



# Research on the Evaluation and Evaluation Standards of College Sports Performance Based on Computer Technology

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**Abstract.** Sports performance evaluation system is related to college students' sports credits and physical health, on the basis of analyzing the current situation of college students' sports scoring standards based on computer technology, the use of literature data method, expert consultation method, mathematical statistics method, survey method and other research methods, with the sports achievements of undergraduate college students as the research object, the development of graduation quantitative evaluation sports scoring standards that match the sports level of college students, including sports project scoring standards and sports comprehensive scoring standards, in order to meet the needs of quantitative evaluation of the sports level of college students in a certain college. The results of the study show that the quantifiable evaluation of sports scoring standards proposed in this paper can play a more important role in reflecting the differences in sports.

**Keywords:** Sports · Evaluation standards · College sports performance · computer technology

## 1 Introduction

In the teaching of higher physical education, the content and standard of the performance assessment of physical education courses in colleges and universities are a very important content [1–3]. However, from the current work of all aspects, due to many factors, such as the professional differences of teachers and the teaching level [4], ability, and the form of teaching organization [5–7], it is difficult for the assessment content and standards to meet the needs of physical education teaching in colleges and universities, and the assessment content and standards formulated are different and lack uniformity, resulting in students in physical education teaching, different classes learn different content, assessment content and standards are also different [8], so that students' sports achievements have no scale, lack of objectivity and unity, it is also difficult to objectively assess the teaching effect of teachers [9–11]. Therefore, this paper uses a variety of methods to take the sports achievements of college students in a college or university as the research object, and formulates a graduation quantitative evaluation sports scoring standard that matches the sports level of college students, including sports project scoring standards and sports comprehensive scoring standards, in order to meet the needs of quantitative evaluation of the sports level of college students.

## 2 Research Objects and Methods

### 2.1 Research Objects

This paper takes the sports achievements of undergraduate students in a college as the research object, selects the 2019 sports project results of male undergraduate students of a certain college as the research sample, the sample number is 595, studies the evaluation and evaluation standards of college sports achievements, and formulates sports scoring standards suitable for the quantitative evaluation of the graduation of a college student.

### 2.2 Research Methods

#### 2.2.1 Documentary Law

Through inquiring, collecting and sorting out the literature on sports, performance evaluation standards and scoring of undergraduate colleges and universities in recent years, the current situation of sports performance evaluation and evaluation standards of colleges and universities is analyzed, and the research ideas and methods are further clarified.

#### 2.2.2 Expert Interview Method

In order to accurately and deeply understand the importance and evaluation indicators of the research on the evaluation and evaluation standards of sports in colleges and universities, in December 2021, 11 experts and professors from eight sports colleges were interviewed twice (see Table 1), which determined the key content and core technologies of this research, and clarified the research priorities and directions suitable for actual needs.

#### 2.2.3 Mathematical Statistics

For the collected raw data data, SPSS18.0 statistical software was used to calculate the mean number and standard deviation of the sample data, describe the statistical analysis, and infer whether the population follows a normal distribution. Using the progressive scoring method, compare the advantages and disadvantages of different scoring basis points, and finally adapt to the students' quantitative evaluation of sports score standards.

**Table 1.** List of expert groups

Name	academic title	work unit	Name	academic title	work unit
Zhang xx	Professor	XX University	Mei xx	Professor	XX Academy
Ma xx	Professor	XX Academy	Zhaox	Professor	XX University
Guo xx	Professor	XX University	Li xx	Professor	XX University
Zhao xx	Professor	XX Academy	Kong xx	Professor	XX University
Lin xx	Professor	XX University	Xu x	Professor	XX University
Zhou xx	Professor				

### 2.2.4 Survey Method

Through the sampling survey method, the students were conducted a questionnaire survey, the satisfaction and rationality of the evaluation and evaluation standards were formulated, and the satisfaction and rationality of the students' quantitative evaluation of sports scoring standards were verified.

