Design of Cloud Classroom Hybrid Physical Education Teaching Mode Based on Internet Technology

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Keywords: Physical Education, Hybrid Model, Cloud Classroom, Internet Iechnology

Abstract: The structure and form of the education and teaching system are undergoing change and transformation, and the blended learning form that integrates online and offline will surely become a new teaching model. At present, the physical education teaching methods in colleges and universities are relatively traditional, which cannot stimulate students' interest in learning and reduce the learning effect. This paper aims to study the design of hybrid physical education teaching mode in cloud classroom based on Internet technology. It is expected that if Internet technology and hybrid teaching mode can improve the teaching effect of physical education courses, more comprehensive talents will be cultivated for the society. This paper explores the application of mixed teaching mode in public physical education teaching in colleges and universities through a questionnaire survey. Aiming at the characteristics of sports videos, this paper proposes a hybrid non-rigid target tracking method based on mean shift algorithm and color histogram algorithm. It systematically integrates the structural elements of the teaching process at the teaching model level, and provides theoretical guidance for the development of blended learning practices.

1. Introduction

The Internet has brought many new challenges and opportunities to traditional teaching and learning, and the context of Dong X P's research is the impact of the online context on individual aspects of classical pedagogy and instructional methods. He explored the path of instructional reform from new teaching concepts to the application of hybrid teaching models and assessment methods. The study showed that more than half of the students were willing to accept the practical application of this research and found it to be more effective [1]. Li Y focused on how to integrate mobile learning into the teaching process in the context of mobile Internet. This can stimulate students' interest in autonomous learning, and try to explore the actual situation in order to design a blended teaching model based on the background of mobile Internet [2]. Juhe W described the relevance and usage of multimedia CAI in the evolution of PE education. The results of the experiment show that the new courseware facilitates students' continuous learning [3]. Liu R analysed the usage of data mining based on web data in teaching rich media and athletics. The modernisation of teaching methods is one of the most important topics in the PE teaching change. By applying CAI technology in PE teaching, PE teaching can be changed from a traditional to a

modern model. In addition, the application of multimedia technology can be well integrated to increase students' motivation to learn [4]. Cooperative learning is a new teaching method for students to learn independently. Lin Q believed that the use of diversified and complementary sports collaborative learning teaching plans on computer and Internet platforms is conducive to cultivating students' autonomous learning ability [5-6]. While these theories explore blended instructional models, they do not integrate them with physical education programs.

The continuous progress of society has played an important role in education, and comprehensive talents are an important resource for current social development. According to the experiment, when using the traditional teaching mode, only 13% communicated a lot, 24% communicated more, and 40% communicated more frequently [7-8]. When using the blended teaching model, 26% communicated very much, 30% communicated more, and 29% communicated more frequently. According to this situation, it can be seen that the communication between teachers and students in the mixed teaching mode has increased significantly, and it can be seen that students prefer the mixed teaching mode.

