

Competition Method in Badminton Teaching Under the Background of Big Data

Jianhua Zhang and Wenwen Wang

Nanchang Institute of Science and Technology, Jiangxi 330108, China

308756459@qq.com

Keywords: Big Data, Competition Method, Badminton Teaching, Competition Teaching Method, TextRank Algorithm

Abstract: Badminton is one of the university physical education courses recently opened in our country. Badminton has good fitness effects and strong entertainment, and is very popular among college students. However, in the short-term development, a relatively complete and effective teaching method has not been established. Competitive analysis is needed to fully improve the quality of badminton training. In this paper, the competition teaching method and the TextRank algorithm are used to study the practical effect of the competition teaching method in the badminton optional course. Based on the background of big data, this paper uses the TextRank algorithm to study the application research and practice of the competition method in badminton teaching, and establishes a potential mathematical model. The model is solved by the game teaching method and the TextRank algorithm, and the application research and practice of the competition method in badminton teaching are evaluated, and the model is revised using historical data to improve the accuracy of the application research and practice evaluation of the competition method in badminton teaching. The experimental results of this paper show that the TextRank algorithm improves the application research and practical research efficiency of the competition method in badminton teaching by 13%, and reduces the rate of false positives and false positives. Finally, through the analysis of the role of the comparative competition method in badminton teaching and the analysis of the short-term teaching effect of the badminton group competition teaching method, the influence of the application research and practice of the competition method in badminton teaching is systematically explained.

1. Introduction

1.1. Background and Significance

High-quality rescue work requires the development and progress of all students, so it is

necessary to strengthen attention to sports and create favorable conditions for improving students' sports ability and overall quality [1]. Due to the subtle, rapid, diverse and fierce competition characteristics of badminton activities, there are some challenges in understanding and improving badminton skills [2].

In order to improve the overall quality of students, the focus should not only be on learning knowledge, but also on strengthening physical education and developing students' physical skills [3]. In the field of sports, badminton teaching is a sport that many students like [4]. Teachers need to adopt scientific and scientific teaching methods to stimulate students' interest, improve the efficiency of badminton teaching, and create an environment conducive to student development [5]. Therefore, teachers should combine the psychological needs of students and the characteristics of badminton teaching, and use competitive methods to improve teaching effects and improve teaching effects [6-7].

1.2. Related Work

Chen Jing provides a method that can evaluate participatory stakeholder innovation in a complex stakeholder environment to solve essential problems [8]. Based on the principle of common value creation, he proposed an analytical framework that illustrates the security protection process. In this process, the stakeholders integrate their resources and capabilities to develop innovative wave simulation algorithms [9-10]. In order to evaluate this evaluation framework, a number of data were collected in the study. This case represents the significance of Hailangpu's research and system implementation of wave simulation algorithms [11-12]. But because the message collection process is too complicated, the data result is not very accurate.

1.3. Main Content

The innovation of this article is to propose a competition teaching method and TextRank algorithm. Based on the application research and practice research of competition method in badminton teaching, the application research and practice of competition method in badminton teaching are evaluated through the competition teaching method. Establish the calculation method of TextRank algorithm combined with the literature research method to guide the application research and practical research of the competition method in badminton teaching.

2. Application Research and Practice Method of Competition Method in Badminton Teaching

2.1. Competition Teaching Method

The competition learning method is a new type of competition method, which is carried out in a competition environment based on traditional competition methods and the in-depth content of competition training. There is a way to teach both parties to use the same numbers and different game rules to fully evaluate victory and defeat. In the judging process, teachers and students will use different ways of thinking as judges, combining the characteristics of development and physical health. The training of traditional education methods is so boring that it cannot fully express the characteristics of learning and the joy of learning. Therefore, traditional badminton teaching methods cannot fully improve students' learning effects. Therefore, in the process of fitness, there is no need to take the teacher as the main body to stimulate students' interest in badminton, and gain new knowledge about badminton to improve their work efficiency and thus stimulate the

enthusiasm of the game. The competitive system and the competitive learning system have been integrated into the student learning system, enabling students to develop methods of how to achieve the main purpose of physical exercise while enhancing their physical health. With the use of more advanced teaching systems and the introduction of badminton, the role of the subject has changed from small-themed education to a new form of physical education, thereby improving the quality of effective classroom teaching and badminton.

