

# Exploring Strategies for Improving the Information Technology-based Teaching Competence of College Teachers

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**Abstract:** With the rapid development of information technology, the improvement of information technology-based teaching competence of college teachers has become an important topic in the field of education today. Based on the current situation of college teachers' information technology-based teaching competence, this paper analyzes the multi-faceted factors that affect information-based teaching ability, puts forward corresponding strategies, and suggests teachers to actively study and explore. Schools should actively promote the information technology-based teaching training, and strive to strengthen the construction of information technology-based teaching resources. In addition, it is necessary to build a social environment conducive to the improvement of college teachers' information-based teaching ability, so as to provide some references for the development of college teachers' information-based teaching ability. In addition, it is necessary to create a favorable social environment for improving college teachers' information technology teaching competence in order to provide reference for its enhancement.

**Keywords:** college teachers; information technology-based teaching; competence improvement

With the rapid development of information technology, the application of information technology in the field of education is more and more extensive. Information technology-based teaching refers to the use of modern multimedia information technology to creatively design teaching activities, give play to the unique functions of computer-aided teaching, combine information technology with the characteristics of teaching disciplines, and make the expression of teaching more visual, diversified, visual and interactive. As the main bearer of higher education, the level of information technology-based teaching competence of college teachers may directly affect the quality of teaching. Therefore, it is of great practical significance to discuss the strategy of improving the information technology-based teaching competence of college teachers.

## 1. The current situation of college teachers' information technology-based teaching competence

The application of information technology for teachers in colleges and universities is a complex problem, involving many aspects, such as the information technology-based teaching resource base, the composition of teachers, the university's own policies, and the teacher performance evaluation standards. With the development of information technology and the change of social education environment, information technology-based teaching has become a common phenomenon. In recent years, many schools and educational services have accelerated the process of digital transformation. They have started using more digital technologies to support their teaching, such as online live streaming, virtual LABS, etc. In this context, college teachers often use online teaching, such as Rain class and Tencent Conference. These online education platforms helped teachers to better organize classroom activities, interact with students, ask questions online, communicate and discuss, answer questions and take exams, and provide more teaching resources. At present, although the vast majority of teachers in colleges and universities can use information technology to assist teaching in the process of teaching, only a very small number of teachers can explore the essence of information technology. Most teachers only stay at a shallow level for the application of information technology in teaching, and there is no in-depth investigation, and it can not be well combined with subject knowledge. Can not achieve the desired effect.

Through the analysis of relevant literature, we find that there are the following problems in the current information technology-based teaching competence of college teachers: (1) some college teachers have insufficient understanding of information technology-based teaching and lack of relevant training and guidance; (2) some college teachers have a low level of information technology-based teaching skills, and it is difficult to make full use of information technology for teaching; (3) the construction of information technology-based teaching resources of some college teachers lags behind and lacks effective teaching resource support.

**Table 1: Commonly used information-based teaching tools**

Commonly used information-based teaching tools	function
Electronic whiteboard	It is used to display text, images, videos, and more, and can be interoperated through the touch screen or pen
Teaching platform	Realize functions such as course management, homework management, online testing, and resource sharing to facilitate teaching activities for teachers and students.
Multimedia courseware	E-learning materials that integrate text, pictures, sounds, videos and other elements can enhance the interactive and interesting teaching and improve students' interest and participation in learning.
Network resources	Including e-books, online courses, online forums, etc., can provide rich materials and support for teaching.

## 2. Factors affecting the informatization

Teaching competence of college teachers The factors affecting the information technology-based teaching competence of college teachers mainly include the following aspects:

First, the basic quality of individual teachers. The basic quality of individuals has an important impact on the competence of information technology-based teaching, and the quality of teachers' information literacy, information awareness, information ethics, information security and other aspects will affect the competence of teachers to carry out information technology-based teaching. For example, Information literacy is mainly reflected in the subjective consciousness and thinking habits of using information technology tools in the teaching process. If the application ability of information technology tools is low, it will be difficult to effectively carry out information-based teaching. In addition, the competence of information technology-based teaching pays more attention to the interactive ability of teachers, and can provide students with the ability to organize teaching such as tests, homework, examinations, Q&A, and discussion. These factors are closely related to the basic qualities of teachers.

The second is whether the school policy supports information technology-based teaching, such as whether the training opportunities are sufficient and the resource investment is abundant. If the school does not support information technology-based teaching, teachers' teaching is limited to the traditional teaching mode, the effect is limited, and teachers cannot give full play to their professional ability. Teachers' work will be relatively stressful because more time and effort will be spent preparing teaching materials. In addition, teachers' professional development will be limited, and more training opportunities and professional development space will not be available. On the contrary, the school's active promotion of information technology-based teaching is very helpful for teacher development. Teachers' teaching methods are more abundant, teaching is more vivid and interesting, the classroom atmosphere is good, the teaching quality is high, the student evaluation is good, the teaching practice effect is excellent, and the more confidence teachers have in implementing information technology-based teaching, a virtuous circle will be formed.

