Exploration of the Cultivation Mode of Information-based Teaching Abilities for Newly-Hired Teachers in Applied Private Undergraduate Colleges and Universities—Taking Yinchuan University of Energy as an Example

Xuexia Dai

Yinchuan University of Energy, Ningxia, Yinchuan, 750001, China

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Abstract: With the rapid development of information technology, informatization teaching ability has become one of the essential core qualities for modern teachers. In response to the widespread insufficiency of newly-hired teachers' informatization teaching ability in applied private undergraduate colleges and universities, this paper takes Yinchuan University of Energy as an example to explore its cultivation mode of informatization teaching ability. Through an in-depth analysis of the current situation of informatization teaching for newly-hired teachers in this university, this paper proposes a series of cultivation strategies, including the establishment of a comprehensive training system, the construction of an informatization teaching resource platform, and the strengthening of teaching design and implementation ability training. At the same time, combining specific teaching cases, this paper elaborates the practical path of cultivating informatization teaching ability, aiming to provide reference for newly-hired teachers in similar institutions to cultivate their informatization teaching ability.

1. Introduction

With the rapid development of information technology, modern education has undergone unprecedented changes. As one of the core qualities of the modern education system, informatization teaching ability is of great significance for improving teaching quality and efficiency. However, newly-hired teachers in applied private undergraduate colleges and universities generally face challenges in informatization teaching ability. This article aims to take Yinchuan University of Energy as an example to delve deeply into the cultivation mode of informatization teaching ability, hoping to provide a reference for improving the informatization teaching ability of newly-hired teachers and promoting the continuous progress and development of modern education.

2. Literature Review

(1) Current research status of informatization teaching ability at home and abroad

The research on informatization teaching ability has received widespread attention both domestically and internationally. In foreign countries, the development of educational informatization technology started earlier and is widely applied, having formed a relatively mature system for the application of educational informatization technology. Government departments have invested heavily in providing technical support to promote the application of educational informatization technology in school education. At the same time, foreign researchers have conducted in-depth discussions on informatization teaching ability and proposed various training models for informatization teaching ability, such as project-based learning and collaborative learning, aiming to improve teachers' technical application ability and teaching effectiveness.

Domestically, although the application of educational informatization technology started later, in recent years, with the deepening of educational reform and the rapid development of informatization technology, research on informatization teaching ability has gradually increased. Domestic researchers mainly focus on how to improve teachers' informatization teaching ability,

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including how to build a comprehensive training system, establish an informatization teaching resource platform, and strengthen teaching design and implementation ability training. At the same time, there are also researchers who conduct specialized research on the cultivation of informatization teaching ability for specific types of schools or teacher groups, such as newly-hired teachers in applied private undergraduate colleges and universities[1].

(2) Development trends of informatization teaching ability training models

The development trends of informatization teaching ability training models are mainly reflected in the following aspects: First, emphasizing practicality and improving teachers' informatization teaching ability through practical activities; second, emphasizing individuality and providing personalized training programs tailored to the characteristics and needs of different teachers; third, emphasizing cooperation and encouraging collaboration and communication among teachers to jointly improve their informatization teaching ability; fourth, emphasizing innovation and encouraging teachers to use new technologies and methods for teaching innovation to improve teaching effectiveness.

(3) Challenges faced by teachers in applied private undergraduate colleges and universities in informatization teaching ability

The challenges faced by teachers in applied private undergraduate colleges and universities in informatization teaching ability mainly include the following aspects: First, insufficient technical ability, with some teachers lacking sufficient proficiency in information technology and unable to effectively apply it in teaching; second, scarcity of teaching resources, with some schools lacking necessary informatization teaching equipment and resources, limiting the improvement of teachers' informatization teaching ability; third, lagging educational concepts, with some teachers having a shallow understanding of informatization teaching and still adhering to traditional teaching models; fourth, imperfect training mechanisms, with a lack of systematic and effective training mechanisms for informatization teaching ability, leading to slow improvement in teachers' informatization teaching ability.

