Research on the Improvement of Teachers' Information Teaching Ability in Application-Oriented Universities

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Abstract – **In the "Internet plus" era, teachers need to improve their information-based teaching ability and comprehensively improve the quality of talent training. This paper first reviews the process of informatization development in application-oriented universities, analyzes the current situation of teachers' informatization teaching ability in application-oriented universities, and then clarifies the necessity of improving informatization teaching ability. Then, it puts forward the countermeasures, suggestions and ways to improve the informatization ability of college teachers.**

Keywords – **Application-Oriented, Information Technology, Teaching Ability.**

I. INTRODUCTION

The world today is experiencing great changes not seen in a century. Science and technology are developing rapidly. The total amount of knowledge is growing exponentially. A new round of scientific and technological revolution and industrial transformation is deepening. As a product of "Internet plus education", the recognition of information-based teaching technology among students in application-oriented undergraduate colleges has been greatly improved. This teaching method has broken the time and space constraints and triggered a historic change in the traditional education model.

II. INFORMATIZATION DEVELOPMENT PROCESS OF APPLICATION-ORIENTED UNDERGRADUATE COLLEGES

The application of information technology in higher education has gone through three stages: the stage of information technology assisted teaching, the stage of assisted learning, and the stage of application in curriculum integration. At present, most teachers in application-oriented universities have completed the second stage and are in the third stage of exploring the application of information technology in curriculum integration.

1. Information Technology Assisted Teaching Stage

In 2002, Microsoft developed the presentation software PPT, and then PPT was introduced into teaching activities, freeing teachers from tedious blackboard writing. The application of PPT in the field of education stimulates students' interest in learning, arouses their enthusiasm for learning, and greatly improves their learning efficiency. At this stage, information technology is applied to the process of teaching knowledge by teachers, and less attention is paid to the learning process of students.

2. Information Technology Assisted Learning Stage

From fingerprint unlocking to face brushing payment, information technology has become increasingly mature. In the field of education, the application of information technology mostly stays in the online interactive

courses that change the time and space constraints. In the classroom teaching of application-oriented undergraduate colleges, there are still two drawbacks: low interaction efficiency and untimely feedback. In this context, teaching software came into being. Students can scan the code to join the teaching software, view the PPT in real time, launch bullet screen interaction, and participate in classroom quizzes. After class, the teacher should timely understand the key and difficult points encountered by students and collect various data of students' learning process. The use of teaching software optimizes the two weak links of classroom interaction and feedback in the traditional teaching model. The transformation of teaching activities from "experience driven" to "data driven" has truly realized the whole process of information technology assisted learning for teachers and students.

3. *Application of Information Technology in the Course Integration Stage*

"Internet plus Education" deeply integrates information technology and education. Teachers constantly learn professional knowledge and skills. After mastering the means of information technology, they are committed to deeply integrating information technology and curriculum content, breaking knowledge barriers, reconstructing knowledge structure, and exploring interdisciplinary talent training mode by integrating curriculum resources.

III. ANALYSIS ON THE CURRENT SITUATION OF TEACHERS' INFORMATIZATION TEACHING ABILITY IN APPLICATION-ORIENTED UNIVERSITIES

The survey shows that there are some common problems in the current information-based teaching of teachers in ordinary undergraduate colleges and universities: teachers have insufficient knowledge of information-based teaching and do not really understand the connotation and characteristics of information-based teaching methods; The school does not pay enough attention to the top-level design, and lacks policy and financial support for the training of teachers' informatization teaching ability; The application of information teaching platform is insufficient, and the functions of discussion, homework, live broadcast, etc. are not widely used, and the role of platform assisted teaching is not fully played; The system to ensure information-based teaching is not perfect, the cultivation of teachers' information-based teaching ability lacks a complete and comprehensive system, and the school's performance appraisal system also pays more attention to scientific research than teaching, and lacks incentive measures. The results of the survey on the current situation of teachers' informatization teaching ability show that:

(1) Application and effectiveness of information based teaching methods. First of all, in terms of motivation for the application of information based teaching methods, as many as 75% of teachers apply information based teaching out of the needs of teaching itself, and personal hobbies only account for 12%. From the perspective of the application effectiveness of information based teaching methods, nearly 70% of teachers believe that information based teaching can help improve the teaching effect. The average effect accounts for 15%, and the total effect of poor and unused is about 15%. It can be seen that most teachers have accepted and urged themselves to use information based teaching methods in actual teaching out of teaching needs, and achieved good teaching results, forming a benign interaction. However, when it comes to practical application, in the survey of the use of teaching software or virtual simulation teaching in teaching, only 3% of the teachers have teaching software, and less than 40% of the teachers have properly used teaching software to assist according to the teaching content. The survey of new teaching modes such

as hybrid teaching and flipped classroom also shows that nearly 60% of teachers are mainly traditional teaching and occasionally intersperse online interaction, only 15% are teachers who often use online and offline hybrid teaching or flipped classroom, and less than 4% are teachers who independently develop or participate in online curriculum construction. This shows that teachers have been willing to use information based teaching methods to assist teaching, and their effects are relatively recognized. However, due to the lack of systematic information based teaching knowledge structure and relevant training on teaching skills, everyone is not allowed to use rules in actual operation. The use of information based teaching methods is more than enough, which further highlights the importance of increasing information based teaching knowledge and skills training.

