

# Research on practical teaching cultivation model of urban and rural planning major in local universities based on space construction

Weiyi Liu<sup>1</sup>, Juan Yang<sup>2\*</sup>, and Changyou Wu<sup>1</sup>

<sup>1</sup> School of Urban Construction, Wuhan University of Science and Technology, China

<sup>2</sup> Hubei Urban Construction Vocational And Technological College, China

**Abstract.** Practical teaching is an important part of the professional education of urban and rural planning and an effective way to cultivate students' innovative and practical ability. However, the urban and rural planning professional education training model is facing various challenges under the background of the new development concept, and it is urgent to adjust and optimize. Aiming at the main problems existing in the current practical teaching of urban and rural planning in local colleges and universities, this paper proposes a content framework for practical teaching based on regional urban and rural space construction, including: vernacular architecture understanding, spatial perception, spatial surveying and mapping, model construction, space construction, urban simulation, scenario simulation, comprehensive practice, etc. The paper also discusses the personnel training mode and practical application approach of the practical teaching of urban and rural planning specialty which is oriented to the local areas and rooted at the grassroots level.

**Keywords:** Local universities, Urban and rural planning major, Space construction, Practical teaching, Personnel training mode.

## 1 Introduction

China is facing the huge challenge of accelerating the progress of urbanization, and the quality of urban and rural planning determines the efficiency and sustainability of urban and rural construction and development, so it is particularly important to train high-level urban and rural planning professionals in colleges and universities. With the national new development concept of "innovation, coordination, green, openness and sharing" and the new engineering construction concept, the construction of traditional engineering disciplines has ushered in new historical development opportunities.

In order to adapt to the requirements of the era of China's economic and social development, various disciplines and majors should review the professional construction and talent training process with the connotation and standards of the construction of new engineering disciplines, strengthen the awareness of practical education, reasonably

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\* Corresponding author: [liuweiyi@wust.edu.cn](mailto:liuweiyi@wust.edu.cn)

formulate practical teaching plans, improve the practical teaching system, and use practical teaching as a key indicator of teaching evaluation according to the different requirements of each discipline for practical teaching. This is not only to meet the needs of economic and social transformation and industrial upgrading, but also an inevitable requirement for breaking the homogeneity of higher education and enhancing the vitality of the development of universities themselves. In this sense, colleges and universities should carry out practical teaching reforms based on the subject background, build a practical teaching system with disciplinary and professional characteristics, in order to improve students' practical ability and employment competitiveness, and innovate and explore the principle of insisting on demand-oriented, innovative leading, and continuous the characteristic development path of optimizing the application-oriented personnel training system, so as to improve the quality of application-oriented personnel training and derive higher school-running benefits.

## **2 Realistic dilemmas faced by urban and rural planning majors**

### **2.1 Focus on theory and ignore practice**

At present, there is a large "gap between the rich and the poor" among Chinese colleges and universities. Key universities directly under the Ministry of Education and universities in economically developed areas often have sufficient funds, while the vast majority of general universities and universities in economically underdeveloped areas still have more general funding constraints, so that many universities still lack practical teaching equipment . The content of urban and rural planning teaching involves a wide range, the concept of emphasizing theory and neglecting practice has not yet changed, and the status of practical teaching needs to be improved. Usually, in order to cope with various theoretical course examinations, most of the students pay more attention to professional principle knowledge, but they relatively ignore the use of planning technical means and tools, such as GIS, CAD, SKETCHUP and other drawing tools. In particular, they lack the skills at the practical and operational level of planning.

### **2.2 Focus on in-class and ignore the out-of-class**

In the teaching process, some teachers' teaching vision is limited to the classroom, and they do not pay enough attention to the students' learning outside the classroom. As a result, the students will only follow the text and the teaching efficiency will be greatly reduced. Although the classroom is the main place for teachers' teaching and the stage for students to learn, the classroom is not the only place for teachers to teach, and is it not the only stage for students to learn. After all, classroom time is limited. In the limited classroom teaching time, the knowledge that students learn must also be limited. In order to improve the effectiveness of student learning, teachers must find ways to extend the learning stage of students. In other words, teachers should not only pay attention to the improvement of classroom teaching efficiency, but also pay attention to the improvement of extracurricular learning efficiency.

### **2.3 Focus on the cities and ignore the villages**

The urban-rural dual structure system is a serious obstacle in China's economic and social development. Affected by the concept of a specific era, the village has long been attached to the city. Due to the current practice of emphasizing the city and neglecting the

countryside in the past few decades, there are very few teachers specializing in rural planning, design and theoretical research. The overall teaching accumulation and understanding of rural planning needs to be further improved. In addition, due to the uneven distribution of educational resources, most of the college students come from cities and towns. When studying rural planning, they lack the corresponding life and experience basis, and are prone to prejudice against the countryside, which objectively aggravates the urban-rural differentiation.

