Improvement and evaluation of College Public Physical Education Teaching Based on table tennis eagle eye technology and intelligent sports Bracelet

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Abstract. Objective: the purpose of this study is to explore the application of table tennis eagle eye technology and intelligent sports Bracelet in college public physical education teaching, and to evaluate its impact on students' table tennis technical level and teaching effect. Methods: through the comparative analysis of the experimental group and the control group, as well as the observation of the construction of sports growth files of the experimental group students using the bracelet and eagle eye data, the relevant data were collected and analyzed. Conclusion: the research results show that the application of table tennis eagle eye technology and intelligent sports bracelet has a significant positive impact on the improvement of students' table tennis technical level. The students in the experimental group obtained more comprehensive and objective data support through the use of seeker and bond 6, which helps them improve their technical movements and improve the accuracy of the ball. At the same time, the analysis of the bracelet and eagle eye data provides teachers with the opportunity to better understand the students' Sports Status and physical condition, as well as the basis for personalized guidance and training. Through the construction of students' Sports growth files based on bracelet and eagle eye data, teachers can better track the development trajectory of students, provide personalized guidance and training, and stimulate students' learning motivation and interest.

Keywords: Table tennis eagle eye technology, intelligent sports bracelet, college public physical education teaching, table tennis technical level

1 Introduction

1.1 The importance and challenge of College Public Physical Education

As an important part of students' physical quality education, college public physical education aims to improve students' overall health level, cultivate sports skills and team spirit [1]. However, the current college public physical education teaching faces some challenges. First of all, the traditional manual evaluation method may be subjective and inaccurate, and it is difficult to fully understand the performance and progress of students in table tennis course.

Secondly, due to the lack of real-time monitoring means, teachers are often unable to obtain information on students' fatigue and participation in time [2].

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1.2 Application potential of table tennis eagle eye technology in Physical Education

Table tennis eagle eye technology is an advanced auxiliary system based on computer vision and image processing algorithm [3]. It can track and record the hitting trajectory in real time, and evaluate the hitting results through accurate judgment [4]. This technology has been widely used in professional competitions and has achieved remarkable results in providing fair referee decisions. The introduction of table tennis eagle eye technology into college public physical education teaching can provide accurate hitting data and evaluation results [5] and provide more targeted feedback and guidance for teachers and students[6].

1.3 The role of Intelligent Exercise Bracelet in monitoring students' heart rate

Intelligent sports bracelet is a portable device, which can monitor personal heart rate and record relevant data in real time. The use of intelligent sports bracelets in college public physical education classes can help teachers understand students' physical condition, exercise volume, fatigue and other important information. By monitoring the changes of students' heart rate, teachers can adjust the course intensity and rhythm in time, and take appropriate measures to protect students' health and safety[7].

2 Materials and methods

2.1 Research object and method

The subjects of this study are the sophomores of a university, a total of 30 students, who have never been exposed to table tennis. In order to ensure the reliability of the research results, we randomly divided the students into experimental group and control group. The experimental group includes 15 students, who will wear the Huawei smart Bracelet bond 6 and set up the pombert Hawk Eye System seeker on each table. The control group also included 15 students, but they did not use the bracelet and eagle eye system in class. The two groups of students will participate in the table tennis course once a week, each course lasting 90 minutes, a total of 18 weeks.

2.2 Introduction to intelligent devices

The smart devices used in this study include Huawei smart Bracelet bond 6 and pombert eagle eye system seeker. Huawei smart Bracelet bond 6 is a powerful smart wearable device with heart rate monitoring, step counting, exercise intensity monitoring and other functions. It can collect students' exercise data in real time, and provide relevant health guidance and analysis reports. Seeker of pombert Hawk Eye system is a high-precision tracking system of table tennis movement trajectory. It has two high-speed cameras, which can take 240 pictures per second, and the shooting range is up to 270 。. The system has an 8-core processor to quickly analyze the shooting content, which can be installed on each table and accurately record the landing point and trajectory of table tennis in real time, as shown in Figure 1. At the same time, the system also has different training modes and training difficulties, as shown in Figure 2.

Through the eagle eye system, teachers and students can observe and analyze the trajectory of table tennis, so as to improve the technical level and teaching effect.

