

Research On The Promotion Of Information Teaching Ability Of Higher Vocational Teachers

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Abstract

This article aims to study the ways to improve the information-based teaching ability of teachers in higher vocational colleges in Guangzhou . Through literature review research, we sorted out and analyzed the current situation in this field at home and abroad, and clarified the importance of information-based teaching capabilities and its positive role in the teaching practice of higher vocational teachers. This study also proposes a series of research strategies aimed at promoting the improvement of information-based teaching capabilities of higher vocational teachers.

Keywords: higher vocational teachers, information-based teaching ability, influencing factors, research strategy

1 Introduction

With the rapid development and widespread application of information technology, the field of education is also facing unprecedented changes and challenges. Informatization teaching has become an important means to improve teaching quality and promote students' innovation ability. As higher vocational education is an important field for cultivating applied talents, the information-based teaching ability of higher vocational teachers is particularly critical. Currently, although the information-based teaching capabilities of higher vocational teachers are constantly improving, there are still many challenges compared with the rapid development of information technology. Therefore, it is imperative to study the factors that affect the information-based teaching ability of higher vocational teachers and provide corresponding improvement paths. This study aims to explore the influencing factors of higher vocational teachers' information-based teaching abilities and propose feasible improvement paths, in order to provide effective reference and guidance for the improvement of higher vocational teachers' information-based teaching abilities.

2. Literature review

2.1 Domestic research status

In recent years, the influencing factors of higher vocational teachers' informatization capabilities have been one of the hot topics in the field of education. The research found that first, there are differences in the information-based teaching ability levels of higher vocational teachers with

different backgrounds. The second is the external environment, policy guidance and atmosphere creation for information-based teaching in higher vocational colleges. The information-based teaching ability of teachers in higher vocational colleges has a significant impact on teachers' information-based teaching ability. Third, information-based teaching training in the external environment has a significant impact on the information-based teaching ability of higher vocational teachers. Fourth, the individual psychological tendencies of higher vocational teachers, personal interests, self-needs, and self-efficacy significantly affect the development of teachers' information-based teaching capabilities. Fifth, in the relationship between the external environment and teachers' information-based teaching ability, individual psychological tendencies play a mediating role.

Research shows that teachers' recognition of information technology and their perception of its potential benefits in teaching will directly affect their information capabilities. For example, one study found that teachers have a positive perception of the improvement of students' learning outcomes through information-based teaching and a high evaluation of the value of information-based teaching, which helps improve their information-based capabilities. Perceived usefulness is considered to be one of the important factors affecting the informatization ability of higher vocational teachers. (Xu Jing & Gan Qixu, 2022) Another important influencing factor is perceived ease of use. This means teachers' perception of the ease of using information technology. Research shows that teachers believe that it is not difficult to master information-based teaching technology and that it is easy to learn and use tools and software related to information-based teaching, which helps improve their information-based capabilities. (Shi Haoxing, 2022) . Self-efficacy is also an important factor affecting the informatization ability of higher vocational teachers. Self-efficacy refers to teachers' confidence in their abilities in information-based teaching. Research shows that teachers' self-efficacy plays an important role in promoting the development of their information capabilities. Teachers have the ability to use information-based teaching technology and believe that they can effectively use information-based teaching technology to improve teaching, which is conducive to improving their information-based capabilities. (Sui Xinghua, Zhao Guodong, Wang Jingxin and Zhang Yuxue, 2020) . On this basis, after conducting statistics and analysis on the survey data and information, the author found that there are some problems in the current utilization of information teaching resources by college teachers. The main manifestations are that teachers do not have enough awareness of information-based teaching resources, teachers lack innovation in utilization awareness, the use of information-based teaching resources is single, teachers' ability to use information needs to be improved, the use rate of information-based teaching resources is not high, and the use of information-based teaching resources is not effective. Significantly. (Yang Jiali, 2022) .

Teacher training is also one of the important factors affecting the informatization capabilities of higher vocational teachers. Research shows that systematic training courses and professional training support have a positive impact on improving teachers' informatization capabilities. By participating in professional training activities such as seminars and lectures related to information-based teaching technologies or methods, teachers can improve their professional knowledge and skills, thereby improving their information-based capabilities. At the theoretical level, teachers should update educational concepts based on the rapid development of information-based education, improve their awareness of independent information-based

teaching design, and strengthen training effects. (Shi Yuling, 2021. Through a survey of 1,622 teachers in higher vocational colleges, we sorted out their current information-based teaching ability levels and training needs, and combined with their existing problems and needs, based on information-based teaching concepts and awareness Based on five dimensions of capability improvement, including environmental configuration, teaching resource development and application, teaching design and implementation, and teaching improvement and research, "timeliness and effectiveness" training, training courses and training processes to enhance training effects are provided. and training mechanisms and other specific implementation plans.