#### **2.4 Focus on form and ignore effect**

Due to factors such as heavy teaching tasks and weak scientific research capabilities, some teachers lack the influence of scientific research results on teaching. They only pay attention to classroom indoctrination. Teaching becomes a mere formality and lacks case analysis. In addition, the content of the practice teaching system is outdated, and the reform and innovation are insufficient, which causes the students' application ability to be unable to meet the requirements of the position, and the practice teaching mode needs to be reformed.

### **3 Construction of the practice teaching system of urban and rural planning**

The practice of talent training in colleges and universities not only requires curriculum system design, training objectives, and teaching content reforms, but also requires institutional innovation in teaching evaluation through school-enterprise cooperation. The system mechanism is like the main thread that runs through the process of talent training and all aspects of talent training, and even determines the effectiveness of talent training(shown in photo 1 and 2).



**Fig. 1.** Photo of space cognition teaching.



**Fig. 2.** Photo of Comprehensive design teaching practice.

#### **3.1 Reconstruction of the new curriculum system**

When formulating the urban and rural planning courses, the key consideration is to let students master basic professional cognition, space construction, and the basic method is to train students to have the most basic planning thinking, planning skills and other core qualities, and through guidance, to develop students' sense of innovation and improve their comprehensive ability. Through the assignment of extracurricular practical homework, students will be able to take the initiative to go to the real world, discover problems, analyze problems, raise problems, and solve problems.

(1) In the internship phase, in order to strengthen practical teaching and cultivate students' practical skills, firstly, ensure that students have more mobile phone skills from the number of practical teaching hours, and cultivate students' engineering awareness, engineering quality and engineering practice ability through theoretical lessons and practical training.

(2) In the off-campus internship stage, the rural construction planning module is introduced to let students understand the real countryside and form a systematic chain from enlightenment to design introduction, so as to gradually cultivate students' practical innovation ability, vocational skills and professionalism in rural planning.

### **3.2 School training goals, professional standards and training programs**

In view of the current shortage of planning talents in the field of grassroots construction and management in China, and the urgent need for practical talents with solid theoretical foundation, wide range of professional knowledge, strong practical ability and high comprehensive quality, the colleges and universities have clearly positioned the training of urban planning professionals as cultivating local-oriented applied talents in the urban planning management and design departments of small and medium-sized towns.

According to the relevant requirements of the "New Engineering Education Training Plan" of the Ministry of Education, combined with the talent training positioning of various universities, formulate applied urban and rural planning new engineering education training standards, which are mainly divided into moral education standards, intellectual education standards, physical education standards and teaching operations. The intellectual education standards include urban planning principles, urban planning preparation and design, urban planning administrative management, urban planning-related knowledge, urban planning investigation, analysis and expression, urban planning practice and ability, foreign language and computer skills, and basic architectural knowledge and skills. Teaching operations include the teaching process and the requirements for the conditions for enterprises to participate in teaching.

### **3.3 Teaching content reform**

urban and rural planning major continues to optimize and perfect the design of the curriculum system and teaching content in accordance with the overall spirit, professional standards and training objectives of the "Excellence Plan". The teaching content of urban and rural planning major includes professional knowledge, professional practice and innovation training. The core curriculum requirements closely focus on the design of the curriculum and the overall optimization of the teaching content between the courses, pay attention to the continuity and cohesion of the professional knowledge between the courses, strengthen the combination of the teaching content and the frontiers of the subject and engineering practice, and enhance the communication between professional teachers and work together to create quality courses.

Professional practice runs through the entire teaching process, focusing on practical teaching and graduation design in the fifth academic year. The graduation internship requires students to participate in the whole process of planning and design and to integrate comprehensively under the guidance of corporate mentors. Adopt the knowledge students have learned to independently complete the graduation design, and the topic selection of the graduation design needs to be combined with realistic topics. The difficulty and workload of the selected topic content should be higher than the curriculum design or course essay, and reflect a certain degree of comprehensiveness.

### **3.4 Joint training of school-enterprise cooperation**

The construction of training sites includes the construction of on-campus training bases and the construction of off-campus practice bases. The construction of the on-campus training bases consists of the following modules: Professional laboratories should be able to perform property tests on various raw materials, finished products, and semi-finished products. The construction simulation laboratory is divided into a display area for construction equipment and tools, a practice area for construction techniques, and a demonstration area for construction. The construction equipment and tools display area mainly presents various construction equipment and tools for students to further familiarize themselves with their application and usage.

The construction of off-campus practice bases relies on advanced experimental equipment, strong research and development capabilities in the colleges and universities, and takes the road of "school-enterprise cooperation, integration of production, learning, and research" to build and develop off-campus practice bases. Through the cooperation of off-campus design units, students are provided with necessary learning, practice places and equipment. Cooperative companies must have a stable team of corporate tutors to participate in the organization and guidance of internship teaching to ensure the quality of teaching.

