

# Practical Research on the Reform of Learning and Teaching under the Background of Informatization

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**Abstract:** *In the information age, in order to adapt to the requirements of contemporary education information and the transformation of educational methods under information conditions, it has become a hot topic in education and teaching research. According to the understanding of the current situation of the informatization environment in colleges and universities, some problems in the transformation of the teaching methods in colleges and universities under the condition of informatization are revealed. For example, teachers don't have a good understanding of information development, college teachers' information technology cannot meet the requirements of teaching method innovation, and colleges and universities information-based teaching equipment is not perfect. To solve this problem, three solutions are given.*

**Keywords:** *Teaching and Learning, Practical Inquiry, Information Age*

## 1. Introduction

Under the information environment, various learning systems and intelligent education service platforms have been developed and widely used, which has made the informatization of course content established like mushrooms after a spring rain, and brought technical preparations for the reform of teaching methods. However, in the system application of colleges and universities, there are many dissatisfactions such as insufficient information technology capability, low application intention, traditional education technology, and insufficient information technology.

## 2. The current situation of the information environment in colleges and universities

### 2.1. Current Situation of Teachers in Colleges and Universities

As far as the current overall situation of college teachers is concerned, the average age is olive-shaped, with a relatively small proportion of teachers over 52 years old and under 36 years old, and a relatively large proportion of teachers aged 37-51 job structure. The proportion of associate professors, teachers and teachers with associate senior professional titles is relatively large, while the proportion of teachers with (high-level) expert professor positions is relatively small. In terms of academic qualifications, the proportion of teachers with undergraduate degrees is small, the proportion of teachers with graduate degrees is large, and the proportion of teachers with doctoral degrees is in the middle.

### 2.2. Status Quo of Higher Education Informatization Construction

In order to meet the needs of cultural and educational informatization, the teaching equipment in colleges and universities has been gradually upgraded from old machines to computer equipment to meet the needs of contemporary educational information technology. For example, the rational layout of information technology in college classrooms, especially large-scale classrooms, is equipped with a series of information-based experimental instruments such as electronic computers, projectors, and learning apps, which is conducive to many teachers to choose an information-based teaching mode. Some small classrooms are also equipped with nanomaterial interactive classroom blackboards to intelligentize classrooms. Smart classroom nanotechnology interactive exchange classroom blackboard is the world's leading high-tech interactive education product using nanotechnology touch technology. According to touch, it can also switch seamlessly between traditional classroom blackboards and smart electronic blackboards. When writing with a pencil, you can collect the specific content of the teaching content and communicate with each other. The traditional teaching blackboard is transformed into an interactive

classroom blackboard, which completes an innovative breakthrough in interactive classrooms. Therefore, the nano blackboard replaces the traditional classroom blackboard, not only has the function of the traditional classroom blackboard, but also has the contemporary information function that the traditional classroom blackboard does not have. The interactive communication classroom blackboard adopts nanotechnology composite touch technology, which bridges the gap between the traditional classroom blackboard and multimedia video, and transforms the design of blackboard writing and the application of multimedia video app. You can use a pencil to write on the blackboard in the same area, and you can also see the application of various multimedia system APPs such as PPT, short videos, and photos. With a touch of expertise, the connection between tradition and information technology is completed.