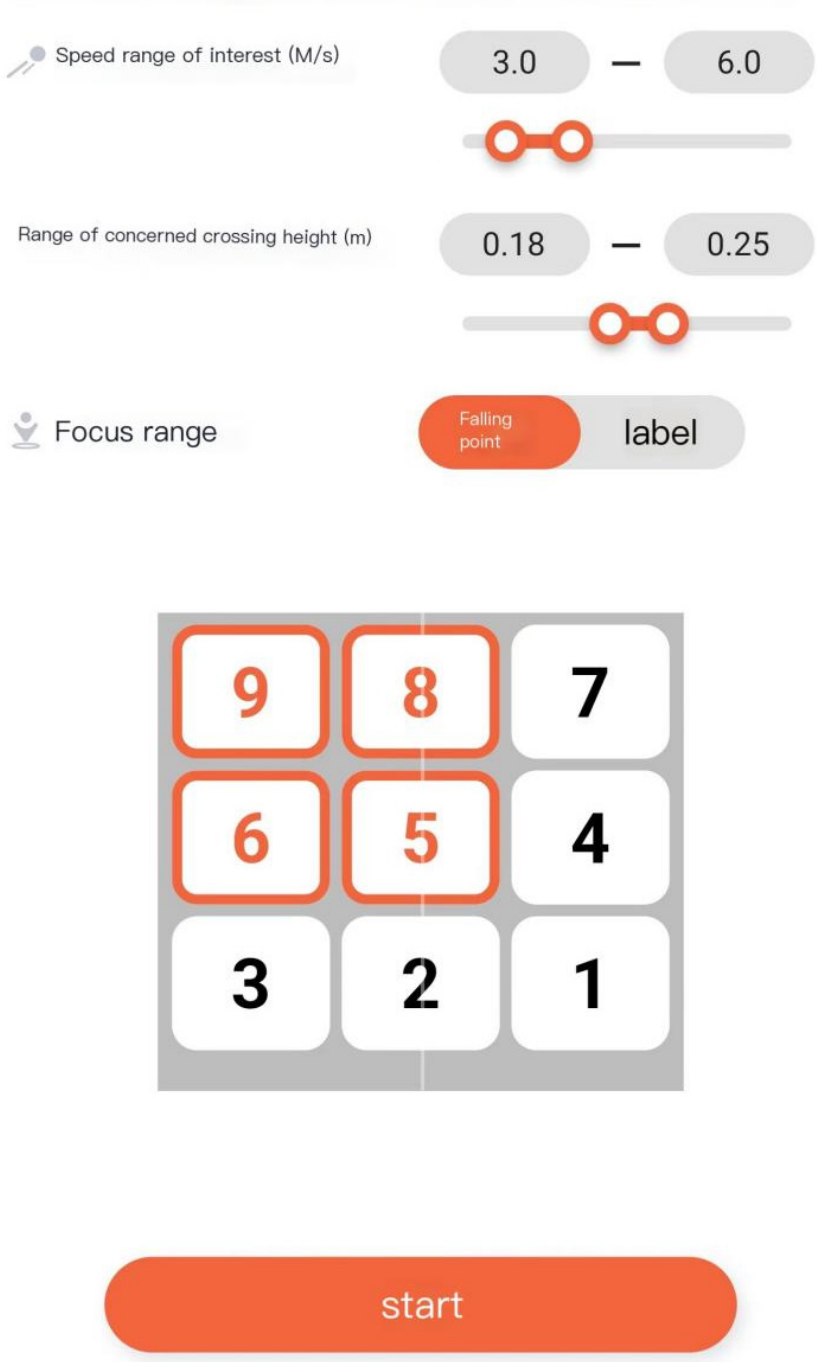

Figure 1 Schematic diagram of eagle eye system record

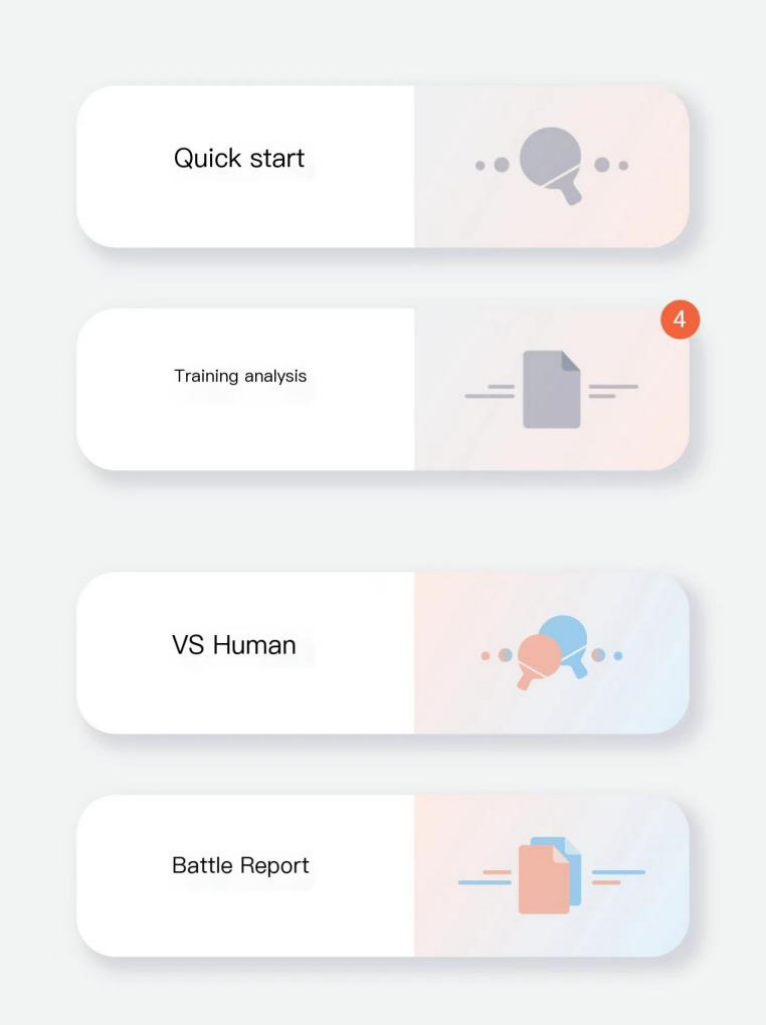

Figure 2 Schematic diagram of eagle eye system mode selection

2.3 Performance evaluation method

In order to evaluate the technical level and teaching effect of table tennis of the students in the experimental group and the control group, we adopted the examination method of serving and round hitting.

1. service assessment: each student will serve a certain number of times. We will record and count their success rate of service, ball speed, ball landing point and other data. Each student will serve 6 balls, 5 points for each ball, and the full score is 30. 2. round stroke assessment: students will hit the ball in a round for 1 minute. We will record and count their round stroke success rate, stroke speed, technical movements and other data. Each round is 1 point, with a full score of 70.

3 Results&Discussion

3.1 Analysis of the test results of the experimental group and the control group

Table 1 shows the test results of the experimental group, and table 2 shows the test results of the control group. Through the comparative analysis of the test data of service and round stroke of the students in the experimental group and the control group, we found that the experimental group was ahead of the control group in service score, round score and total score. Therefore, we can evaluate the impact of table tennis eagle eye technology and intelligent sports bracelet on students' table tennis technical level and teaching effect.

According to the examination results, the students in the experimental group showed better technical level and performance in serving and round hitting. The students in the experimental group obtained more comprehensive and objective data support by using the Huawei smart

Bracelet bond 6 and the bombardier eagle eye system seeker, which helped them improve their technical movements and improve the accuracy of the ball. In contrast, the control group students' technical level and performance are relatively low without using intelligent devices.