2.2. TextRank Algorithm

The TextRank algorithm is mainly used to generate text and abstract keywords, and the page ranking algorithm is used to calculate the importance of web pages. If the entire network is regarded as an LED graph, each web page is a node in the LED graph, and there is a link between each web page, and the link can be expressed from one web page to another web page in the corner. Several directed edges constitute a complete network. Then the importance of web pages can be calculated by formula (1):

$$A(N_i) = (1-d) + d^* \sum_{j \in \ln(N_i)} \frac{1}{\text{Out}(N_j)} s(N_j) \quad (1)$$

Among them, is the frequency of words appearing in the text, S is the total number of texts, and N is the number of texts where the word i appears.

$$E = B_j \log \left(\frac{n}{m_i} \right) \quad (2)$$

The calculation of the TextRank algorithm fully considers the independence of a single word from the overall document, but in actual situations, if a word appears more frequently in the text, then the word should well reflect the text characteristics and should be Given a higher weight, this also leads to the lack of TextRank algorithm.

3. Application Research and Practical Experiment of Competition Method in Badminton Teaching

3.1. Experimental Design of Competition Method Teaching Link

When teachers use the game method to teach badminton, they must take the characteristics and actual conditions of the badminton game as the starting point, effectively coordinate the characteristics and teaching requirements of badminton, formulate simple rules of the game, and ensure the rules of the game. The format of the game is flexible and diverse, which can improve the level of the game. When using basic techniques, the basic techniques and basic strategies of badminton should be used interchangeably. For example, in teaching activities, teachers allow students to use basic techniques and try their best to compete. Repeating professional skills can enhance the student's baseball experience. In addition, teachers in teaching competitions must have an excellent staff team. On the other hand, they need to integrate badminton teaching, combine demonstration and guidance, and improve teaching skills. On the other hand, they must ensure the safety of the game. In an orderly and ethical manner, combined with careful planning and careful consideration of competing materials, the potential safety risks in the competition are ultimately eliminated.

3.2. Experimental Data Collection in the Competition Method Teaching Link

However, if students show great interest in learning badminton, their interest and enthusiasm will decline after the learning period. This requires teachers to improve and innovate teaching disciplines to increase the flexibility and diversity of badminton teaching. The control class in this article continues to use traditional teaching methods, while the experimental class uses competitive learning methods.

The experiment first divides each experimental class into 5 groups according to the students' technical level. In group exercises, students are required to practice hosting each other to create a competitive atmosphere and establish a sense of rules. During the semester, the promotion and final resignation process will be initiated, that is, the team will be reorganized according to the students' skills and competitive skills. The highest level of the group will be raised by one level, and the last section will be changed to the next level to encourage students to study hard.

After five months of instruction and practice, students were interviewed in the experiment and control class, asking them whether they exercise, improve their performance, develop exercise habits, and whether badminton will become an important tool for lifelong sports research. The experimental results are shown in Table 1:

Table 1. Comparison of badminton skills learning and mastery

	≥ 90	≥ 80	≥ 70	≤ 60
Experimental class	20%	40%	27%	23%
Control class	15%	35%	25%	15%

Table 1 shows that due to the competitiveness of teaching methods, the proportion of students with good performance in the experimental class and the control class is the largest, and the proportion of the excellent class and the excellent experimental class is 5% higher than that of the ordinary class. In the control class, game learning not only helps them master badminton skills and practice methods, but also enables them to understand the rules of badminton games. In order to be able to see the relationship between the two more clearly, we analyzed the data in Table 1, and the analysis results are shown in Figure 1:

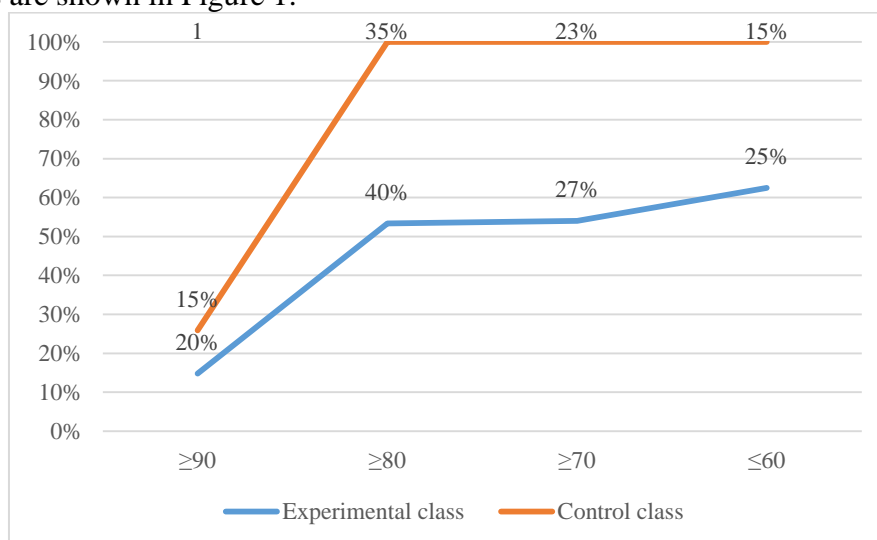


Figure 1. Comparison chart of learning and mastering of badminton skills

It can be seen from Figure 1 that the students in the practical class are more active in the classroom, which is reflected in the teacher's observation, student expression, and use skills and abilities. Badminton skills are significantly enhanced to strengthen and improve motor skills. The method of the results of the competition experiment helps to improve the students' enthusiasm for learning badminton and the sense of tension in training, and helps to develop the habit of extracurricular physical exercise.