(Cheng Qingmei, 2023) The school system also has an important impact on the informatization capabilities of higher vocational teachers. The school provides a good information-based teaching environment and facilities, gives full support and attention to information-based teaching, formulates clear policies and regulations, provides appropriate resource investment for information-based teaching, and recognizes and rewards teachers for their work in information-based teaching. As a result, this series of school system support can promote the improvement of information technology capabilities of higher vocational teachers.

(Xue Huitong, 2023) .

In summary, perceived usefulness, perceived ease of use, self-efficacy, teaching resources, teacher training and school systems are important factors affecting the informatization capabilities of higher vocational teachers. Understanding and paying attention to these factors can provide guidance and support for improving the informatization capabilities of higher vocational teachers.

2.2 Current status of foreign research

Although the United States, Britain, Japan, South Korea and other economically developed countries have different educational systems, they all strive to put their education in an advantageous position in the information age. They are very similar in planning and implementing educational informatization. Pay attention to the application and development of educational informatization in basic education, pay attention to cultivating students' ability to obtain and utilize information, and strive to innovate education through the application of information technology in teaching.

Research on the information-based teaching capabilities of foreign university teachers mainly focuses on three aspects: the construction of smart learning environments, smart teaching supported by smart technology, and personalized learning supported by machine learning technology. Foreign researchers have used a variety of research methods, such as survey methods, experimental methods, content analysis methods, etc., to explore the current situation, influencing factors, effect evaluation, improvement strategies and other issues of teachers' information-based teaching, and provide insights into the theory and practice of teachers' information-based teaching. Provides useful reference. The evaluation standards and systems for the information teaching ability of foreign university teachers are also relatively complete, such as the ISTE standards in the United States, the ICT standards in the United Kingdom, and the TTF standards in Australia, etc. 5. In April 2022, Ireland released the School Digital Strategy 2027, which aims to ensure that all learners have the opportunity to acquire knowledge and skills that adapt to the continuous development of the digital world.

Teachers' digital abilities are a key factor that affects teachers' information-based teaching abilities. A variety of standards and evaluation systems for teachers' digital literacy have been formulated abroad, such as "Teachers' Digital Literacy" [3](#), TPACK [4](#), etc.

Since the European Commission proposed the "Digitizing European Industry" strategy in 2016, European countries have successively formulated corresponding development plans, such as the "Dynamics of Data Science Skills" released by the Royal Academy of Sciences in 2019, and the "School Digital Strategy 2027" proposed by Ireland. Asian regions, such as Japan and South Korea, have also formulated corresponding policies. From a timeline perspective, the digital transformation of global education is transitioning from the embryonic stage to the exploratory stage. (Luo Jianghua , Ye Tong and Wang Jingxian, 2023)

3. Material And Methods

This study aims to investigate the influencing factors of teachers' information-based teaching ability. The following is a detailed description of the methods used in this study:

3.1 Subjects

Through convenience sampling method, 544 teachers were selected from the teacher groups of 7 higher vocational colleges in Guangzhou as the research sample. These teachers come from different professional backgrounds and teaching experience and represent a range of different information-based teaching experience levels.

3.2 Questionnaire design

Based on a review of relevant literature and expert opinions, we designed a questionnaire instrument. The questionnaire consists of 2 parts, including basic personal information and 6 dimensions of influencing factors (perceived usefulness, perceived ease of use, self-efficacy, teaching resources, teacher training, and school system) . Each section includes multiple choice questions and scale measurement questions. The questionnaire was scored on a 5-point Likert scale, indicating strongly disagree (1 point) , disagree (2 points) , neutral (3 points) , agree (4 points) , and strongly agree (5 points) .

3.3 Questionnaire survey process

During the investigation, we contacted the academic affairs departments of the target higher vocational colleges to seek their support and assistance. The questionnaire was conducted online, and the Questionnaire Star platform was used for data collection and management. Before sending the questionnaire, we conducted a pilot survey and revised and improved the questionnaire to ensure that it was accurate, complete, and understandable.

