

Analysis on the Reform of Higher Mathematics Education in Colleges and Universities in the Era of Big Data

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Abstract. With the advent of big data era, the innovation of mathematical education method has become a new social ideology. In this era, mathematics education is developing towards informatization and visualization. This paper mainly discusses the innovation of education method of mathematics in the era of big data and studies the reform of higher mathematics teaching in colleges and universities in the era of big data. The author hopes to provide a correct direction for mathematics education through the discussion of this paper and analyze and solve the problems in the innovation process in detail.

1. Introduction

The concept of big data is a new concept proposed by people after the continuous development of society. Since the concept of big data era was put forward, the development thinking structure of society has changed a lot. With the passage of time, data information has become an inevitable demand for social development. In such a downward trend of development, people have undergone ideological transformation and strive to cultivate talents with big data ideas. Therefore, the mathematics education is particularly important. This article mainly probes into the era of big data the innovation of the mathematics education method and find out the method in the process of innovation deficiency, correct them, and gradually explore new research methods.

2. The Necessity of Higher Mathematics Teaching Reform in Colleges and Universities in The Era of Big Data

2.1 Promoting social development.

With the advent of the era of big data, the whole society has been affected. Big data is not only an industry, but also an ideological revolution. It puts forward new requirements for the reform of mathematics education. It can be seen that it is necessary to innovate the method of mathematics education.

2.2 Promoting the concept of innovative development.

The era of big data is an inevitable product of social development. Once the idea of big data is put forward, it has been widely concerned by people and has a great impact on the whole society. However, mathematics teaching is the most important education in the educational field. In the era of big data, only through continuous innovation of education in mathematics can people keep pace with The Times.

2.3 The development of mathematics.

Big data is a kind of resource that has emerged in recent years. For mathematics teaching, big data is a very valuable information resource, which can greatly influence the innovation of mathematics teaching methods. In the process of innovation of mathematical education method, we should not blindly follow it, but achieve practical results through innovation in methods. In the new era, new requirements have been put forward for people's thoughts. The full application of big data resources to innovate mathematical education methods will effectively promote the development of human civilization.

3. The Reform of Higher Mathematics Teaching in Colleges and Universities in the Era of Big Data Requirements

3.1 Requirements for Informatization.

In the era of big data, the innovation direction of mathematics education is gradually developing towards informatization. On the basis of the original information and communication science, the application of big data technology to innovate the method of mathematics education will promote the development of mathematics education. Make mathematics education more scientific. The innovation of mathematical education method is mainly based on big data technology. This process mainly includes analyzing and sorting out the basic content of mathematics education through big data technology. Through the browsing trace on the network to grasp the basic points of mathematics education, so as to be the basic basis of mathematics education innovation.

3.2 Requirements for Visualization.

In the era of big data, the development direction of mathematics education is gradually moving towards visualization. In this process, the big data information technology in the big data period is mainly adopted, and the whole process of mathematical education and its development trend are more intuitive. Mathematical education visualization mainly applies people's vision and presents the difficult knowledge directly in front of people's eyes, thus improving people's cognitive level. Meet the requirements of the big data period. In the era of big data, various data resources and data processing technologies have been developed rapidly. Under such a development trend, information visualization has entered a new stage.

3.3 Requirements for Flexibility.

In the era of big data, the method of mathematical education is flexible. In the process of mathematical education method innovation, it should be based on the characteristics of big data period. Diversity, convenience, and personalization are the main features of the big data era. In this age of mathematics, education must follow this trend. This flexibility can be analyzed mainly from four aspects. These four aspects are respectively: first, the mathematical education method should have the diversity characteristic, which is precisely because the big data era also has the diversity characteristic. The change of education concept largely determines whether mathematics teaching has diversified characteristics.

4. The Teaching Advantages of Higher Mathematics Teaching Reform in Colleges and Universities in the Era of Big Data

4.1 Promote Innovation in Mathematics Teaching.

Big data information technology has many forms in its application. It can play a very good innovative role, it can display the teaching content intuitively, can effectively improve the teaching level.

4.2 Create A Good Classroom Atmosphere.

The traditional education model is boring and the atmosphere of the class is rather rigid. The application of big data information technology solves this problem effectively. Big data information technology concretes the abstract logic thinking of mathematics teaching, presents it more directly in front of students, and creates a good learning atmosphere for students.

4.3 Change the Way Students Study.

In the traditional teaching mode of mathematics teaching in colleges and universities, teachers are mainly responsible for teaching or drawing plane figures. Such teaching methods are dull and boring, which cannot improve students' enthusiasm for learning and is not conducive to students' understanding of knowledge. However, the big data information technology application in mathematics teaching, can make the whole process of teaching intuitive present in front of the eyes of students, and it also can effectively stimulate students seeking knowledge desire, to improve their academic performance.

