

# Information Technology and Teaching Reform

YangZhe<sup>1</sup>

<sup>1</sup>Teacher Development Center, University of Ankang, China

\*Corresponding author. Email: yzzz\_1975@163.com

## ABSTRACT

Whether information technology can bring changes to education, This paper analyzes the relationship between information technology and teaching reform from three aspects: education and teaching reform needs information technology, information technology boosts teaching reform, and information technology needs to play its own role in promoting teaching reform.

**Keywords:** *Information technology, Reform in education*

## 1. INTRODUCTION

From Edison's extremely optimistic attitude towards the replacement of teachers and schools by movies, he finally failed; Since the middle of last century, when the first batch of computers were used in classrooms in developed countries, some scholars predicted that computers would bring a revolution to education, but it has not been realized yet; Then to reverse classroom, MOOCS, micro class. Even during the epidemic period in 2020, the Ministry of education proposed to "suspend classes without stopping school, suspend classes without stopping teaching" and saw that most online teaching also moved the traditional classroom to the Internet, and the expectation of "substantial equivalence" was wishful thinking. We can't help but wonder, can information technology really promote the reform of education and teaching?

The application of network information technology makes work, life and study more and more convenient and efficient. But the application of information technology to education and teaching is limited. Governments and researchers around the world have made unremitting efforts from the policy level, theoretical exploration level and practical level. For example, the U.S. government increased hardware investment. In 2001, the network level of primary and secondary schools reached 99%. In May 2009, the evaluation agency under the U.S. Department of education conducted a sample test on 20000 middle school students in 11 cities across the United States, The result of the test is that "there is no obvious change in the reading ability and calculation ability of middle school students compared with 30 years ago". In the

new century, the integration of information technology and curriculum is an important measure to promote the reform of education and teaching“ At the beginning of the 12th Five Year Plan, China issued the "ten year development plan of education informatization (2011-2020)", which carried out the overall design and deployment of education informatization“ During the 13th Five Year Plan period, it puts forward the goal of deepening application, integrating innovation and innovating teaching with technology. But the effect is not obvious. As a result, many teachers and scholars are pessimistic. We can't help but wonder what information technology can bring to teaching? Can it bring a revolution to education and teaching?

It is true that information technology has brought tremendous changes to national defense, publishing industry and society. However, in the field of education, it is not as expected. This also shows that in the process of information technology to promote teaching reform, it is indeed facing an extremely arduous and severe challenge.

## 2. EDUCATIONAL REFORM NEEDS INFORMATION TECHNOLOGY

Information technology is a necessary condition to promote the reform of education and teaching."China's education modernization 2035" clearly puts forward that to accelerate the education reform in the information age, we need to make full use of modern technology to accelerate the reform of talent training mode, and realize the organic combination of large-scale education and personalized training [1]. It can be seen that information technology plays an important role in promoting

education and teaching reform. In order to realize information-based education (education modernization), Professor Nan Guonong once proposed that "information-based education = modern education theory" × Modern information technology "[2], which is of guiding significance and dialectically treats the relationship between information technology and educational informatization. We can see that information technology is indispensable for promoting education reform and realizing education informatization. Without the participation of" modern information technology "(if this factor is zero), it is impossible to realize the dream of information education. Similarly, there is no effective application of information technology in teaching practice under the guidance of modern education theory, The realization of educational informatization is also an empty talk.

Optimizing classroom teaching needs information technology. In 2018, Chen Baosheng, Minister of education, issued the call of "Promoting Classroom revolution and building quality culture"[3]. Information technology plays an important role in optimizing classroom teaching. With the deepening of basic education curriculum reform, how to play the role of the main position of the classroom is very important, and the problem of low efficiency of traditional classroom teaching mode is increasingly prominent. Take English teaching as an example, Professor Zhang Lianzhong, a member of the core group of experts on the development of the National English curriculum standards, pointed out that the total number of people learning English in China is more than the total number of English speaking countries in the world. But the efficiency of traditional teaching mode is often not high“ "Exam oriented" English, "deaf and dumb" English and "Chinglish" English are three kinds of generalizations about the disadvantages of traditional English teaching mode. After realizing the deep integration of information technology and foreign language curriculum, it creates a real language learning environment for students and finds the language learning purpose of "learning English is to use English".

