

Current Status and Insights of Undergraduate Teaching Reform in Urban and Rural Planning under the Context of “Emerging Engineering Education”

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Abstract: Under the background of “Emerging Engineering Education,” the Urban and Rural Planning major faces significant challenges in teaching reform. This study thoroughly analyzes the current status of undergraduate teaching reform in Urban and Rural Planning in China, revealing that the reform has achieved notable results in promoting teaching quality and enhancing students' comprehensive abilities. The reform has updated teaching concepts, emphasized interdisciplinary integration and practical ability cultivation, and reinforced practical teaching by updating course content and teaching methods, effectively improving students' practical skills and innovation abilities. However, challenges such as insufficient practical teaching resources and incomplete innovation ability cultivation mechanisms remain. Drawing on successful domestic and international teaching experiences in Urban and Rural Planning, this study proposes recommendations such as strengthening interdisciplinary integration, deepening industry-university cooperation, innovating teaching methods, and improving the practical teaching system. In the future, undergraduate teaching reform in Urban and Rural Planning should further focus on interdisciplinary integration, industry-university-research collaboration, teaching method innovation, and the construction of a practical teaching system to meet the development needs of the Urban and Rural Planning field in the new era, contributing more wisdom and strength to China's sustainable urban and rural development.

Keywords: Urban and Rural Planning; Undergraduate Teaching; Emerging Engineering Education; Practical Teaching; Cultivation of Innovation Ability.

1. Introduction

China's urbanization has entered the mid-to-late stages of rapid development, exhibiting the typical characteristics of "five phases overlapping," including a slowdown in urbanization speed, cumulative effects being released, efficient spatial agglomeration, differentiation of urban systems, and improvement in urban quality [1]. As a crucial cradle for cultivating future professionals in urban planning and construction, the quality of education in the urban and rural planning major has a profound impact on the quality and sustainability of urban and rural development in China. The concept of "Emerging Engineering Education" (3E) has provided new opportunities and directions for the undergraduate teaching reform of the urban and rural planning major. The 3E emphasizes interdisciplinary integration, innovative practice, and an international perspective, aligning well with the development needs of the urban and rural planning major. Therefore, systematically summarizing the current status of undergraduate teaching reform in the urban and rural planning major under the context of 3E is of great practical significance for improving teaching quality and cultivating talents that meet the needs of the new era.

Under the guidance of the 3E concept, the undergraduate teaching reform of the urban and rural planning major can be approached from multiple aspects. Firstly, interdisciplinary integration can be strengthened by incorporating knowledge and methods from other related disciplines to enrich the teaching content of the urban and rural planning major. Secondly, the practice teaching segments can be reinforced to enhance students' practical abilities and problem-solving skills. Finally, the teaching staff can be strengthened by

recruiting and training high-level urban and rural planning professionals to improve teaching quality. By deeply exploring the current status of undergraduate teaching reform in the urban and rural planning major under the context of 3E, not only can we understand the main trends and existing problems in current teaching reform, but also provide valuable references and suggestions for future teaching reforms. This will also help improve the teaching quality of the urban and rural planning major, cultivating more talents that meet the needs of the new era and providing strong support for the quality and sustainability of urban and rural development in China.

With the continuous development of globalization and informatization, the requirements for talents in the field of urban and rural planning are constantly increasing. The undergraduate teaching reform of the urban and rural planning major also needs to focus on cultivating students' international perspective and innovative abilities, enabling them to adapt to new trends and challenges in global urban and rural planning development. Therefore, under the context of 3E, the undergraduate teaching reform of the urban and rural planning major not only has important practical significance but also has profound strategic significance. Based on this, a comprehensive literature review and case analysis method was adopted to thoroughly analyze the measures, achievements, and existing problems of the undergraduate teaching reform in the urban and rural planning major in China, and on this basis, propose targeted improvement suggestions. The aim is to comprehensively and deeply explore the current status of undergraduate teaching reform in the urban and rural planning major under the context of 3E, providing valuable references and suggestions for future teaching reforms.

2. The Proposal and Connotation of Emerging Engineering Education

The construction of "Emerging Engineering Education" (3E) is a critical strategy proposed by China to respond to the new wave of technological revolution and industrial transformation. Its core aim is to cultivate high-quality engineering and technical talents with innovative spirit and practical abilities. In the field of urban and rural planning, this concept holds particular significance, emphasizing the importance of cross-border integration and interdisciplinary cooperation, while focusing on enhancing students' innovative abilities, practical skills, and comprehensive interdisciplinary literacy [2-8].