The third is social and environmental factors, such as the development level of information technology and the direction of educational reform. With the development and application of network information technology, education informatization is an important part of education reform. The policies of the education department, the management of schools, and the attitudes of parents will all affect teachers' teaching methods and information-based teaching capabilities. In addition, the society's demand for education will also promote the improvement of teachers' information technology-based teaching competence.

## 3. Strategies for improving the information technology-based teaching competence of college teachers

In view of the above problems and influencing factors, this paper discusses the strategies for improving the information technology-based teaching competence of college teachers from the following aspects:

### 3.1 Teachers take the initiative to learn and explore

Teachers are the main body of information technology-based teaching, first of all, teachers must have information literacy and actively participate in information technology-based teaching. Teachers should continue to learn, master the basic knowledge and skills of information technology, and be proficient in using various information technology tools for teaching design, teaching implementation and teaching evaluation. Through the practice of information technology-based teaching, the confidence and ability to use information technology to carry out education and teaching are continuously enhanced.

Information technology-based teaching is a process of continuous development and change, and teachers need to constantly reflect on their teaching practice, summarize lessons learned, find problems and improve in time. In addition, the active participation of college teachers in various information technology-based teaching competitions is also an active practical exploration. For example, the information technology-based teaching case competition can effectively promote the application of information technology in daily teaching. In the competition, teachers showed their innovation and achievements in information technology-based teaching, learned from each other, and learned from each other's strengths, which is conducive to achieving faster growth.

### 3.2 Strengthen the informatization teaching and training of college teachers, and promote the deep integration of information technology and education and teaching

In order to improve the information literacy of college teachers, schools should strengthen information technology-based teaching training for teachers. The training content should include the basic concepts of information technology, the operation methods of commonly used software, and the utilization of network resources. In addition, schools should invite information technology experts and education experts to give lectures to improve the quality of training. At the same time, the school should also establish a sound training and assessment system, and conduct regular assessment of teachers participating in the training to ensure the training effect.

### 3.3 Strengthen the construction of informatized teaching resources for teachers in colleges and universities, and provide teachers with rich teaching resource support

A good teaching resource environment can lay the foundation for information technology-based teaching. Schools should increase investment in the construction of information-based teaching resources to provide rich teaching resource support for college teachers. Specific measures include:

#### (1) establishing a unified information technology-based teaching resource base and integrating all kinds of high-quality resources

The first is the construction of basic resources, and the establishment of digital teaching resource packages for specific courses. Digital

teaching resources have various forms, which can be digital courseware, electronic teaching documents, chapter test question bank, typical cases, video materials and so on. Actively promote the construction of characteristic high-quality courses. Build the high-quality teaching resources of the course into a characteristic high-quality online course for teachers and students to communicate and learn online, and can participate in the application and evaluation of related course projects. Then, build a unified online course platform to share all kinds of high-quality resources.

(2) encouraging teachers to independently build and share excellent information-based teaching resources

From the perspective of schools, schools can establish some incentive mechanisms, such as selecting outstanding teachers, rewarding excellent information technology-based teaching cases, etc., to encourage teachers to actively participate in information technology-based teaching practice and continuously improve their teaching level. Schools can provide teachers with relevant technical support and resource services to help them better develop and utilize information-based teaching resources. From the perspective of teachers, through the independent construction of information technology-based teaching resources, teachers can achieve their own educational concepts and teaching goals, so as to obtain a sense of achievement.

(3) strengthening cooperation with other educational institutions and sharing high-quality educational resources

Cooperate with other educational institutions in some professional knowledge areas, such as, co-construction of classrooms, sharing of training bases, co-editing of textbooks, online classes and other forms, sharing of online learning materials and offline teaching facilities, and achieving mutually beneficial sharing of high-quality educational resources.

3.4 Build a social environment conducive to the improvement of college teachers' information technology-based teaching competence

we should take a series of measures to build a social environment conducive to the improvement of college teachers' information technology-based teaching competence. For example, to increase policy support for education informatization, provide necessary financial and technical support, relevant departments can formulate relevant policies and guiding documents, clarify the goals, tasks and requirements of information technology-based teaching, and provide necessary policy guarantees for teachers to carry out information technology-based teaching. In addition, it is necessary to strengthen the publicity and guidance of the development of education informatization, create a good public opinion atmosphere, encourage enterprises to participate in the construction of education informatization, and provide technical support and service guarantee.

#### 4. Conclusion

Measures such as active learning by college teachers, strengthening training by schools, reforming teaching evaluation system, encouraging teachers to enrich online course resources and building a good social environment can help improve teachers' information-based teaching ability, which needs to be explored and practiced continuously from multiple levels. In addition to some factors of teachers themselves, colleges should also actively promote information-based teaching, establish a guarantee mechanism, provide financial support, encourage teachers to use information-based methods to teach, take more measures to improve teachers' information-based literacy, so that teachers can actively carry out information-based teaching. Only through continuous learning and practice can we truly master the basic concepts and skills of information-based teaching, provide better teaching services for students, and promote the development of education.

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