

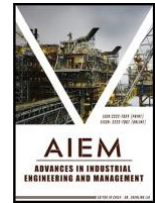


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REVIEW ARTICLE

PRACTICAL TEACHING OF INFORMATION TECHNOLOGY APPLICATION IN URBAN AND RURAL PLANNING UNDER THE BACKGROUND OF “DIGITAL TRANSFORMATION”

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ABSTRACT

In recent years, with the rapid development of science and technology in China, digital technology has made great progress. The concept of “Digital transformation” is expanding rapidly, greatly enriching the technology application scenarios. This technology has been widely used in the field of higher education, making teaching and practical applications develop rapidly, which is fully benefited from the irreplaceable advantages of digital products. The application of various technologies has solved the bottleneck of information technology application in urban and rural planning majors, broken through the difficulties of teaching application, and made teachers’ teaching work more proficient. This provides great convenience for the application teaching of urban and rural planning majors, laying a good foundation for cultivating more talents. This article mainly discusses the practical teaching of information technology application in urban and rural planning specialty under the background of “Digital transformation”. The article will discuss the practical teaching of information technology application in the specialty teaching, and finally will put forward some feasible countermeasures and suggestions.

KEYWORDS

Digital transformation, urban and rural planning, information technology, application

1. INTRODUCTION

In recent years, the development of digital technology has completely changed the process of social development in China, promoting rapid progress and development, and changing communication and exchange between people. Especially when the information age comes, people’s utilization of digitization has been improved, which provides important support for the development of higher education in China. Urban and Rural Planning is a broad and complex major that plays an indispensable role in cultivating excellent urban and rural planning talents. In the context of adhering to the integration of regional ecological construction and promoting the coordinated development of ecological construction within and outside the cluster, paying attention to the development of teaching applications in urban and rural planning majors plays an indispensable role in improving China’s education and teaching work.

2. THE CURRENT SITUATION AND EXISTING PROBLEMS OF THE TEACHING SYSTEM FOR URBAN AND RURAL PLANNING MAJORS

2.1 Current Situation of Teaching System for Urban and Rural Planning Major

The major of urban and rural planning is a comprehensive and practical field, which involves complex teaching content and requires high theoretical and professional skills for practitioners. Currently, with the advent of the era of “digital city”, “smart city”, and “civilized city”, urban construction planners need to face various construction problems, mainly around the free flow of urban production factors, infrastructure interconnection, and public service facilities (Wu, 2022).

The key links of joint construction and sharing, ecological environment prevention, control, and governance, exploring the establishment of urban management and planning, ultimately achieve the synchronous development of urban-rural integration, and guide the development of urban-rural construction with technology. Against this backdrop, significant teaching reforms have been made in the field of urban and rural planning. However, there are still many issues that need to be addressed as of now (Lv et al., 2016).

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The urban and rural planning major is currently composed of five different courses, including basic courses in architecture, design courses, urban and rural planning theory courses, urban and rural planning social practice courses, and information technology courses. This major aims to cultivate students' ability to apply information technology and promote their ability to improve their own information technology application. Among them, two courses in the major involve the application of information technology, one is GIS, one course is CAD, which requires students to have a very high level of practical application of information technology software (Wang, 2022).

The significance of offering design courses is to cultivate students' independent engineering construction design ability and practice. Teaching is conducted based on some engineering construction design cases, including urban streets, composition design, etc., including overall urban construction planning preparation. The urban and rural planning professional theory course mainly focuses on teaching the basic theories of urban and rural planning, including the basic application roles and principles of urban and rural planning. The purpose is to cultivate the relevant factors and planning roles that students consider in urban and rural planning, such as courses such as "Urban Ecology and Environment" (Yang et al., 2022). These courses are important basic theories of urban and rural planning and are one of the core teaching parts, including: how to build ecological civilization, smart science and technology oriented cities, etc. After the course is completed, students will be required to write a graduation thesis, aiming to consolidate their learning and practice, improve students' ability to transfer theoretical knowledge, cultivate their professional design and planning abilities, and integrate the knowledge learned in the course. Combining the different levels and types of planning and development, the two are mutually corresponding. As is well known, ecological civilization and smart technology cities are important directions for China's future urban construction. Carrying out this construction is conducive to the dissemination of social civilization and plays a promoting role in contemporary economic and social development, playing an important role in this field (Mo, 2021). The Central Committee of the Communist Party of China has instructed that activities to create civilized cities in various parts of the country will be held nationwide, and the force of creation will continue to grow, and the scale of creation will also continue to expand. According to this instruction, it can be seen that the teaching of urban and rural planning courses should be combined with digital technology to carry out teaching work, perspective urban construction planning and design, cultivate students' harmonious development thinking, intelligent thinking, and digital thinking. Among them, the focus of road traffic courses teaching is to cultivate students' road traffic design and innovation abilities, and carry out teaching research based on basic design and planning theories, cultivate students' professional road design thinking through case practice, including Urban Road transportation planning Design, etc. The overall planning courses focus on cultivating students' professional technical abilities, which means enhancing their urban planning and design abilities through specialized teaching. They focus on students' overall planning and design abilities, including "Principles of Controlled Detailed Planning" and "Controlled Detailed Planning and Design" (Yin and Song, 2019).