2. Design Method of Internet Technology Mixed Physical Education Teaching Mode

Along with the spread of Internet skills, new opportunities for people to learn and work have been opened up [9]. In the face of the strong momentum of the Internet, the combination of the Internet and education has also emerged in the field of education. Education informatization provides a favorable learning environment for teaching, and can improve the modernization level of education with the help of various technologies. At present, some aspects of the traditional sports espionage teaching model are not in line with the current needs of college students. In order to improve the quality of physical education courses in colleges and universities, it is urgent to change the current unreasonable teaching methods. The blended teaching mode combines traditional teaching and online teaching, and extracts the merits of the two teaching modes. Ineffective teaching methods are eliminated and combined with the network to highlight the status of students and teachers in the classroom teaching process. It has changed the characteristics of the single mode of traditional teaching. Although everyone is actively discussing the teaching mode, there is no generally accepted statement. Figure 1 shows the structure of the mixed teaching model:
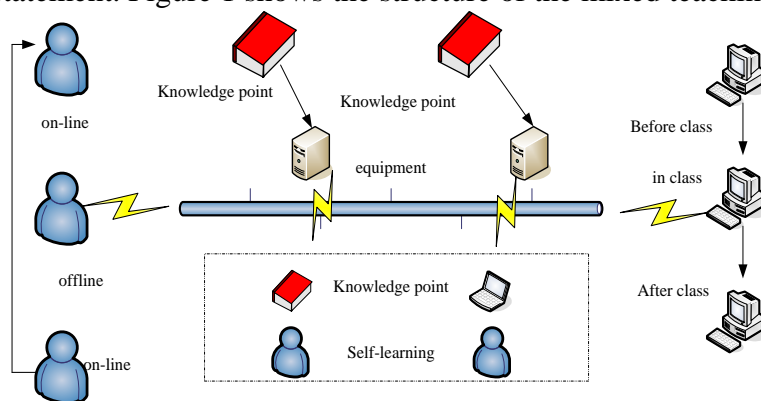
Figure 1: Structure of hybrid teaching model

Blended teaching combines classroom teaching and network information, realizing the complementary advantages of the two. Blended teaching is conducive to the leading role of teachers, students can quickly and effectively grasp systematic knowledge under the guidance of teachers, it is conducive to the verbal, physical and emotional interaction between teachers and students, and give full play to the important role of emotional factors in the learning process [10]. By adding network elements in the process of physical education, students can participate in learning anytime

and anywhere without being limited by time and space. Especially in the current situation of repeated new crown epidemics, online teaching provides students with a new form of teaching. In the traditional teaching process, teachers tend to rely too much on teachers and ignore the subject status of students. The hybrid teaching model is very positive for this problem, and it reflects dual subjectivity in curriculum design. Figure 2 shows the blended teaching curriculum design:
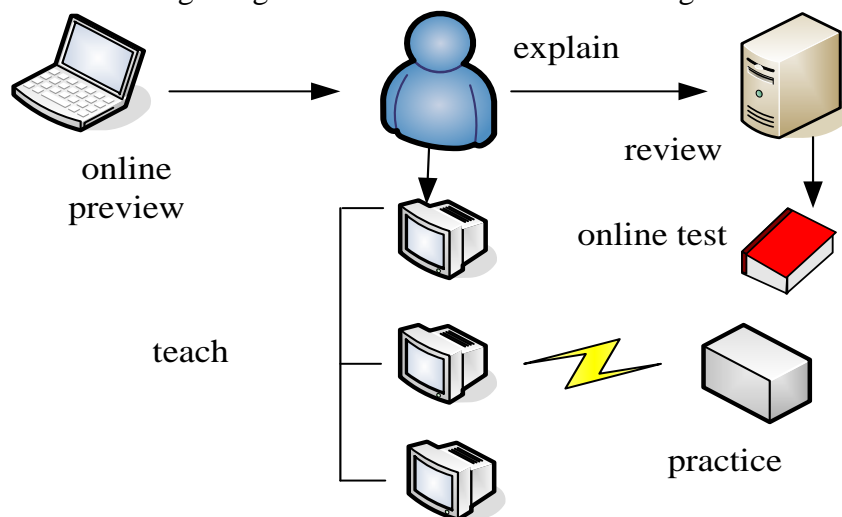

Figure 2: Hybrid teaching course design

3. Internet Technology Mixed Physical Education Teaching Mode Design Experiment

The purpose of blended learning is not to access web-based instructional teaching platforms or to innovate in instructional events, but to improve students' approach to study and master independent study methods. At present, the society advocates the development of talents with comprehensive qualities, which shows that in addition to the need to pay attention to culture, sports cannot be ignored in terms of physical fitness such as sports.

