

## *Retraction*

# **Retracted: Analysis on the Educational Value of Winter Olympic Spirit in Track and Field Teaching Based on Data Mining under Artificial Intelligence**

### **Journal of Sensors**

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external

researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### **References**

- [1] A. Yu, J. Wang, Y. Zhou et al., "Analysis on the Educational Value of Winter Olympic Spirit in Track and Field Teaching Based on Data Mining under Artificial Intelligence," *Journal of Sensors*, vol. 2022, Article ID 9435846, 8 pages, 2022.

## Research Article

# Analysis on the Educational Value of Winter Olympic Spirit in Track and Field Teaching Based on Data Mining under Artificial Intelligence

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School sports is the basis for the development of mass sports and competitive sports. It goes without saying that the key to the development of school physical education is school physical education, and the teaching of track and field (TAF) courses occupies an irreplaceable position in students' growth education. The stepping stone for the cultivation of sports awareness plays a pivotal role in the better healthy growth of students and the improvement of the physical quality of all citizens. As a major gold medalist in the Olympic Games, TAF is welcomed, valued, and popularized by many countries. Especially in colleges and universities, TAF can cultivate the will of college students and the spirit of continuous improvement. The Winter Olympics (WO), adhering to the spiritual concept of overcoming challenges and facing difficulties, embodies the strength of unity and collective. Based on the current situation of TAF teaching in a university, this paper uses data mining technology to analyze the students' favorite TAF events and their mastery of the WO knowledge and then combines the educational value of the WO spirit to conduct research to explore the teaching significance of the WO spirit to the TAF curriculum.

## 1. Introduction

TAF is the mother of sports and occupies an important position in all sports. It has the characteristics of various types, rich contents, and various forms of exercise. Actively developing TAF sports can meet the development needs of students of different ages in the core literacy of sports. Track and field venues and equipment generally include standard track and field venues, 400 m standard runways, starters, relay batons, hurdle frames, jumping viaducts, high jump crossbars, high jump pole controllers, springboards, and

shot put. TAF sports are based on walking, running, jumping, and throwing and are an important means to promote students' basic athletic ability. In the process of participating in the TAF games, the students gradually formed a fair and just competition awareness and good moral behavior, and in the process of sports, they could constantly hone their willpower and cultivate their spirit of bravery and struggle. This is the embodiment of the spirit of the Winter Olympics. In the preliminary group, the athletes with good results should be equally allocated to different groups as far as possible. In the subsequent rounds, the grouping is based on the

results of the athletes in the previous round. If possible, athletes from the same country or region should be separated.

Excellent achievements have been made in the research on the educational value of the WO spirit in TAF teaching. For example, a scholar proposed that the spiritual education of the WO is not only a social phenomenon but also school education at all levels. WO spiritual education has a positive effect on allowing people all over the world to participate in sports activities and improve their sports level. The surface structure of track and field track has developed from the soil layer to the mixed layer of cinder, lime, and clay. Experience shows that it is suitable for most 400 m semicircular runways to be built with a curve radius of 35 m to 38 m. IAAF proposes to build a runway with a radius of 36.50 m as far as possible. WO spiritual education inspires people, especially students, to participate in TAF sports, understand the connotation and spirit of TAF sports, and understand cooperation and competition [1]. In addition, a scholar expounded his views from different perspectives. He believed that the spirit of the WO not only emphasizes the essential content of sports competitions but also includes social culture, knowledge education, and other content, which are important factors in promoting human progress and maintaining world peace. The Olympic Games is a world-class sports event that combines sportsmanship, national spirit, and internationalism and symbolizes world peace, friendship, and unity. This is the embodiment of the Olympic spirit. It is also a valuable spiritual wealth and intangible cultural heritage of mankind. Human beings should inherit and carry forward the spirit of the WO, transmit positive energy to human beings, and make full use of the spirit of participation, enterprising spirit, solidarity, and dedication in social practice, so as to promote the continuous progress of mankind [2]. A scholar believes that the spirit of the WO in TAF is reflected in the fact that students can work hard in the process of TAF competition, maximizing their potential in physical, mental, technical, and intellectual to win the competition. Olympic is a competitive spirit, an attitude to life, a philosophy of life, and a harmonious, free, healthy, and positive modern ethics, and the Olympic movement is a common heritage of human civilization. It is noted that the Olympic Games integrate sports, culture, and education; bring about perfect harmony between people's body and mind, spirit, and quality; and fully develop human potential and virtue. It is the best and most perfect philosophy of human life so far. At the same time, in an equal, friendly, fair, and just competition environment, we will promote the peaceful development of mankind through mutual respect [3]. Although many scholars believe that the spirit of the WO has a very important educational value, there is an extremely lack of research on the integration of the spiritual education of the WO into daily physical education in China and the introduction of the experience of the integration of the spiritual education of the WO into school sports abroad. The ethical value in the Olympic spirit is the greatest respect and advocacy for human potential and free creation, human civilization and good order, and the inheritance and development of all good moral values and ethical norms of mankind. It guides people to pursue the most optimized eth-