3.4 Data analysis

After collecting the questionnaire data, we used statistical software (such as SPSS) to organize and analyze the data. Descriptive statistical analysis methods were used to describe and summarize the personal basic information of the subjects and the scores of each dimension.

3.5 Scientific ethics

Before conducting the questionnaire survey, we obtained approval from the relevant ethics committee and explained the purpose and confidentiality policy of this study to the subjects. All teachers who participated in the survey did so voluntarily and were informed that they could withdraw from the survey at any time and that their personal information would be kept confidential and anonymous.

Through the use of the above materials and methods, we hope to have a comprehensive understanding of the current status and influencing factors of teachers' information-based teaching capabilities and provide targeted improvement suggestions and training plans for education management departments and higher vocational colleges.

4. Results and Discussion

This study aims to explore teachers' performance and influence in six dimensions: perceived usefulness, perceived ease of use, self-efficacy, teaching resources, teacher training and school systems. A detailed presentation and discussion of these results follows. The factors influencing the development of teachers' information-based teaching abilities can be analyzed from multiple perspectives.

4.1 The impact of perceived usefulness on teachers' information teaching ability

When teachers believe that information-based teaching can improve students' learning effectiveness and enhance the attractiveness and interactivity of teaching, they are more motivated to actively participate in information-based teaching practice. In addition, teachers' positive attitude towards information-based teaching will also prompt them to actively learn and try new teaching methods and tools, further improving their information-based teaching capabilities.

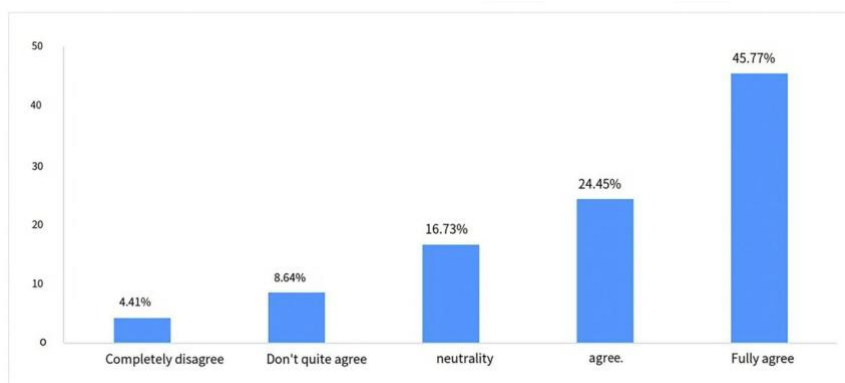


Figure 1. Perceived usefulness can enhance teachers' motivation and willingness.

4.2 The impact of perceived ease of use on teachers' information teaching ability

When teachers believe that information-based teaching tools are easy to operate, have a short learning curve, and are user-friendly, they are more willing to use these tools to support their teaching practices. By reducing teachers' technical burden and providing a convenient teaching

environment, perceived ease of use can help teachers better apply information teaching tools and technologies and improve their information teaching capabilities.

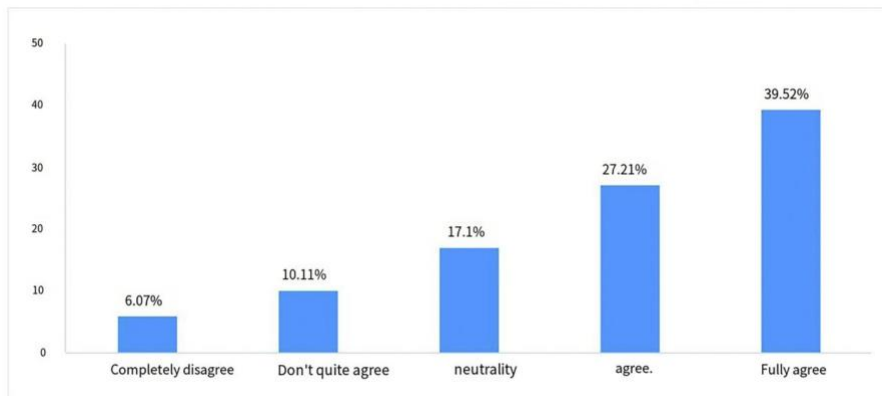


Figure 2. Easy-to-use tools can help teachers operate and master the tools more easily.

4.3 The impact of self-efficacy on teachers' information teaching ability

Self-efficacy plays an important role in the information-based teaching ability of higher vocational teachers. When teachers have high self-efficacy, they are more motivated to face the challenges of information-based teaching, actively apply new teaching tools and technologies, and expand their information-based teaching capabilities. Self-efficacy can also help enhance teachers' awareness of professional development and encourage them to continuously pursue teaching innovation and have the courage to try, thereby improving their information-based teaching capabilities and the quality of education and teaching.