Promoting educational innovation needs information technology. Reform and innovation is not only the inexhaustible driving force of the development of the times, but also the theme of the development of education. The core of basic education reform is to promote the cultivation of students' innovative spirit and practical ability. Due to the lack of learning resources in traditional teaching, it is very common to substitute teaching for practice and teaching for exploration. If we use modern information technology effectively, it will stimulate students' interest in learning and enrich their imagination and innovative consciousness. For example, in the teaching of the Chinese lesson "crow drinking water" in primary school, this paper demonstrates why crow can drink water through computer animation,

arouses students' interest in learning, discusses the situation that crow can not drink water (the stone is too big), and finally discusses the problem of volume change of different material mixture relying on the network.

The growth of teachers needs information technology. The growth of teachers is mainly reflected in professional growth. Under the condition of information technology, it provides favorable conditions for teachers' growth. Teachers are the main force to promote teaching reform. Teachers' growth needs theoretical study, school-based research and teaching reflection. With its rich teaching resources, real-time interactive environment (QQ, MSN, BBS, wechat, real-time interactive platform, etc.), rich social software (blog, Wiki, RSS reading, Im, SNS software, etc.), and readily available high-quality learning resources (MOOCS, wechat, app, etc.), computer network provides strong support for teachers' growth. For example, Professor Jiao Jianli's team of South China Normal University, using the "educational technology private land" blog exchange platform, regularly carries out "circle chat" activities with primary and secondary school teachers, one issue and one theme, involving various topics such as the deep integration of information technology and curriculum, school-based teaching and research, which promotes teachers' professional growth and improves their professional ability and quality. [4]

### **3. INFORMATION TECHNOLOGY BOOSTS TEACHING REFORM**

At the end of last century, Chen Zhili, the former Minister of education, pointed out that educational technology was regarded as the commanding point and breakthrough of the whole educational reform“ In the early stage of the 12th Five Year Plan, China issued the ten-year development plan for educational informatization (2011-2020), which has designed and deployed the education informatization work as a whole. In June 2016, the Ministry of Education issued the 13th five year plan for educational informatization, which made clear requirements for the development of educational informatization during the 13th five year plan. At present, the 2030 strategy of education modernization is being realized in China, which further outlines the blueprint of educational informatization development and its important position in the process of educational modernization. It can be seen that information technology is having more and more profound influence on the field of education.

In class, teachers make full use of information technology to create a real and vivid teaching situation for students, simplify and visualize complex problems, and students are immersed in a pleasant atmosphere of communication, cooperation and exploration. For

example, in the teaching of a preface to *tengwangge* in high school Chinese, the teacher combines the knowledge of architecture, music, art, politics, history and other disciplines. All the video and picture materials are available. The teacher doesn't speak much. All of them are speaking. They have a hot and noisy class. After class, the students say that they didn't expect that the boring classical Chinese can be so vivid. After class, teachers and students make full use of information technology, travel in the sea of knowledge, and share wisdom and happiness through network alliance.

The theme website, the open video course on the Internet and so on have changed the traditional education mode, which leads to the change of educational thought and teaching concept; The vigorous development of digital publishing industry, such as the development of network from Web1.0 to Web2.0 and Web3.0, is moving from single to network and three-dimensional; Digital textbooks combine words, sounds, graphics, images and animation together, providing learners with multi sensory stimulation, making learning process lively and interesting“ The solid promotion of "quality resource class communication" has promoted the universal application of high-quality resources such as electronic textbooks, subject resources and micro courses in teaching and teaching and research activities.

Professor hekekang once said that "if the traditional classroom teaching mode does not change, and the use of advanced technology, it is also" human irrigation + electric irrigation ". It can be seen that only by the change of teaching mode, can it really promote a classroom teaching revolution. The new teaching mode emphasizes that the middle school students, teachers and other subjects in the teaching process are highly interactive and closely coordinated, and gradually form a new teaching and learning model which can meet the needs of learners' cognitive law and ability development under the information-based conditions. For example,[5] the informatization teaching reform experiment carried out in Suzhou has built 16 experimental classes of information education reform in 7 schools. All daily teaching activities of the pilot class are deeply transformed by means of information technology, which can realize the high interaction among the families and schools in class, extracurricular and in-class, and support personalized learning centered on students. Information technology has promoted the deepening of education and teaching.

