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Research on Support Strategies for Professional Development of College Teachers under the Background of Informatization

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Abstract: Against the backdrop of rapid development of information technology, teachers in higher education institutions are facing unprecedented opportunities and challenges in their professional growth. The application of information technology not only changes the teaching mode and the allocation of educational resources, but also puts forward new requirements for teachers' knowledge system and professional abilities. This article analyzes the characteristics of teacher professional development under the background of informatization, and explores the main problems faced by teachers in technology application, resource acquisition, and conceptual transformation. A series of support strategies have been proposed to address these issues, including strengthening technical training, building resource sharing platforms, and promoting changes in teaching concepts, aiming to provide substantial assistance for the professional development of teachers in higher education institutions.

Keywords: informatization, university teachers, professional development, support strategy

Introduction

The professional development of teachers is a long and arduous process, which plays an important role in promoting teaching reform and facilitating teachers' career planning. Schools need to rationally analyze the specific changes in higher education teaching under the information environment, actively update professional development concepts, gradually improve teachers' information literacy, strengthen teachers' personal knowledge management, create a good organizational environment, and safeguard teachers' professional development. Teachers need to adhere to the concept of lifelong learning and lifelong education, pay attention to self-improvement while teaching and educating, actively seize learning and further education opportunities, keep up with the pace of the times, and bring more cutting-edge educational and teaching concepts and technologies into the classroom.

1. Characteristics of teacher professional development under the background of informationization

In the digital age, the professional development of university teachers presents a systematic change. With the comprehensive penetration of information technology, teaching methods are constantly innovating, moving from a single traditional classroom to new teaching models such as blended learning and flipped classroom that combine online and offline teaching. Faced with the growing demand for diversified learning among students, teachers must constantly learn and adapt to new technologies to keep up with this change.[1] The process of informatization has accelerated the iteration and updating of knowledge, and teachers' knowledge system is no longer limited to their own disciplines. They also need

to master interdisciplinary knowledge and data processing skills, especially in data analysis and educational technology applications. As a result, teachers' professional growth paths have become more flexible and varied. Informationization provides abundant online resources and personalized learning spaces, allowing teachers to choose multiple learning paths according to their own development needs, achieving self growth and continuous progress.[2] These changes collectively shape new trends and requirements for the professional growth of teachers in the information age.

2. Problems in the professional development of college teachers under the background of informatization

2.1 Knowledge and skill gaps in the application of information technology

Driven by the wave of educational informatization, teachers in higher education institutions have increasingly relied on information technology in their teaching and research. However, many teachers have shown deficiencies in knowledge and skills in the application of technology. Some teachers lack sufficient mastery of information technology teaching tools and software, making it difficult for them to effectively utilize digital platforms to design courses, manage teaching resources, and interact with students. With the rapid iteration of technology, university teachers urgently need to master cutting-edge technologies such as data analysis and online assessment tools to optimize teaching quality and efficiency.[3] However, due to the lack of a comprehensive training system and continuous technical support, many teachers encounter difficulties in using information technology and find it difficult to fully utilize the advantages of information technology in teaching. The gap in skills and knowledge not only hinders the professional growth of teachers in the information environment, but also has a negative impact on the popularization and effectiveness of information-based teaching.

2.2 Unequal allocation of information resources and weak support systems

With the rapid development of information technology, teachers in Chinese higher education institutions are facing problems of uneven resource allocation and weak support systems. Many universities have insufficient investment in hardware and software, resulting in a serious imbalance in the allocation of information technology teaching platforms, equipment, and digital resources, which limits teachers' access to high-quality teaching resources. In addition, the current information support system cannot provide comprehensive technical support, making it difficult for teachers to obtain timely and effective solutions when encountering technical difficulties.[4] Especially in colleges and universities located in remote areas or with limited educational resources, teachers face more severe challenges in obtaining information resources and technical support. Although some higher education institutions have certain basic information technology equipment, the mechanism for integrating and sharing resources is not sound, and there is a lack of efficient and convenient resource exchange platforms and channels. The uneven allocation of resources and weak support systems greatly constrain teachers' effective use of information technology in teaching.

2.3 The solidification of traditional teaching concepts and obstacles to the integration of information-based education

Despite the widespread application of information technology injecting fresh vitality and significant changes into the field of higher education, some teachers still adhere to outdated teaching concepts, which has become a major challenge for the popularization of information technology education. Many teachers still tend to rely on traditional teaching methods for knowledge transmission, with a low acceptance of information-based teaching models and even a rejection of digital teaching methods. Especially for experienced teacher groups, they are concerned that the use of information technology tools may weaken their teaching core position, thereby having a negative impact on teaching quality. Information technology teaching emphasizes interactivity and self-directed learning, but many teachers lack corresponding experience in designing courses and implementing management, which makes it difficult to balance the relationship between technology application and classroom control in practical operation. Due to this fixed mindset and rejection of new teaching methods, the integration of information technology education in the field of higher education has been limited, thus failing to fully unleash the innovative potential of information technology teaching.

