Enhancing Tennis Online Teaching Through Big Data and Artificial Intelligence in Embedded Systems

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Abstract. With the advent of the era of information and big data, the demand for online teaching in schools is gradually increasing, especially the demand for online teaching in tennis is slowly increasing. Establishing a behavioral system to improve the efficiency and quality of online tennis teaching has become an inevitable trend for the rapid development of colleges and universities. With the continuous development of science and technology, artificial intelligence systems are gradually applied to various industries, including the education industry. Due to the sudden outbreak of the epidemic in 2019, the organic combination of artificial intelligence and primary and secondary education has become an irresistible trend. However, the research and development of artificial intelligence is still in its infancy. In the era of artificial intelligence, creating tennis student behavior analysis on big data and artificial intelligence technology is the general trend and the main method to manage student work efficiency. With the rapid development of big data and artificial intelligence technology, data plays an increasingly important role in the process of information transmission. The face-to-face teaching mode of traditional education is gradually unable to fully meet the requirements of modern education. The network-based distance learning mode develops rapidly and becomes an important supplement to the traditional teaching mode. Online education is less restricted by time and space, and students can learn independently anytime and anywhere, and complete learning tasks flexibly. In the process of tennis online education, in order to improve students' management of the learning process and quality, this paper will use the data analysis function in big data technology and artificial intelligence technology. This paper conducts questionnaire surveys on tennis teachers and corresponding students in different schools to analyze the current situation. Problems existing in the quality of online tennis teaching, and solutions based on artificial intelligence and big data technology.

1 INTRODUCTION

1.1 Big Data

Big data technology quickly analyzes and processes a large amount of diverse data, and accurately extracts useful and valuable information, so as to assist human beings in social activities[6]. In my country, big data technology has been specifically applied to the Internet, finance, e-commerce and other fields, gradually bringing a new, intelligent, and problem-solving approach[20]. For example, intelligent push in the Internet, in order to better serve users. The development of big data technology in our country has a good momentum[2]. The application and popularization of big data has made most people accept the use of big data technology in their lives. However, the use of technology has both advantages and disadvantages[16]. The advantage lies in speeding up the social process, and the disadvantages lie in the phenomenon of data and technology abuse such as big data killing, personal privacy leakage, and algorithm discrimination[10].

1.2 Artificial Intelligence

As a branch of computer science, AI was first proposed by the father of artificial intelligence "Alan Matheson Turing", involving psychology, computer science, control engineering and other disciplines[3]. But so far there is no unified view on the definition of artificial intelligence[19]. In a nutshell, it develops by simulating the operation of the human brain and uses machines to expand human intelligence, and makes machines a tool with an intelligent carrier, thereby helping Assist human life and work[11]. In the process of continuous research and development, artificial intelligence has gradually become a new model and method for improving social practice[23]. The technical characteristics of AI mainly have the following four aspects, namely, flexibility, comprehensiveness, serviceability, and practicality[8]. Flexibility means that artificial intelligence, as a tool for simulating the brain, can be flexibly and automatically processed and applied to life and work; comprehensiveness means that the required disciplines are multi-synthesized to achieve a high degree of knowledge integration; service Sexuality means that artificial intelligence products are actually a kind of intelligent tools that serve human beings and carry out auxiliary activities; they can be better invested in practical activities in order to maximize the benefits of artificial intelligence in actual work, which is the meaning of practicality[22]. This technology is the core topic of the 21st century[4]. Our country also promotes the application of artificial intelligence machine technology on a large scale[12]. With the deepening of public awareness, increasing familiarity, and increasing usage rate, society has entered an era of intelligence[9]. At the same time, the continuous development and deepening of technology brings risks and poses new challenges to our existing laws[17].

1.3 Online Education

In recent years, the traditional teaching mode mainly revolves around three parts: students, teachers and teaching materials. In these three parts, the teacher is the center, teaching the students face to face in the school. In this process, students are in a state of unilaterally accepting knowledge[7]. Compared with online education, the traditional teaching mode has unique advantages[15]. The teaching content and teaching progress are dynamically adjusted by the teacher according to the learning effect in the classroom[21]. However, the students in the classroom are independent individuals with different cognitions[1]. Teachers cannot Fully taking into

account the status of each student is not conducive to cultivating students' ability to learn independently, is not conducive to exerting creativity, and cannot give full play to students' subjective initiative[18]. Students need to learn process control and divergent thinking in order to greatly improve the interaction between teachers and students in the classroom[5].Embedded systems can also be employed in the form of smart classroom management systems. These systems can automate routine tasks such as attendance tracking, grading, and resource allocation, which frees up teachers' time to focus on more personalized instruction. Additionally, embedded systems can provide real-time data on students' performance, enabling teachers to identify areas of improvement and tailor their teaching strategies accordingly.