The advancement of 3E provides new directions for the undergraduate teaching reform in urban and rural planning. Traditional teaching methods often focus on the transmission of theoretical knowledge. However, under the 3E context, urban and rural planning majors need to emphasize the integration of theory and practice, as well as the fusion of interdisciplinary knowledge. Such reforms not only help in developing students' practical skills but also prepare them to better adapt to diverse and complex work environments in their future careers [3-8].

To achieve these educational reform goals, universities offering urban and rural planning programs need to adjust and optimize their course offerings, increasing the proportion of practical teaching and interdisciplinary learning. For instance, they can adopt methods such as university-industry collaboration and project-based teaching, enabling students to learn and practice in real-world environments, thereby enhancing their practical skills and problem-solving abilities. Additionally, incorporating knowledge and methods from other disciplines, such as computer science and data analysis, can broaden students' perspectives and improve their comprehensive literacy [3, 5-6,8].

The 3E initiative also emphasizes the cultivation of an innovative spirit. In the teaching of urban and rural planning, students should be encouraged to explore new ideas and methods, fostering innovative thinking and problem-solving abilities. This not only enhances students' personal competitiveness but also contributes to innovation and development in the field of urban and rural planning [2, 5-7].

The proposal and connotation of 3E provide crucial guidance for the undergraduate teaching reform in urban and rural planning. By adjusting teaching methods and content, strengthening practical teaching and interdisciplinary learning, and fostering students' innovative spirit, it can better cultivate talents that meet the demands of the new era, contributing to the quality and sustainability of urban and rural development in China.

3. Current Status of Undergraduate Teaching and Reform in Urban and Rural Planning

3.1. Development of the Urban and Rural Planning Discipline

China's traditional urban and rural planning programs are rooted in the academic systems of architecture and geography. The traditional engineering approach to urban (and rural) planning originated from the architectural discipline. In 1952, Tongji University established the Urban Planning and Management program (the predecessor of the urban planning major) under the architecture category in the engineering department, which laid the foundation for the development of the urban and rural planning discipline [9]. In 2011, the "Catalogue of Disciplines and Specialties for Degree Conferral and Talent Cultivation" added the first-level discipline of Urban and Rural Planning, along with architecture and landscape architecture, forming the human settlement science system, marking a milestone in the development of the urban and rural planning discipline. In 2013, the "Guiding Norms for Urban and Rural Planning Undergraduate Programs in Higher Education Institutions" improved the teaching and curriculum system, introducing six secondary disciplines under urban and rural planning, including regional development and planning, and urban and rural planning and design. The knowledge system has expanded from a design and engineering orientation to include policies, management, and institutional development, continuously reinforcing the concept of urban-rural integration and demonstrating a trend toward comprehensive and diversified development [9].