ical concept of survival and development, which is the guarantee for the harmonious coexistence of human beings and the environment and the coordinated development of individuals and society.

This paper first analyzes the concept of data mining and proposes data mining methods in the field of education. Then, through field inspections and interviews, we understand the current situation of WO spiritual education in TAF teaching in a university. Through the current situation, we can reflect whether the school is in TAF teaching. The education of the WO spirit should be promoted. From the experimental point of view, most students and teachers agree with the WO spirit. Finally, this paper puts forward the teaching significance of the WO spirit to the TAF and hopes that schools can popularize the WO spirit to students in the TAF teaching.

## 2. Data Mining

*2.1. The Technical Meaning of Data Mining.* Data mining is the process of extracting potential and useful information from a large amount of noisy practical application data [4]. Data mining is usually related to computer science, and it achieves the above goals through many methods such as statistics, online analysis and processing, information retrieval, machine learning, expert systems (relying on past empirical rules), and pattern recognition. Applying data mining to process educational affairs data can discover the laws it contains, and applying these laws to education and teaching management will contribute to the reform of education and teaching and improve the level of running schools and management [5]. Data mining mainly includes three steps: data preparation, rule finding, and rule representation. Data preparation is to select the required data from the relevant data sources and integrate them into a data set for data mining. Rule finding is to find out the rules contained in the data set by some method. Rule representation is to express the found rules in a way that users can understand as much as possible.

Applying association rules in data mining, text mining, and other technologies to the field of education can present useful knowledge and information discovered to educators and, at the same time, push learning suggestions according to the learning situation of learners. It plays a significant role in realizing teacher and learning improvement in learning [6]. The process of data mining in teaching practice is shown in Figure 1, which will eventually form teaching knowledge. In recent years, data mining has attracted great attention in the information industry. The main reason is that there are a large number of data that can be widely used, and there is an urgent need to convert these data into useful information and knowledge. The acquired information and knowledge can be widely used in various applications, including business management, production control, and market analysis.

*2.2. Educational Data Mining Methods.* Prediction: prediction is the use of historical data to find out the development law of things and build models to predict the characteristics of future data. Data mining uses ideas from the following

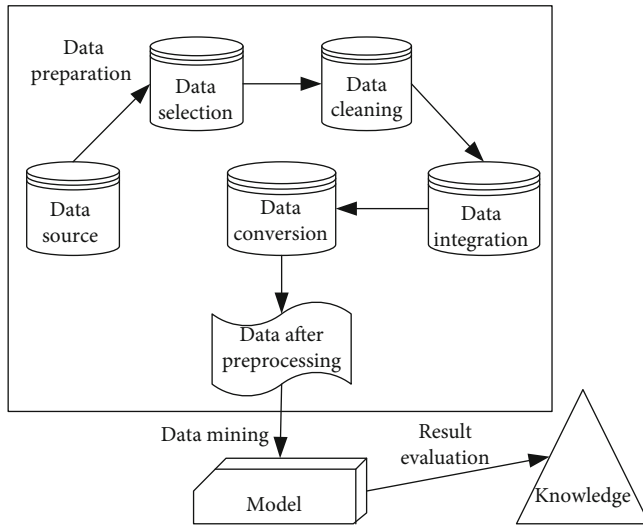


FIGURE 1: Data mining process.

fields: sampling, estimation, and hypothesis testing of statistics: search algorithm, modeling technology and learning theory of artificial intelligence, pattern recognition, and machine learning.

