

Discussion on the Implementation Mode of Undergraduate Tutor System in Building Materials Major

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ABSTRACT

The implementation of the tutor system is an important measure to cultivate talents in the field of building materials. The undergraduate tutor system can be implemented by establishing a sound system for selecting and appointing tutors, promoting two-way selection between teachers and students, clarifying the responsibilities and tasks of tutors, integrating with the curriculum system, innovation and entrepreneurship education, and industry enterprises, and strengthening practical teaching. Focusing on cultivating students' practical abilities, strengthening communication and interaction between teachers and students, improving the tutor evaluation and incentive mechanism, and other measures can effectively improve the teaching quality and students' comprehensive quality, so as to cultivate more high-quality and innovative professionals in the field of building materials. There may be problems during the implementation, such as insufficient teaching staff, inadequate practical teaching resources, and low student participation, and corresponding strategies have been proposed respectively.

KEYWORDS

Undergraduate tutor system; Implementation mode; Optimization strategy; Building materials

1 Introduction

With the continuous deepening of higher education reform, universities and colleges across the country have gradually adopted the undergraduate tutor system. This system aims to cultivate students' innovative spirit and practical ability, strengthen the communication and interaction between teachers and students, and promote the all-round development of students.

Under the guidance of the concept of "all-staff education, whole-process education, and all-round education", scholars such as Dong Chunyang^[1] have conducted in-depth discussions on the new-type undergraduate tutor system. The tutor system is a beneficial exploration of the talent training model for higher education in the new era and an important innovation of the traditional education model. It improves the quality of talent cultivation in "Double First-Class" universities and is an effective measure to implement the comprehensive reform of "all-staff education, whole-process education, and all-round education". Guided by comprehensive education, it combines students' knowledge learning, ability cultivation, and value guidance, forming a brand-new education model.

He Mingyang^[2] analyzed the difficulties in the implementation of the undergraduate tutor system and put forward corresponding countermeasures and suggestions, which are of great significance for improving the institutional guarantee of the undergraduate tutor system, implementing tutor guidance, and promoting undergraduate talent cultivation.

Li Zhuo et al^[3] proposed in their research that in order to enhance the educational effect of the undergraduate tutor system and support first-class undergraduate education, efforts should be made in the following three aspects: constructing a collaborative education mechanism with clear responsibilities is the basis for improving the implementation effect of the tutor system; forming a two-way interactive teacher-student communication mechanism is the key to enhancing the implementation effect of the tutor system; and establishing and improving the academic tutor assessment and incentive mechanism is an important guarantee for ensuring the long-term and effective implementation of the tutor system.

Scholars such as Li Qingshan^[4] pointed out in their research that to implement the undergraduate tutor system, a series of optimization measures should be adopted: clarifying the responsibilities and powers of tutors; establishing a reasonable two-way selection mechanism and a regular communication mechanism; constructing an innovative training model to cultivate students' innovative awareness and practical ability; improving the selection criteria for undergraduate tutors, which is the key to ensuring the quality of tutors; establishing a positive reward mechanism and a negative supervision mechanism to ensure the normal operation of the tutor system; and establishing a systematic training mechanism to provide regular training for tutors.

Wang Dong et al^[5] put forward some important views on the university tutor system in their research: clarifying the responsibility orientation of tutors, clearly pointing out the guiding responsibilities of tutors in students' learning, scientific research, life, and other aspects to ensure that tutors can guide students in a comprehensive and effective manner; clarifying students' obligations, including requirements for learning tasks, academic standards, and participation

in scientific research, which can better stimulate students' initiative and improve their learning effects and scientific research capabilities; and reflecting the actual contribution of the undergraduate tutor system in guidance in the teacher evaluation mechanism.

The undergraduate tutor system provides students with more comprehensive and personalized academic guidance. For the building materials major, the implementation of the undergraduate tutor system can improve students' professional literacy and practical ability, and provide a reference for the teaching reform of universities and colleges.

The building materials major involves a wide range of fields, including material properties, structural design, construction technology, and other aspects. With the continuous progress of science and technology and the rapid development of the construction industry, the demand and requirements for talents in the building materials major have gradually increased. Therefore, the implementation of the tutor system is an important measure to cultivate high-quality and innovative talents in the building materials major.

