreasonable Setting of Teaching Contents and Teaching Resources

The professional basic courses of landscape architecture major include Chinese and foreign garden history, preliminary design and so on, while the professional core courses include garden building materials and structure, garden planning and design, garden architecture design and plant landscape design. In terms of teaching resources, among the full-time teachers of landscape architecture, there are 1 professor, 5 associate professors, 4 doctors and 18 masters. There are art basic training rooms, landscape performance techniques training rooms, computer aided design laboratories and so on. Under this condition, there are still some unreasonable teaching contents and teaching resources, such as the necessary knowledge of florology and botany in landscape design. The professors of landscape architecture major who completed two basic courses in freshman and sophomore period, studying professional courses ahead of time and shortening learning time, which shows the characteristics of landscape architecture biased towards plant identification. However, this kind of course arrangement can not meet the characteristics of professional identification and application. In addition, the strength of teachers is also a problem that can not be solved in a short period of time. For example, in plant-related experimental classes, a teacher is equipped with more than 50 students. Although there are loudspeakers and other electronic devices to ensure that each student can hear the contents of the lecture, plant recognition requires students to observe and study closely. It is not enough for the students at the back to listen, and the teacher also bears more hard work[2]. The teaching efficiency is low, and it is a long-standing problem that each student can not be guaranteed to get the teaching strength that matches the professional requirements.

B. Teaching Methods are not Conducive to the Improvement of Students' Comprehensive Quality

The existing teaching methods are still based on multimedia and supplemented by blackboard writing. First of all, multimedia teaching has the advantages of intuition and vividness, but multimedia teaching also has the disadvantages of fast teaching speed, which is too fast for students to take notes. And it's also not conducive for students to the absorption of classroom knowledge and review after class[3]; secondly, in the process of multimedia teaching, there is often less interaction between teachers and students, and students are easy to develop a passive learning attitude and rely too much on the explanation of teachers and PPT, which is not conducive to students' divergent thinking and the good habits of active learning. In the

passive learning process is not conducive for students to the improvement of comprehensive quality.

C. The Relationship Between the Courses are not Clear and the Contents' Distribution are Unreasonable.

Landscape architecture is a subject with a lot of knowledge and a large amount of memory, which requires a close logical connection between the courses and a natural transition from top to bottom. To train a qualified landscape architecture professional, it is necessary to teach the course from three aspects: natural science knowledge, humanities and social science knowledge and professional knowledge. First of all, we should lay the groundwork for the basic knowledge of natural science, philosophy, sociology, literature, aesthetics and art, environmental behavior and psychology in the fields of ecology, biology, geography, climatology, hydrology and so on. From shallow to deep, so that students have the potential to become professionals. In fact, because of the complexity of disciplines and timing and other realities, it often can not meet such requirements. For example, the basis of botany and ecology, florology and treology are repetitive in some knowledge.

III. CURRICULUM ALLOCATION MATCHES KAS SYSTEM IN LANDSCAPE ARCHITECTURE TEACHING

Through the help of KAS (Knowledge Ability Skill) system, according to the post demand in the actual work, the professional ability requirement is analyzed, which is divided into professional basic knowledge K (Knowledge) detailed and solid mastery, professional core knowledge A (Ability) key grasp and comprehensive skills S (Skill) master. K is the foundation, A is the core, and S is the foothold[4]. In the daily teaching life in response to the requirements of KAS training, it can better solve the problems existing in the curriculum of landscape architecture at the present stage, and reform the professional courses.

A. Decomposition of (K) Objectives of Basic Professional Knowledge

In the aspect of stabilizing the basic professional knowledge, the following points should be done in the teaching of landscape architecture planning:

1. Strengthen the theoretical basis of the major, focusing on: plant, garden history, design concept and thinking, professional aesthetic and other knowledge' reserving study. Teachers should master certain planning, design and research methods, cultivate realistic and innovative consciousness and spirit, and have the overall front of the comprehensive analysis literacy in the field of design.

2. The basic courses of learning theory mainly include an introduction to the history of garden architecture at home and abroad, the principle of garden art, an introduction to urban planning and design, and so on[5].

3. Master the main points of various types of garden planning and design: different garden green spaces have different characteristics, such as its service object, its own function, its position in the city and so on. Teachers can maintain a professional state of flexibility and active thinking.