**Clustering:** according to the characteristics of different data with different characteristics, we can divide a complete set of data into several different subsets. For example, researchers divide learners into different groups according to their different learning ability levels and then provide appropriate learning resources and organize appropriate learning activities for different groups [7, 8]. The difference between clustering and classification is that the classification required by clustering is unknown. Clustering makes the objects in the same cluster have great similarity, while the objects in different clusters have great differences.

**Relational mining:** relational mining is about finding meaningful connections between large amounts of data in order to provide the necessary support for certain decisions. It is an important and difficult-to-dig knowledge point in the database and is widely used in opinion decision-making systems [9]. The type of data can be structured, semistructured, or even heterogeneous. The methods of discovering knowledge can be mathematical, nonmathematical, or inductive. The knowledge finally found can be used for information management, query optimization, decision support, and data maintenance. For example, by analyzing the courses selected by students, we can understand which aspects of course learning students are more inclined to learn, so as to provide reference for course development [10]. Rule mining technology refers to extracting hidden, potential, previously unknown, and useful knowledge and rules from databases. This involves association rule mining. Association rules reflect the interdependence between transactions in the form of  $X \implies Y$  [11]. The formulas for the support and confidence of an association rule are as follows:

$$S = F \left[ \frac{X \& Y}{N} \right], \quad (1)$$

$$C = \frac{F(X \& B)}{F(X)}. \quad (2)$$

Among them,  $S$  represents the support degree,  $F$  represents the probability function, and  $N$  represents the number of times.

### 3. Analysis of the Current Situation of Experimental Research and Teaching

#### 3.1. Study Preparation

##### (1) Research purpose

My country's TAF events have always been at a disadvantage. In the final analysis, it is the disconnection of the reserve force training system, and the training of TAF athletes by school physical education has become the mainstay of transporting TAF reserve forces. Therefore, the development of TAF sports is the general trend and the inevitability of social development. However, in the process of TAF teaching, teachers must convey the spirit of the WO to students and make students believe in the Olympic concept in TAF training and competitions, in order to promote the rapid development of sports. Therefore, this paper actively explores and studies the educational significance of the spirit of the WO to the TAF teaching and strives to incorporate it into the TAF teaching.

##### (2) Research methods

This paper conducts a field trip to a university to investigate the current situation of the school's TAF teaching and the current situation of the WO spiritual education and through interviews with 250 students and 47 physical education teachers to understand their cognition and attitude towards the WO spiritual education in TAF teaching. The interview method collects information through direct face-to-face conversation between researchers and respondents, which is flexible and adaptable. Interviews are widely used in education investigation, job search, consultation, etc. They include both fact investigation and opinion consultation and are more used for personality and individual research.

#### 3.2. Current Situation of TAF Teaching and WO Spiritual Education

##### (1) Current situation of TAF teaching

The TAF teaching projects that the school have implemented include relay running, obstacle running, sprint, long jump, high jump, softball, and long-distance running. As shown in Table 1, a survey is conducted on the types of TAF events that the students of the school like. The top three are relay running, obstacle running, and sprint running, accounting for more than 50% of the population; long-distance running, which is also a track race, ranks first from the bottom, indicating that students like intense and interesting projects, while long-distance running is

TABLE 1: Students' favorite athletics.

	Number of people	Proportion (%)	Sort
Relay run	152	60.8	1
Obstacle course	137	54.8	2
Sprint	128	51.2	3
Long-distance running	26	10.4	8
Long jump	123	49.2	4
High jump	119	47.6	5
Softball	86	34.4	6
Shot put	72	28.8	7

relatively boring. It is difficult to arouse students' interest in participating. In the field events, about 50% of the students like the long jump and high jump; 34.4% of the students like the softball project, and relatively few students like the shot put project, accounting for 28.8%. On the whole, there is little difference in the students' liking for running and jumping items, and the liking for throwing items is slightly lower. Differences among students in various aspects lead to different needs for the types of TAF events, which requires teachers to pay attention to the needs of students in teaching, fully implement the content of TAF teaching, and promote the all-round development of all students.