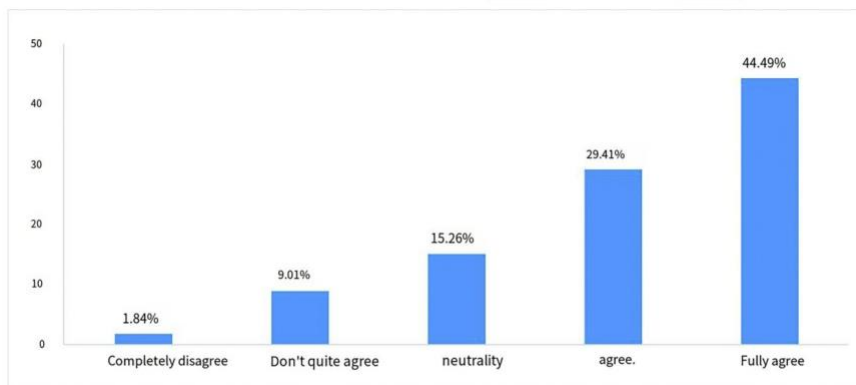


Figure 3. Teachers with high self-efficacy are more likely to show a positive willingness to innovate in teaching and are willing to try and apply information-based teaching methods and tools to improve their information-based teaching capabilities.

4.4 The impact of teaching resources on teachers' information teaching ability

Educational institutions should provide advanced and reliable information technology equipment and teaching platforms to support teachers' information-based teaching practices. At the same time, teachers also need continuous technical support and guidance to solve technical problems and confusions they may encounter during the teaching process. The adequacy and quality of

teaching resources have a direct impact on teachers' information-based teaching capabilities. Educational institutions provide rich and practical teaching resources to help teachers better carry out information-based teaching practices and improve their information-based teaching capabilities. Reasonable allocation and utilization of teaching resources can also stimulate teachers' creativity and teaching enthusiasm, develop teaching ideas, and promote the widespread application of information-based teaching in college education.

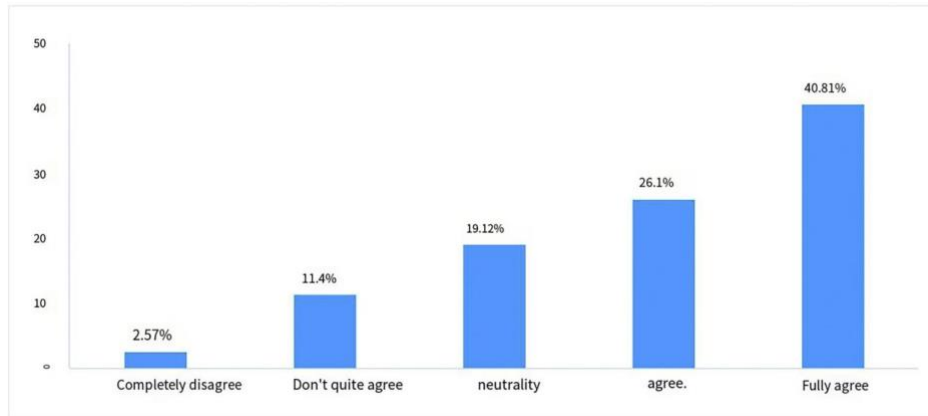


Figure 4. Providing advanced teaching resources such as computers, tablets, projectors and other technical equipment can help teachers better apply information-based teaching tools and resources.

4.5 The impact of teacher training on teachers' information teaching ability

Systematic and targeted teacher training and training activities help teachers master new teaching technologies and educational concepts and improve the practical ability of information-based teaching. Educational institutions and relevant departments should provide rich and diverse training resources and support to help teachers constantly update their knowledge and skills and gradually improve their information-based teaching capabilities. Teacher training can improve teachers' information-based teaching awareness and skill level by introducing new teaching concepts and introducing advanced teaching methods and technologies. Training courses should focus on practicality and operability, helping teachers become familiar with and master the use of information-based teaching tools and technologies. Teacher training can also provide teaching cases and experience sharing to help teachers learn from the successful practices of others and further improve their own information-based teaching capabilities. In addition, training can also stimulate teachers' interest in learning and desire for knowledge, encourage them to continue learning and innovation, thereby promoting the development of information-based teaching capabilities of higher vocational teachers.