Table 1 test results of experimental group

number	Service score (30)	Round (70)	Total score (100)
01	30	62	92
02	30	53	83
03	30	53	83
04	30	62	92
05	30	60	90
06	30	60	90
07	25	58	83
08	25	53	78
09	30	54	84
10	30	62	92
11	25	49	74
12	30	63	93
13	25	37	62
14	30	54	84
15	25	62	99
average value	28 3	56 1	85 3

Table 2 test results of control group

number	Service score (30)	Round (70)	Total score (100)
16	30	51	81
17	30	36	66
18	25	54	79
19	25	37	62
20	30	54	84
21	30	56	86
22	30	56	86
23	30	57	87
24	30	57	87
25	30	50	80
26	30	58	88
27	25	48	73
28	25	51	76
29	25	55	80
30	25	55	80
average value	28	51.7	79.7

This shows that table tennis eagle eye technology and intelligent SPORTS BRACELET have a positive impact on improving students' table tennis technical level and teaching effect.

Through real-time data feedback and analysis, students can better understand and improve their technical actions, so as to achieve better results.

3.2 Data analysis of bracelet and eagle eye in experimental group

By analyzing the data collected from the Huawei smart Bracelet bond 6 and the pombert eagle eye system seeker worn by the students in the experimental group, we can have an in-depth understanding of the students' sports and technical performance in the table tennis course.

Through the analysis of the bracelet data, we observed that the heart rate, recovery time, exercise intensity and other indicators of the students in the experimental group showed a high level, as shown in Figure 3 is the bracelet data of a student in the experimental group. This shows that the table tennis course has a certain role in promoting the physical activity level of the students in the experimental group. As shown in Figure 4, it is the eagle eye record chart of the two students with the highest and lowest round scores in the experimental group. The data recording function of pombert eagle eye system can accurately record the landing point and trajectory of table tennis, providing objective technical data support for students.