### (2) Students' mastery of WO knowledge

In order to understand the students' mastery of WO knowledge, 5 questions related to Olympic and WO knowledge were designed, and the correct rate of students' answers on these questions was obtained, as shown in Figure 2. The Olympic ideological system is an organic combination of quality education, which mainly includes Olympic education, the consistency of objectives, the practical concept of quality education, and the integration of promoting quality education. It mainly includes three aspects: First, the cognition of the Olympic motto, the correct rate is 69.6%. The second is the understanding of the Olympic spirit. The correct answer rate is only 27.2%, indicating that students have less understanding of the Olympic spirit of "unity, friendship, and fair competition." The third is the understanding of the history and events of the WO. The correct answer rates for the WO events and the Summer Olympics events are relatively high, showing 58% and 60.8%, respectively. But knowledge of the location of the first WO showed a correct answer rate of 15.6%.

The survey results show that the students have a certain understanding of the basic knowledge and history of the WO, but they still lack the awareness of the Olympic spirit. The content of the rules and regulations is more concerned, but the content of the Olympic history, spirit, and educational core is insufficient.

### 3.3. The Current Situation of WO Education in TAF Teaching

#### (1) The form of spiritual education of the WO

The implementation of Winter Olympic education is based on rich, diverse, and creative educational activities, and through these well-designed educational activities, the goal of Olympic educational value is realized. According to the survey, the school's activities related to Winter Olympic education are mainly inactive courses, with lectures (24.3%), knowledge contests (12.7%), WO handwritten newspapers (16.2%), and dryland projects (15.1%) mainly. With the promotion of the school's dryland project, dryland ice and snow sports have shown certain advantages, and dryland sports have also become one of the main methods of the school's WO education activities. As can be seen from Figure 3, the activities of WO education are rich and diverse, with different forms. At the same time, according to the actual situation of the school, localized educational activities are produced according to local conditions. Compared with traditional curling, dry land curling can only be performed on ice, with high requirements for entry technology and long learning cycle. Dry land curling has the characteristics of small footprint, easy learning, and mastery, and not affected by seasons. As long as the ground is flat and smooth, indoor and outdoor learning, training, and competitions can be held at any time. However, there are also problems of insufficient design, weak integration, simple design of activity content, and insufficient innovation. The existence of these problems will directly affect students' understanding of the spirit of the WO and limit the actual effect of Olympic education.

#### (2) The cognition of the spiritual education value of the WO in the TAF teaching

Students believe that the value of WO spiritual education in TAF teaching is mainly reflected in the following: (1) strengthening the spirit of unity, accounting for 26.4%; (2) established a tenacious spirit that is not afraid of setbacks, accounting for 20.8%; (3) cultivate the spirit of fair competition, accounting for 16.8%; (4) enhance self-confidence, accounting for 14.8%; and (5) strengthen moral cultivation, accounting for 9.6%. Table 2 and Figure 4 are surveys of students' cognition of the value of WO spiritual education in TAF teaching. It can be seen that most students believe that WO spiritual education can bring certain value to themselves, mainly reflected in knowledge and cultural value and life. In terms of value, outstanding value and collective value, students fully realized the value of the WO spirit to individuals. But the awareness of the social value, competitive value, moral value, and emotional value of Olympic education is low. The Olympic spirit is a self-challenging spirit of "faster, stronger, and higher". At the same time, it is also a fair, just, equal, and free spirit of sports competition. The spirit of self-challenge and fair competition contained in the Olympic Games constitute the cornerstone of contemporary human self-improvement and social interaction. The presentation of this result is inseparable from the design of my country's WO spiritual education activities. The simplicity and unity of the WO spiritual education practice and the inability of the content of educational practice to fully reflect