4. Strengthen the penetration of landscape practical knowledge (bidding skills, PPT demonstration scheme eloquence, project cost budget, etc.) in landscape teaching.

B. The Cultivation of (A) Goal of Professional Core Knowledge[5]

The core course of landscape architecture is arranged step by step on the basis of the basic course of landscape planning and design. Landscape planning and design is the process in which the designer presents the final design work through the land, intention and certain means of expression, so it is necessary to help the students to develop the following basic abilities in the teaching process.

Analyze the process of solving practical problems (survey site), accurately grasp the site SWOT (site advantages, disadvantages, development opportunities and threats) information, and put forward a set of solutions.

The ability to design ideas. On the basis of the proposed solution, students should flexibly use their own reserve of professional knowledge, combine the background information of the venue, conceive the theme and content of the design, and strive for a reasonable and novel theme. And the specific contents of the scheme are preliminarily determined.

Third, design performance ability. The definite plan and content need to be displayed by certain means. Students need to master and use the ability of hand-drawn expression, computer-aided professional graphics, late scheme typesetting ability, design description writing ability and language interpretation ability, so that mature works can be displayed.

C. Realization of (S) Goal of Comprehensive Skills[5]

Comprehensive skills refer to the ability to express knowledge and the ability to communicate and cooperate, including the ability to master graphic, written and oral expression skills, the ability to make physical models, computer and information technology applications and strong communication, organization and teamwork skills. There are three aspects to achieving the goal of integrated skills (S):

The ability to design fast questions. The first test that graduate students of landscape architecture major face before going to their posts is fast question design, so it is necessary to cultivate students' ability of fast question design in teaching, which is the biggest test of students' own professional knowledge and basic ability.

Ability to work with a team. The professional nature focuses on teamwork, so we should also cultivate the ability of students to cooperate with the team. Students are not only required to have good communication skills, the ability to cooperate with each other, and the ability to coordinate and

deal with emergencies. Must have the team consciousness and the team spirit;

Third, the ability to negotiate. Design works need to be displayed and marketed in order to occupy a place in the competitive design industry, so students should also master the reporting ability of design works, as well as the ability to negotiate with others.

IV. TALENT EXAMINATION MECHANISM COOPERATING WITH STUDIO PLATFORM UNDER KAS SYSTEM

A. Curriculum System Replacement of Studio Platform

As a characteristic practice platform of landscape architecture specialty, Studio combines closely with the market in the process of the project, understands the professional ability of the target post, and exercises students' core basic ability. In the process of following the teacher to complete the project, the students are exposed to more vivid and specific curriculum content, such as landscape design and construction process, industry norms, etc, and carry out curriculum replacement based on studio inspection and project results. It can not only make the students integrate into the practical work as soon as possible, but also make the students apply what they have learned and improve their mastery level significantly.

B. The System of Studio Platform Replacement Course (Specific Replacement Process)

According to the vocational skills (S) needed by the post group, the textual research module system is constructed, including three aspects:

The STUDIO platform holds the skill inspection tests regularly. Through the arrangement design tasks, from the student completes the design time, the design idea, the design detail, the textual researches each person different vocational skill level and obtains the personalized datas as the basis of the replacement course[6].

In the project processing of STUDIO, teachers should record the position of each student, the degree of responsibility, the degree of contribution and cooperation to the project team, and the completion effect. After the completion of the project, the mentor evaluation and the mutual evaluation between the groups occupy different weights, and the datas are obtained as the basis for the replacement of the number of courses and subjects.

Third, in order to meet the professional employment needs of the industry and enterprises, the teaching model of combining theory with practice is adopted. The course system of "STUDIO platform + module" and the professional practice teaching system are constructed. The whole process runs through the evaluation of schools,

mentors, governments and enterprises. The internal evaluation of the college adopts a system of teachers' review and publicity. For example, students with outstanding performance in software design will be able to submit the drawing results of studio to the software curriculum tutors for evaluation and publicity throughout the grade. Through this, you can waive the relevant computer-aided design courses. Social evaluation is issued by the government or contractual joint venture to certify the level of students or engineering results, which can directly reduce the relevant courses.

KAS talent evaluation system and STUDIO platform assessment observation and data collection feedback rules.