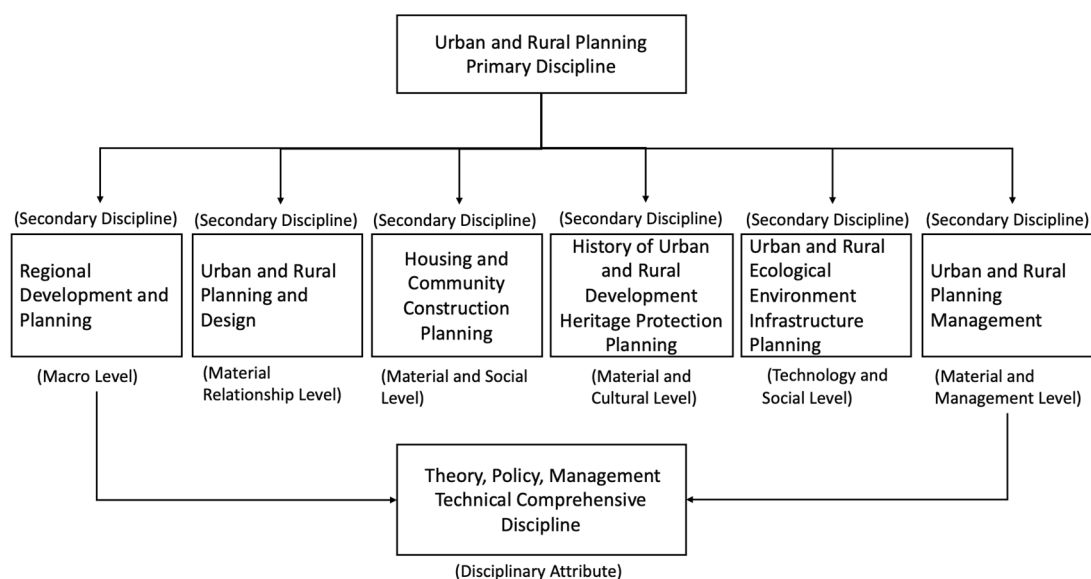


Figure 1. Content and Attribute Relationships of Sub-disciplines under Urban and Rural Planning
Source: Reference [10]

Moreover, the traditional science-oriented urban and rural planning major originated from the resource environment and urban planning management major under the geography science system. This major was split in 2012 to form the Human Geography and Urban-Rural Planning major, which, according to the Ministry of Education's undergraduate specialty directory, confers a Bachelor of Science or Management degree [11]. The establishment of the Human Geography and Urban-Rural Planning major not only clarified the direction and development path of the specialty but also brought new opportunities and challenges in theory and practice, contributing significantly to fundamental research and theoretical exploration in the urban and rural planning field.

The core of urban and rural planning studies is planning, which involves summarizing and enhancing practical experiences across different planning objects and sectors. Broadly speaking, planning work is not limited to urban and rural planning, as the fundamental theories and methods of urban and rural planning can be applied to a wider range of planning fields. These include spatial planning, represented by territorial spatial planning, which focuses on land-use regulation; construction planning and design, aimed at improving human settlements and controlling development activities; and other spatial or non-spatial planning fields such as national economic and social development planning, tourism planning, environmental planning, and transportation planning [12-13]. From this perspective, shifting from a focus solely on urban and rural planning practice to supporting planning work across multiple domains and scales is a crucial historical mission for urban and rural planning studies in the new era [13]. In 2019, the "Opinions on Establishing a Territorial Spatial Planning System and Supervising Its Implementation" issued by the Central Committee of the Communist Party of China and the State Council, highlighted the construction of a "multi-plan integration" territorial spatial planning system, marking a turning point in the development of the urban and rural planning discipline. In the new era, regardless of whether the urban and rural planning discipline is based in architecture or human geography, the trend is towards cross-disciplinary integration and co-planning of comprehensive territorial spatial development and protection, with the aim of enhancing national governance capabilities.

3.2. Traditional Undergraduate Teaching Models and Educational Reforms in Urban and Rural Planning

The undergraduate teaching of the Human Geography and Urban-Rural Planning major, rooted in geography, primarily focuses on theoretical education. It emphasizes imparting fundamental principles of urban and rural planning, planning regulations, and related knowledge systems, typically in a four-year program. In this model, instructors deliver lectures, assign textbook readings, and provide homework to help students establish a theoretical framework and knowledge system in urban and rural planning. This theory-dominated teaching approach often results in students passively receiving knowledge with limited opportunities for active participation and practice. The lack of engagement in real urban and rural planning projects makes it challenging for students to connect theoretical knowledge with practical application, leaving them at a loss when confronted with real-

world planning issues. Additionally, this traditional teaching model tends to lead students to develop fixed thinking patterns and problem-solving methods, constraining their innovation and practical skills.

On the other hand, the undergraduate teaching of the urban and rural planning major, with an architectural background, often combines theoretical instruction with design practice courses. In addition to teaching fundamental principles of urban and rural planning, planning regulations, and related knowledge systems, it includes foundational courses in architecture and practical courses in urban and rural planning design to enhance students' practical abilities. This model typically spans five years. Despite the dominance of traditional teaching methods in urban and rural planning education for many years, students trained under the architectural background of urban and rural planning face challenges such as weak interdisciplinary theoretical foundations, insufficient innovation capabilities, and longer program duration.

With the continuous development and change in urban and rural planning practice, the shortcomings of traditional teaching models have become increasingly apparent. Many scholars and educators have begun to reflect on and explore new teaching methods and approaches to meet the demand for urban and rural planning talents in the new era. For instance, some universities have started to introduce case analysis, project-based learning, and other teaching methods to enhance students' practical skills and problem-solving abilities. These new teaching approaches emphasize active student participation and practice while also focusing on cultivating innovative thinking and interdisciplinary literacy, providing new ideas and directions for undergraduate teaching reforms in urban and rural planning.