With the rapid development of the Internet, the teaching mode is different from the past. Based on the online education system, teaching resources can be easily obtained, saving students' time and allowing students to concentrate on their studies, but how to improve the teaching quality of students in online education has become the focus of many teachers[13]. During the epidemic, the education industry has been greatly impacted[14]. Many offline institutions have transformed to online, and teachers have to conduct live teaching at home. Although the epidemic has stimulated the development of online education, online education is still in the development period, resulting in frequent occurrence of online teaching, such as network congestion, lack of digital resources, and poor interaction between teachers and students. In order to improve the quality and effect of online education, choosing an appropriate teaching method is crucial to improving the quality of teaching.

2   QUESTIONNAIRE RESULTS AND ANALYSIS

A questionnaire survey was conducted on a total of 200 students and teachers in many schools to analyze the teaching status of online tennis courses. The degree of love of students for online tennis courses is shown in Table 1.

Like degree	like very much	like	generally	don't like it very much	dislike
Male	46	36	18	2	13
Female	15	26	18	4	22

Table 1: 200 Students in 10 Colleges and Universities Like Online Tennis Courses.

In addition, the survey found that there are five key factors that affect the quality of online teaching for students and teachers.

Influencing factors	Percentage (%)
resource factor	46
Funding factor	18
teaching factors	14
Class time factor	12
other	10

Table 2: Main Factors Affecting the Quality of College Tennis Online Teaching.

Regarding the evaluation of the teaching quality of online tennis courses for students, some of the teachers surveyed believe that it is mainly affected by the parameters in Table 3.

Quality Evaluation	Percentage (%)
student satisfaction	40%
Teachers' satisfaction with students' learning effects	29%
Employers' satisfaction with students' tennis knowledge	31%

Table 3: Quality Evaluation of Tennis Online Education.

After investigation, it is found that the tennis courses that students are more satisfied with mainly include the characteristics contained in Table 4.

Num	feature
1	Meet the development needs of the times
2	Meet students' own development needs
3	Meet the needs of regional social development

Table 4: Characteristics of High-Quality Tennis Courses.

The overall survey data is analyzed using formulas related to reinforcement learning, and the corresponding online tennis teaching rules are summarized. The formulas used are shown in (1)-(3).

$$\pi^*(s_n) = \arg\max_{a_n} Q^*(s_n, a_n) \tag{1}$$

$$Q_\theta(s_n, a_n) \leftarrow Q_\theta(s_n, a_n) + \alpha\left(r_n + \gamma \max_{a_{n+1}} Q_\theta(s_{n+1}, a_{n+1}) - Q_\theta(s_n, a_n)\right) \tag{2}$$

$$\mu\left(\overline{\mathbf{\Delta}}^n, N_d^n\right) = 1 - F_{\text{loss}}^n = 1 - \left|\frac{\overline{\Delta}_0^n}{\overline{\Delta}_0^n + \overline{\Delta}_v^n} - \frac{1}{N_d^n}\right| \tag{3}$$

Among them, sn represents the index of online tennis teaching, an represents the learning quality of students' online courses, and T represents the time-consuming of online tennis courses.

2.1 Work Preparation Before Class

Before the start of online teaching, physical education teachers in colleges and universities should choose an online teaching mode that suits them based on their own conditions and school requirements, so as to better select online network platforms and create teaching resources. So far, judging from the selection of various online teaching APPs, online teaching modes are mainly divided into four categories. Live broadcast refers to the teacher's simultaneous teaching through the network live broadcast platform. Recording and broadcasting means that the teacher first records the classroom teaching content in advance, and then uploads it to the network platform. When the class is in session, the students independently play the teaching video through the network platform for learning. The mixed mode of live broadcast + recording and broadcasting means that the teacher first records the important and difficult points in the teaching process before class, and when the live teaching of the course can be interspersed with the video to cooperate with the explanation. Citing resources means that the teacher directly quotes the existing teaching resources on the network platform, and does not conduct course recording or live broadcasting.