### ***2.3. Current Situation of Informatization of Teachers in Colleges and Universities***

In order to adapt to the changing information environment at any time and keep pace with the information technology, many colleges and universities vigorously carry out information teaching concepts, independent innovation and scientific research, and accelerate the integration of classroom teaching and information technology. It describes the concept and technology of the development of information-based classroom teaching in various forms and for non-college teachers. First, vigorously promote teachers' information technology. Teachers are key participants in information teaching using information technology. The flexible use of teachers' information professional ability is the key to the smooth development of information teaching activities, and it is also a key factor for changing teaching methods. Therefore, colleges and universities first vigorously promote the information technology of teachers. From the first semester, in the process of developing with new teachers, the development of new teachers' information technology has already been fully started. Let new teachers grasp the composition of machinery and equipment in the entire information industry chain, grasp the professional quality of information technology, and grasp the level of information industry equipment. Secondly, teachers should explore the integration of information technology and classroom teaching, carry out a reasonable comprehensive classroom teaching, actively promote the impact of information technology on classroom teaching, find the problems and limiting factors in the whole process of information technology and classroom teaching, and promote classroom teaching. Informatization. Third, with the development of information technology and the upgrading of information technology equipment, colleges and universities will carry out theoretical and practical scientific research to college teachers. For example, the launch of the Smart Teacher NanoBlackboard is often unknown. Cooperate with college manufacturers to assign technical professionals to give lectures in colleges and universities, grasp the operation methods, and timely correct the teaching methods. In the end, the integrated education bureau developed and designed network teachers, organized teachers to actively carry out Internet training, and selected relevant courses to study.

### **3. Problems existing in the process of reform and innovation of teaching methods in colleges and universities under the environment of information management**

The wide application of information technology has promoted the prosperity of information technology in classroom teaching, which is crucial to the smooth development of classroom teaching in colleges and universities. Standardized classroom teaching can not only enrich the specific content of classroom teaching, but also help to choose suitable teaching methods. As far as the current learning effect is concerned, the application of information technology has added a proactive reference to the transformation of cultural education and teaching methods, and achieved certain results, but some problems have also been found.

#### ***3.1. College teachers lack understanding of the rapid development of contemporary education informatization***

Under the conditions of information management, the teaching equipment in colleges and universities has already changed from the past supervision to the information management. The extensive use of information technology has brought profound changes in teaching methods and improved the learning effect of teachers' intelligent classroom competitiveness. At this stage, the rapid development of technological innovation started from that moment. Subsequently, the efficient development of information technology and machines into the reform of teaching strategies has brought new opportunities and created new demands for teachers. However, from the perspective of teachers applying new technologies, the vast majority of teachers are not very effective in applying new machines and new

technologies. Because they lack confidence in the application of many new technologies and new machines, they cannot keep up with the trend of the times and are limited to existing technical equipment. Reluctance to accept or recognize new things in thought. Because of the lack of understanding, it has affected the rapid development of contemporary education informatization.

### ***3.2. Information technology equipment cannot meet the needs of teaching transformation***

In order to adapt to the development regulations of the information age, many colleges and universities actively promote the informatization and efficient development of higher vocational education. Setting up information equipment such as computers and projectors in classrooms enhances the information standard model for changing educational concepts. However, with the development of mobile Internet technology, learning software such as the Internet of Things and cloud technology has emerged. Many cultural and educational equipment are pioneering and innovative, and the systems are outdated and cannot meet the needs of learning software. The PPT cannot be opened, and the mobile software cannot be assembled. And it is encountered in the daily education process. The opportunities for educational information technology equipment are outdated, cannot be changed and developed in time, and cannot be marketed to promote new teaching methods.

## **4. Solutions to the Transformation of Efficient Educational Methods under the Conditions of Informatization**

### ***4.1. Institutions of higher learning should increase capital investment and continuously innovate equipment***

Information industry equipment plays an important role in implementing information-based teaching classrooms and applying a new teaching strategy. The shortcomings of the reform of teaching methods in colleges and universities under the information environment are: many colleges and universities lack funds, managers lack innovative ideas, and the upgrading of intelligent system information equipment is backward. If information equipment cannot be continuously innovated and disassembled, it will endanger the application of teachers' teaching strategies. Colleges and universities should increase capital investment and purchase new equipment and technology to meet the needs of teaching method changes.

### ***4.2. Improve teachers' information technology skills***

Teachers are the implementers of educational measures. The ability of teachers to apply information technology is related to the transformation of teaching methods in colleges and universities under the digital management environment. The lack of the ability to use information technology is an important difficulty that destroys the changes in the current education model. Therefore, in order to adapt to the rapid changes, colleges and universities must have the ability of teachers, especially those teachers who apply electronic technology in management information systems. Not only should we pay attention to teachers' professional ability, but also need to attach great importance to the detection of teachers' information technology practice activities. Teachers' continuous information technology level can meet the necessity of changing teaching methods.