Students and a number of joint training companies select each other on a voluntary basis. The students are assigned to the determined corporate to learn and practice in the last year. The colleges and universities assign instructors and corporate instructors to form a "mentor group" to guide students to independently complete a planned project survey, For analysis, design, and graduation thesis writing, a final thesis defense committee is composed of experts inside and outside the colleges and universities to make a comprehensive evaluation of the students' internship and graduation design.

## **4 Exploration of the practice of running the in urban and rural planning major**

By constructing a three-dimensional talent training system of "knowledge-ability-quality", focus on reforms in student practice platform, student personality display, student system thinking training, teaching and learning mechanism, and teaching evaluation model, etc., to strengthen students' knowledge dimension. Emphasize broad basic knowledge, in-depth professional knowledge, knowledge reserves in cross-fields, etc. In the dimension of ability, emphasize students' independent learning, comprehensive knowledge application, engineering practice, teamwork, and cross-cultural communication, etc. In the dimension of quality, emphasize the training of students responsibility and dedication, struggling spirit and willpower, and noble moral character, etc. In the knowledge and ability dimension, it is realized by relying on the improvement of scientific research ability and engineering ethics education. In the quality dimension, it can be realized by relying on the education of patriotism and the shaping of spiritual character.

### **4.1 Focus on the construction of students' practice platform**

In the course of curriculum design teaching, part of its content comes from the simulated self-proposition in teaching, and part comes from the actual project that the teacher participates in. The former is generally more idealized and simplistic, and the problem to be solved is a very specific one. The latter involves more complex and practical issues. Generally speaking, students are more inclined to study actual projects, and they hope to use their own thinking and creatively to solve challenging problems in practice and make

their laborious results more meaningful. Adopting the practical teaching mode of "government-school-enterprise" cooperation and combination of work and study will help students participate in actual projects.

In order to better integrate with practical problems, the topic selection of the course is carried out in conjunction with the focus issues and cutting-edge topics of subject development. For focus questions, simulation-based teaching methods are mostly used, that is, multiple answers are given to the same question, and the respective advantages and disadvantages of the teaching methods are analyzed. This method focuses on guiding students to fully understand the subject and give reasonable answers, but the forms of answers can be varied. For new and cutting-edge topics, experimental teaching methods are mostly used, paying attention to the background of the topic, and creatively proposing solutions to exercise students' innovative ability.

#### **4.2 Broaden channels for teaching interaction and integration**

In the process of designing the practical teaching plan, the progress and content are different, and the problems faced are very different. Therefore, the regular unified teaching is no longer suitable. Teachers are required to give individual guidance in the plan group. This process is also for students to fully understand the existing problems and also the process of targeted improvement. Secondly, the major of urban planning is a highly practical major. It pays attention to the traditional teaching mode of "teacher guides apprentice", and students understand and learn from the simulation and demonstration of teachers. Therefore, this "hands by hands" teaching model is particularly important, and it is even more effective than simply teaching. For example, in the initial stage of construction, teachers need to give specific demonstrations about how to sharpen pencils, how to hold pens, how to draw simple lines and pen drawings, how to conceive and how to design and layout in design, all of which require teachers to demonstrate from different depths.

#### **4.3 Pay attention to the cultivation of students' individual ability**

Higher education teaching is to provide opportunities and guidance for the cultivation of students' abilities and the promotion of their individuality. Its purpose and results are far from being summed up by the scores on the transcript. The score of planning and design assignments is subjective. Relying on teachers' closed-door grading cannot be fair and impartial. Therefore, the method of explaining and grading on the spot by students is worthy of attention. It can exercise students' oral expression skills, persuade the other party to recognize and accept their own design concepts, and show their own style and characteristics through different methods and content, which are necessary qualities for planning staff. At the same time, students can fully listen to the different ideas, ideas and thinking of others, which is very meaningful for cultivating students' divergent thinking. In this process, teachers should encourage students more, vigorously affirm its bright spots, and provide suggestions and guidance for their deficiencies, rather than easily deny or criticize.

### **5 Conclusion**

The reform of education and teaching in colleges and universities is a systematic project as well as a long-term project. Urban and rural planning is an applied, practical, and social profession. Whether it is in the planning and construction management department or the

planning and design department, it is necessary to master a variety of skills. Especially for grassroots planning staff, the cultivation of comprehensive planning practical ability is particularly important. After years of exploration and practice, the students who graduated from the school have not only mastered the basic urban planning core quality abilities, but also have a strong comprehensive quality abilities for small and medium-sized town planning. It is precisely because they are able to do the job quickly and the employers have generally responded well, so the colleges and universities' competitiveness in the job market has continued to improve in recent years. However, it was also discovered that due to insufficient teachers, not every student can get good guidance from the teachers. In addition, the students' autonomy and initiative learning ability are uneven, and the overall quality of some students needs to be further improved. In the next step, we will work hard in these areas and continue to explore and improve methods to promote the quality of teaching and talent training.

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