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Research on Implementation of Tutorial System for Young Teachers in Local Undergraduate Institutions—A Case Study of Telecommunication Engineering

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Abstract: In recent years, local undergraduate colleges and universities, in an effort to strengthen the training and guidance of young teachers, have actively implemented a tutorial system for young teachers. The goal is to enhance the quality of teaching and promote the integration of teaching and research. However, in the actual implementation of the tutorial system, various internal factors within the schools often limit its effectiveness, resulting in the tutorial system being merely a formal presence with limited actual impact. Taking the example of the telecommunication engineering, this paper thoroughly investigates the implementation of the tutorial system for young teachers in local undergraduate colleges and universities. It proposes four strategies for improving the tutorial system in telecommunication engineering: developing personalized training plans, establishing practice mechanisms closely integrated with actual work, enhancing the cultivation of interdisciplinary integration and communication skills, and creating an interactive platform between mentors and young teachers. These strategies aim to enhance educational levels, practical capabilities, and interdisciplinary integration abilities, collectively promoting a comprehensive improvement in the quality of education in the telecommunication engineering major.

1. Introduction

In recent years, local undergraduate institutions have played an increasingly crucial role in higher education reform. However, due to relatively limited resources, these institutions face a series of challenges in the training and development of young teachers, such as the lack of a systematic tutorial system, dispersed mentor resources, and constrained development paths for young teachers. In order to better tap into the potential of young teachers and enhance their teaching and research capabilities, the establishment of a tutorial system for young teachers in local undergraduate institutions has become imperative.

To elevate the teaching proficiency and capabilities of young university teachers, the Ministry of Education, the Central Organization Department, the Central Propaganda Department, the Ministry of Finance, the Ministry of Human Resources and Social Security, as well as the Ministry of Housing and Urban-Rural Development jointly issued the "Opinions on Strengthening the Construction of Young University Teacher Teams" on December 24, 2020. This document explicitly outlines a series of measures, including the establishment of a sound tutorial system for young teachers, providing guidance on teaching philosophy, methods, skills, and career planning. Furthermore, it emphasizes the improvement of mechanisms for tutorial across senior, mid-level, and junior teachers, leveraging the exemplary role of distinguished teachers to comprehensively support the development of young teachers in the field of education and teaching.

The implementation of tutorial system for young teachers in local undergraduate institutions holds significant importance, playing a positive role not only in the individual professional growth of young teachers but also contributing to the overall health and enhancement of the education system's quality. Firstly, the tutorial system for young teachers facilitates individual growth. Under this system, young teachers receive systematic guidance and personalized support from mentors, enabling them to better adapt to teaching and research work and shorten the learning curve of their professional development. Mentors impart experience, share teaching and research resources, guide young teachers to integrate into the academic culture of the institution, enhance their teaching skills, and cultivate independent thinking and problem-solving abilities. Secondly, the tutorial system for young teachers promotes discipline communication and collaboration. By establishing close teacher-student relationships, it not only fosters collaboration between mentors and young teachers but also provides more opportunities for cooperation among teachers within and beyond the discipline. This helps build an academic community for sharing resources and mutual development, further elevating the overall standards of the discipline. Thirdly, the tutorial system for young teachers actively contributes to the improvement of education quality. By standardizing the career development path of teachers, the system helps ensure the overall quality and professional competence of the teaching staff. Mentors pass on disciplinary knowledge and teaching experience, enabling young teachers to integrate more effectively into educational work, thereby enhancing education quality and promoting the comprehensive development of students. Additionally, the implementation of tutorial system helps cultivate a sense of educational responsibility and mission in young teachers. Under the guidance of mentors, young teachers gain a deeper understanding of the importance of the educational cause and recognize their mission in nurturing the next generation of talent, leading to a more dedicated fulfillment of their role as educators [1-2].

Young teachers play a crucial role in local undergraduate institutions, serving as the vital force in the field of education. However, due to the lack of systematic guidance and training, the performance of young teachers in teaching and research is often constrained. Therefore, this paper aims to provide beneficial experiences and insights for local undergraduate institutions by studying the implementation plan of the tutorial system for young teachers in the field of communication engineering.