According to the actual survey, most of the teaching teams of colleges of physical education in colleges and universities choose a mixed mode of live broadcast + recording. Taking the 2020 spring semester of the 18th-level social sports class of the Physical Education College as an example, all students affected by the epidemic have been postponed to school. There are a total of 6 compulsory courses, 4 of which adopt the mixed teaching mode of live broadcast + recording. The main reason is that the teachers of each subject record the important and difficult points in classroom teaching in advance, and play them repeatedly for students to watch during the live broadcast. The advantages of this mixed teaching mode are: the teaching content is rigorous and refined, which can effectively and intuitively solve the major and difficult points in the learning process of students. After class, teaching courseware and videos can be used as teaching resources for students to study and review at any time. However, under this teaching mode, it is difficult for teachers to prepare lessons personally, and it is difficult to save teaching resources after class.

2.2 Selection of Online Teaching Platform and Creation of Teaching Resources

2.2.1 Selection of Online Teaching Platforms in Colleges and Universities

The advent of the new media era has led to the rapid development of Internet technology, the continuous updating of major online applications, and the continuous emergence of various teaching platforms affected by market demand. There are more than 20 large-scale online teaching platforms in my country, such as Xuetong, DingTalk, etc., with a total of more than 20,000 courses uploaded on the online platforms, and 240 courses related to sports. Teachers can choose the appropriate application teaching platform according to the characteristics of their own subjects and their own needs.

Taking tennis elective courses in various colleges and universities as an example, according to the actual survey results, tennis elective courses use the dual platform of WeChat + Chaoxing Xuetong to notify information and teach courses. WeChat is used to post pre- and post-class notices, and Superstar Learning is used to sign out, assign homework, and store courseware or videos recorded in advance by teachers.

2.2.2 Creation of online teaching resources in colleges and universities

Online teaching resources mainly include two categories: basic resources and extended resources. As far as the online teaching of tennis courses is concerned, the basic resources include: the basic teaching content of the class, teaching courseware, teaching videos, homework, and examinations; the extended resources include: knowledge points extended beyond the basic teaching content, quizzes in class, etc.

2.2.3 The establishment of online teaching information publishing platforms in various colleges and universities

The creation of an information release platform mainly refers to the creation of an information platform for publishing teaching content or teaching notices, so that students taught can receive various notices related to courses in a timely manner. Taking tennis elective courses of college students as an example, according to the actual survey results, different sports elective courses such as badminton, basketball, tennis, etc. are all issued teaching notices through the creation of WeChat group chats. All students will be grouped into the same group chat on a class basis. Before the teaching course starts, the teacher will release specific course requirements or important information, which will be communicated to each student under the supervision of the school committee and group leader of each class.

2.3   Online Course Implementation

After the pre-class work preparation of the online tennis course is completed, the normal teaching can be started according to the teaching plan and syllabus. The choice of online teaching mode is restricted by various links in online pre-class work preparation, and different online teaching mode choices correspond to different online course implementation methods.

2.3.1   Analysis of Online Courses in Different Modes

In the live broadcast mode, it means that the teacher of this course will teach and explain directly through the live network platform, which is highly interactive and easy to understand the situation of students. In the mode of recording and broadcasting, it means that the teacher of this subject will play the teaching video that he has recorded in advance, and there is no need to explain it all the time, and it depends on the students' self-conscious learning. The mixed mode of live broadcast + recording and broadcasting means that the teaching method of the subject teacher is a combination of the first two modes. According to the actual situation, the teacher can choose live broadcast to explain and demonstrate most of the knowledge points, interspersed with video recording and broadcast to explain important and difficult points, or play the recorded video first. Broadcast the video to places where the teaching is difficult and pause the teacher to explain and demonstrate directly through the live broadcast from time to time. Under the mode of quoting resources, it means that the teacher of this subject will directly play the course resources found before class, and students will learn independently in class, and the teacher only needs to answer questions and test after class.

