Visualization of Basic Mathematics Teaching Based on Artificial Intelligence

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Abstract. Basic mathematics is an important part of education and teaching in our country. As a basic subject in our country's teaching, it has always played an important role. However, with the development of time, the traditional mathematics teaching methods can not stimulate students' interest in mathematics. In order to find out the teaching mode to improve students' level and enthusiasm, based on artificial intelligence, this paper uses case analysis method, literature analysis method and other methods to collect data from the database, builds a model based on artificial intelligence, and reads and analyzes a large number of relevant literature through literature survey method, according to the research needs, through the research and summary of literature content. Research structure found that through the teaching of artificial intelligence, students' mathematics scores are about 30% higher than the traditional teaching methods, the sense of cooperation between students reaches 0.8, to solve the contradiction between popularization and improvement, and to solve the polarization and the transformation of backward students and other problems, so that their personality can be fully developed and developed, so that mathematics teaching in Colleges and universities to the track of quality education. This shows that the basic mathematics teaching based on artificial intelligence can play an important role in college education.

Keywords: Artificial Intelligence, Basic Mathematics, Teaching Mode, Visualization Research

1. Introduction

At present, my country generally pays more attention to mathematics teaching, but the concept of physical education in colleges and universities lags behind. Due to the different levels of economic development in various regions, their views on courses are also different. In order to change this status quo and increase students' interest in physical education courses, mathematics teaching has undergone many reforms [1]. But it has been restricted in many ways. Therefore, most colleges and universities still adopt the original method for mathematics teaching courses. Moreover, due to the tight and difficult college courses, even the original courses are still difficult to complete in many colleges. This greatly dampened the enthusiasm of students and made them reluctant to take math class [2].

The basic mathematics teaching based on artificial intelligence adapts and pays attention to the cultivation of students' personality development under the existing educational conditions. The form of stratified teaching can be stratified teaching in a class system, stratified teaching in class, or stratified teaching in class. The determination of hierarchical teaching goals plays a leading role in the whole teaching [3]. The key link in implementing hierarchical teaching is goal stratification. Scientific and reasonable goal stratification will lay a good foundation for the success of teaching.

Mr Huang believes that outreach training can be added to mathematics education to form a brand-new curriculum content to strengthen students' interest in mathematics courses [4]; Xu Jinguang believes that problems in mathematics teaching in colleges and universities are due to lack of interaction with students combining personal characteristics, he believes that students' individual advantages should be used to solve rare problems in mathematics teaching; Peng Qingjun believes that the most important problem in college physical education is that the relevant resources are not fully developed and utilized, so he studied how to maximize the development and utilization of existing resources in mathematics courses in colleges and universities [5]; Chen Zhiwei believes that under the current background of comprehensively attaching importance to mathematics, the curriculum, evaluation methods and categories of mathematics in colleges and universities comprehensive reform and optimization of teaching have made great progress in college mathematics [6]. On the one hand, these studies have enriched our understanding of mathematics in colleges and universities, but on the other hand, the experimental conclusions are not completely reasonable. The research samples are small and the conclusions are not universal enough to be convincing.

The innovations of this article are mainly reflected in the following aspects: (1) Physical education has been a hot topic and focus of research as an activity project that the country has vigorously advocated in recent years and has been widely concerned by the public. Based on this, the research theme of this article is very social Practical significance and discussion value; (2) This article proposes to combine the hierarchical teaching theory with physical education, use fuzzy algorithms to establish fuzzy mathematical models, and based on this, carry out the simulation design of physical fitness-dominant sports, with a novel perspective.