Table 1: Survey on the basic situation of students

Content	Number of people	Proportion
Polytechnic	82	41
Medicine	24	12
Educate	12	6
Manage	32	16
Literature and history	22	11
Other	28	14

According to the data in Table 1, a survey was conducted on students in colleges and universities. According to the data, there are a total of 200 valid data information this time. Among them, 82 are science and engineering students, accounting for 41%; 24 are medical students, accounting for 12%; 12 are education students, accounting for 6%; 32 are management students, accounting for 16%; 22 are literature and history students, accounting for 11%. And in the student group, most of the students are first- and second-year students. According to the curriculum settings of colleges and universities, there are many physical education courses in the first two grades, so a survey of students in the first and second grades can better highlight the real situation of college physical education courses. In view of this situation, it is explained that each of the acquired data reflects the basic situation of the students, and the data is valid.

Table 2: Attitudes of PE blended teaching

Content	Number of people	Proportion
Very satisfied	90	45
Quite satisfied	100	50
Dissatisfied	10	5

According to the data in Table 2, physical education courses are taught in a mixed teaching method. According to the feedback of the course, 90 people like the teaching method very much, up to 45%; 100 people like it more, up to 50%; 10 people don't like it, up to 5%. According to this situation, most people are satisfied with the mixed teaching mode, which shows that this teaching mode has certain merits in teaching physical education courses. In this case, the blended teaching method is indeed more suitable for the current classroom. Students who did not like this teaching mode were also investigated for their reasons. According to the data, they believe that the hybrid teaching model is too dependent on online devices and requires certain information technology capabilities. It is difficult for teachers to master this skill, and not all teachers can accept this method, which will lead to inequality of educational resources.

The use of mixed teaching mode for physical education, although each brings more intuitive teaching effect to students, is conducive to improving the effect of classroom teaching. However, the premise of adopting this teaching method is that teaching can use this method, which can combine online and offline teaching, and give full play to the advantages of traditional teaching and online teaching. In response to this situation, we investigated the basics of teaching in computing, as follows:

Table 3: Relevant surveys on teachers' mastery of basic computer knowledge

Content	Number of people	Proportion
Install software	36	75
Search engine	43	86
Download file	45	90
Tool usage	36	71
Mail sending and receiving	45	90
Other	5	10

According to the data in Table 3, the basic knowledge of teachers in computer has been investigated, among which 50 teachers in colleges and universities have been investigated. In terms of software installation, 36 people are relatively proficient with it, up to 75%; in terms of search engines, 43 people are relatively proficient in it, up to 86%; in terms of file download, 45 people are relatively proficient in it, up to 90%; in terms of tools use, 36 people are relatively proficient with it, up to 15%; in terms of mail sending and receiving, 45 people are relatively proficient in it, up to 90%. According to this situation, most teachers are able to master the basic operation of computer. With the progress of the times, large logarithmic teachers have certain contact with the Internet, and the current colleges and universities are getting younger and younger in terms of recruitment. These elements have laid the foundation for the adoption of new teaching methods. No matter what kind of online education platform, as long as you are familiar with the basic usage path, teachers can build it according to their own subject knowledge. It shows that college teachers generally have the ability to carry out mixed teaching.

In the form of online education, understanding is mainly through online teaching and blended learning. In order to explore the extent of teachers' understanding of online education, a survey was also conducted on these two aspects. The details are as follows:

According to the data in Table 4, it can be seen that teachers' understanding of online education

has been investigated. First of all, from the perspective of online education, in terms of online education, 20 people know about it relatively well, up to 39%; 28 people have a relatively general understanding, up to 55%; 2 people think they don't know about online education, up to 6%. According to this situation, most teachers are not proficient in network teachers, and can only be said to have contact, but there is still a certain degree of difficulty in independent operation. From the perspective of blended teaching, in terms of blended teaching, 15 people knew about it, up to 30%; 25 people had a general understanding, up to 50%; 10 people thought they didn't know about blended teaching, up to 20%. It can be seen that mixed teaching is less used in college sports, and more people do not know about it. According to the data, college physical education teachers' understanding of online education is not ideal, and the number of people who have participated in related activities is relatively small. There is still a certain gap between the development of online education and the development of college sports.