2 Implementation mode of the tutor system

2.1 Selection and appointment of tutors

The university regularly assesses and evaluates tutors to ensure their teaching quality and scientific research level. The key to implementing the tutor system lies in the quality and ability of tutors. Universities regularly provide training and learning opportunities for tutors to improve their educational and teaching capabilities, scientific research capabilities, and project management capabilities. At the same time, tutors themselves need to continuously learn and update their knowledge, understand the latest trends and developments in the industry, and better guide students.

2.2 Two-way selection between teachers and students

The university provides a platform for two-way selection between teachers and students. When choosing a tutor, students should fully consider factors such as the tutor's research direction, project background, and personal interests.

2.3 Responsibilities and tasks of tutors

The responsibilities of tutors include guiding students in course learning, undertaking the research and teaching work of scientific research projects, providing students with practical opportunities and academic support, and preparing students for their future career development.

Each tutor has a unique teaching style and research direction. When implementing the tutor system, attention should be paid to the personalized development of tutors. Tutors are encouraged to develop their own research directions and teaching methods according to their own expertise and interests, forming a unique teaching style. This not only meets the needs of students but also enhances teachers' sense of professional achievement.

With the continuous update of educational concepts, the personalized tutor system has gradually become an important direction of higher education reform. In the building materials major, according to students' interests, strengths, and needs, more personalized and precise guidance and support are provided to help students better master knowledge and skills, and cultivate their innovative ability and practical ability.

2.4 Integration of the tutor system with the curriculum system

In the building materials major, the integration of the tutor system with the professional curriculum system is of great importance. The tutor system and the curriculum system are combined to form a complementary teaching system. Courses related to the building materials major, such as material properties, structural design, and construction technology, are set up to meet students' basic learning needs. Tutors, based on their responsible research directions and project backgrounds, and combined with the curriculum system, offer relevant elective courses and special lectures. This broadens students' knowledge and horizons and enables them to have a deeper understanding of the cutting-edge trends in the professional field.

Hunan Provincial Leaders presided over a research symposium on promoting college students' employment and entrepreneurship, emphasizing the need to improve the quality of college entrepreneurship courses, invite well-known entrepreneurs to give lectures, and encourage the mutual recognition of entrepreneurship course credits across universities. A college student entrepreneurship tutor group should be established, typical figures should be set up to play an exemplary role, and publicity and guidance should be strengthened to form a joint work force.

Hunan Provincial Leaders presided over a symposium on college student entrepreneurship tutors, pointing out that the Provincial Party Committee and the Provincial Government regard promoting college students' entrepreneurship as a major strategy and have launched the "Seven Ones" initiative. It is hoped that a large number of entrepreneurs will actively participate in the design of innovation and entrepreneurship courses in colleges and universities, guide college students to participate in business negotiations, market research, marketing promotion, and other aspects in combination with actual needs; participate in the Entrepreneurship Famous Teachers Lecture Hall to talk about the

excitement of entrepreneurship, the hardships of entrepreneurship, and the possible difficulties; and participate in the production of entrepreneurship TV programs to tell entrepreneurship stories well and stimulate college students' enthusiasm for entrepreneurship.

Colleges and universities pay close attention to the changes in social demand for talents in the building materials major and timely adjust the content and direction of the tutor system. This helps to cultivate talents that meet social needs and improve the employment rate and employment quality of graduates.

2.5 Strengthening of practical teaching

To cultivate students' practical ability, colleges and universities need to strengthen tutors' practical guidance ability and provide students with more practical opportunities and platforms. Practical bases are provided for tutors, and internship opportunities are provided for students to encourage them to actively participate in practical activities. This effectively improves students' practical ability and problem-solving ability. Tutors should also actively participate in corporate practice.

2.6 Integration of the tutor system with innovation and entrepreneurship education

Hunan Provincial Leaders presided over a research symposium on promoting college students' employment and entrepreneurship, emphasizing the need to grasp the laws of college students' innovation and entrepreneurship, understand the growth laws of innovative enterprises, regional development laws, the laws of entrepreneurship driving employment, and the laws of government-led social participation. The "Seven Ones" initiative should be implemented and support policies should be introduced. The role of business incubators should be sorted out, and the construction standards and operation mechanisms of incubators should be improved.