To overcome the shortcomings of traditional teaching models, urban and rural planning programs can draw on the concepts of "Emerging Engineering Education" (3E) and strengthen practical teaching components to focus on developing students' practical skills and innovative thinking. For example, practical courses can be established, and students can be organized to participate in actual urban and rural planning projects, allowing them to learn and apply theoretical knowledge in practice. Furthermore, interdisciplinary teaching content can be introduced to broaden students' knowledge horizons and cultivate comprehensive qualities and problem-solving abilities. Additionally, the reform of undergraduate teaching in urban and rural planning needs to focus on faculty development. Teachers are the main actors and key players in teaching reform; their teaching levels and philosophies directly impact teaching quality and effectiveness. Therefore, it is necessary to enhance teacher training and development, update teaching concepts and methods, and improve teaching quality and capabilities. Moreover, the introduction of professionals with rich practical experience and innovative abilities can strengthen the faculty team, providing strong talent support for undergraduate teaching in urban and rural planning.

3.3. Differences and Reform in Academic System

There are notable differences in the academic systems between the five-year and four-year programs in China's urban and rural planning discipline. These differences are primarily manifested in the educational objectives, content

setup, and the emphasis on student skill development.

The four-year urban and rural planning programs mainly focus on imparting fundamental knowledge and basic skills. Due to the shorter duration, the curriculum is relatively compact, emphasizing the core concepts and foundational skills of the discipline. Graduates from this system can typically meet the basic industry demands quickly, showcasing a solid professional foundation.

On the other hand, the five-year urban and rural planning programs are recognized for their emphasis on the depth and breadth of professional knowledge. Students in these programs not only learn the fundamental principles and theories of urban and rural planning but also delve into complex issues related to practical applications. Through a diverse set of courses, the five-year programs aim to develop students' comprehensive qualities, particularly their practical abilities and innovative thinking. For instance, some five-year programs incorporate real-world urban and rural planning projects, allowing students to collaborate with industry experts and apply their skills in practice.

Although the two academic systems differ in their goals and content setup, both face the challenge of adapting to the "Emerging Engineering Education" construction context. With the promotion of "Emerging Engineering Education" initiatives, the urban and rural planning discipline needs to place greater emphasis on interdisciplinary integration, innovation capability development, and strengthening practical teaching components. This means that both the five-year and four-year programs need to undertake corresponding educational reforms to meet the new requirements for urban and rural planning professionals in the modern era.

Five-year programs can further enhance their depth and breadth advantages by integrating emerging technologies and industry fields, such as incorporating courses on the application of big data and artificial intelligence in urban and rural planning. Additionally, by increasing practical teaching components through university-industry collaboration and establishing practical bases, students' practical skills and professional qualities can be further developed.

Meanwhile, the four-year programs, while consolidating the professional foundation, also need to focus on nurturing students' innovative capabilities and interdisciplinary qualities. This can be achieved by optimizing the curriculum setup, offering a broader selection of elective courses, encouraging cross-disciplinary studies, and implementing innovative practical projects.

In recent years, many universities have made adjustments to the academic systems and setups of their undergraduate urban and rural planning programs. The main changes include:

- (1) **Academic System Adjustment:** Many universities have transitioned the urban and rural planning programs from five years to four years. For instance, Tsinghua University adjusted its urban and rural planning program to four years as early as 2018; in 2023, Dalian University of Technology and Southeast University also adjusted the duration of their urban and rural planning programs to four years; and in 2024, Tianjin University will follow suit. This adjustment aims to better align with societal demands and broader educational reform trends. The four-year system allows students to enter the workforce earlier, thereby reducing the time spent in education and lowering educational costs.