2.3.2   Combined with actual course analysis

Taking the teachers of the specialized courses of the colleges of physical education in various universities as an example, according to the actual survey, most of the physical education teachers choose the third mode. The implementation process of the online sports course is as follows: ⊖ The teacher establishes a WeChat or QQ group with all members of the professor's class, and publishes important information in this group. notify. ⊜The teacher establishes a class in Chaoxing Learning Pass, uploads all recordings, courseware, etc. to the platform, and then invites all students to enter the class. At the same time, everyone is required to read all online materials before the end of the course. ⊛The notices issued before class and homework exams will be double-platform and double-notified. ④ During formal teaching, students are now required to sign in on Superstar Learning Pass, and then explain the teaching content live in the Tencent classroom. Learn about student learning. ⑤ After class, use Chaoxing Xuetong to assign homework after class, and organize the whole class to communicate and share their experiences in group chats.

2.4   Online Course Assessment

Course assessment is the final link of teaching, and it is also the link that students care most about. Course assessment should combine the actual situation of teaching, and make preparations for various assessments. The way of course assessment has different standard modes according to different subjects. The main methods of online assessment for surgery teachers are: live test, upload video, choose one or a combination of the two methods according to the actual situation. The main methods of online assessment for subject teachers are: unified online APP to conduct online online examination. Course assessment content: determined according to the syllabus of each subject and the actual teaching situation, if necessary, it can be slightly adjusted according to the actual situation of the candidates.

Setting of grade weight: There are different standard modes according to different subjects. The grades of academic teachers are mainly composed of usual grades, technical grades, and quality

tests, and the grades of subject teachers are mainly composed of usual grades and theoretical grades. The specific proportions are deleted or adjusted by the teachers of each subject according to the actual situation. Assessment criteria: When formulating, it should be closely combined with students' learning situation, daily test level and college opinions. In short, the difficulty should be appropriate to ensure that more than 80% of students can complete the course assessment. Taking the end-of-semester scoring standards for teachers majoring in physical education and social sports guidance and management at the 18th level of physical education colleges of universities as an example, according to the actual survey, teachers of technical subjects mainly use students' technical level of the project as the main content of assessment. The main content of the assessment is: Usual grades + basic technical ability + understanding of the referee rules of the event. Subject teachers are mainly based on two types of assessments: online theoretical examinations and usual grades; online theoretical exams are mainly determined by the teacher according to the actual situation of the students and the exam syllabus, and then the teacher chooses a unified online exam platform; the usual grades are Including the number of online sign-ins, quiz scores, and homework completion times.

2.5 Advantages Brought By Online Teaching of Tennis Courses in Colleges and Universities

Learning is autonomous, and now the use of online teaching platforms to obtain corresponding teaching resources can meet the learning needs of students themselves. Taking the public physical education courses of various colleges and universities as an example, first of all, by using the big data and cloud computing of the online teaching platform, students can directly see their own learning situation and adjust their learning direction according to the platform data. Secondly, students with weak foundation and poor comprehension ability can use the learning resources uploaded by teachers on the online teaching platform to study, exercise and review anytime and anywhere, flexibly and independently control the learning progress, and break the time and space constraints; on the contrary, students with strong receptivity , You can also use a variety of teaching resources in the online teaching platform to expand knowledge outside the classroom or break the constraints of space and time for academic exchanges. Before the final exam, students can directly use the online teaching resources of the corresponding subject to review, eliminating the tediousness of searching for resources online.

3 THE PRACTICAL DILEMMA OF ONLINE TEACHING OF TENNIS COURSES IN COLLEGES AND UNIVERSITIES

3.1 The Construction of Online Teaching Platform for College Tennis Courses Needs to Be Improved

In the development of online teaching of tennis courses in colleges and universities in my country, a convenient and stable online teaching platform is of great significance to the development of online teaching. However, most of the existing online teaching platforms have some problems, which directly affect the smooth development of online teaching for teachers and students. First of all, some online teaching platforms are unable to accommodate a large number of students to attend online classes at the same time, resulting in frequent freezes during the teaching process of the live broadcast mode, which greatly reduces the effectiveness of classroom teaching and is not conducive to the smooth development of online teaching courses. Secondly, some online teaching platforms have problems where students cannot log in normally or the teacher's picture and voice are not synchronized during the teaching process, which reduces the quality of classroom teaching and is also not conducive to the normal development of teaching activities. Finally, some online teaching platforms of colleges and universities have certain functional deficiencies. The online questioning

function of students is not perfect, and the action capture in the process of college physical education teaching is not accurate enough. As a result, college teachers cannot accurately identify students' learning status, and cannot timely understand The knowledge mastery of students is not conducive to the improvement of the quality of online teaching of physical education in colleges and universities and the overall development of students.