The above are the basic requirements for the teaching of urban and rural planning courses. In the process of carrying out this aspect of teaching planning, it is necessary to carry out teaching work based on the key and difficult points of teaching and learning, especially for many students who are easy to forget and cannot achieve fast and flexible application, which affects the teaching of professional courses. Therefore, it is necessary to innovate and integrate information technology courses again, Then, enable students to better connect with other professional courses, so that the course can be better applied (Duan and Dong, 2021).

2.2 Problems in the Teaching of Urban and Rural Planning Major

2.2.1 Teachers of Information Technology Application Courses have Diverse Professional Backgrounds, and Their Professionalism Needs to be Improved

In recent years, with the continuous improvement of China's social informatization level, information technology has been widely promoted and applied, promoting the development of modern education and

improving the rapid implementation and progress of information. Of course, the development of teacher information technology cannot be separated from the personal self-improvement of teachers, especially the efficient application of information technology. The vigorous development of information technology application course teaching has a significant role in promoting the rapid development of urban and rural planning professional courses. However, the diversification of professional backgrounds of information technology application course teachers has a negative impact on carrying out this aspect of course teaching. Firstly, if teachers with professional backgrounds in information technology application courses do not participate in teaching this course, it will affect the professionalism of this profession, At the same time, it is not conducive to carrying out teaching courses in this area, and the application and practice of some technologies, as well as guidance, are not sufficient; On the one hand, it's because

The diversified teaching application skills of teachers' professional backgrounds are not as profound as those of professional teachers, and their research on software application theory is not as profound. Therefore, the teaching effectiveness is greatly reduced. Overall, the professional abilities of information technology application course teachers still need to be further improved, in order to better meet the needs of modern education reform and innovation, and to prepare for better training students in information technology (Cheng, 2023).

2.2.2 The Teaching Method of Information Technology Application Course is Single, and the Teaching Effect is not Ideal

Due to the heavy teaching and research tasks in universities, many teachers of information technology application courses tend to adopt an indoctrinated teaching method in their teaching work. This teaching method is more singular compared to other teaching methods, making it difficult to meet the needs of teachers in teaching and other aspects. Compared with other teaching techniques, such as scenario simulation and Case method, this kind of teaching method is very simple. Due to the relatively single teaching method of the information technology application course, students have a relatively limited understanding of the course, making it difficult to complete and master the course, or there is a deviation in understanding. They believe that the course is only for learning some basic software, only to complete credits and obtain graduation, without realizing the role of the course in future employment and work. Therefore, if students want to improve their ability to apply information technology and better understand this course, it is necessary for teachers to continuously improve their teaching ability and level. At the same time, teachers also need to strengthen reflection and correction of single teaching techniques and methods. At the same time, feasible response measures should be fully developed based on the actual situation (Huang and Li, 2021).

3. ANALYSIS OF THE IMPORTANCE OF INFORMATION TECHNOLOGY APPLICATION IN URBAN AND RURAL PLANNING MAJORS

3.1 The Application of Information Technology Significantly Improves the Efficiency and Quality of Urban and Rural Planning Professional Research

The information technology course is a course set up to meet the new requirements of contemporary society and scientific and technological development for college students, mainly to cultivate students' information literacy and information practice skills, and to make up for important teaching. The importance of information technology application is self-evident. In today's rapid development of information technology, continuing to promote curriculum teaching in this area is of great help in improving the work efficiency of urban and rural planning professionals. At the same time, it can also significantly improve students' self-learning level. It plays a very important role in better utilizing information technology in urban and rural planning research in the future, such as when conducting urban planning and design research, The collection and mapping of data can be completed through the use of GIS systems and CAD software, which is more efficient and precise compared to cumbersome field investigations. It can reflect the appearance of the entire plot, residential areas, transportation, etc. (Xu and Wang, 2021).

3.2 Application of Information Technology to Enhance the Comprehensive Analysis Ability of Urban and Rural Planning Specialty

The information technology application course has high theoretical, practical, and exploratory characteristics, which is more conducive to students using information technology and completing the requirements of urban and rural planning majors. It will bring great help to cultivate more professional talents in the country, so as to continuously improve the technological and cultural level of the whole society. The application of information technology is of great help in improving students' comprehensive learning ability. On the one hand, it can enhance the level of information technology application and master solid methods of information technology application, including various software, graphics, etc.; On the one hand, it can improve students' independent learning ability, enhance students' information and scientific literacy, and enhance students' modern cultural level.