- (2) **Professional Cancellation:** Some universities have completely canceled urban and rural planning programs. This could be due to various factors, including insufficient student enrollment, changing market demands, and adjustments in the universities' professional structures. Some institutions may redistribute resources to other related programs, such as architecture or civil engineering, to enhance teaching quality and research levels. As of July 2024, universities such as Sichuan University, Ningbo University, China Academy of Art, Tianjin Renai College, Hebei University of Engineering Kexin College, Liaoning Technical University, Zhejiang Gongshang University, Huaibei Normal University, Jiangxi Science and Technology Normal University, Nanyang Normal University, Hubei Enshi College, Jishou University, Mianyang Teachers' College, Tongren University, Guangzhou College of Applied Science and Technology, and Guilin University have canceled their urban and rural planning or human geography and urban and rural planning programs. Jinan University's College of Water Conservancy and Environment canceled the human geography and urban and rural planning program but retained the five-year urban and rural planning program within the College of Civil Engineering and Architecture.
- (3) **Professional Mergers and Adjustments:** Some universities have chosen to merge or adjust the urban and rural planning programs with other related disciplines to form more competitive academic clusters. Such adjustments can strengthen the comprehensive capabilities of the discipline, providing more expansive educational resources and research platforms. For example, Tongji University's College of Architecture and Urban Planning has adjusted its disciplines by integrating land resource management content. Nanjing University has combined its urban and rural planning programs with geographical information science and resource environment science to create a more integrated academic system.

3.4. Analysis of Problems in Undergraduate Teaching of Urban and Rural Planning Major

There are several common and significant issues in the current teaching of urban and rural planning, mainly related to course content, teaching methods, practical teaching, and innovation ability cultivation.

- (1) **Outdated Course Content:** The update speed of undergraduate course content in urban and rural planning is slow, often lagging behind the actual needs of urban and rural development. Traditional planning concepts and methods still dominate, while emerging fields and advanced technologies are seldom covered. This outdated course content not only limits students' knowledge horizons but also affects their ability to adapt to future urban and rural planning practices.
- (2) **Insufficient Practical Teaching:** Urban and rural planning is a highly practical discipline, yet the

current arrangement of practical teaching is inadequate. On one hand, the proportion of practical teaching hours is low, failing to meet the needs for cultivating students' practical abilities; on the other hand, the content of practical teaching is disconnected from theoretical teaching, lacking relevance and effectiveness. This insufficient practical teaching severely impacts the enhancement of students' practical skills and the formation of professional quality.

- (3) **Weak Innovation Ability Cultivation:** With the increasing complexity and diversification of urban and rural development, planning professionals need to possess stronger innovation awareness and capabilities. However, the current teaching of urban and rural planning does not place enough emphasis on cultivating innovation ability, lacking corresponding mechanisms and practical platforms. As a result, students often lack innovative thinking and problem-solving abilities when facing new issues and challenges.

To address these issues, it is necessary to update course content, enrich teaching methods, strengthen practical teaching, and emphasize the cultivation of innovation abilities. These measures will comprehensively enhance the teaching level and talent cultivation quality of the urban and rural planning major. Additionally, it is crucial to strengthen the construction of the teaching staff and improve the teaching evaluation system, providing strong support for the reform of undergraduate teaching in urban and rural planning.

4. Teaching Reform Practices under the "Emerging Engineering Education" Background

4.1. Update of Teaching Concepts

With the continuous advancement of the "Emerging Engineering Education" initiative, the teaching concepts in urban and rural planning have also been updated and adjusted accordingly.

First, there has been a shift from focusing on knowledge transmission to emphasizing ability cultivation. Traditional urban and rural planning education often centers on imparting knowledge, emphasizing students' mastery of professional knowledge. However, under the "Emerging Engineering Education" background, this single teaching model no longer meets the diverse needs of society for urban and rural planning professionals. Therefore, modern urban and rural planning education places greater emphasis on cultivating students' abilities, including innovation ability, practical ability, and teamwork skills. This shift not only requires students to have a solid grasp of professional knowledge but also to possess the ability to apply this knowledge to real-world problems and to think innovatively when faced with complex urban and rural planning issues.

Second, there has been a transition from a single-discipline approach to interdisciplinary integration. Urban and rural planning is inherently a highly comprehensive discipline, involving sociology, economics, geography, architecture, and other fields. Under the "Emerging Engineering Education" framework, the interdisciplinary nature of the field has been further emphasized. Modern urban and rural planning education encourages students to break down disciplinary barriers and actively explore the intersections with other

fields to form a more comprehensive and diverse knowledge system. This interdisciplinary teaching philosophy helps to cultivate students' comprehensive qualities and enhance their ability to solve complex problems.

Lastly, there has been a shift from closed teaching to open teaching. Traditional urban and rural planning education is often confined to the classroom and textbooks, lacking interaction and communication with the outside world. Under the "Emerging Engineering Education" background, urban and rural planning education increasingly emphasizes openness, encouraging students to step out of the classroom, participate in actual urban and rural planning projects, and engage in in-depth exchanges and cooperation with industry experts. This open teaching philosophy helps broaden students' horizons, enhance practical abilities, and improve social adaptability.