#### **4. LET IT PLAY A GOOD ROLE IN PROMOTING TEACHING REFORM [6]**

Information technology is a necessary but not a sufficient condition to promote the reform of education and teaching. With the coming of the era of knowledge economy, the society calls for innovative talents, who need innovative education to cultivate. Therefore,

information technology with computer and network as the core has become an important carrier to promote teaching reform and realize the cultivation of innovative talents. Several years later, the education sector has made arduous efforts and achieved certain results, but in the end, disappointment is greater than expectation. Has the function of information technology failed in the field of education? Not at all!

Because of the complexity of education, we have to work harder. Teaching reform is a systematic project, which involves education thought, education mode and mode, diagnosis of education results and other aspects. Information technology cannot be absent in promoting teaching reform, but also cannot be offside. In an exclusive interview with *China Teachers' daily*, Professor He Kekang said that "it is very important to realize educational information technology, but the key is that the theoretical problems have not been solved.". Traditional teaching emphasizes teachers as the center, students around teachers, teachers around curriculum standards, students, teachers, parents and even the whole society believe that test scores are the magic weapon. There is a process for new educational theories and ideas to guide educational practice. There are many influencing factors, such as whether there is soil for new ideas to take root, the game with traditional educational ideas, and the obstacles of traditional educational evaluation. Therefore, it is difficult for information technology to carry all the expectations of teaching reform.

Of course, it is not until all the problems of educational philosophy, system and evaluation are solved that its role in teaching reform can be revealed. The key is to put it in a correct position and adhere to the boosting role of information technology in promoting teaching reform. First of all, we should make full use of the existing facilities and resources, effectively integrate information technology into the teaching process of various disciplines as soon as possible, and let the majority of teachers and students see the real effect of education informatization as soon as possible. Secondly, to create an intelligent teaching environment, we should shift our attention from the construction and application of technology, computer, network, software and resource library to how to effectively promote the development of "people", and take "people" as the logical starting point and destination of environmental construction. Help teachers to "teach" more effectively and students to realize personalized "learning". Thirdly, we should strengthen the theoretical and practical research on the integration of information technology and curriculum, enrich the connotation of educational information culture, and gradually realize the transformation of traditional teaching theory and teaching structure. Finally, the school should create an information-based teaching and learning atmosphere, which can promote the creation of a new teaching structure for teachers with different

practice fields, different technology media and different curriculum contents, and encourage teachers to solve real teaching problems spontaneously and subconsciously.[7]

## 5. CONCLUSION

With the wide application of network technology, big data, artificial intelligence and other information technology in the field of education, the traditional teaching method, teaching mode and education evaluation will be changed. However, in order to bring about a revolution in education, educators need to make unremitting efforts to realize their long cherished wish of seizing the commanding heights of world economy, science and technology and education by gradually promoting educational informatization.

## AUTHORS' CONTRIBUTIONS

Yang Zhe, male, Professor, teacher development center of Ankang University, mainly engaged in the research of educational technology and teaching management. Yang Zhe is the only author of this paper.

## ACKNOWLEDGMENTS

This paper is supported by the social science research project of Shaanxi Province (13n129) and the second batch of provincial teaching achievement award of Ankang University (2020pyb3).

## REFERENCES

- [1] On February 24, 2019, the Central Committee of the Communist Party of China and the State Council printed and issued "China's education modernization 2035", the eighth point of which is to "accelerate the education reform in the information age, use modern technology to accelerate the reform of talent training mode, and realize the organic combination of large-scale education and personalized training", 2019.
- [2] Nanguonong. Introduction to information education. Beijing: Higher Education Press, 2004.
- [3] Chen Baosheng, Minister of education, pointed out at the National Conference on undergraduate education of colleges and universities in the new era held in Chengdu, Sichuan Province on June 21, 2018 that we should "promote the classroom revolution and build a good quality culture", 2018.
- [4] Professor Jiao Jianli's team of South China Normal University regularly communicates with primary and secondary school teachers by using the blog exchange platform of "educational technology private plot". At present, 17 issues of "circle chat" have been carried out. <https://www.jiaojianli.com/> (2021-5-16) .
- [5] Yang Zongkai, former president of central China Normal University: promoting the deep integration of information technology and education, China Education Daily (October 10, 2016).
- [6] Yang Zhe. Using information technology to promote teaching reform should not be too hasty. Information technology education in primary and secondary schools, 2010 (6): 1.
- [7] Yang Zhe. Investigation and Research on the deep integration of information technology and teaching of primary and secondary school teachers. Teaching and management, 2015 (30): 28-29.