3.2 Insufficient Online Teaching Ability of Physical Education Teachers in Colleges and Universities

As the leader in the online teaching of physical education in colleges and universities, physical education teachers play an important role in improving the teaching quality of tennis courses and developing online physical education teaching. However, in the process of online teaching of physical education in colleges and universities, some teachers have insufficient online teaching ability, which has a certain degree of impact on the development of online teaching.

Taking physical education teachers in various colleges and universities as an example, first of all, in the initial stage of online tennis course teaching, some teaching objectives were not clear. How often did physical education teachers try to directly use resource teaching models, making online tennis course teaching seem active but actually passive. Secondly, due to the influence of older age, some physical education teachers in the college have difficulties in operating the online platform of online teaching equipment, or there are some physical education teachers who are accustomed to the traditional classroom teaching mode, and the informatization level of online teaching has not been improved. There are problems such as unskilledness in the teaching process, which seriously affects the teaching efficiency of online tennis courses. Finally, some physical education teachers in colleges and universities are not suitable for online teaching methods. As a result, in online teaching practice, due to problems such as insufficient grasp of shooting skills and too fast display of their own demonstration actions, college students do not fully grasp the essentials of movements, which affects colleges and universities. The quality of online teaching of physical education.

3.3 Students Have a Weak Sense of Gain and the Quality of Online teaching is Greatly Reduced

The explanation method and the demonstration method are one of the important methods of physical education teaching. Taking physical education elective courses in various universities and colleges as an example, due to the large number of students in each class during online teaching, teachers cannot effectively supervise students in the online teaching of physical education; after teachers give lectures and demonstrations in class, most of them can only be completed by students' self-consciousness practise. In addition, in the early stage of technical movement learning, technical movements are unstable and muscles are tense, which will lead to frequent mistakes, so the application of error correction method is very important. In the process of online teaching, the teacher cannot obtain all the students' practice pictures at the same time, and cannot correct and explain the students' wrong actions in time. Compared with the traditional offline classroom, the sense of presence and mutual assistance between teachers and students are greatly reduced, which affects students' understanding of professional technical actions. Learning and mastering in a timely manner will greatly reduce the teaching effect.

3.4 The Online Teaching Management Mechanism of College Tennis Courses is Not Perfect

In the development process of online teaching of physical education in colleges and universities in my country, a comprehensive and scientific management mechanism has an important impact on

the development of online teaching of tennis courses. In the process of online teaching of tennis courses in various colleges and universities, students and teachers can clearly find the deficiencies in the online teaching management mechanism. First of all, teachers and students belong to two spaces in online teaching activities. Teachers are unable to supervise the class discipline on the platform, and teachers cannot implement effective supervision, which affects the quality of online teaching. Secondly, it is difficult for students to report problems encountered in the online teaching process, and the lack of reasonable and effective channels also affects the development of online sports teaching to varying degrees.

3.5 Sufficient Online Teaching Resources for Tennis Courses in Colleges and Universities

In the development process of online teaching of physical education in colleges and universities, the quality and quantity of physical education teaching resources in the online online teaching platform play an important role in the development of online teaching of physical education. However, in the online teaching platform, the theoretical resources are often greater than the practical teaching resources. The lack of practical education resources has affected the reference of academic teachers' resources and the development of online practical sports online teaching. Secondly, there are few types of practical sports online teaching resources and the quality is not high, which also restricts the smooth development of online sports teaching. Finally, the number of online teaching resources for both practical and theoretical tennis courses is far less than that of other subjects; and the existing online teaching resources for sports do not meet the needs of online teaching, and cannot meet the large number of teaching needs of teachers and the learning needs of students , which is directly detrimental to the improvement of the teaching ability of physical education teachers in colleges and universities and the satisfaction of students' learning needs.