Table 4: Survey of Teachers' Knowledge of Online Education

Content		Number of people	Proportion
Online teaching	Learn	20	39
	Generally	28	55
	Don't understand	2	6
Blended teaching	Learn	15	30
	Generally	25	50
	Don't understand	10	20

4. Design of Internet Technology Mixed Physical Education Teaching Mode

Different from other cultural courses, physical education courses have certain requirements on physical fitness. When the student's body is healthier, the training in the physical education class will be easier. The mixed physical education teaching mode can not only attract the attention of students and increase the interaction between teachers and students, but also can display the relevant content of physical education courses with a more intuitive effect and improve the teaching effect. Based on this situation, a comparative analysis of the relevant physical qualities of the students participating in the experimental investigation was conducted, specifically as follows.

According to the data in Figure 3, the physical quality of students was compared under different physical education teaching methods. The students were divided into two groups: the control group and the experimental group. The physical quality of the two groups of students was investigated before the experiment. There was no obvious difference between the two groups of students, so the two groups of students could be compared. The control group adopted the traditional teaching method, and the experiment master adopted the mixed teaching method. Because of the large differences in physical fitness between men and women, boys and girls were compared separately for this analysis. First of all, from the basic situation of the boys, the average height of the boys in the control group is 172cm, the weight is 67kg, the vital capacity is about 4200, the standing long jump is 245cm, the pull-up is 7.7s for the 3,50m sprint, and 267s for the 1000 long-distance running. In the experimental group, the average height of the boys was 172cm, the weight was 65kg, the vital capacity was about 4300, the standing long jump was 244cm, the pull-up was 7.67s for the 3,50m sprint, and 249s for the 1000 long-distance running. According to the data, there is no significant difference in standing long jump, pull-up and sprint between the two groups of students, but there is a big difference in lung capacity and long-distance running. It shows that the mixed teaching method has a positive effect on students' vital capacity and 1000-distance running.
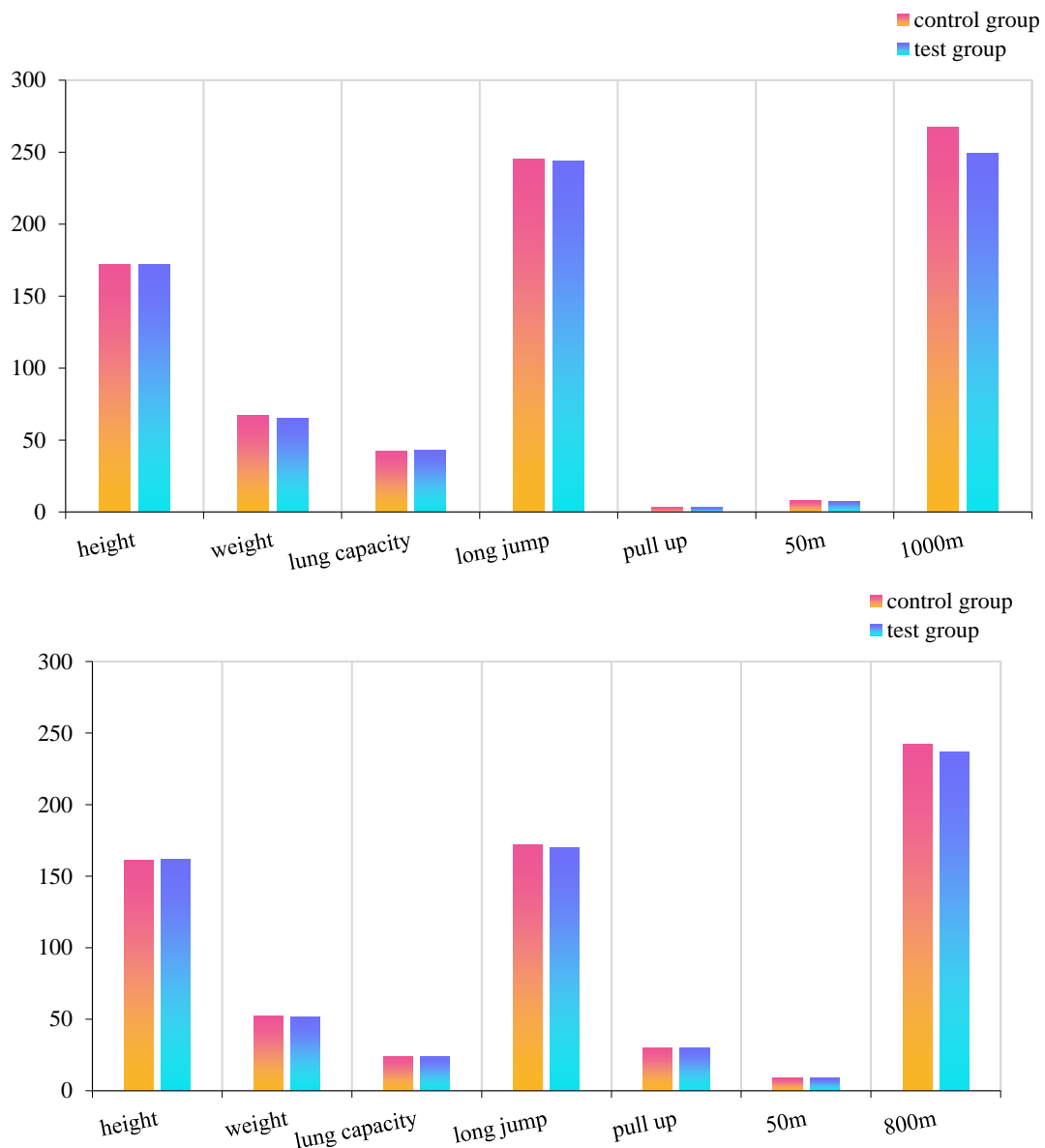
Figure 3: Comparative analysis of physical fitness related situations