3. Strategies to support the professional development of university teachers under the background of informatization

3.1 Strengthening the training and sustainable development mechanism of information technology capabilities

In order to meet the reform needs of information technology education, higher education institutions must establish a comprehensive technical training and sustainable development mechanism to provide support for teachers to adapt to the information technology environment. Higher education institutions should tailor training programs at different levels based on teachers' mastery of information technology. For beginners in information technology, basic skills training can be arranged, covering the operation of online teaching platforms, the design and production of electronic courseware, etc. For teachers who already have a certain technical foundation, more advanced courses can be provided, with a focus on data statistical analysis, personalized teaching plan design, and efficient use of online communication platforms. For example, a certain higher education institution has tailored introductory training courses for newly hired teachers, aimed at helping them quickly master teaching management systems and commonly used digital teaching tools. A data-driven instructional design course has been developed for an experienced group of teachers, aimed at promoting the implementation of personalized teaching strategies. In order to enhance the practical effectiveness of training, higher education institutions can periodically hold special seminars and practical workshops, inviting educational technology experts or teachers with experience in information technology teaching to share their practical cases and insights. For example, a certain higher education institution holds a practical workshop activity every quarter, which includes cutting-edge technologies such as virtual laboratory operations and interactive video production. Through practical operations, teachers can proficiently master these new technologies. In addition, the school has also arranged group discussion sessions to encourage teachers to exchange teaching experiences with each other during the training process and jointly create a positive atmosphere for technical learning. Higher education institutions can establish a "micro certification" system to record in detail the education and training received by teachers, and use this as an important basis for their performance evaluation and professional title promotion. For example, after completing specific skill training, teachers will receive corresponding certifications, which can increase their scores during promotion evaluations and also contribute to their professional development.

3.2 Establishing a comprehensive information support system and resource sharing platform

Higher education institutions need to establish a comprehensive information support system and resource sharing platform to provide teachers with abundant teaching resources and cutting-edge technological support, thereby promoting their professional development. Higher education institutions should establish specialized information technology support centers to ensure 24-hour uninterrupted technical support and training services for teachers. For example, many higher education institutions have established support centers and equipped them with professional technical personnel to meet the needs of teachers in using online teaching systems, equipment maintenance, and software updates at any time. This support system effectively helps teachers eliminate technical difficulties in the teaching process, allowing them to focus more on optimizing teaching content and improving teaching outcomes. The establishment of a resource sharing platform is the key to promoting efficient utilization of information technology teaching resources. Higher education institutions can create an integrated resource platform that gathers diverse teaching resources, such as high-quality courseware, teaching videos, case databases, interactive courseware templates, etc., to facilitate teachers' easy access to the required teaching materials. For example, a certain higher education institution has established a shared resource library, where teachers can log in to the system at any time to obtain high-quality teaching materials shared by other teachers and quickly enrich their own teaching content. To stimulate teachers' enthusiasm for resource exchange, higher education institutions should establish a reward system. For example, incorporating resource sharing behavior into performance evaluations, or providing additional teaching and research funding for teachers who actively contribute high-quality resources. By establishing such a support system and resource sharing platform, not only has the efficiency of utilizing information

resources been improved, but also the collaborative spirit within the campus has been promoted, helping teachers better integrate into the information teaching environment and providing continuous support for their professional development.

3.3 Promoting the transformation of information technology teaching concepts and cultural construction

In the context of the information age, the key to the professional growth of teachers in higher education institutions lies in the updating of their teaching concepts and the construction of educational culture. Higher education institutions showcase the significant advantages of information-based teaching to teachers through demonstration courses and open courses, allowing them to personally experience the enormous role of using digital tools to enhance teaching effectiveness and improve student interaction. For example, teachers who have outstanding achievements in the field of information technology teaching can be invited to conduct demonstration classes, demonstrating how to create more interesting teaching classrooms through interactive platforms and diverse media resources. This real teaching demonstration can inspire teachers' recognition and interest in information technology. Higher education institutions should use diverse means such as lectures, seminars, and case sharing to help teachers deepen their understanding of information technology teaching concepts and gradually transform traditional teaching concepts. Authoritative figures in the field of educational and teaching technology or teachers with sufficient information technology teaching practices can be invited periodically to share their innovative examples and insights, and jointly study how to integrate information technology more efficiently in curriculum planning, promoting teachers to gradually shift towards student-centered teaching models. The discussion activities among teachers on campus can also become a platform for mutual learning and communication, creating a positive atmosphere for information-based teaching. In order to promote the transformation of educational philosophy, higher education institutions can incorporate the application of information technology teaching into the teacher performance evaluation and promotion indicator system, thereby stimulating teachers to continuously explore innovative teaching methods. Valuing the practical effectiveness of information technology teaching in the assessment process not only enhances teachers' awareness of information technology education, but also helps to form an educational culture that values information technology and encourages innovation on campus. This shift in educational atmosphere and philosophy will lay a solid foundation for improving the teaching quality of higher education institutions, thereby promoting the professional development of teachers in the context of informatization.

4. Conclusion

In the context of the information age, teachers in higher education institutions have encountered unprecedented challenges and opportunities in their professional growth. Emphasis was placed on exploring the development needs of higher education teachers in the information technology environment, and various support strategies were proposed, including technical skills training, support system construction, and concept transformation. These strategies not only aim to enhance teachers' information technology level and teaching ability, but also hope to promote collaboration and innovation among teachers through resource sharing and cultural construction. Higher education institutions need to continuously improve these support systems to promote the continuous progress and professional development of teachers in the digital environment, inject continuous vitality into the improvement of teaching quality, and lay a solid foundation for the development of information-based education.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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