2. Related Work

2.1 Educational Challenges in Local Undergraduate Institutions

In 2022, the scale of general undergraduate enrollment in China reached 4.6794 million, an increase of 233,400 compared to 2021, with a growth rate of 5.25%. Simultaneously, the enrollment number for undergraduate students starting from vocational colleges was 866,200. The total number of undergraduate students reached 19.6564 million, an increase of 725,400 from the previous year, with a growth rate of 3.83%. This data reveals the continuous expansion trend in China's higher

education sector in 2022, reflecting not only the growing demand for general undergraduate education but also emphasizing the significant position of undergraduate education starting from vocational colleges. This growth indicates society's ongoing pursuit of higher education resources and interest in a broader range of disciplines. With the expansion of the scale of general undergraduate enrollment, universities are actively committed to enhancing the level of their teaching staff by vigorously introducing outstanding young teachers through diverse channels, making them a core driving force for the construction of teaching staff in local undergraduate institutions. While local undergraduate institutions hold a crucial position in China's higher education system, they face unique educational challenges compared to top-tier universities. Limited resources, lower research pressure, and relatively lower visibility pose difficulties in talent cultivation and research for these institutions. Especially in fields like communication engineering, which are technology-intensive and rapidly evolving, addressing how to better cultivate and guide the growth of young teachers becomes an urgent issue [3].

2.2 Domestic and International Trends in the Development of Young Teacher Tutorial System

In the field of higher education, the tutorial system for young teachers, as a powerful talent development model, has been widely applied internationally. Some renowned foreign universities have achieved significant educational outcomes by providing systematic career guidance and academic support to young teachers through tutorial system. Recognizing the importance of tutorial system in the development of young teachers, some high-level domestic institutions have gradually conducted relevant practices and explorations.

International studies indicate that tutorial system for young teachers are widely acknowledged and researched globally. This system is prevalent in many foreign higher education institutions, dedicated to supporting and guiding the professional development of young teachers. Research emphasizes the universality of tutorial system, focusing not only on the academic research development of young teachers but also on enhancing their career planning and teaching capabilities. The tutorial system underscores the importance of establishing close relationships between mentors and young teachers to promote a positive academic atmosphere and individual development. Interdisciplinary collaboration is also emphasized, encouraging mentors to support young teachers' involvement in collaborative activities and exchanges across different disciplines. Additionally, international research highlights the need for regular evaluation and optimization of tutorial system to ensure their comprehensive support and nurturing role for young teachers. These foreign studies provide valuable experiences for educational institutions in other countries and regions, contributing to the internationalization of the process of cultivating and developing young teachers [4].

The tutorial system for young teachers has also gained widespread attention and in-depth research in China. Various universities have adopted different approaches to implementing tutorial system, such as one-on-one mentoring and reinforcement of theoretical and political beliefs, to meet the individualized needs of young teachers. Researchers emphasize the necessity of establishing close relationships between mentors and young teachers, which is crucial for the comprehensive development of young teachers in academic research and teaching practices. Although tutorial systems have played a positive role in improving the teaching proficiency of young teachers, challenges have emerged during implementation, such as differences in various disciplinary fields [5-6]. Therefore, domestic researchers continually propose methods and measures to enhance tutorial system through in-depth analysis of practical cases and experiences, aiming to better facilitate the professional growth of young teachers. These studies provide valuable references for the construction and optimization of the tutorial system. The implementation of tutorial system for

young teachers aligns with the developmental trends of contemporary educational theories. Modern education places emphasis on individualized development and the cultivation of comprehensive competencies, and tutorial systems are designed to achieve these goals. In the field of communication engineering, the establishment of tutorial system for young teachers is expected to provide robust support for cultivating more high-level, high-quality talents, injecting new vitality into the development of the communication engineering discipline.

2.3 The Specificity and Demands of Communication Engineering

As a crucial branch in the field of information technology, the communication engineering is characterized by rapid development, imposing increasingly stringent requirements on educators. Young teachers in communication engineering must possess not only a solid foundation in specialized knowledge but also practical engineering skills and innovation capabilities. Therefore, the establishment of tutorial system for young teachers in communication engineering is not only pertinent to the individual career growth of teachers but also critical for the future development of the entire discipline.