2. Visualization Research of Basic Mathematics Teaching

The development of human society is inseparable from science and technology. The rapid development of high and new technology makes the world a world shaking change. The change of production mode promotes the development of social economy, and then changes people's way of life and way of thinking. The concept of artificial intelligence was put forward in the 1950s. With the continuous development of technology, artificial intelligence technology has become one of the most popular high-tech in the world and the main force to promote social development. The changes of people's daily life have been inseparable from artificial intelligence technology. At present, artificial intelligence technology brings benefits to human society, resulting in the increasing popularity of artificial intelligence. With the passage of time, technology will continue to break through and innovate, ushering in a broader space for development. People's expectation for the improvement of social life quality promotes the continuous progress and development of artificial intelligence technology. From the beginning of the birth of artificial intelligence, human's thirst for technology has never stopped. Artificial intelligence technology is constantly updated and improved under the promotion of human's thirst for knowledge. The artificial intelligence products produced by artificial intelligence are also popular, and become an indispensable part of human life and human development part.

The application of artificial intelligence technology has penetrated into all aspects of people's daily life, and has had a profound impact on the development of society. With the development of technology, human life style, production mode, thinking mode and even social structure will be deeply marked with "artificial intelligence" [7]. The combination of artificial intelligence technology and culture can make the remote culture far away from people's daily life "approachable". The combination of culture and artificial intelligence technology more embodies the requirement of

cultural innovation and is more conducive to the inheritance of culture. Artificial intelligence technology makes culture a part of life, and realizes the spread and inheritance of culture subtly [8].Now artificial intelligence products have been integrated into people's lives, further affecting people's lives, work and study. Artificial intelligence technology can further facilitate and enrich people's lives.

Mathematics courses in colleges and universities are set up to enhance students' thinking ability and exercise their related abilities through appropriate scientific and reasonable course education. These courses have received more and more attention with the continuous changes of modern education concepts. From a long-term perspective, the arrangement of mathematics courses in colleges and universities should adhere to the concept of "reasonable, practical and healthy". Under the background of the emphasis on mathematics in the new era, integrate relevant trends of thought to promote the development of students' mathematical awareness, so as to achieve the realization of students' self-worth In the true sense, the mathematics curriculum has become an indispensable part of college education [9].

Mathematics courses have a strong educational role. With the development of mathematics in colleges and universities, especially with the development of artificial intelligence, people are increasingly aware of the role of mathematics. Mathematics education can help students cultivate perseverance and pioneering spirit, and enhance students' collective Doctrine and patriotism [10]. The influence of college mathematics courses on students can be expressed by the following formula:

$$R = b_o^2 \left[1 + \frac{w"}{w'} \frac{au}{ad} + ... \right] \frac{a^2 r}{ad^2} \tag{1}$$

Among them, the influence of R particles with respect to time t; d is the distance, and b02 is the speed. The relevant equation is:

$$\eta_2 = -\frac{w"}{2w'} \tag{2}$$

Variants of nonlinear motion equations:

$$\frac{a^2 R}{at^2} = b_o^2 \left[1 - 2\eta_2 \frac{au}{ad} + ... \right] \frac{a^2 R}{ad^2} \tag{3}$$

The solution of the equation is:

$$R = R_1 \cos(qx - wd) - \frac{1}{4} \eta_2 q^2 R_2 x \sin 2(qx - wd) + ... \tag{4}$$

3 . Visualization of Basic Mathematics Teaching Based on Artificial Intelligence

3.1. Experimental Purpose
This article makes full use of the research results in the field of mathematics education and teaching in colleges and universities, with the goal of achieving the best mathematics teaching in colleges and universities, by investigating the mathematics scores of 6 classes in a high school in this city, after 3 months of artificial intelligence teaching mode, again Perform statistical comparison of results, understand in-depth research on existing problems in universities, build an artificial intelligence-based system for optimizing university mathematics teaching, and put forward feasibility and scientific opinions on the reform of university mathematics teaching mode, so as to help universities build better A mathematics teaching system suitable for students and China's current situation.