4 ONLINE TEACHING PROGRAM FOR TENNIS COURSES BASED ON BIG DATA AND ARTIFICIAL INTELLIGENCE TECHNOLOGY

4.1 Design an Online Teaching Platform Combining Big Data and Artificial Intelligence

A scientific and complete online teaching platform is the premise and guarantee of online teaching. In the development process of college tennis online teaching: first of all, we should recruit big data and artificial intelligence technicians with strong professional ability and rich experience, and deal with the problems that occur in the process of college sports online teaching. Various problems; at the same time, arrange professional and technical personnel to maintain the operation of the online teaching platform, ensure the carrying capacity of the number of online teaching platforms, and avoid obvious freezes and flashbacks during the teaching process that affect the normal progress of online teaching. And according to the characteristics of physical education in colleges and universities, the update and improvement of the online teaching platform can be optimized to promote the further development of the online teaching platform. Secondly, send professional and technical personnel to assist in updating online teaching equipment, provide a more complete platform foundation for online teaching, and promote the smooth development of high-line sports online teaching. Finally, establish an online teaching opinion collection office to encourage teachers and students to actively speak, and arrange staff to regularly collect and sort out, so as to further optimize the development of the online teaching platform. Through the investigation of colleges and universities that use big data and artificial intelligence technology to build online tennis teaching platforms, it is found that the overall quality of tennis online teaching has been greatly improved, and the specific situation is shown in Figure 1.
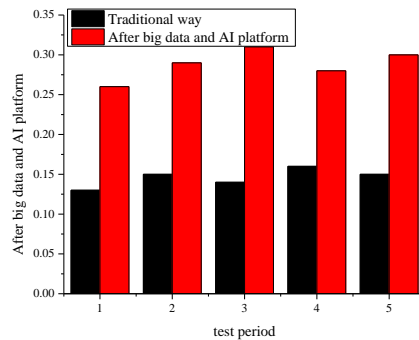
Figure 1: The Quality of Online Tennis Teaching After Combining Big Data and AI platform.

4.2   Combining Big Data Technology to Improve Teachers' Online Teaching Methods

Teachers are the leaders of classroom teaching and play a key role in leading classroom teaching. Similar to the traditional physical education teaching mode, the teacher still plays a leading role in the teaching process in the online physical education teaching mode, but the level of information technology of physical education teachers directly affects the development of online teaching activities. In order to improve the information technology level of physical education teachers and enable online teaching to be carried out normally: first of all, a professional team should be hired to strengthen the training of physical education teachers in the school, help teachers to further familiarize themselves with the use of online teaching equipment, enrich online teaching experience, improve online teaching ability, and lay a solid foundation for online teaching of physical education in colleges and universities. Excellent faculty. Secondly, encourage all physical education teachers to enrich online teaching methods and avoid copying traditional offline teaching models to online teaching. For example, let teachers learn to use big data analysis, virtual reality and other technologies to enrich online teaching methods of tennis courses, and further stimulate students' interest in online teaching. Through the investigation of colleges and universities that use big data technology to improve teachers' online teaching methods, it is found that after adopting relevant tennis online education evaluation indicators, the quality evaluation of college tennis online education becomes more accurate, and the specific situation is shown in Figure 2.
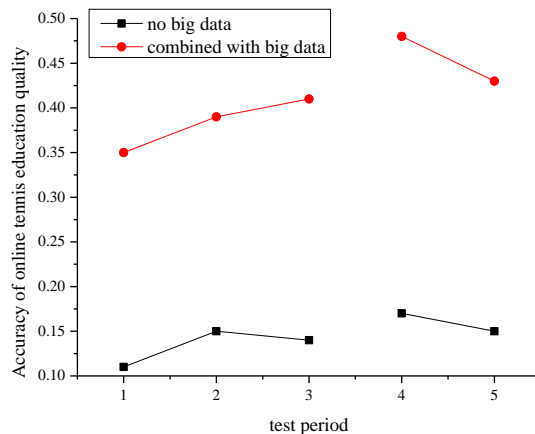

Figure 2: Accuracy of Quality Evaluation of College Tennis Online Education Combined With big data.

4.3 Reasonable Selection of Teaching Activities Combined With Big Data Technology

Big data technology can make targeted corrections to students' problems in tennis teaching. In online tennis teaching activities in colleges and universities, teachers should combine big data technology to reasonably select teaching activities, actively guide students to face the discomfort caused by the change of teaching mode, and focus on increasing The weight of the student's physical exercises allows them to really move during the online teaching of tennis lessons. Then students are required to change their inherent learning methods and actively adapt to online physical education teaching. Teachers are patient in implementing online teaching activities, communicate with students in a timely manner and give feedback on students' questions in a timely manner until students can independently and successfully complete online physical education teaching tasks. Through the investigation of colleges and universities that combine big data technology to reasonably choose tennis teaching activities, it is found that after adopting big data technology, the enthusiasm of students to participate in online tennis teaching activities has been greatly improved. The specific situation is shown in Figure 3.
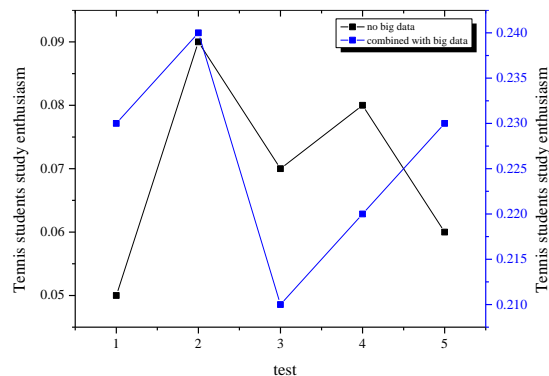