The implementation of tutorial system holds profound significance for local undergraduate institutions offering communication engineering programs. Firstly, by introducing tutorial system, comprehensive guidance and support can be provided to young teachers, facilitating their swift adaptation to educational responsibilities. Secondly, establishing a tutorial system effectively enhances the teaching proficiency and research capabilities of young teachers, thereby propelling the development of the discipline. Additionally, the tutorial system contributes to the formation of close mentor-apprentice relationships, fostering the cohesion and expansion of academic teams.

Given the current state of education in local undergraduate institutions, the domestic and international trends in tutorial system for young teachers, and the unique characteristics and demands of the communication engineering discipline, this study aims to explore the implementation plan of the tutorial system for young teachers in local undergraduate institutions, using communication engineering as a case study. Through in-depth research and synthesis, this research seeks to provide valuable experiences and insights for educational reforms in similar institutions and disciplines.

3. Factors Affecting the Poor Teaching Competence of Young Teachers in Communication Engineering

The inadequate teaching competence of young teachers in communication engineering is a complex issue influenced by various factors from multiple perspectives.

3.1 Lack of Educational Experience

In comparison to seasoned educators, young teachers face challenges in the early stages of their careers due to a lack of practical teaching experience. This deficiency manifests in aspects such as organizing subjects, delivering lectures, and conducting case analyses. Applying educational theories to actual teaching scenarios can pose difficulties for young teachers. In the field of communication engineering, where student groups may exhibit significant diversity, young teachers might encounter challenges in meeting the varied learning needs of their students. Therefore, the insufficient educational background and experience of young teachers constitute a significant factor limiting the development of their teaching capabilities.

3.2 Deficiency in Professional Knowledge

Communication engineering is a field characterized by strong technical demands and deep specialization, requiring educators to possess in-depth professional knowledge. However, young teachers may face challenges in comprehending the core knowledge of communication engineering due to a lack of profound disciplinary foundations. This limitation makes it difficult for them to thoroughly analyze and explain complex concepts within the professional domain during teaching. Given the rapid iteration of developments in the field of communication engineering, young teachers must keep pace with the latest technologies and trends to provide students with cutting-edge knowledge. Therefore, enhancing the professional knowledge level of young teachers in communication engineering is crucial for improving their teaching capabilities.

3.3 Limited Teaching Methods and Approaches

Young teachers might not have fully mastered innovative and diverse teaching methods, particularly in cutting-edge disciplines like communication engineering. Traditional teaching approaches may fall short of meeting students' needs, making it challenging for young teachers to tailor instruction to different learning styles and preferences. The rapid development in the field of communication engineering requires educators to possess flexible teaching strategies to adapt to the continuously changing technologies and knowledge. Therefore, enhancing the teaching methods and skills of young teachers is crucial for better adapting to the development of the discipline and improving teaching quality.

3.4 Challenges in Interdisciplinary Integration and Communication Skills

Communication engineering encompasses knowledge from multiple disciplines, including electronic engineering and computer science. Young teachers may face challenges in integrating interdisciplinary knowledge, making it difficult to provide students with a comprehensive perspective of the subject. Moreover, the development of communication engineering requires high levels of cross-disciplinary collaboration, and a lack of interdisciplinary integration and communication skills may hinder young teachers from effectively addressing the demands of the discipline's development. Therefore, enhancing the interdisciplinary integration and communication skills of young teachers can contribute to better addressing the complexity and diversity of the communication engineering profession.

These factors may interconnect and collectively impact the teaching capabilities of young teachers in the field of communication engineering. Addressing these issues requires collaborative efforts from both educational institutions and individual teachers to elevate teaching standards and ensure the effective realization of educational objectives in the discipline.

4. Implementation Plan for the Young Teacher Mentor System

In the process of cultivating young teachers, systematic training and support are crucial. We can improve the teaching capabilities of young teachers in the field of communication engineering by developing specialized training plans. These plans should include creating more educational opportunities, providing teaching resources, and offering practical experiences. Moreover, strengthening the cultivation of young teachers' professional development and educational expertise is essential. Establishing effective collaborative relationships with experienced mentors for communication and experience sharing is also an effective approach. Through comprehensive and targeted measures, there is hope to enhance the teaching proficiency of young teachers in the field

of communication engineering, thereby driving an overall improvement in the quality of education within the profession.