### ***4.3. Improve the awareness of college teachers on the sustainable development of information technology***

University teachers should have a proactive learning attitude. In order to cope with the great changes, innovative countermeasures and challenges in the information age, Mr. Gao must understand the application of innovative new technologies, form new concepts, and master the rapid development of information technology. First of all, we should see the reality of the development trend of information technology. Change old ideas, learn the application of new technologies and new professional knowledge, learn innovation and practice, and improve your theoretical accomplishment. Secondly, actively use information technology in practical teaching, closely link information technology with practical teaching, explore a new teaching strategy, and integrate it into the reform of teaching methods under the condition of information management.

#### ***4.4. Change the traditional teaching methods and improve students' learning efficiency***

In the traditional classroom, 45 minutes of course, for students, 45 minutes of learning time is not long, and in this information age, the students have to face all kinds of information, to deal with all kinds of information, and to cope with the temptation of all kinds of information, easy to distraction, and in the information age, teachers can through all kinds of information technology, knowledge compression, reduce class, through micro class, improve students' learning efficiency, and according to their own learning situation, personalized self-study and repetition.[1] From the perspective of teaching practice, students' attention is usually more than 30 minutes. Therefore, in the teaching process, teachers should make full use of information technology for teaching design to improve the communication and participation between students and students. In classroom teaching, in addition to the integration of weibo, wechat, and other social network resources, but also pay attention to the scientific classroom science, increase the interest of learning, and the use of online chat rooms, games, forums and other forms of teacher-student interaction, make full use of Internet technology, innovative teaching methods.

#### ***4.5. Online education, and teaching resource sharing***

Information technology education is a new thing in the educational field, it has complied with the trend of information technology, it will help to solve the problem of information asymmetry in educational resources. Network teaching is to connect students and students, to build a communication platform across time and space, the network is a bridge between teachers and students, can allow teachers and students to find the most suitable educational resources. On this basis, compared with the traditional teaching methods, the Internet solves the information asymmetry, and both online and offline are highly complementary, and its application form can also be used to manage and provide services for students. Starting in 2012, an online course called MOOCs has become popular among universities around the world. Unlike traditional teaching methods, the massive open online course has no geographical and personnel restrictions, and everyone can go to college with the help of the Internet and smartphones.[2] is a break beyond the traditional classroom approach that allows the students to enroll online, taking lessons at any time, anywhere. MOOCs also brought new changes to the traditional relationship between teachers and students, the Internet technology changed the situation of the traditional teachers, let teachers can make better use of the network for more communication, and in the traditional classroom, the teacher and the teacher by the limitation of the classroom, not like MOOCs give full play to the equal interaction between teachers and students. Network education has reformed the traditional educational concept, and puts forward new requirements for the university educational concept under the information environment.

#### ***4.6. Optimize the network environment, and build an information teaching platform***

Digital teaching has the characteristics of free time and space and convenient cooperation. The information campus of colleges and universities is based on the campus network, and the construction and development of the campus network will greatly improve the management and utilization ability of the campus network. Through the integration of data resources such as university teaching, scientific research and management, it can provide a basis for the online interaction between teachers and students, and the reform of teaching methods. Institutions of higher learning should vigorously promote teaching informatization, learn from foreign advanced teaching technology, establish and optimize their own network teaching platform, explore online and offline teaching modes, implement personalized teaching, and strengthen the interaction between people, people and teaching environment.[3] actively thinks and carefully selects and organizes network teaching; it should constantly innovate in teaching methods and methods, introduce distinctive professional courses, and continuously expand the brand influence of the school.

### **5. Conclusion**

The information age has already come to people, and the practical exploration of "effective teaching" will never end. What college teachers need to do is to become one of them, act quickly, and work hard to improve themselves. College teachers can not only deeply understand the importance of information technology in education from a large level, but also have the courage to explore new teaching methods and learning methods from a small level.

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