3. Analysis of the Current Situation of Informatization Teaching Ability of Newly-Hired Teachers in Yinchuan University of Energy

(1) Current situation survey of teachers' informatization teaching ability

Currently, the current situation of teachers' informatization teaching ability exhibits diverse characteristics. Taking Yinchuan University of Energy as an example, through a survey of the informatization teaching ability of newly-hired teachers, it was found that most teachers are proficient in using basic multimedia teaching equipment, such as projectors, electronic whiteboards, etc. At the same time, some teachers are also able to utilize information technology tools to create teaching courseware, teaching cases, etc., to enrich teaching methods. However, when it comes to more advanced aspects such as the integration of informatization teaching resources, the application of teaching platforms, and the design and implementation of informatization teaching, teachers' performance varies widely. In addition, according to broader survey data, among teachers in higher vocational colleges in China, the proportion of those who can skillfully utilize new technologies and software to enrich informatization teaching content and teaching methods is relatively low, reflecting that the overall level of teachers' informatization teaching ability needs to be improved[2].

(2) Existing problems and deficiencies and their causes

In terms of teachers' informatization teaching ability, the main problems and deficiencies include insufficient technological application ability, limited ability to integrate informatization teaching resources, immature informatization teaching models, and imperfect training mechanisms. The emergence of these problems and deficiencies is partly due to the rapid development of information technology, which makes it difficult for teachers to keep up with the pace of technological updates and lacks sufficient time and energy to learn and master new technologies. On the other hand, the scarcity of informatization teaching resources in some schools restricts the improvement of teachers' informatization teaching ability. Additionally, some teachers lack a deep understanding of informatization teaching and still adhere to traditional teaching models, lacking the awareness and

motivation to apply information technology to teaching. At the same time, the lack of systematic and effective training mechanisms for informatization teaching ability is also an important reason for the slow improvement of teachers' informatization teaching ability. These training activities often lack targetedness and practicality, failing to meet the actual needs of teachers, thus affecting the improvement of teachers' informatization teaching ability.

4. Construction of an Informatization Teaching Capability Development Model

(1) Establishing a Comprehensive Training System

Establishing a comprehensive training system is the foundation for enhancing teachers' informatization teaching capability. This system should include the following key aspects:

1) Designing Training Content

The design of training content is the core of the training system. Firstly, it is necessary to clarify the specific needs of teachers' informatization teaching capabilities, including basic information technology operations, teaching resource integration, teaching design, etc. Based on these needs, hierarchical and systematic training content should be designed. Primary content can cover basic information technology operation skills, such as the use of multimedia equipment and simple courseware creation. Intermediate content can involve teaching resource integration and simple informatization teaching design. Advanced content should include the application of complex informatization teaching tools, the use of teaching platforms, and advanced teaching design strategies. At the same time, the training content should focus on the combination of theory and practice to ensure that teachers can apply the skills learned in actual teaching.

2) Selecting Training Methods

The selection of training methods should fully consider the actual situation and needs of teachers. A combination of online and offline training methods can be adopted, utilizing online platforms to provide rich learning resources and interactive platforms, while combining face-to-face offline training to provide opportunities for practical operation and communication. In terms of training methods, various methods such as case analysis, group discussion, practical operation, etc. can be used to stimulate teachers' learning interest and initiative. Additionally, expert lectures and workshops can be introduced to provide teachers with opportunities for face-to-face exchanges with experts and deepen their understanding of informatization teaching concepts and skills.

3) Evaluating Training Effectiveness

Evaluating training effectiveness is an essential part of the training system. Through evaluation, we can understand teachers' learning status and training effectiveness, providing a basis for subsequent improvements. Evaluation can be conducted through various methods such as questionnaires, teacher self-evaluation, and classroom observations. Questionnaires can collect teachers' feedback on training content and methods; teacher self-evaluation allows teachers to reflect on their learning process and achievements; classroom observations can directly observe teachers' application of informatization teaching skills in actual teaching. Through a comprehensive analysis of these evaluation results, we can fully understand the effectiveness of the training and provide targeted suggestions for subsequent improvements.

(2) Establishing an Informatized Teaching Resource Platform

To enhance teachers' informatization teaching capabilities, it is crucial to establish an informatized teaching resource platform. The following is a detailed elaboration on the functions and features of the platform, its construction and management, as well as its application in teaching:

1) Platform Functions and Features

An informatized teaching resource platform should possess various functions to meet the needs of teachers' teaching and students' learning. Firstly, the platform should provide abundant teaching resources, such as teaching slides, cases, video tutorials, etc., to assist teachers in better preparing and delivering courses. Secondly, the platform should have resource retrieval and sharing functions to enable teachers to conveniently search for and share high-quality teaching resources. Additionally, the platform should support online communication and collaboration, providing teachers with

channels to interact with peers, experts, and students. These features collectively constitute a comprehensive, efficient, and convenient informatized teaching resource platform.