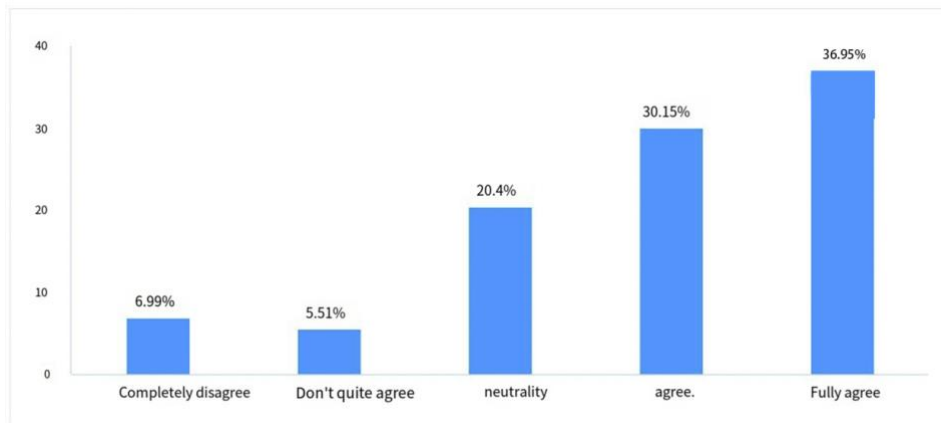


Figure 5. Teaching training can help teachers learn and master the skills of using information - based teaching tools and technologies and improve their technical capabilities.

4.6 The impact of school system on teachers' information teaching ability

The attention and support of school leaders, the full utilization and rational allocation of teaching resources, and an educational culture that encourages teachers to innovate and practice will all contribute to the improvement of teachers' information-based teaching capabilities. Schools should establish a complete information-based teaching management mechanism, including formulating relevant policies and guidance documents, and clarifying the goals and requirements of teachers' information-based teaching. Schools should also focus on creating a good information-based teaching environment, provide corresponding technical facilities and teaching resources, and provide support for teachers to carry out information-based teaching. In addition, schools can establish an assessment and incentive mechanism for teachers' information-based teaching. By evaluating the effectiveness and quality of teachers' information-based teaching, teachers can be encouraged to actively engage in information-based teaching practice and improve their information-based teaching capabilities.

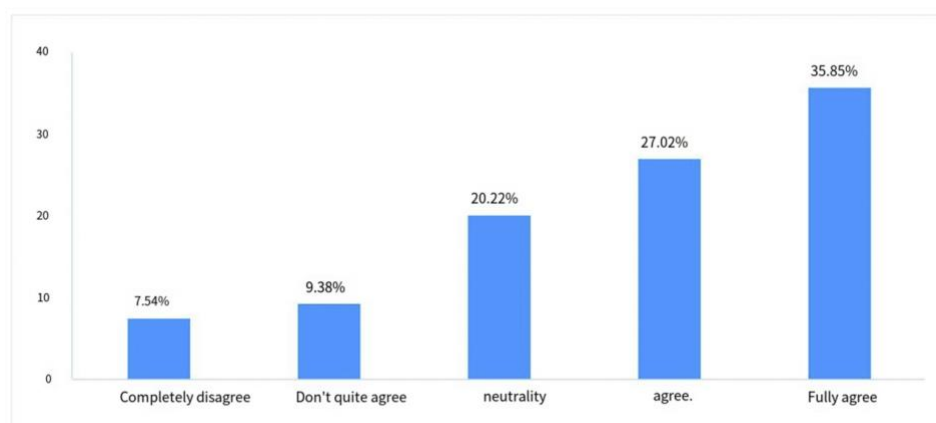


Figure 6. School systems can incorporate information-based teaching capabilities into teaching objectives and evaluation systems, and encourage teachers to improve information-based teaching levels .

5. Conclusion and recommendations

To sum up, in order to improve teachers' information-based teaching capabilities, educational institutions should focus on the following efforts:

5.1 Construct a standard system for information-based teaching ability of higher vocational teachers

In view of the current situation of accelerated development of higher vocational education, the country should study and formulate as soon as possible an information-based teaching ability standard system for higher vocational teachers that is in line with the reality of higher vocational education and is feasible. The information-based teaching ability standard system of higher vocational teachers should not be fixed, but dynamically adjusted with the development of information technology. It will be continuously improved and improved with the development of information technology in education. It is a growth-oriented system. This system should cover many aspects such as basic teaching ability, teaching information integration ability, teaching design and organization ability, teaching collaboration ability, teaching feedback ability, etc., and reflect the learning characteristics of the information society. The establishment of the information-based teaching ability standard system for higher vocational teachers will provide norms and standards for improving information-based teaching ability for higher vocational teachers, making the improvement of information-based teaching ability a purposeful and directed process.