3.3 Application of Information Technology to Optimize the Presentation Form of Professional Plans for Urban and Rural Planning

The development of information technology has played a significant role in changing social development. The rapid application of this technology has been of great help in enhancing the professional talent of urban and rural planning. At the same time, it can significantly improve students' comprehensive analysis ability and conduct research more efficiently. It can use various urban and rural data to analyze and solve problems, and complete designs from a comprehensive perspective to select the optimal planning plan.

4. APPROACHES TO RESTRUCTURING INFORMATION COURSES FOR URBAN AND RURAL PLANNING MAJORS

4.1 Carefully Plan a Professional Information Technology Teaching Team

In the context of the development of the new era, China's social science and technology has achieved rapid development. The application of Internet plus technology has solved the problem of social production and development, and changed people's communication and design methods. At present, it has generally existed in contemporary learning, work and life. In the era of information and world economic integration, the speed of knowledge update has become faster and faster, for universities, emphasis should be placed on the construction and development of information technology teaching teams, especially on cultivating more outstanding backbone teachers and enhancing their comprehensive abilities. Experienced backbone teachers can be encouraged to participate in the teaching team leadership work, participate in the research of information technology course teaching and the construction of high-quality teaching courses, create high-quality information technology teaching courses, and invite some excellent teachers to participate in course demonstrations, showcase their teaching experience, and share their teaching experiences. For excellent teachers themselves, this is actually a great recognition and has a motivating effect, and for young and inexperienced teachers, it also has a great enlightening effect.

4.2 Taking Problem-Oriented Teaching as the Main Starting Point and Reforming Teaching Methods

In the process of carrying out urban and rural planning teaching design, teachers can carry out teaching in a problem-based manner, thereby creating a high-quality mutual aid classroom learning mode. Teachers can display different learning content through pictures and learning modes, and then display different case breakthroughs according to the basic requirements of classroom learning, and then ask relevant questions, so that students can learn professional knowledge through intuitive means, Changing the previously passive learning mode can be described as killing two birds with one stone. When teachers introduce problem-based teaching in urban and rural planning teaching, they can carry out targeted teaching and efficiently solve students' professional knowledge learning and related problems, thereby making teaching more targeted. For example, when discussing urban and rural planning

and design schemes, issues related to the characteristics and content of ecological civilization city construction can be introduced. For example, what are the basic requirements for ecological civilization city construction? Then, guide students to think and learn, and better integrate professional knowledge for learning. So, if teachers introduce problem-based teaching method into urban and rural planning teaching, it can greatly improve students' learning efficiency, and also improve the quality of classroom learning, which will bring great help to students' current and future learning.

4.3 Increase Teaching Resources for Information Technology Applications

In the context of the digital information age, in the process of teaching, teachers should further improve the application of teaching resources in urban and rural planning classrooms. By optimizing the application of classroom teaching resources, students' interest in course learning can be stimulated, so that students can fully immerse themselves in information course learning and master more solid and advanced software knowledge, such as different mapping software such as AutoCAD and Photoshop, so it greatly enhances students' practical and hands-on abilities, which is of great help in improving the efficiency and quality of classroom teaching. The relevant charts and data are usually analyzed by Microsoft Excel, and the documents are mainly processed by Microsoft Word. In the process of designing the architectural model, SKetchup can be used to complete the relevant design. At the same time, GIS can be introduced to teaching on this basis, so that students' independent learning and exploration ability can be greatly improved, and data integration can be achieved, and construct a learning model that combines qualitative and quantitative analysis. When teachers add information technology application teaching resources in classroom teaching, it can significantly improve students' practical abilities, establish a classroom teaching model with practice as the main content, guide students to participate in planning and design, achieve the use of sketch drawing in the conception of plans, complete the processing of image information, and help students complete the design of plans, and conduct different analyses of relevant data, Implement hierarchical design of information tasks, making it easier for students to compare current situations and plans.

5. CONCLUSION

Integrating digital technology into the teaching application of urban and rural planning majors, promoting the development of teaching application practice, can solve the problem of professional teaching and concept being too abstract. At the same time, the profession has not yet provided a new teaching mode and methodology, and has provided solid theoretical support, so that the rational core of the profession can be better strengthened in digital applications. However, there are still certain problems in the curriculum design based on information integration in the graduate teaching of urban and rural planning, and the teaching is in a relatively weak position. These issues are worth further strengthening our teaching and research work in this area.

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