1. Evaluation system in the reverse effect on the professional learning process is very important, the investigation of data-replacement courses to form a personalized training system to further improve the professional level.

2. In line with the needs of the market, in the studio platform to build talent and enterprises and grass-roots two-way communication bridge. Through the real-time field feedback, we can master the scientific data basis of teaching implementation and adjustment.

C. KAS Guiding Principle of Studio Platform Replacement Course

In landscape architecture teaching, the requirements of K, A and S are different. The requirement of (K) for knowledge and literacy is refinement, solid mastery and general education. The requirement of general ability (A) is to grasp the key points and to extend the sex education. On the other hand, the requirement of vocational skill (S) is to master in an all-round ways and apply skillfully, and it is a professional education.

The teaching mode of deep integration of classroom and practice (studio platform and contact engineering are promoted at the same time), using school-enterprise cooperative enterprises to undertake the task of landscape architecture design. In the process of completing the project, students complete the professional basic knowledge (K) memory acquisition and integration at the same time. They can try to apply the professional core knowledge fully in the process.

For a long time, in the process of professional learning, the replacement of curriculum and studio tasks can improve teaching efficiency. Students participate in production practice, solve problems in practice, find problems, and then put into study. Through the organic cycle of learning-practice-learning, the practical operation ability and professional technology are improved rapidly.
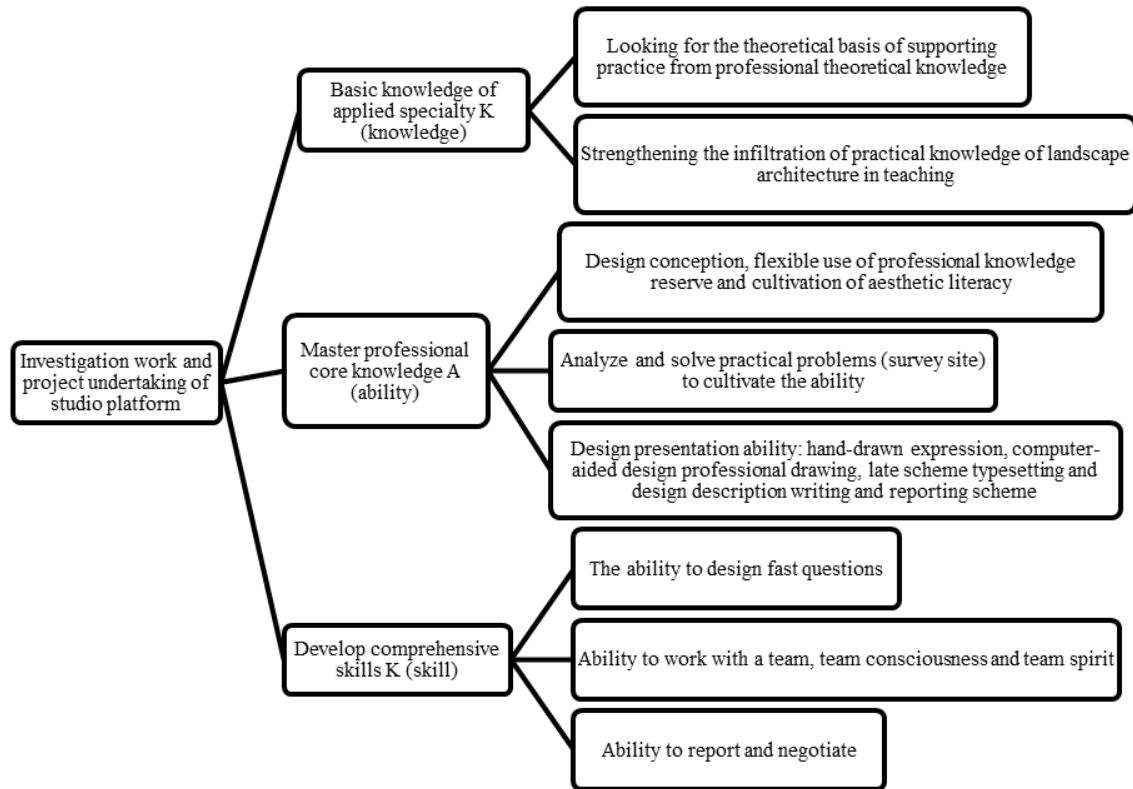
Fig. 1. KAS guiding principle structure diagram