2) Platform Construction and Management

Constructing an efficient informatized teaching resource platform requires attention to several aspects. Firstly, the platform should adopt a stable and reliable technical architecture to ensure the stability and security of its operation. Secondly, the platform should establish a strict resource review mechanism to ensure the quality of uploaded teaching resources. At the same time, the platform should provide comprehensive user management and access control functions to ensure that different users can access corresponding resources and services based on their roles and permissions. Finally, the construction of the platform should also focus on user experience, continuously optimizing interface design and operational processes to improve user satisfaction.

3) Application of the Platform in Teaching

The application of the informatized teaching resource platform in teaching has broad prospects. Firstly, teachers can search for and obtain high-quality teaching resources through the platform to enrich teaching content and forms. Secondly, the platform can support online lesson preparation and teaching, making the teaching process more convenient and efficient. For example, teachers can upload teaching slides, assign homework, and conduct exams through the platform. Additionally, the platform can support students' independent and collaborative learning, providing them with abundant learning resources and communication channels. Through the platform's learning data analysis function, teachers can also understand students' learning progress and effects, providing a basis for teaching improvement. Overall, the application of the informatized teaching resource platform in teaching will greatly enhance teaching quality and efficiency.

(3) Enhancing Training in Instructional Design and Implementation Capabilities

To strengthen teachers' capabilities in instructional design and implementation, we need to focus on training in the following areas:

1) Instructional Design Theory and Methods

Instructional design theory and methods serve as the foundation for enhancing teachers' capabilities in this area. Firstly, teachers need to systematically learn the basic principles of instructional design, such as its objectives, characteristics, and processes. By understanding the fundamental framework of instructional design, teachers can clarify their teaching directions and goals. Secondly, teachers must master specific methods of instructional design, including front-end analysis, setting teaching objectives, selecting teaching strategies, and conducting teaching evaluations. These methods can assist teachers in better analyzing student needs, determining teaching content and methods, and designing teaching plans that are more aligned with students' realities.

2) Application of Information-based Teaching Tools and Technologies

With the rapid development of information technology, the application of information-based teaching tools and technologies in teaching is becoming increasingly widespread. Teachers need to actively learn and master these new teaching tools and technologies to improve teaching effectiveness and efficiency. For instance, teachers can learn to use information-based teaching tools such as electronic whiteboards, multimedia teaching equipment, and online learning platforms to showcase rich teaching resources and content in the classroom. Additionally, teachers can leverage advanced technologies like virtual reality and artificial intelligence to provide students with more vivid and intuitive learning experiences. By mastering these information-based teaching tools and technologies, teachers can better stimulate students' interest and enthusiasm for learning.

3) Teaching Implementation and Feedback

Teaching implementation and feedback are crucial steps in evaluating the effectiveness of instructional design and implementation. During the teaching implementation process, teachers need to closely monitor students' learning situations and reactions, making timely adjustments to teaching strategies and methods. At the same time, teachers should also emphasize interaction and communication with students, encouraging them to actively participate in the teaching process and express their opinions and views. To obtain effective teaching feedback, teachers can collect student

feedback through classroom observations, assignments, tests, and other methods. Based on this information, teachers can adjust and improve their teaching plans. Additionally, teachers should prioritize students' individual needs and learning differences, providing personalized teaching support and assistance to different students. Through continuous cycles of teaching implementation and feedback, teachers can continuously enhance their capabilities in instructional design and implementation.

5. Practical Case of Cultivating Information-based Teaching Abilities

In the practice of enhancing teachers' information-based teaching abilities, we selected a specific case as the implementation target. The background of this case is that teachers in a certain school generally face challenges in insufficient information-based teaching abilities, especially in teaching design, teaching resource integration, and the application of information-based teaching tools. To address these issues, we implemented a comprehensive training program that covers key contents such as teaching design theory and methods, the utilization of information-based teaching tools and technologies, and teaching implementation and feedback.