The update of teaching concepts in the context of "Emerging Engineering Education" is a comprehensive and multi-level transformation process. These changes involve not only the adjustment of teaching goals and the updating of teaching content but also the improvement of teaching methods and the refinement of the teaching evaluation system.

4.2. Reform of Course Content and Teaching Methods

Under the "Emerging Engineering Education" initiative, the course content and teaching methods in urban and rural planning have undergone comprehensive reforms. These reforms aim to better meet the developmental needs of the new era and to cultivate high-quality talents with innovation spirit and practical ability.

In terms of course content, traditional urban and rural planning courses mainly focus on planning theories and historical case studies, with less emphasis on emerging fields and technologies. However, with the rapid advancement of technology, cutting-edge technologies such as big data and artificial intelligence have been widely applied in urban and rural planning practices. Therefore, it is crucial to incorporate knowledge and technologies from these emerging fields into the curriculum. By introducing relevant courses, students can gain a more comprehensive understanding of the latest trends in urban and rural planning, thereby enhancing their ability to solve real-world problems. Additionally, in response to the reform of the national spatial planning system, urban and rural planning programs should include relevant knowledge courses related to the preparation of spatial planning in their undergraduate education.

In terms of teaching methods, the traditional didactic approach no longer meets the needs of modern education. To stimulate students' interest in learning and their initiative, urban and rural planning programs have adopted various innovative teaching methods. Case-based teaching, as an important teaching method, guides students to analyze real cases, fostering their independent thinking and problem-solving abilities. Project-based learning, on the other hand, emphasizes practicality and teamwork, allowing students to participate in the design and implementation of actual projects, thereby honing their practical skills and innovation spirit. The flexible use of these teaching methods not only improves teaching effectiveness but also helps cultivate students' comprehensive qualities.

The practice teaching component also occupies an important position in the reform of urban and rural planning education. Practice teaching is an effective way to consolidate

theoretical knowledge and enhance practical skills. By strengthening the design and implementation of practice teaching activities, such as field trips and planning design competitions, students can gain a deeper understanding of the actual operations of urban and rural planning, thereby improving their practical abilities and innovative thinking.

To further enhance practical experience and understanding, internship and experiential courses are optimized and expanded. For example, offering urban cognition internships is a crucial teaching segment for urban and rural planning undergraduates. These courses aim to deepen students' understanding of the unique planning characteristics and development status of various cities across the country through field visits and investigations. The curriculum design should first establish clear objectives, including enhancing students' urban cognition, improving practical abilities, and developing comprehensive qualities. In terms of course arrangements, representative cities across the country should be selected, including major metropolises like Beijing, Shanghai, Guangzhou, and Shenzhen, as well as historical and cultural cities. Additionally, smaller cities with strategic importance, such as Manzhouli, Fangchenggang, Yanji, and Hunchun, should be included to expose students to the development of strategically significant small cities. The internship format can include field visits, thematic lectures, and team projects, allowing students to observe, interview, and collect data during their visits, and to write research reports upon completion of the internship. During the implementation process, thorough preparation is required, including planning, coordination, and material preparation, as well as ensuring safety measures, such as safety education and insurance arrangements. Moreover, the course implementation should provide necessary research resources and instructor guidance, collect student feedback promptly, and adjust the course accordingly. Through this approach, students can apply the theoretical knowledge they have learned to real-world issues, thereby enhancing their problem-solving abilities and comprehensive qualities, laying a solid foundation for their future careers.

4.3. Strengthening the Practice Teaching Component

In the reform of undergraduate teaching in urban and rural planning, strengthening the practice teaching component is crucial. Practice teaching not only helps students transform theoretical knowledge into practical operational skills but also cultivates innovation consciousness and teamwork spirit. To achieve this goal, schools should actively establish deep cooperative relationships with industry enterprises, jointly setting up off-campus internship bases to provide students with real professional environments and practice opportunities. This cooperative model allows students to directly participate in actual projects, gaining a more intuitive understanding of industry trends and development, thereby enhancing practical abilities and laying a solid foundation for future career development. Additionally, schools should encourage students to participate in various design competitions and social practice activities, such as urban planning design competitions and community planning volunteer activities, enriching extracurricular life and improving students' professional skills and comprehensive qualities.