Changsha University of Science and Technology held an innovation and entrepreneurship education work conference and a mobilization conference for the 2025 Hunan Golden Seed Cup College Student Entrepreneurship Competition. The University leaders pointed out that innovation and entrepreneurship are the needs of national and national development, the construction of an innovative country, and the cultivation of high-quality talents; they are the direction of higher education reform and development; and they are the responsibility of colleges and universities to serve the national strategy. Efforts should be made to deepen the reform of the innovation and entrepreneurship talent training model and create a "Changli Model" for innovation and entrepreneurship education. The entrepreneurship tutor team should be built to be excellent and strong, and a full-chain education guidance service system should be constructed.

Innovation and entrepreneurship education is an important way to cultivate innovative talents. The integration of the tutor system with innovation and entrepreneurship education can effectively cultivate students' innovative spirit and practical ability. With the guidance and support of tutors, students participate in innovation and entrepreneurship projects, which improves their comprehensive quality and competitiveness and brings more scientific research achievements and employment opportunities to the university.

In the building materials major, the tutor system focuses on cultivating talents with innovative thinking and practical ability. It is crucial to strengthen the innovation orientation of the tutor system. Tutors encourage students to participate in scientific research projects and carry out innovative experiments to cultivate their innovative thinking and problem-solving ability. They pay attention to the latest trends and developments in the industry and guide students to conduct interdisciplinary learning and research.

2.7 In-depth cooperation between the tutor system and industry enterprises

Enterprises have rich practical bases and project resources, providing real practical bases for students. Students can exercise and operate in real environments, which improves their practical ability and professional skills. Enterprise experts have rich industry experience and profound professional knowledge, providing valuable guidance and suggestions for students to help them understand and deal with practical problems. A large number of entrepreneurs have rich experience and resources in innovation and entrepreneurship. Colleges and universities can invite entrepreneurs to serve as tutors to provide students with a wider range of practical opportunities and industry experience. The cooperation between enterprises and colleges and universities brings resources and funds and promotes the overall development of the university.

3 Key elements for the implementation of the tutor system

3.1 Focus on cultivating students' practical ability

In the implementation of the tutor system, in-depth exploration of education and teaching is carried out, and emphasis is placed on cultivating students' practical ability. Classroom learning is not only the imparting of theoretical knowledge, but the core task is to cultivate practical ability. Outside the classroom, various practical opportunities are actively provided for students, including scientific research projects, experimental operations, internships, and practical

training. This enables students to master professional knowledge and skills in practice and improve their comprehensive quality.

3.2 Strengthening communication and interaction between tutors and students

Good communication and interaction are the key to the implementation of the tutor system. Colleges and universities provide platforms and opportunities to encourage communication and interaction between tutors and students.

Regular communication activities such as practical activities, symposiums, and seminars are of great importance. Symposiums serve as a platform for teacher-student communication. Seminars are places for discussing academic issues and sharing research results. Through practical activities, students experience the application of knowledge, and teachers observe students' performance and growth. Students can also take the initiative to communicate with tutors, express their ideas and needs, and strive for more guidance and support. To promote academic communication and cooperation between tutors and students, colleges and universities establish effective academic communication platforms. This helps students understand the academic frontier and broaden their academic horizons. It also contributes to the communication and cooperation between tutors, improving their scientific research level and innovative ability.

With the rapid development of information technology, colleges and universities actively promote the digitalization and informatization of the tutor system. By establishing a digital platform, functions such as online communication between tutors and students, resource sharing, and information release are realized. Colleges and universities use modern information technology means, such as social media and online platforms, to provide a basis for improving and optimizing the tutor system.

3.3 Improving the tutor evaluation and incentive mechanism

To ensure the continuous development and optimization of the tutor system, colleges and universities establish a sound feedback and adjustment mechanism. By collecting feedback and suggestions from teachers, students, enterprises, and society, references are provided for improving and optimizing the tutor system. To more comprehensively evaluate the implementation effect of the tutor system, colleges and universities build a multi-dimensional evaluation platform, which includes student evaluation, peer evaluation, expert evaluation, and other levels. By collecting opinions and suggestions from all parties, the existing problems and shortcomings of the tutor system are accurately identified, and corresponding improvement measures are taken to help the tutor system adapt to changes in the educational environment and industry needs.