4. Application Research and Practice Analysis of Competition Method in Badminton Teaching

4.1. Role of Competition Method in Badminton Teaching

The game mode is the arrangement of actual game conditions in badminton education. It is a practice that follows the game rules and corresponding game modes. It can be seen that the game style is based on the understanding of badminton knowledge. Badminton teaching requires students to increase their interest in learning and developing their own unique skills. Therefore, competitive methods can be used to stimulate students' interest in badminton cultural participation through competition. It can be seen that the badminton game teaching method has a positive effect on improving the learning and training of students' sports skills.

Cultivating students' self-exercise ability is an important part of physical education and plays an important role in guiding students to self-exercise. Applying the game system to badminton teaching can create a real sports environment, stimulate students' interest in this sport, and increase the participation in badminton education in the classroom. At the same time, under the guidance of the competition system, students will be able to create good conditions and train students through serious experience, better observe the teacher's performance, integrate the teacher's understanding and interpretation of digestion, and consciously participate in badminton classes.

4.2. Effect of Badminton Group Competition Teaching Methods on Short-Term Teaching

During the experiment, 10 people were randomly selected from the experimental group and the control group before each test class, and a written test was conducted to verify the content of the previous class. Because the test takers are randomly selected and the number of people in the experiment is large, the extracurricular review is more accurate for the experiment results. The experimental data results are shown in Table 2:

Table 2. Comparison data table of average scores of final special technical tests

Test items		test group	Control group	P%
Backcourt	Technical Evaluation	86	85	5%
Backcourt	Technical Evaluation	86	81	10%
Small ball before serving	Technical Evaluation	81	85	1%
Pick the ball	Technical Evaluation	88	85	5%

In terms of test scores, there is a very significant difference between the two latest prevention and compensation tests, that is, the test score $P = 1\%$. The technical score of these two items is $P = 5\%$, and there are also significant differences. The comparison result of all other test results is $P = 5\%$, and the difference between the two sides is very obvious. This shows that the overall

performance ratio of the experimental group is significantly better than that of the control group. In order to be able to see the relationship between the two more clearly, we analyzed the data in Table 2, and the analysis results are shown in Figure 2:

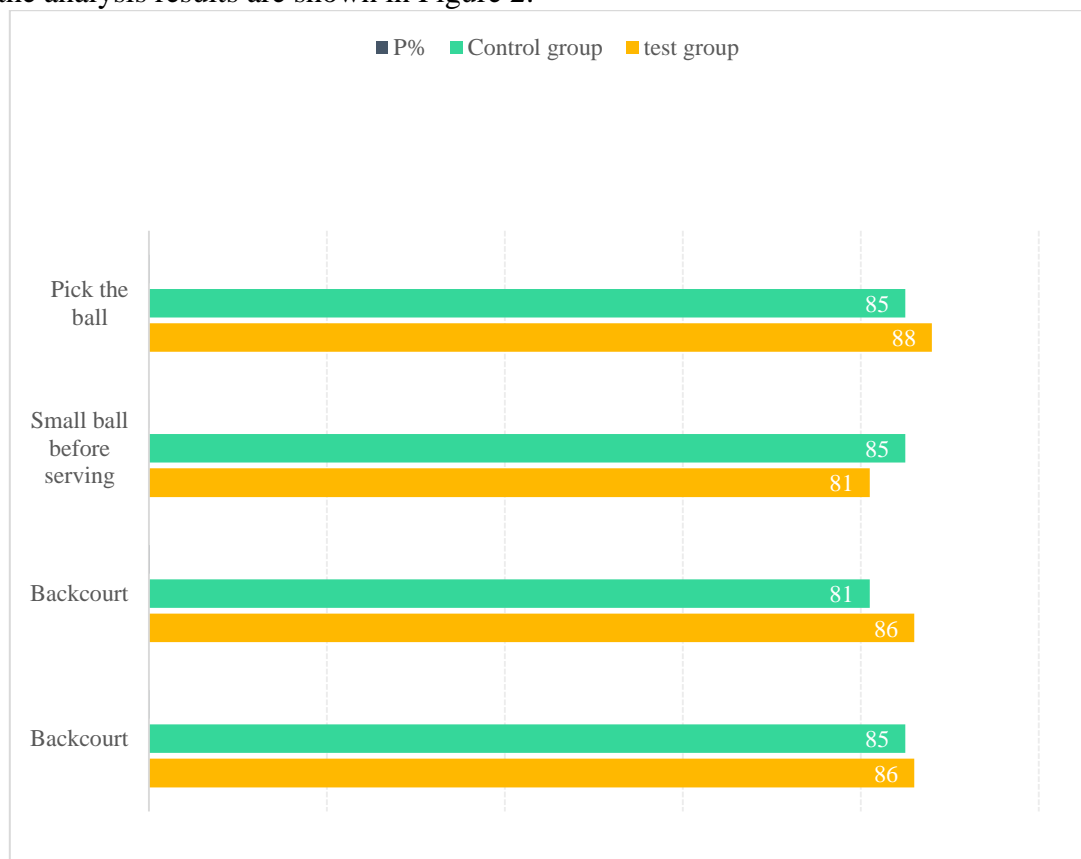


Figure 2. Comparison data chart of average scores of final special technical tests

The data in Figure 2 can show that the method of teaching through group competitions can significantly improve the learning effect of more advanced technologies. In other tests, there was a significant difference between the two groups of students. This is a game technique that will soon be learned. There was no significant difference between the test results and the technical test results.

5. Conclusion

Although this paper has made some research results on the competition teaching method and TextRank algorithm, there are still many shortcomings. The TextRank algorithm has a lot of in-depth content worthy of research on the application of competition method in badminton teaching and practical research methods. There are many steps in the decision-making process that have not been involved because of space and personal ability. In addition, the actual application effect of the improved algorithm can only be compared with the traditional model from the level of theory and simulation.

Funding

This article is not supported by any foundation.

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

- [1] Insook, Kim. *Teaching Badminton through Play Practice in Physical Education*. *Journal of Physical Education, Recreation & Dance*, 2017, 88(8):7-14.
- [2] Koh K T, Tan K H. *The Use of Group-Based Reflective Practice to Enhance Badminton Players' Performance: An Exploratory Study*. *Asian Journal of Coaching Science*, 2018, 1(2):47-62. DOI:P20180109001-201806-201808100001-201808100001-47-62
- [3] Slimani M, Ch éour, Foued. *Effects of Cognitive Training Strategies on Muscular Force and Psychological Skills in Healthy Striking Combat Sports Practitioners*. *Sport Sciences for Health*, 2016, 12(2):141-149. DOI:10.1007/s11332-016-0267-z
- [4] Song Ye. *Research on the Application of Case Teaching Method in the Course of Computer Application Technology "Case-based" Teaching Method in the Course of Computer Application Technology*. *Science & Technology Information*, 2016, 014(036): 194-195.
- [5] A. Bravo-Sánchez, J. Abián-Vic án, A.T. Montalbán, et al. *Acute Effects of Badminton Practice on the Surface Temperature Of Lower Limbs Introduction*. *Archivos de Medicina del Deporte*, 2018, 35(4):239-244.
- [6] Hung C L , Hung M H , Chang C Y , et al. *Influences of Lateral Jump Smash Actions in Different Situations on the Lower Extremity Load of Badminton Players*. *Journal of sports science & medicine*, 2020, 19(2):264-270.
- [7] Hidayat Y . *Workshop of Self-talk Intervention for Beginners of Badminton Coaches*. *Asian Journal of Scientific Research*, 2019, 12(2):263-270.
- [8] Chen Jing. *The Application of Sports Psychology Research Method in Badminton Teaching% Application of Sports Psychology Research Method in Badminton Teaching*. *Journal of Shandong Institute of Commerce and Technology*, 2017, 017(002):53-54,70.
- [9] Araujo S N D , Rocha L O , Márcio Cardoso Coelho, et al. *A pedagogia cr ítica da educaç ão f ísica escolar: relatos de uma experi ência docente com o badminton*. *Caderno de Educaç ão F ísica e Esporte*, 2020, 18(2):93-99.
- [10] Dias E T G , Vieira G C , Pereira E L . *Sociocultural and historical trajectory of badminton in Montes Claros, Minas Gerais, Brazil*. *Caderno de Educaç ão F ísica e Esporte*, 2020, 18(2):1-6.
- [11] Yasushi, KURIHARA, Masashi, et al. *Survey of Sports Injuries of Elementary School Badminton Players*. *Rigakuryoho Kagaku*, 2018, 33(6):879-882.
- [12] Lin Y T , Chen H T , Kao W Y . *Study on Process Quality of Shaft Roundness of Badminton Rackets*. *International Journal of Information and Management Sciences*, 2017, 28(1):1-9.