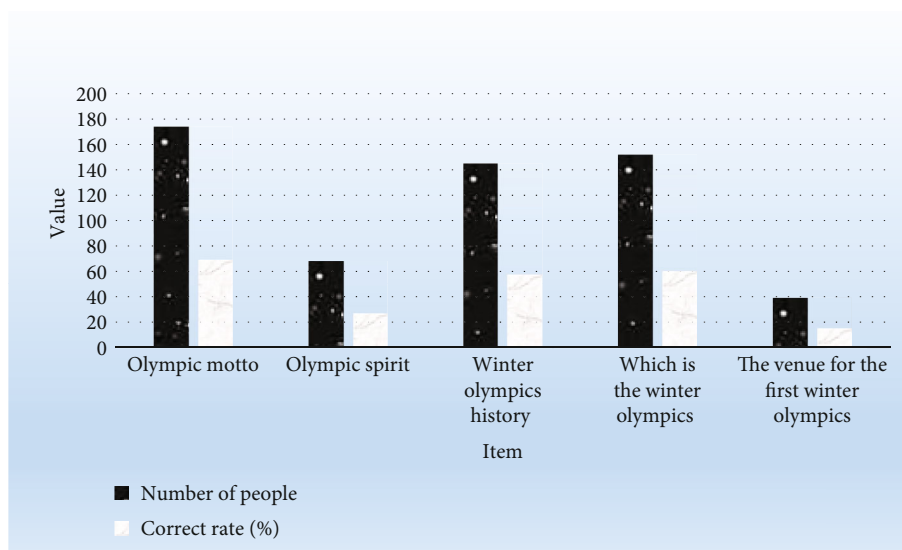


FIGURE 2: Students' mastery of WO knowledge.

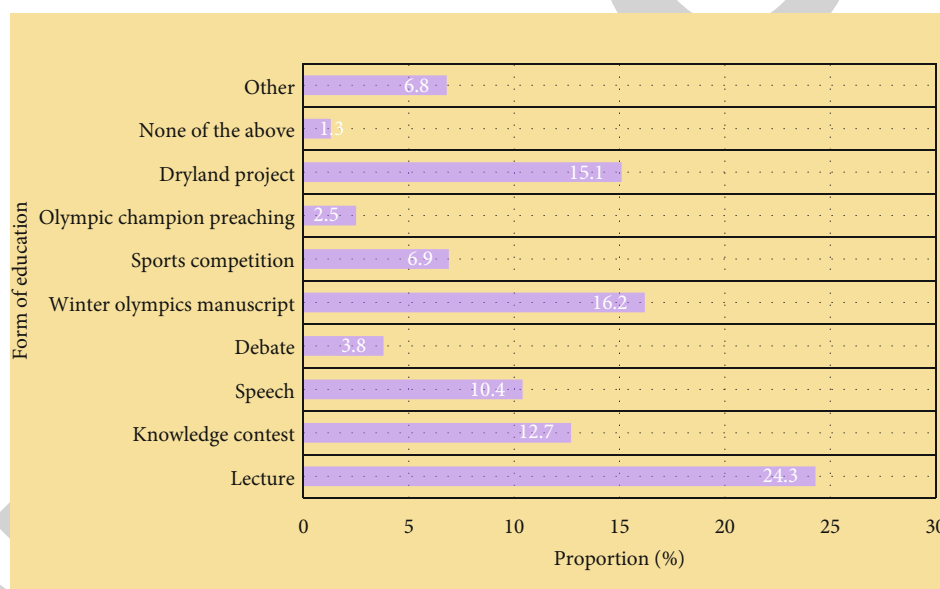


FIGURE 3: The form of WO spiritual education.

TABLE 2: Students' cognition of the value of WO spiritual education in TAF teaching.

	Number of people	Proportion (%)
Optimistic attitude to life	18	7.2
Boost self-confidence	37	14.8
Build a tenacious spirit	52	20.8
Increase solidarity	66	26.4
Strengthen moral cultivation	24	9.6
Cultivate the spirit of fair competition	42	16.8
Other	11	4.4

various aspects of educational value have led to students' lack of awareness of TAF. The cognitive level of the educational value that needs to go deep into the spirit of the WO in teaching is relatively shallow.

Physical education teachers are dominant in the course of TAF teaching. The degree of importance that physical education teachers place on TAF classes determines the effect of TAF teaching and is an important guarantee for the smooth development of TAF classes and their long-term development. As shown in Table 3, in a survey of the school's physical education teachers' cognitive attitudes on whether the WO spirit should be popularized in TAF teaching, it was found that 45 people believed that it was necessary or very necessary to popularize the WO spirit in TAF classes, accounting for 95.74% of the total number of