To overcome the disconnect between theory and practice in traditional teaching, schools should focus on integrating

practice teaching with theoretical teaching. For instance, in urban planning principles courses, instructors can incorporate specific planning cases to help students better understand theoretical knowledge; in practical courses, instructors can guide students to apply their knowledge to solve real-world problems, thereby deepening their understanding and application of theory.

Furthermore, schools should establish a comprehensive practice teaching evaluation system to objectively and thoroughly assess students' practice outcomes, processes, and teamwork abilities. Regularly inviting industry experts and company representatives to guide and evaluate practice teaching can help identify problems promptly and make necessary improvements.

5. Conclusion and Insights

5.1. Conclusion

Against the backdrop of the "Emerging Engineering Education" initiative, significant progress has been made in the undergraduate teaching reform of urban and rural planning in China. Comprehensive research and in-depth analysis reveal that the teaching reforms have demonstrated notable achievements on multiple levels. These reforms have effectively enhanced teaching quality by updating and enriching the curriculum with cutting-edge knowledge and technologies, making education more relevant to contemporary developments. This provides students with a broader knowledge perspective and practical platform. Additionally, the reforms have promoted the overall development of students' comprehensive qualities by employing diverse teaching methods and strengthening practical components, significantly enhancing students' practical skills, innovative abilities, and teamwork capabilities. Through participation in real-world urban and rural planning projects, students have not only deepened their understanding of professional knowledge but also developed the ability to solve practical problems, laying a solid foundation for their future careers.

Despite these achievements, the teaching reforms still face pressing issues, notably the shortage of practical teaching resources and an underdeveloped innovation ability cultivation mechanism. To address these issues, it is recommended to: first, increase investment in practical teaching resources, such as establishing more off-campus internship bases and introducing excellent industry mentors; second, improve the innovation ability cultivation mechanism, such as setting up innovation labs and organizing innovation and entrepreneurship competitions to stimulate students' innovative thinking and entrepreneurial spirit.

Overall, the undergraduate teaching reform in urban and rural planning under the context of "Emerging Engineering Education" has achieved significant results but still requires continuous improvement and refinement. Through sustained efforts and exploration, the goal is to cultivate more talents who meet the demands of the new era, contributing more to the sustainable development of urban and rural planning in China.

5.2. Insights

In the future of undergraduate teaching reform in urban and rural planning, several key directions and prospects merit in-depth exploration. Firstly, "the deepening cultivation of interdisciplinary integration and practical ability" is crucial.

Urban and rural planning, being a highly comprehensive discipline, requires deep interdisciplinary integration with architecture, geography, environmental science, social sciences, and more. By designing interdisciplinary courses and organizing joint research projects, students can develop a comprehensive knowledge structure and the ability to analyze problems from multiple perspectives, while also gaining more practical opportunities to enhance their problem-solving skills.

Secondly, "innovation in the industry-university-research cooperation model" is an important avenue for improving teaching quality. In the future, efforts should be made to actively explore new models of integrated industry-university-research cooperation, establishing closer ties with industry enterprises. For example, joint laboratories can be established, industry-university cooperative projects can be carried out, and courses can be developed collaboratively to ensure the educational content closely aligns with industry developments. This cooperation model not only provides students with more opportunities to engage in real-world projects but also helps teachers stay updated with industry trends, thereby refreshing teaching content and methods.

Thirdly, "continuous innovation in teaching methods and approaches" should not be overlooked. Traditional teaching methods are increasingly inadequate to meet the learning needs of the new generation of students. It is necessary to continuously innovate teaching methods, such as using modern information technology to develop online courses and virtual laboratories and introducing project-based learning and problem-based learning to stimulate students' interest and initiative in learning, fostering innovative thinking and problem-solving abilities.

Lastly, "the construction of a practical teaching system and quality assurance system" is vital. To ensure the effective implementation of practical teaching, a comprehensive practical teaching system and quality assurance system need to be established. This includes clearly defining practical teaching goals and requirements, formulating detailed teaching plans, providing ample practical teaching resources, and establishing a scientific evaluation system. These measures ensure that students achieve genuine growth and improvement through practical teaching, laying a solid foundation for their future careers.

The research directions and prospects for undergraduate teaching reform in urban and rural planning are full of challenges and opportunities. Through continuous exploration and practice, it is hoped to discover teaching models and methods more suited to the development of the urban and rural planning field in the new era, thereby cultivating more outstanding talents for the development of urban and rural areas in China.

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