V. SPECIFIC PRACTICES OF STUDIO SYSTEM UNDER THE GUIDANCE OF KAS SYSTEM

A. Pre-preparation of Studio Project Teaching Course (Knowledge)

- Understand the project and set goals

First of all, select the project with the right difficulty and style in the off-campus design project. In the process of preparation, the studio team leader should comprehensively comb the contents of the project and the application of professional knowledge, and prepare the project description and filing documents of the relevant contents. Then the teacher leads the students to the site for survey, and makes a brief introduction to the terrain, resources, climatic conditions, customer requirements and style direction. In the early stage of implementation, the instructor and the enterprise of Party A also need to teach the basic methods and steps of the investigation of the current situation of the students' planning on the spot. Students need to make use of the professional knowledge of garden plant investigation, field application survey of environmental psychology theory, map mapping and so on to complete the site investigation and analysis in the early stage. Students begin to use the reserve of professional knowledge to try to grasp the SWOT (advantages, disadvantages, development opportunities and threats) of the venue, and put forward a set of solutions. Then students lay the foundation for the future planning and design work in this way.

- Determining schemes and assigning tasks

Landscape design tasks generally include: landscape design plan, aerial view, construction drawings, local effect drawings (flat, vertical, section), design description, PPT design concept display and the search for intention diagram. The participating students are divided into groups. Through the division of labor within the group, the specific tasks are assigned according to the different strengths of the individual. In the course of work, if there are any problems, medium-term seminars will be held in time to exchange views with each other. Students can ask the team leader to guide the problems that they cannot be solved by themselves at this stage.

B. Studio Term Medium-term (Ability)

At this stage, the students form a team to complete part of the project. Under the guidance of teachers and enterprises or the government, students collectively deduce and modify the design concept, artistic style, planning zoning, greening configuration and so on. In the process, teachers and business or government professionals

participate in the discussion and put forward relevant and scientific suggestions.

C. *In the Later Stage of Studio Project Implementation (Skill)*

Under the guidance of teachers and enterprises or government professionals, students conduct on-the-spot re-investigation and complete the optimization plan. Finally, according to the investigation and optimization of the scheme, students can draw the corresponding computer and hand-drawn design drawings, PPT demonstration and demonstration candidates to form a professional scheme that can be implemented.

D. *Exchange and Sharing of Studio Project Results (Skill)*

Studio design projects are actually completed by teachers and business or government professionals, four-way evaluation (teachers, enterprises, the government, students) runs through the whole design process. And it provides students with a valuable practical platform to lead the whole process of project design from the idea to the plan in advance. In the whole process, students will gain valuable experience that cannot be reached in ordinary landscape architecture teaching. And the final design works, as the learning results of the whole studio project, will become the data basis for the replacement of students' individual professional courses and reduce the complexity of the original curriculum. Students will have more time to study the studio programs to build a virtuous learning cycle system.

Teachers can organize the exchange of students' achievements according to the actual situation, such as designing works exhibition, participating in real market projects, and exchanging professional competitions in different colleges and universities. After summing up the results of the project, teachers can use the experience to enrich the professional teaching content, improve the teaching level for the future teaching content, and cooperate with the curriculum reform system. In addition, the teacher should evaluate the students' design results, pre-project preparation, teamwork attitude and problem-solving enthusiasm in the process of project implementation, and incorporate them into the data system of replacement professional courses. According to the combination of quantitative and qualitative methods, the data system of student replacement courses is further improved.

VI. CONCLUSION

The course teaching under the KAS system is set up to train the compound talents facing the needs of the society. KAS teaching system makes teachers have a clearer and more systematic understanding of the teaching objectives of landscape architecture course. Aiming at the teaching objectives of the system of professional knowledge (K), basic ability (A) and comprehensive skill (S), teachers set up the teaching content flexibly by means of Studio replacement course, and complete the teaching process by using a variety of teaching methods and teaching means. In addition, the teaching reform of landscape design course can be realized by strengthening the training of "double-qualified" teachers of excellent teachers and high-level designers, formulating a scientific and reasonable class teaching system, close logical connection, natural transition from top to bottom, etc, in order to realize the teaching reform of landscape design course. Through this way, we can really achieve the goal of training landscape architecture talents.

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