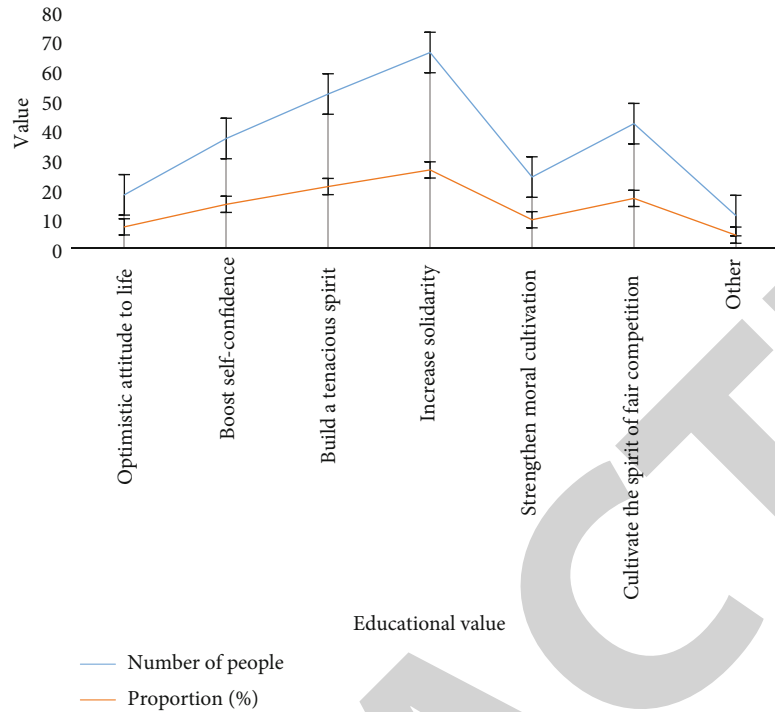


FIGURE 4: Statistics on the cognitive value of spiritual education in the WO.

TABLE 3: Attitudes of physical education teachers to popularizing the spirit of the WO in TAF classes.

	Very necessary	Needed	It does not matter	No need
Number of people	8	37	2	0
Proportion (%)	17.02	78.72	4.26	0

physical education teachers, and only 2 people believed that it was indifferent or unnecessary to popularize the spirit of the WO. The above data clearly shows that the popularization of the spirit of the WO in the TAF class is essential, which is conducive to the long-term development of the school's TAF teaching and to the students. Spiritual education has a positive effect.

### 3.4. Analysis of the Value and Practical Problems of WO Spiritual Education in TAF Teaching

#### (1) Insufficient understanding of the value of WO spiritual education

The effective development of WO spiritual education needs to be based on a deep understanding of the value of WO spiritual education. Only on the basis of recognizing and understanding the connotation and significance of the value of WO spiritual education can the implementers and participants of WO spiritual education consciously take the initiative to participate in and create Olympic practical activities [12, 13]. However, through this practical interview on the school's WO spiritual education in TAF teaching, it

can be seen that the school and teachers do not fully understand the spiritual value of the WO. In the investigation of the current situation of TAF teaching, the school's heavy workload and the school's opposition to the WO spiritual education have become obstacles to the development of TAF teaching.

#### (2) The value of WO spiritual education is out of touch with practice

The value and practice of WO spiritual education are complementary and inseparable. The spiritual education value of the WO provides the theoretical basis and action guide for specific practical activities, and the spiritual education value of the WO continuously enriches the theory in practice. The two are mutually dependent and complementary [14]. Judging from this research and survey, the value and practice of WO spiritual education are somewhat separated and need to be integrated. The specific manifestations are as follows.

One is the lack of coupling between the globalized WO spiritual education value and the localized WO spiritual education practice. In order to ensure the practical effect of Winter Olympics spiritual education, it needs to be combined with localized educational concepts and cultural values. The value of WO spiritual education has a common guiding significance for all students, but in the process of WO spiritual education practice, it is necessary to combine the characteristics of students and the situation of school education, realize localized creation, combine with each other, and achieve organic unity. Judging from the current Olympic education practice, there have indeed been some localized practical activities for the WO, but the degree of

coupling with the spiritual education value of the WO is not high enough, and the degree of conformity is not enough. In the process of localization, the Olympic Games cannot be fully realized and penetrated and value concept.

The second is the separation of theoretical knowledge and practice of WO spiritual education. The instillation of the WO spiritual education theory should be integrated into the track and field teaching practice process. Judging from the actual situation of the current WO spiritual education, the WO spiritual education for students is relatively simple, and there is no comprehensive education model [15]. Students' understanding of the spirit of the WO mainly comes from inactive courses, including the mastery of Olympic sports knowledge, the study of history and culture, and the experience of Olympic values mainly through sports participation and the mastery of sports skills. The theory and practice of Olympic education should be better integrated, combining active and inactive courses to achieve students' comprehensive understanding of Olympic values.