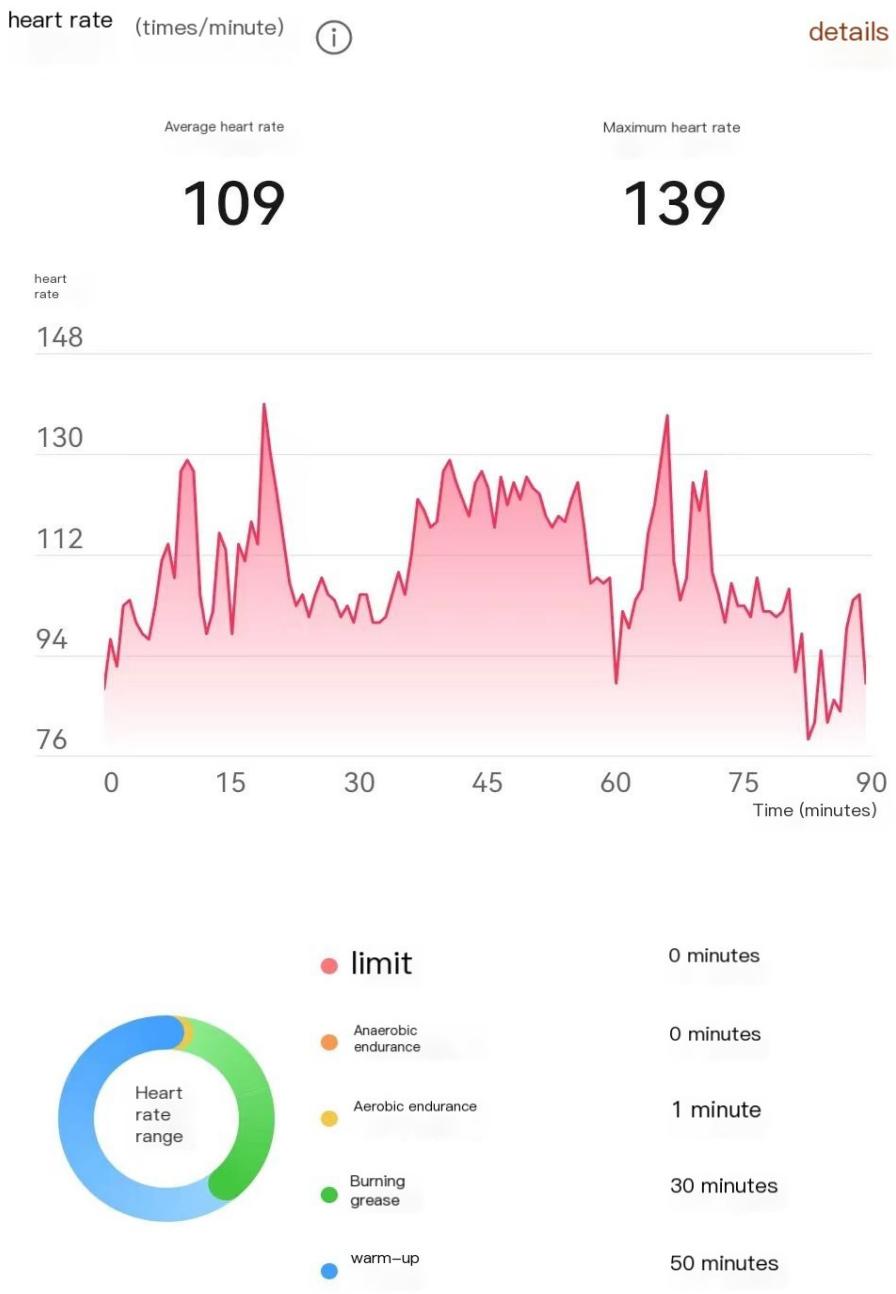

Figure 3 Bracelet data of students in the experimental group

Training duration 00 : 01 : 01

100% of the landing point reaches the standard

Number of balls on stage 63

Slash track 100%

Straight track 0%

Figure 4 eagle eye observation of the students with the lowest and highest round scores in the experimental group

3.3 The experimental group used the bracelet and eagle eye data to construct students' Sports growth files

When the students in the experimental group used the Huawei smart Bracelet bond 6 and the pombert eagle eye system seeker for table tennis courses, their motion data was automatically recorded and stored. These data include heart rate, steps, exercise intensity, and the landing point and trajectory of table tennis. Through long-term data recording and analysis, teachers can track students' sports development and technological progress.

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4.Conclusions

The purpose of this study is to explore the application of table tennis eagle eye technology and intelligent sports Bracelet in the teaching of Public Physical Education in Colleges and universities, and its impact on students' table tennis technology level and teaching effect. Through the comparative analysis of the experimental group and the control group, as well as the observation of the students in the experimental group using the bracelet and eagle eye data for the construction of sports growth files, we draw the following conclusions:

The application of table tennis eagle eye technology and intelligent sports bracelet has a significant positive impact on the improvement of students' table tennis technical level. The students in the experimental group obtained more comprehensive and objective data support through the use of seeker and bond 6, which helps them improve their technical movements and improve the accuracy of the ball. In contrast, the control group students' technical level is relatively low without using intelligent devices. Therefore, the application of table tennis eagle eye technology and intelligent sports bracelet can be used as an effective teaching tool to improve students' table tennis technology.

The smart bracelet and eagle eye system worn by the students in the experimental group can provide detailed movement data and help teachers better understand students' movement status and physical condition. The analysis of the bracelet data showed that the heart rate, steps, exercise intensity and other indicators of the experimental group were higher, indicating that the table tennis course had a certain role in promoting their physical activity level. At the same time, the data recording function of eagle eye system can accurately record the landing point and trajectory of table tennis, providing objective technical data support for students. These data help teachers understand students' sports habits and technical performance, and provide basis for personalized guidance and training.

The construction of students' Sports growth files based on bracelet and eagle eye data is of great significance to the development of students' table tennis. Through the application of table tennis eagle eye technology and intelligent sports bracelet, the students' table tennis growth files of the experimental group can be established and recorded. These files record the students' sports course, technical progress and performance changes. Through regular file updating and evaluation, teachers can better understand the development trajectory of students and provide personalized guidance and training. This personalized teaching method can stimulate students' learning motivation and interest, and promote their progress in the field of table tennis.

To sum up, the application of table tennis eagle eye technology and intelligent sports bracelet has a positive impact on improving students' table tennis technical level, teaching effect and personal development. By providing comprehensive and objective data support, these technologies help teachers evaluate students' performance and teaching effect, and promote students' participation and interest. At the same time, through the construction of students' Sports growth files, teachers can track the development path of students and provide personalized guidance and training. These results have important practical significance for the improvement and evaluation of Public Physical Education Teaching in Colleges and universities, and provide a useful reference for further research and application.

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