4 Possible problems in implementation and corresponding strategies

In the process of implementing the tutor system, colleges and universities conduct regular reflection and summary. Continuous tracking and feedback collection are key links to ensure that the tutor system can truly play its role and meet the needs of students and teachers. Through questionnaires, individual interviews, and group discussions, students' opinions are collected. Communication and exchanges with teachers are strengthened, and their opinions and suggestions are listened to, so as to improve the implementation mode of the tutor system. Through continuous reflection and improvement, the quality and effect of the tutor system are improved.

In the process of implementing the tutor system, some challenges and problems may be encountered, such as the unbalanced distribution of tutor resources, communication barriers between tutors and students, and difficulties in practical teaching. In response to these problems, colleges and universities take corresponding countermeasures, such as strengthening the construction of the teaching staff, improving the teacher-student communication mechanism, and improving practical teaching conditions. In the process of implementing the tutor system, colleges and universities need to establish long-term cooperative relationships with relevant enterprises, and introduce high-quality teaching resources through resource sharing, joint research and development, and practical teaching, so as to ensure the effective implementation of the tutor system.

4.1 Insufficient teaching staff

In the process of implementing the tutor system, the problem of insufficient teaching staff may be encountered. Strengthening the construction of the teaching staff is a key measure to improve the quality of education and promote academic progress. To improve the quality of teachers, a variety of methods can be adopted. The training of existing teachers is a key task, and the introduction of high-level talents is an important way. Industry experts and enterprise technical personnel are invited to serve as part-time tutors to provide students with a wider range of practical opportunities.

4.2 Insufficient practical teaching resources

In the actual teaching process, the problem of insufficient practical teaching resources is often encountered. In response to this problem, the university increases investment in practical teaching, adds experimental equipment,

venues, and funds. According to the needs of different majors and fields, resources are reasonably allocated, practical teaching conditions are improved, and a better practical platform is provided for students.

4.3 Low student participation

Some students may lack understanding of the tutor system, leading to low participation. To enable students and parents to better understand the tutor system, publicity materials are produced, publicity activities are carried out, and information platforms, such as websites and WeChat official accounts, are established to release information and dynamics about the tutor system in a timely manner, so that students and parents can understand the situation of the tutor system in a timely manner. The interaction and communication between teachers and students are strengthened, and students are encouraged to actively participate in tutor system activities to improve participation and satisfaction.

5 Implementation effect and prospect

The implementation of the tutor system is an important measure to cultivate talents in the building materials major. Although some problems may be encountered in the implementation process, as long as colleges and universities actively take corresponding strategies and continuously improve the implementation mode, they will surely cultivate more high-quality and innovative talents in the building materials major. In the future, with the progress of science and technology and the continuous development of the construction industry, the building materials major will continue to explore and improve the implementation mode of the tutor system, making greater contributions to the cultivation of more outstanding talents. After the implementation of the tutor system, the teaching quality of the building materials major and the comprehensive quality of students have been significantly improved. Students have received better guidance and support in course learning, scientific research practice, and career planning. The tutor system has also strengthened the communication and interaction between teachers and students, promoting the mutual improvement of teaching and learning. The implementation of the tutor system helps to improve the quality of teaching and academic level. Tutors provide students with more professional guidance and suggestions, improving learning effects and helping students achieve better grades. It promotes academic communication and cooperation between teachers and students, helps students understand the academic frontier and research methods, and promotes the progress and innovation of academic research.

6 Conclusion

The implementation of the tutor system is an important measure to cultivate talents in the building materials major and plays an important role and significance in the building materials major. By establishing a sound system for selecting and appointing tutors, strengthening the communication and interaction between teachers and students, strengthening practical teaching, improving the tutor evaluation and incentive mechanism, promoting industry-university-research cooperation, and cultivating students' innovation and entrepreneurship capabilities, the teaching quality and students' comprehensive quality are improved. The implementation mode of the tutor system is continuously explored and improved to provide a strong guarantee for the cultivation of more high-quality building materials professionals with international competitiveness. In the future, with the progress of science and technology and the continuous development of the construction industry, the tutor system will continue to be optimized and improved, making greater contributions to the development of higher education and social progress.

About the Author

Meifang Huang, doctoral degree, mainly engages in the research of pavement materials and polymer materials.

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