Third, in the process of local practice of WO spiritual education, the form of educational activities focuses on team value and social value in the cultivation of values and does not pay enough attention to the development of students themselves. Athletics teaching did not play a dominant role in the practice of WO spiritual education, resulting in low participation of students in track and field sports and insufficient understanding of the value of WO spiritual education [16].

#### **4. An Analysis of the Value of Conducting Winter Olympics Spiritual Education in Track and Field Teaching**

##### (1) Establish a good sports outlook on life and values

Athletics is an important part of college students' study and life, and the purpose, thought, and spirit of the WO can give college students a healthy and optimistic attitude towards life. In the fierce confrontation and competition in TAF competitions, teammates must trust each other and cooperate tacitly. If there is no spirit of unity and cooperation, it will be difficult to go higher and farther. Students follow the WO spirit in the process of participating in TAF sports, which can enhance mutual understanding, understanding and trust, suggest friendship, consciously form team spirit, and attach importance to solidarity and mutual assistance. At the same time, the spirit of the WO also provides rich cultural resources for the construction of a harmonious campus and provides an important guarantee for students to establish lofty ideals and beliefs, improve their cultural awareness, and establish a sense of social morality and responsibility.

##### (2) Cultivate independent personality and sense of competition

WO spiritual education is a kind of personality education that respects individual differences and focuses on indi-

vidual development. In TAF sports, students are constantly cultivated to develop comprehensively the personality of self-determination, self-discipline, self-esteem, self-love, self-respect, and self-respect. College students can improve their self-awareness and their own health through TAF sports. The spirit of the WO advocates that students must have a fair competition, abide by the rules of the game, and have an upright sports spirit. Under the guidance of the spirit of the WO, cultivate a fair and just competition spirit, improve competition awareness and sense of order, and develop an independent personality.

##### (3) Cultivate the quality of sports will

Because in the relationship between the educational value of the WO, people and society are the main body and are in the active position. The WO are objects and are in a position to be served. Therefore, people's choice of practice, cognition, comprehension, evaluation, and absorption of the spirit of the WO and its meaning all contain various intentional thinking of the subject. It is difficult for a person with weak will to obtain a long-term survival qualification in a highly competitive society and even more difficult to gain a foothold in his career. Now, some students have the characteristics of strong self-awareness, poor restraint ability, quick acceptance of new things, and weak will quality. Therefore, it is particularly important to pay attention to the cultivation of students' will and quality. The quality of will determines the survivability and competitiveness of contemporary students in the future. The spirit of the WO has a positive effect and value on the formation of a good will and a sense of competition among students.

#### **5. Conclusion**

WO spiritual education has a very important impact on the healthy growth of students and the formation of personal and social values. Through the investigation and analysis of the value and practice of Winter Olympic education for college students, this paper understands the current situation of WO spiritual education in college TAF teaching under the background of the WO through investigation and research and analyzes the school's TAF teaching. The status quo of cognition of the educational value of Olympic spirit and teachers' attitude towards popularizing the Winter Olympic spirit in TAF teaching. The experiment shows that students believe that the educational value of the Winter Olympic spirit in TAF teaching is mainly reflected in the ability to enhance the spirit of solidarity, tenacity, and fair competition. And 95.74% of teachers believe that the WO spirit needs to be popularized in TAF teaching, indicating that both students and teachers recognize the educational significance of the WO spirit in TAF teaching. To this end, the article finally discusses the educational value of WO spiritual education in TAF teaching, which is mainly to cultivate students' spiritual will and promote their healthy personality development. The key to improving IoT technology is to combine RFID technology, sensor network, M2M system



framework, and cloud computing technology. Note that the perception layer of the Internet of Things acquires a large amount of data information. After being transmitted through the network layer, it is placed on a standard platform and then processed using high-performance cloud computing to endow these data with intelligence.

### Data Availability

The data underlying the results presented in the study are available within the manuscript.

### Conflicts of Interest

There is no potential conflict of interest in our paper.

### Authors' Contributions

All authors have seen the manuscript and approved to submit to your journal.

### Acknowledgments

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