Figure 3: Students' Learning Enthusiasm Combined With Big Data.

4.4 Combining Artificial Intelligence Technology to Establish Online Supervision Function of Tennis Courses

Artificial intelligence technology can realize intelligent supervision of online courses according to the definition of programmers, and physical education has strong interaction and practicality. Engagement in the teaching classroom for the advancement of online teaching. However, the existing teaching facilities and online teaching platforms cannot allow physical education teachers to know the real classroom status of each student at all times. In order to solve such problems: First, the school should improve the online teaching supervision and management system of tennis courses, and make detailed adjustments according to the real situation of the classroom, so as to provide scientific and perfect teaching evaluation standards for physical education teachers in online teaching activities, so as to further promote online teaching of sports in colleges and universities. normalized. Secondly, according to the characteristics of online teaching activities of physical education in colleges and universities, the online teaching norms and standards for physical education teachers can be formulated; Standard teachers make standard corrections, which further mobilizes teachers' enthusiasm for online teaching. Finally, we can standardize the online teaching system of physical education in colleges and universities based on technical means. Through the online teaching platform big data or cloud computing, we can understand the real situation of teachers and students in the teaching process, and further analyze the problems existing in online teaching in detail, so as to promote the online teaching of physical education in colleges and universities. The development of teaching science.

4.5 Improve Demand for Online Tennis Education Resources Through Big Data Analysis

Big data technology can achieve targeted analysis, and rich online tennis teaching resources are of great significance to online tennis teaching. In this regard, every college tennis teacher must pay attention to the importance of sports online teaching resources, make full use of existing online teaching resources, enrich the online teaching content of tennis courses, and promote the improvement of the quality of college tennis online teaching. At the same time, every tennis teacher in colleges and universities is encouraged to innovate the use of existing online sports teaching resources to stimulate students' interest in online tennis teaching classes. Secondly, in view of the shortage of online sports teaching resources, all physical education teachers should be encouraged to make up for the shortage of teaching resources by recording videos and other forms, enrich the teaching resources of tennis courses, and carry out targeted analysis and push of tennis course resources through big data technology. It is guaranteed that all tennis online teaching associates can obtain professional teaching resources, so as to improve the teaching quality. Finally, college tennis teachers can guide students to use flipped classrooms, encourage students to preview and understand online teaching content through big data technology before classes start, or practice important and difficult teaching points in advance; The teaching content is explained and analyzed, and then the teacher corrects and supplements according to the content of the students' lectures, so as to further improve the students' independent learning ability.

5 CONCLUSION

Online teaching is a new type of teaching mode. In a special period, online course teaching is one of the important means of talent education in colleges and universities, and has become the main mode of talent training. In the near future, education will be a combination of online and offline education models, and one day the online teaching model may even replace the offline teaching model. At present, the online teaching of tennis courses in colleges and universities is in the process of practical exploration. In short, major colleges and universities should firmly seize the opportunity, develop the shortage of college sports online teaching resources, and actively improve the deficiencies in online teaching, so as to provide a better way for college tennis. The development of online teaching of courses has laid a solid foundation and promoted the long-term development of online teaching of tennis courses in colleges and universities. With the rapid development of big data and artificial intelligence technology in the data age, intelligent technology education is leading a new education reform sweeping the world. Offline teaching can no longer meet the current teaching needs, and online teaching has emerged as the times require. Tennis is the main subject in physical education. At present, we should firmly grasp the advantages of the development of big data and artificial intelligence technology, and carry out a corresponding reform in the teaching of tennis courses in Chinese schools to promote the long-term development of tennis. This paper studies the practice and exploration in the online teaching process of tennis courses in various schools.

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