3.2. Establish a Model Evaluation Index System

Definite conclusions can be drawn through actual observation of objects. Generally speaking, the evaluation index system includes three levels of evaluation indexes: they are the relationship between gradual decomposition and refinement. Among them, the first-level evaluation indicators and the second-level evaluation indicators are relatively abstract and cannot be used as a direct basis for evaluation. The third-level evaluation indicators should be specific, measurable and behavior-oriented, and can be used as a direct basis for teaching evaluation.

3.3. Determine the Evaluation Weight

The index weight is a numerical index indicating the importance and function of the index. In the indicator system of the evaluation plan, the weight of each indicator is different. Even if the indicator level is the same, the weight is different. Index weight is also called weight and is usually represented by a. It is a number greater than zero but less than 1, and the sum of the weights of all the first-level indicators must be equal to 1, that is, satisfy the conditions $0 < a < 1$ and $\sum a$-1.

3.4. Statistics

All data analysis in this article adopts SPSS19.0, statistical test adopts two-sided test, significance is defined as 0.05, and $p < 0.05$ is considered as significant. The statistical results are displayed as mean±standard deviation (x±SD). When the test data complies with the normal distribution, the double T test is used for comparison within the group, and the independent sample T test is used for comparison between the groups. If the regular distribution is insufficient, two independent samples and two related samples will be used for inspection.

4. Visualized Research and Analysis of Basic Mathematics Teaching

We investigated the current mathematics scores and learning interests of students in 6 classes of a certain university in this city to understand the basic mathematics situation and results of these classes, as shown in Table 1:

Table 1. Basic mathematics

|	Math scores	Interest intensity	Thinking Ability	Calculate ability	P
Class 1	79	0.342	0.372	0.369	<0.01
Class 2	82	0.449	0.397	0.379	<0.01
Class 3	77	0.415	0.408	0.422	<0.01
Class 4	88	0.529	0.517	0.531	<0.01
Class 5	86	0.492	0.483	0.471	<0.01
Class 6	93	0.397	0.361	0.393	<0.01

Figure 1. The status quo of basic mathematics in the class

From Figure 1, we can see that among the six classes, the sixth class has the highest average score, and it is also the only class that achieves a score of 90 or more, but it is far weaker in other parameter values. Other classes, especially interest and thinking ability, lag behind other classes by about 0.2. This shows that the current basic mathematics teaching model has certain problems. Students cannot be satisfied with scores and learning interests at the same time. Therefore, we introduce artificial intelligence to help teaching. After 3 months of teaching, we test the student data again, The specific situation is shown in Table 2:

Table 2. Student values

	Math scores	Interest intensity	Thinking Ability	Calculate ability	P
Class 1	88	0.574	0.512	0.515	<0.01
Class 2	92	0.541	0.544	0.522	<0.01
Class 3	87	0.613	0.576	0.606	<0.01
Class 4	93	0.643	0.658	0.639	<0.01
Class 5	96	0.713	0.725	0.715	<0.01
Class 6	97	0.679	0.649	0.662	<0.01
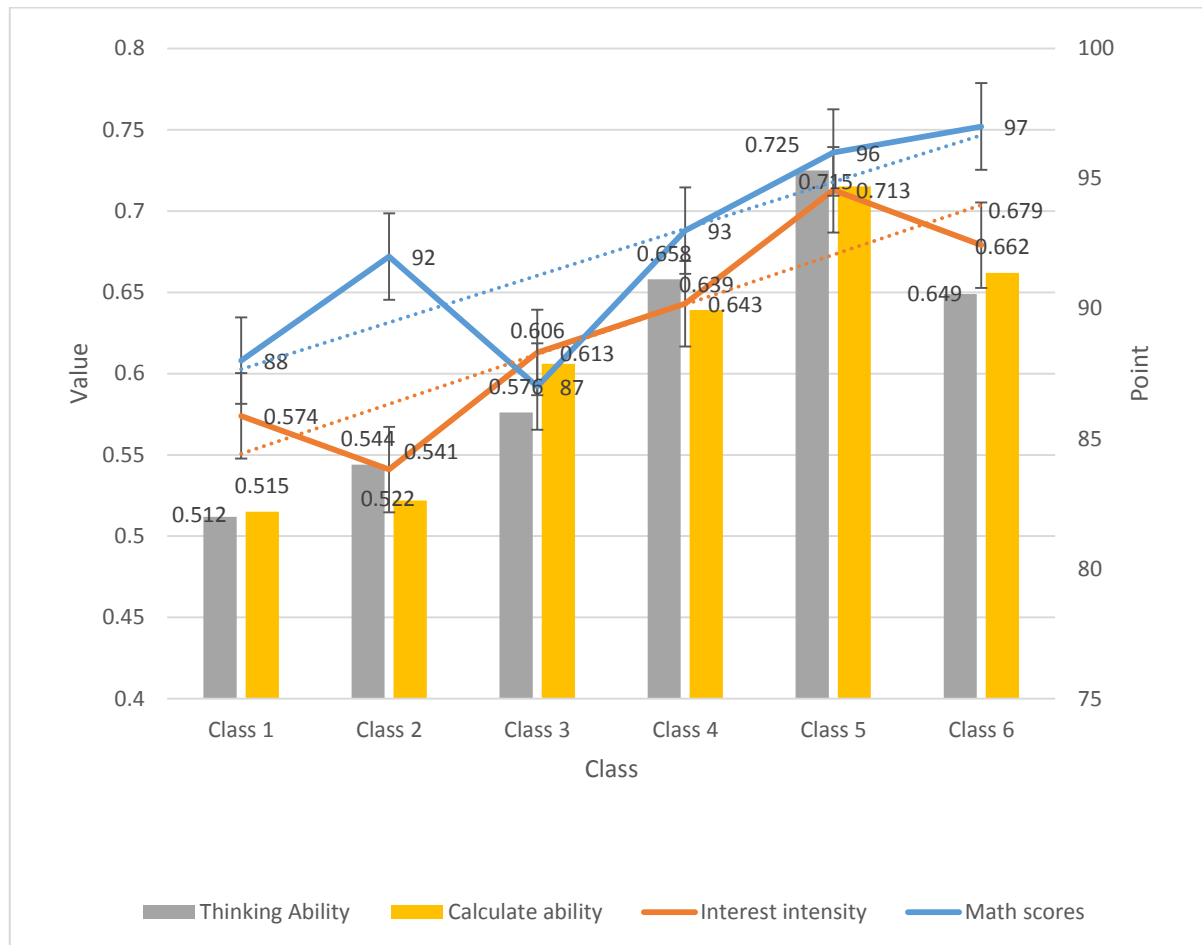
Figure 2. Student situation after artificial intelligence assisted teaching

From Figure 2 we can see that after the introduction of artificial intelligence-assisted teaching, the students' various parameters have been effectively improved, and the average score has been increased from 84 to 92, which is a significant improvement. In addition, students' computing and speculative abilities, the increase is extremely obvious. This shows that after the introduction of artificial intelligence-assisted teaching, students' performance has been effectively improved, and can stimulate students' interest in learning and increase their enthusiasm. This proves that the introduction of artificial intelligence-assisted teaching has an extremely effective effect on basic mathematics education and teaching.

5. Conclusions

In recent years, with the development of computers, the people's attention and enthusiasm for basic mathematics has also increased. Especially since the country has advocated comprehensive teaching, the development of basic mathematics in my country has reached a new height. At present, the purpose of basic mathematics cannot be achieved. Basic mathematics in our country is still in its infancy. Correct educational concepts, methods, resource allocation, etc. have not yet been formed. In addition, the long-term impact of test-oriented education has led to schools, society, etc. Insufficient investment in mathematics and insufficient attention are what led to the results of this experiment. College students and teachers are generally dissatisfied with the current college courses. It is imperative to introduce artificial intelligence into basic math courses.

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