(2) The cognition of information teaching means. In terms of cognition of information based teaching methods, nearly 60% of teachers said that they understood and often used information based teaching methods, but they were not very clear about specific concepts. 25% of teachers had some knowledge of information based teaching but did not use it frequently, and only 13% of teachers understood concepts and could skillfully use them. About 40% of teachers believe that modern teaching concepts and teaching methods are the key to the application of information based teaching tools in teaching. As for the cognition of the information teaching platform, 66% of teachers said that they knew and mastered the basic information of the online teaching software platform, but they needed to increase training; Only less than 20% of the teachers said that they knew very well and could operate skillfully and receive higher level training. More than half of the teachers are satisfied with the existing information-based teaching conditions of the school in terms of the smart classroom, video recording classroom, digital teaching platform and other information-based teaching conditions that have been built, but they need to increase training in functions and applications. Most teachers, especially young and middle-aged teachers, are very happy to use information based teaching methods to assist traditional teaching. They have a relatively high acceptance of teaching platforms and smart classrooms, and are willing to accept relevant training. This has laid a solid foundation for the school to continuously improve the level of information based teaching in the future.

IV. THE NECESSITY OF IMPROVING TEACHERS' INFORMATIZATION LEVEL

The special investment strategy report of the education industry shows that from 2013 to 2019, the investment in education informatization has increased from 195.9 billion yuan to 338.1 billion yuan. As the construction of education informatization continues to advance, the investment will continue to grow. It is an inevitable trend for teachers to improve their personal information literacy to conform to the development of the times.

1. *Meeting the Needs of Teaching Reform*

Teachers use information technology to improve teaching concepts, innovate teaching models, improve teaching quality and improve the teaching evaluation system. Information technology should be integrated with subject courses to create a new teaching environment. Teachers should fully play a leading role in teaching, at the same time, they should reflect the dominant position of students, and create a new teaching model characterized by autonomy, inquiry and cooperation. This teaching mode is conducive to fully stimulate students' innovative thinking, tap their creative potential, provide more real learning experience, and create an autonomous learning environment for students.

2. *The Need to Promote Teacher Development*

In the process of teaching, the role of teachers has changed, from the disseminator of knowledge to the guide of students' independent learning. In order to better control the whole process of classroom teaching activities, teachers need to update teaching concepts and methods, improve teaching ability, and change the traditional classroom teaching mode.

3. *The Need to Improve Teaching Quality*

Teachers should look at the impact of the Internet era on application-oriented undergraduate institutions from the perspective of development, and actively face new opportunities and challenges. By using modern teaching methods, students' attention in classroom teaching can be improved, learning motivation can be increased, learning enthusiasm can be stimulated, and students' ability to actively acquire knowledge can be improved. Further cultivate students' ability of thinking innovation, independent learning and social practice, and comprehensively improve students' comprehensive quality.

V. SUGGESTIONS ON IMPROVING TEACHERS' INFORMATION TEACHING ABILITY

After a thorough investigation on the current situation of teachers' informatization teaching ability and training needs, combined with the established digital teaching platform, smart classroom and other informatization teaching conditions, this paper puts forward the following countermeasures and suggestions:

(1) *Create a Complete System of Information Teaching Ability Training*

Just like the traditional teaching ability, teachers' information teaching ability can only be developed at a high level through systematic training. First of all, form information-based teaching school-based training. In view of the urgent needs of teachers, the school can invite high-level experts and famous teacher teams to carry out special training in information technology application, curriculum resource production, teaching design compilation, etc., to guide teachers to quickly master the basic skills of information teaching, consolidate the teaching concept of "Internet plus+education", and improve the teaching effect. Secondly, innovate the training mode and support autonomous learning. Internet resources can be effectively used to carry out a hybrid training activity combining network research and field practice through the teaching network platform, so that teachers can use mobile devices such as mobile phones to carry out convenient and effective independent learning at any time and place, and stimulate teachers' internal drive to improve information based teaching and learning ability. Thirdly, integrate the training content and promote the combination of information technology and curriculum construction. The training of information-based teaching is not only the application of software and platform, but also focuses on the effective combination of technology and curriculum teaching philosophy. When building quality courses or first-class courses, schools can use information technology to optimize the teaching process, enrich teaching resources, give full play to the auxiliary function of information-based teaching, and achieve the full integration of information technology and curriculum teaching. Finally, integrate resources and build an information-based teaching team. Informatization teaching involves teaching design, courseware and video production, multimedia resources and other contents, which cannot be completed by individuals alone. Schools should focus on building an informatization teaching team, integrating resources, and giving full play to the technical advantages of young teachers, the advantages of teaching experience of old teac-

-hers, and the disciplinary advantages of professional teachers.