From the point of view of girls, the average height of girls in the control group is 161cm, weight is 52kg, lung capacity is about 2400, standing long jump is 172cm, sit-ups are 8.9 for 30 and 50m sprint, and 800 for long-distance running takes 252s. The average height of the girls in the experimental group was 162cm, the weight was 51.7kg, the vital capacity was about 2400, the standing long jump was 170cm, the sit-up was 8.7 seconds for the 30,50m sprint, and the 800 long-distance running took 237s. According to the two data, there is no significant difference between the two groups of data. Therefore, for girls, the mixed teaching mode has no obvious effect on the improvement of physical fitness. The reason for this is that the physical quality of students is affected by many aspects, and this is a long-term process, and it is difficult to see changes in students' physical quality in a short period of time. The physical fitness of the students has no effect.
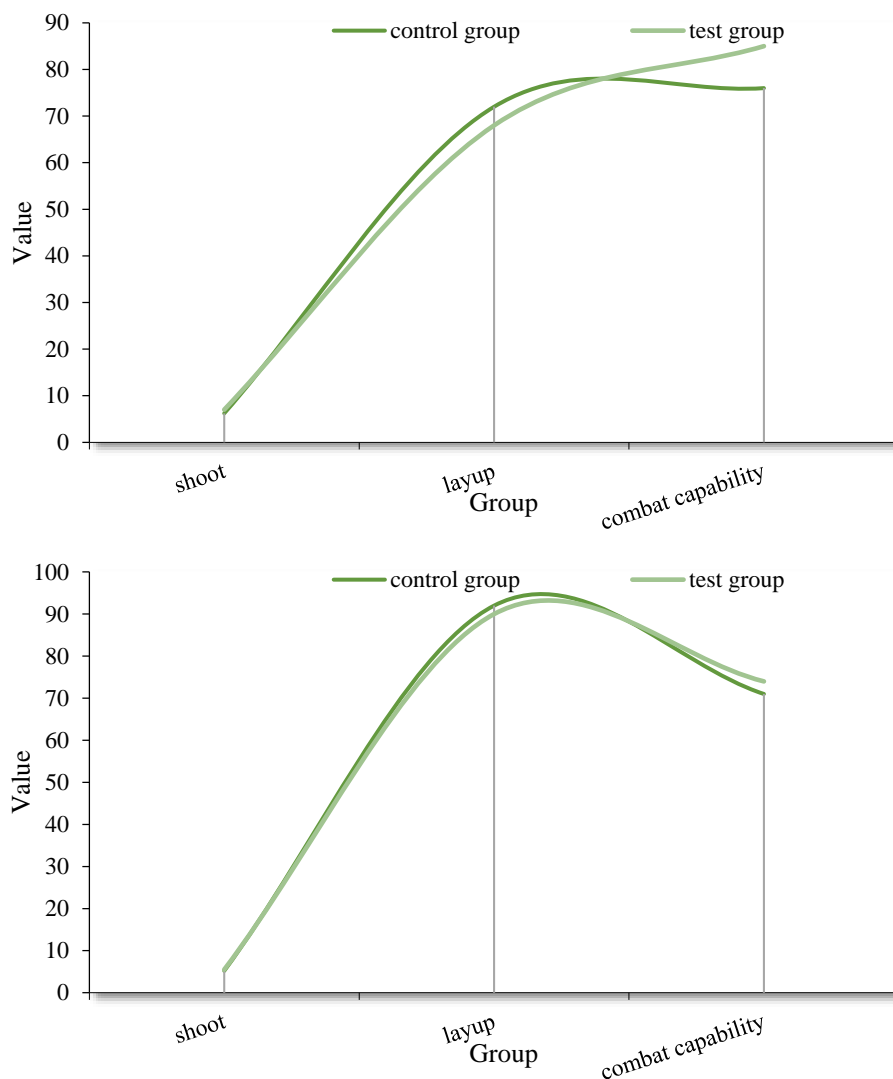
Figure 4: Comparative analysis of shooting skills