4.4 Advantages of Big Data Information Technology.

The big data information technology is applied to the teaching of college mathematics teaching, has many advantages, large data information technology can be applied to the geometric mapping, algebraic computation, video, and audio etc. When teaching in institutions of higher learning of mathematics teaching, can full application of multimedia in these functions, the process of mathematics teaching is more intuitive to show in front of the students, make students in mathematics teaching as a whole have a macro understanding. For example, teachers can adopt the method of slide play to the effect of mathematics teaching presents a dynamic, and in the process of play to the key and difficult point for the students to explain the teaching, improve the enthusiasm of the students to learn a solid grasp the teaching contents.

5. Efficiencies in the Reform of Higher Mathematics Teaching in Colleges and Universities in the Era of Big Data

5.1 The Application Mode Is Relatively Rigid.

The current situation, in the big data in the process of the application of information technology, because of less computer technology level of the teachers, they can't very good use of big data in institutions of higher learning of mathematics teaching technology. Therefore, under normal circumstances, teachers only show up on the surface in the teaching process of applying big data information technology. In essence, there is no difference. Therefore, big data information technology has not played its due role. The teacher in the application of big data in the process of information technology in teaching, we must change this state of mind, flexible to big data information technology application to institutions of higher learning in mathematics teaching, make students by big data information technology better grasp the content of the mathematics teaching.

5.2 Teachers Teaching Technology Level Is Low.

In the process of applying big data information technology to mathematics teaching in colleges and universities. Some teachers' ideological level and teaching methods are more traditional. We should never abandon old ideas and try new things, which greatly affects the application of big data information technology in mathematics teaching classes in colleges and universities. However, in the process of learning, students have a very strong curiosity about new things. This is in sharp contrast to the attitude of teachers. Therefore, in order to improve the students' academic performance, improve the ability of students to master knowledge, should also be constantly learning new technology, abandon traditional ideological concept, create a good teaching environment for students.

5.3 The Practice Is Monotonous.

The single way of practice is one of the major problems that influence the application of big data information technology in teaching classes of colleges and universities. Under the current situation, big data information technology has been widely used in mathematics teaching classes in colleges and universities. However, in general, the application of multimedia technology is the most common. In mathematics teaching class of colleges and universities, teachers only use big data information technology as a teaching tool but fail to innovate in teaching methods and structures. And this is the most important part. After big data information technology applied to college mathematics teaching in the classroom to make, teachers should create the environment, more communication with students, so that the students can master knowledge of solid content.

6. The Reform Method of Higher Mathematics Teaching in Colleges And Universities in the Era of Big Data

6.1 Teachers Should Use Multimedia Flexibly.

With the continuous development of The Times, the information age has quietly come. Under such development trend, big data information technology is applied to mathematics teaching in colleges and universities. Therefore, it is particularly important for teachers to master relevant multimedia technology. However, big data information technology is still a teaching tool. In mathematics

teaching class, it is students who play the main role and teachers who play the leading role. However, the multimedia application level of teachers directly determines the quality of teaching. It can be seen from this that it is important for teachers to apply multimedia flexibly. This requires teachers to be able to flexibly apply multimedia courseware on the basis of understanding the teaching content of colleges and universities, and truly integrate big data information technology and mathematics teaching.

6.2 Teachers Should Actively Learn Big Data Information Technology.

The poor technical level of teachers is a major problem in the current situation. As a result, the large data information technology application in institutions of higher learning in the process of mathematics teaching, teachers can't effective use of big data information technology teaching, and at this time, usually need to related technical personnel to help, but, lesson plan was written by teachers, related technical personnel of the concrete way of thinking, it is hard to understand the teacher in this way, will seriously affect the quality of teaching. It seems that if the large data fully the application of information technology into mathematics teaching in colleges and universities, first of all, teachers should do is to raise their technical level, so that to improve the efficiency of the classroom. Fully explain what you think according to your own ideas, improve students' enthusiasm for learning, and enhance teachers' confidence.

6.3 Increase Communication between Teachers and Students.

Today's society is an information society, network technology and big data information technology are widely used in various fields, and information network is everywhere. Therefore, big data information technology should not only be used in the teaching of mathematics classes in colleges and universities. In any case, big data information technology should be out of the classroom. At this time, teachers should apply computer network technology to extend the communication between teachers and students in class to the outside of class and enhance the communication between teachers and students. Big data information technology provides a bridge between teachers and students. In this way, can help students improve math effectively, when doing homework assigned by the teacher, if don't understand the problems, should be timely communication with teachers, timely solve.

7. Conclusion

To sum up, since the reform and opening up, China's economy and science and technology have been developing continuously. Under this development trend, the information age has quietly come. With continuous development, big data information technology has become more and more mature, which has been widely used in various fields. With the rise of education, big data information technology has been widely used in education industry. This paper mainly studies the application of big data information technology in mathematics teaching. First introduced the big data information technology application in the advantage in the mathematics teaching of colleges and universities, then analyzes the use of information technology in the large data shortcomings existing in the process, and finally, aiming at these deficiencies to develop a series of corresponding measures. It is hoped that in the future development, big data information technology can be better applied in mathematics teaching in colleges and universities, and truly realize education informatization.

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