5.2 Improve the information-based teaching ability improvement mechanism of teachers in higher vocational colleges

The school provides a place for teachers to carry out education and teaching activities, and also provides a platform for teachers to display their professional teaching abilities. Schools are the most direct external factors promoting the development of teachers' information-based teaching capabilities. First of all, higher vocational colleges must establish an assessment and evaluation system that covers the dimensions of information-based teaching ability improvement, especially the incentive mechanism that promotes the improvement of teachers' information-based teaching ability. At present, the development of the National Informatization Teaching Competition has led some colleges and universities to use competition awards as an important means to encourage the improvement of information teaching capabilities. Although some teaching designs or courses that have won awards in the competition have played a leading role in demonstration, the rewards have not been effective. To fully mobilize the subjective initiative of all teachers to improve their information-based teaching capabilities.

A truly effective incentive mechanism needs to run through the entire process of teaching staff construction in higher vocational colleges and cover all teachers, so that every teacher can find a sense of value in the information construction and actively invest in improving information teaching capabilities. Secondly, higher vocational colleges also need to improve the information construction service system and do a good job in information management. The construction of information infrastructure must give balanced consideration to the development needs of each major, meet the requirements of teachers in each major for improving their information capabilities, and achieve the sharing and co-construction of information teaching resources

among majors. School information resources should be equipped with professionals to manage, develop and use them to improve the efficiency of use of information resources and avoid repeated and ineffective purchases. Third, higher vocational colleges should build a diversified teacher information teaching ability training system. The development of information-based teaching capabilities of higher vocational teachers in my country relies solely and excessively on regular training and is limited to traditional forms such as training classes and expert lectures. Teachers' specific differences in information-based teaching capabilities and individual needs are often ignored. Facing the new situation, higher vocational colleges should consider introducing diversified teacher training methods, such as institutional training, online training, school-based training, short-term training, etc., through various teaching exchanges, teaching observation, and Teaching seminars and other forms will infiltrate training into daily teaching.

5.3 Improve the personal information-based teaching comprehensive quality of higher vocational teachers

The main body of improving information-based teaching ability is the individual teacher, and the quality of information-based teaching directly depends on the teacher's understanding and understanding of information-based teaching ability. In teaching activities, teachers are both designers and implementers, and are the most important factor in controlling and guiding classroom teaching. Only when teachers understand information-based teaching more deeply and correctly can information-based teaching reform be fundamentally realized.

Information-based teaching first requires teachers to have lifelong learning capabilities, be able to systematize the fragmented knowledge acquired through learning and optimize the output. Secondly, teachers must also have the ability to transfer information-based teaching in new situations. They must focus on teaching practice, realize information-based teaching integration and information-based teaching exchanges in different information-based teaching situations, and reflect in practice, Grow through reflection and ultimately realize the generation and creation of teachers' information-based teaching wisdom. Third, teachers must implement information-based collaborative teaching. The information society requires that teachers' teaching is no longer a simple transfer of individual knowledge, but a teaching collaboration between teachers, which is concentrated in teaching observation, teaching seminars, collaborative exchanges, collaborative scientific research, etc.; at the same time, collaboration is also reflected in the mutual learning between teachers and students. In the interactive communication, make full use of information-based teaching methods to return the subject of the classroom to the students, fully stimulate students' enthusiasm for learning as the subject of the classroom, and promote the realization of true information-based teaching reform. The advent of the Internet + era requires us to take the initiative to meet challenges, and we must correctly understand the importance of information-based teaching reform. Teachers are the leaders of teaching, the designers and organizers of teaching, and the main participants in teaching reform. To accelerate the reform of information-based teaching, we must continuously enhance teachers' awareness of actively improving their information-based teaching capabilities and continuously guide teachers to become the backbone of information-based teaching reform. The coordinated improvement at these three levels, including national policy guarantees, school mechanism construction, and the improvement of teachers' comprehensive qualities, will effectively promote the development of higher vocational

teachers' information-based teaching capabilities to a higher level, and help fully realize the strategic goals of my country's education information construction. Provide strong support.

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