4.1 Develop Personalized Training Plans

Developing personalized training plans requires a comprehensive assessment of young teachers' educational backgrounds, levels of professional knowledge, and teaching experience. In order to enhance the teaching capabilities of young teachers, we are implementing multifaceted training measures. Firstly, there are plans to conduct systematic educational pedagogy training, covering aspects such as classroom management, subject education theory, and teaching methodologies. The goal is to enhance the pedagogical literacy of young teachers. Secondly, specialized knowledge deepening training will be provided with a specific focus on the latest research developments and application prospects in the field of communication engineering. Through intensive training, we aim to elevate the professional knowledge level of young teachers. Simultaneously, there are plans to introduce innovative teaching methods such as problem-oriented learning and case-based teaching to train young teachers to exhibit greater creativity and flexibility in their teaching approaches. These training initiatives are designed to comprehensively improve the educational standards of young teachers, enabling them to better address educational challenges and contribute to the overall enhancement of individual and collective teaching quality.

4.2 Establish Practice Mechanisms Closely Aligned with Real Work

Offering practice mechanisms closely connected to actual work is an effective approach to enhance the teaching capabilities of young teachers. Firstly, actively promoting collaborative projects involving industry, academia, and research allows young teachers to engage in practical projects with relevant enterprises or research institutions in the field of communication engineering. This provides them with opportunities to integrate real-world work seamlessly into their teaching methods. Secondly, organizing field visits and industry tours enables young teachers to gain insights into the practical applications of communication engineering, broadening their hands-on experience. Through these practice mechanisms, young teachers will gain a deeper understanding of the practical requirements of the communication engineering profession, comprehensively enhancing their practical skills in real work scenarios. These initiatives aim to cultivate teaching methods for young teachers that are more closely aligned with practical needs, laying a solid foundation for their future teaching careers.

4.3 Strengthen the Cultivation of Interdisciplinary Integration and Communication Skills

To enhance the interdisciplinary integration and communication skills of young teachers in the field of communication engineering, we have developed a series of training programs. Firstly, we regularly organize interdisciplinary seminars, inviting experts from various fields to facilitate cross-disciplinary discussions and integration. Through this approach, young teachers will have the opportunity to gain in-depth insights into the latest research developments in other fields, fostering an interdisciplinary perspective. Secondly, we encourage young teachers to actively participate in interdisciplinary project collaborations, working with teachers from different disciplines on research and teaching activities. By collaborating with professionals from various disciplines, young teachers can better understand and address the interdisciplinary nature of communication engineering. These training methods aim to comprehensively enhance the young teachers' ability to integrate disciplines, enabling them to adapt more effectively to the development trends in the field of communication engineering and providing a solid foundation for interdisciplinary collaboration.

4.4 Establish an Interactive Platform between Mentors and Young Teachers

The key to improving the tutorial system is to establish an effective interaction mechanism between mentors and young teachers. This can be achieved by setting up regular platforms such as mentor-youth teacher forums and teaching experience-sharing sessions to facilitate communication and collaboration between both parties. During these interactions, mentors can share their teaching experiences, offer guidance, and provide advice to young teachers. Simultaneously, young teachers can express their concerns, articulate their needs, and engage in collaborative discussions to find solutions. Establishing such platforms helps mentors better understand the needs of young teachers, encouraging active participation from both sides in the process of teaching improvement and fostering mutual growth.

Through the comprehensive implementation of the above four strategies, the tutorial system for young teachers can be effectively improved, enabling them to thrive and develop in the field of communication engineering. These strategies not only focus on individualized training for young teachers but also emphasize holistic practices, interdisciplinary integration and communication, as well as fostering interactive relationships between mentors and young educators. This comprehensive approach is expected to enhance the overall quality of education in the field of communication engineering.

5. Conclusion

The implementation of the tutorial system for young teachers in local undergraduate institutions, particularly in the field of communication engineering, is a reform initiative of significant merit. Through the research presented in this paper, we have validated its effectiveness in enhancing teaching quality and promoting the integration of teaching and research. The successful implementation of this system not only plays a positively influential role in the growth of young teachers but also offers valuable insights for the educational reform of related disciplines.

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