According to the data in Figure 4, the teaching effect of traditional teaching and mixed teaching was compared and analyzed by using basketball activities. First of all, from the results of the boys' group, in the control group, the boys averaged 6 shots per minute, the average dribble layup time was 72s, and the average combat ability was 76 points. In the experimental group, the boys averaged 7 shots per minute, the average dribble layup time was 68s, and the average combat ability was 85 points. According to the data, the mixed teaching mode is conducive to improving basketball skills, especially in actual combat, and its overall performance is significantly improved.

From the point of view of girls, in the control group, girls averaged 5.2 shots per minute, averaged 92 seconds of dribbling and layup, and average combat ability of 71 points. In the experimental group, the girls averaged 5.5 shots per minute, the average dribble layup time was 90s, and the average combat ability was 74 points. According to this situation, the performance of the experimental group is due to the control group, indicating that the mixed teaching mode is beneficial to the improvement of sports performance. However, compared with the results of boys, it can be seen that the improvement of girls' results is slower, which may be related to physical fitness. In terms of teaching methods, a blended teaching mode is used for teaching, students communicate with each other, and the online teaching platform also has corresponding resources for

learning. These methods are all conducive to the improvement of students' performance.

The cultivation of students' learning ability is very important, which requires students to cultivate their own interests. In the traditional teaching mode, this is relatively lacking.
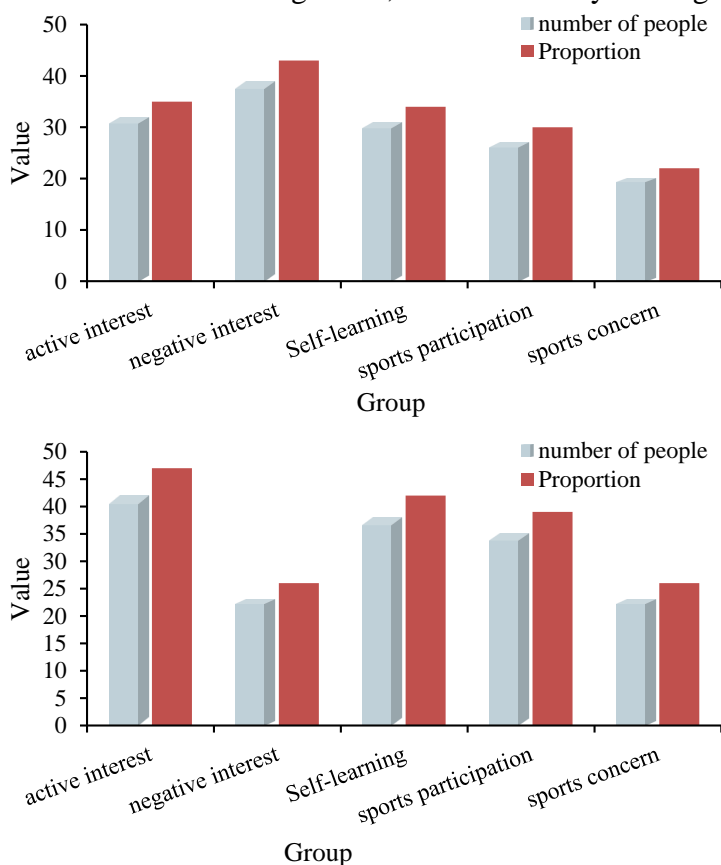

Figure 5: Comparative analysis of sports learning interest

According to the data in Figure 5, a comparative analysis was carried out on the students' interest in physical education in the control group and the experimental group. First of all, from the control group, 32 people have a positive interest in sports learning, up to 35%; 39 people have a negative interest in sports learning, up to 43%; 31% have active and autonomous inquiry learning, up to 34%; 27 people often participate in sports, up to 30%, and 20 people are more concerned about sports, up to 22%. Judging from the data, there are many people who have a negative attitude towards sports, and their attention to sports is very low, which are not healthy sports attitudes.