(2) *Establish and Improve the Information Teaching Guarantee System*

Informatization teaching is a long-term work for colleges and universities. It is necessary to formulate a normalization system and establish a sound information teaching security system. First of all, we should strengthen the top-level design of the school's information construction, include the information teaching construction in the college's education and teaching development plan, and clarify the development goals and tasks. Secondly, formulate and issue the corresponding management system and incentive policies for information based teaching, commend and reward teachers who actively carry out information based teaching, build online courses and participate in information based teaching competitions, and give preferential policies in terms of professional title evaluation, performance evaluation, and teaching reform projects, so as to fully mobilize teachers' enthusiasm and improve their willingness to apply information technology. Third, specify the subject of responsibility, and designate a special organization to be responsible for the training of teachers' informatization teaching ability, so as to ensure the normalization of informatization teaching. The school has established a teacher development center as the main responsibility body to provide guidance and services for teacher training, teaching competitions and teaching research and reform.

(3) *Promoting Education by Competition and Creating an Information based Teaching Atmosphere*

Schools can promote teaching through regular information teaching competitions to improve teachers' information teaching experience. For example, we will establish a mechanism of "school level provincial national level" informatization teaching competition, hold multimedia courseware making competition, lesson telling competition, teachers' innovation teaching competition and other activities every year, encourage teachers to continue to explore and innovate, and actively exchange experience in the application of informatization teaching methods. Then, select and recommend excellent teachers to participate in provincial and national competitions through school level competitions, learn the advanced experience of teachers from other schools, and promote our teachers to rapidly improve their information teaching ability. At the same time, strengthen publicity and reporting, display advanced models, recommend outstanding achievements, form a leading and exemplary role, encourage teachers to observe and learn from each other, and create a good atmosphere for the active application of information technology in teaching in the school.

VI. WAYS TO IMPROVE TEACHERS' TEACHING ABILITY

Promote the improvement of information-based teaching level of teachers in application-oriented undergraduate colleges, build a good learning atmosphere by strengthening the concept of lifelong learning of teachers, integrate the knowledge system with the concept of "Internet plus" by means of multi-dimensional promotion means, and further improve the information-based teaching ability of teachers.

1. *Carry out Capacity Improvement Project and Encourage Various Learning Forms*

The application of information technology leads to classroom teaching reform. In order to improve teachers' ability, colleges and universities should provide in school experience exchange activities, out of school training activities, expert lectures and on-site observation of demonstration courses to improve teachers' teaching ability. In view of the characteristics of application-oriented undergraduate schools that focus on training students in

teaching practice, the school has carried out the construction of "double qualified" teachers, and encouraged the selection of teachers to practice in enterprises and industries.

2. *Reshape the Role of Teachers and Establish the Concept of Lifelong Learning*

The traditional teaching method in the process of imparting knowledge is relatively simple, and students have limited means to obtain knowledge. Under the information technology environment, teachers are transitioning from knowledge imparters to learning guides. Teachers should accurately control all aspects of teaching and make full preparations for students' possible questions in the classroom. Teachers can timely master the cutting-edge knowledge system and connect with the development situation of the industry through various means such as academic upgrading, short-term training, social practice and research. Teachers should firmly establish the concept of lifelong learning and become lifelong learning teachers in the new era.

3. *Integrate the Curriculum Resource System to Realize the Training of Compound Talents*

In the information age, learning resources are constantly emerging, and cutting-edge scientific and technological achievements are showing a blowout growth trend. Teachers should check the choice of learning resources for students to avoid redundant information interfering with students' learning. Improve students' ability to apply theory and practice, try to integrate information technology into curriculum resources, and realize the training of highly efficient and versatile talents.

4. *Establish and Improve Evaluation Mechanism and Promote Information Feedback*

The evaluation method used in the traditional teaching mode is result evaluation. The introduction of information technology into all aspects of teaching is conducive to strengthening the evaluation of students' learning process. Through multi-dimensional comprehensive judgment, a reasonable evaluation index system is established. Make full use of the evaluation results of teaching quality, guide teachers to improve their teaching ability, improve the "standard to implementation to inspection to evaluation to feedback to improvement to re-evaluation" process, form a closed loop, and continuously improve the evaluation mechanism.

5. *Build a Learning Community between Teachers and Students and Create a Good Learning Atmosphere*

Under the information technology environment, teachers and students have formed an equal and cooperative relationship. Students occupy a dominant position in teaching activities. Teachers guide students to define learning objectives, formulate learning plans, encourage students to actively participate in discussions in class, express their own opinions, form their own views by looking up information, encourage students to innovate and cultivate innovative talents.

VII. CONCLUSION

In the era of "Internet plus", teachers' information technology literacy is increasingly required. Teachers should keep pace with the times, participate in the process of the information age with a high sense of responsibility and mission, and continue to promote the development and application of information technology in teaching, conform to the trend of the times, meet new challenges, and strive to cultivate high-quality talents with all-round development.

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