During the implementation process, we first provided teachers with systematic training on teaching design to help them master advanced teaching concepts and methods. Next, we guided teachers to learn and apply information-based teaching tools and technologies, allowing them to experience the advantages of these new technologies in teaching through practical operations. Finally, we encouraged teachers to apply the knowledge and skills they learned in actual teaching and evaluated teaching effectiveness through classroom observations and student feedback.

Through case analysis, we found that the training program achieved remarkable results. Teachers' information-based teaching abilities have been significantly improved, enabling them to better utilize information-based teaching tools and technologies to enrich teaching content and formats. At the same time, teachers' teaching design and implementation abilities have also been strengthened, allowing them to better design teaching plans based on students' needs and characteristics and effectively implement them. However, we also realized that there were some shortcomings in the implementation process, such as some teachers still facing difficulties in learning and applying new technologies, which requires further training and guidance. Additionally, we should further improve the training content and methods to better meet teachers' actual needs[3].

6. Implementation Strategies for the Cultivation Mode of Information-based Teaching Abilities in Yinchuan Energy Institute

(1) Organizational Guarantee: Leadership Attention and Policy Support

In the practice of enhancing teachers' information-based teaching abilities, organizational guarantee is the primary and critical link. Leadership attention is an important driving force for promoting information-based teaching reform. Only when the school leadership fully recognizes the importance of information-based teaching can they provide strong organizational support for the reform. At the same time, policy support is also indispensable. The government and educational administrative departments should issue relevant policies to clarify the goals, tasks, and requirements of information-based teaching, providing necessary policy support and guidance to schools and teachers. These policies can include financial support, project support, evaluation incentives, and other contents to encourage schools and teachers to actively participate in information-based teaching reform.

(2) Resource Guarantee: Funding, Technology, and Equipment Investment

Resource guarantee is an important foundation for enhancing teachers' information-based teaching abilities. Funding is the key to ensuring the smooth progress of information-based teaching. Schools and educational administrative departments should increase funding to provide necessary financial support for information-based teaching. At the same time, technology and equipment investment are also indispensable. Schools should introduce advanced information-based teaching technologies and equipment, such as multimedia teaching equipment, online learning platforms,

teaching resource libraries, etc., to provide teachers with rich teaching resources and tools. These technologies and equipment can greatly enhance teaching effectiveness and efficiency, providing better teaching support for teachers[4].

(3) Institutional Guarantee: Improving Related Systems and Incentive Mechanisms

Institutional guarantee is an important safeguard for enhancing teachers' information-based teaching abilities. Schools should establish a sound information-based teaching management system, clarify the tasks and requirements of teachers' information-based teaching, and standardize teachers' teaching behavior. At the same time, schools should also establish incentive mechanisms to encourage teachers to actively participate in information-based teaching reform. These incentive measures can include professional title evaluation, bonus rewards, certificates of honor, and other contents to stimulate teachers' enthusiasm and creativity. By improving the system and incentive mechanisms, a long-term mechanism can be formed to promote information-based teaching reform.

(4) Cultural Guarantee: Creating an Information-based Teaching Atmosphere

Cultural guarantee is the soft power for enhancing teachers' information-based teaching abilities. Schools should create a strong atmosphere of information-based teaching, enabling teachers to fully recognize the importance and necessity of information-based teaching. They can organize activities such as information-based teaching seminars, experience exchange meetings, and training courses to enable teachers to understand the latest teaching concepts and technological developments, stimulating their interest and motivation to learn information-based teaching knowledge. At the same time, schools should also strengthen information construction, improve the campus network environment, and provide convenient information exchange and learning platforms for teachers. By creating an information-based teaching atmosphere, cultural forces can be formed to promote information-based teaching reform[5].

7. Conclusion

In summary, this study indicates that the cultivation of teachers' information-based teaching abilities requires various safeguard measures, including leadership support, resource investment, institutional improvement, and cultural atmosphere creation. For newly employed teachers in similar institutions, this study provides insights into the combination of training and practice, as well as the establishment of incentive mechanisms. Although this study has limitations such as sample constraints and insufficient evaluation of teaching effectiveness, future research can expand the sample size, strengthen the evaluation of teaching effects, and explore the innovative integration of information-based teaching with modern educational concepts.

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