Judging from the situation of the experimental group, 42 people have a positive interest in sports learning, up to 47%; 23 people have a negative interest in sports learning, up to 26%; 38% have active and autonomous inquiry learning, up to 42%; 35 people often participate in sports, up to 39%, and 23 people are more concerned about sports, up to 26%. According to the data, the conditions of the experimental group and the control group have improved significantly. The number of people with negative interests has dropped to a large extent, and active participation in sports activities and attention to sports have increased to a certain extent. It can be seen that the mixed teaching mode is conducive to improving students' interest in sports learning.
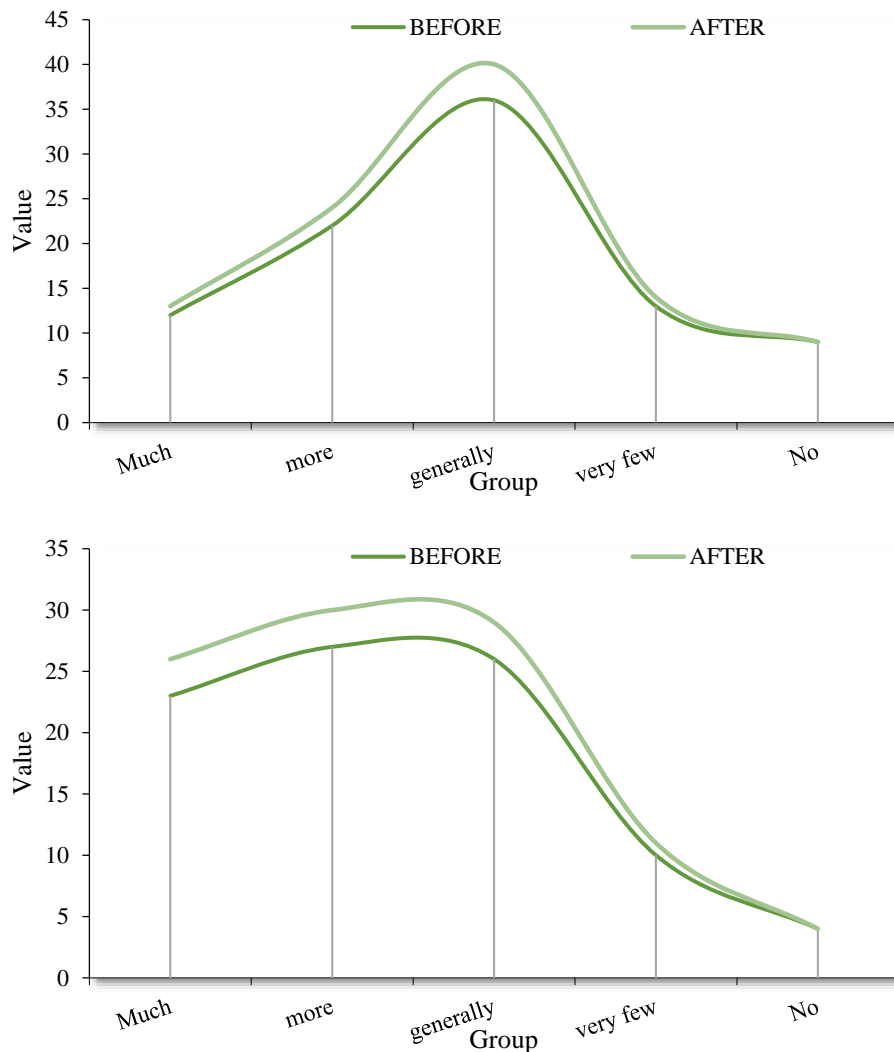
Figure 6: Analysis of discussions between teachers and students

According to the data in Figure 6, a comparative analysis is made on the discussions between teachers and students under the two teaching modes. When using the traditional teaching mode, only 12 people communicated very much, up to 13%; 22 people communicated more, up to 24%; 36 people communicated more frequently, up to 40%; 13 people communicated very little, up to 14%; 9 people without communication at all, up to 9%. According to this situation, in the traditional teaching mode, most students and teachers have less communication. Teacher-student exchanges can allow students to have a deeper understanding of the teaching content and improve students' interest in sports.

When using the hybrid teaching model, only 23 people communicated very much, reaching 26%, 27 people communicated more, reaching 30%, 26 people communicated more frequently, reaching 29%, and those who communicated very little were 10 people, up to 11%, and 4 people, up to 4%, who have no communication at all.

5. Conclusions

With the continuous progress of society, more and more people realize the importance of comprehensive talents for development. This means that the development of students is constantly

based on cultural knowledge, and the development of sports cannot be ignored. In the current teaching environment, physical education courses have always been regarded as marginal courses, and teachers and students lack due attention. How to improve students' interest in physical education is the current focus. This paper aims to study the design of hybrid physical education teaching mode in cloud classroom based on Internet technology. It is expected that if Internet technology and hybrid teaching mode can improve the teaching effect of physical education courses, more comprehensive talents will be cultivated for the society. Through research, it is found that the use of blended teaching is conducive to improving the physical quality of students, and can attract students' attention in the classroom and improve the effect of classroom learning. According to the research, in the mixed teaching mode, the communication between teachers and students has increased significantly. Although this paper has obtained certain conclusions, there are still shortcomings: blended learning itself has certain situational and complexity, and the designed blended learning observation indicators are difficult to cover all aspects.

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