## 3 Study Results and Analysis

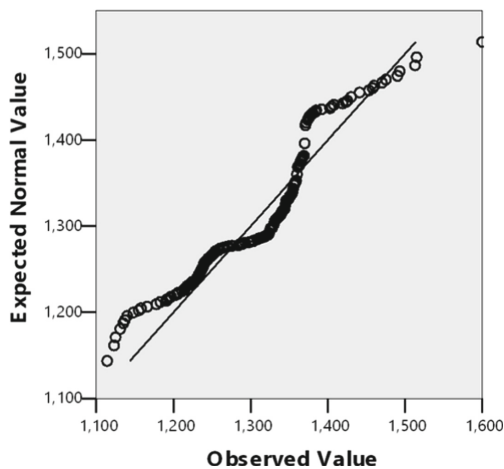
### 3.1 Analysis of the Project Academic year Assessment Results

In a university sampling of 595 male undergraduate students project year assessment results as a sample, the 5000 m running project assessment results statistical analysis, using SPSS17.0 software for single sample K-S test, get project year 5000 m running assessment Q-Q normal probability diagram as shown in Fig. 1, the project year 5000 m running assessment Q-Q deviation from normal probability diagram is shown in Fig. 2. The average score of the 5000 m run in the project academic year was 1328.7849 s, and the standard deviation was 60.19713 s. According to the analysis, the 5,000-m running assessment of the project is approximately normal distribution.

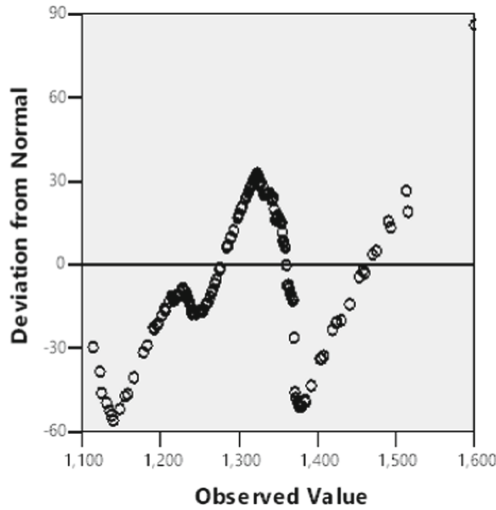
### 3.2 Sports Item Scoring Method Based on Progressive Scoring Method

Progressive scoring method is a scoring method that fully considers the performance improvement is proportional to the difficulty. Usually the progressive scoring formula contains a progressive counting component  $Y$ , a coefficient  $k$ , a variable  $D$  and a constant  $Z$ , and represents the accumulation scoring formula as

$$Y = kD^2 - Z \quad (1)$$



**Fig. 1.** Project academic year assessment of 5000 m running results of the Q-Q Normal probability map



**Fig. 2.** Project academic year assessment of 5000 m running results the degree of deviation from the normal distribution

As can be seen from the progressive scoring formula, when the variable  $D$  increases, the progressive counting component  $Y$  also increases, and when the value of  $D$  is larger, when the unit value of  $D$  becomes larger, the added value of  $Y$  is larger. When using a progressive scoring formula, the key step is to find the coefficients,  $k$ , and the constant,  $Z$ , and to determine a scoring rule from them. The correspondence between the distribution position,  $X$ , and the standard variables,  $U$ , and  $D$  values, is often used when solving the coefficients,  $k$ , and the constant,  $Z$  (Table 2).

For field events, the  $D$  value is obtained by the following formula:

$$D = 5 + \frac{x - \bar{x}}{S} \tag{2}$$

For track events, the  $D$  value is obtained from the following formula:

$$D = 5 - \frac{x - \bar{x}}{S} \tag{3}$$

Since samples assume a normal distribution (or the actual approximation follows a normal distribution), with  $-3S$  at 0 and  $+3S$  at 100, samples with high scores (above 85) may be small, and samples with failures (below 60) may be large. Such score evaluation results are not good for training and assessment purposes, so it is necessary to design appropriate scoring standards for different scoring purposes and sample statistical distribution, in order to achieve the purpose of promoting training and reasonable quantitative evaluation. Because the existing standard mostly only give good evaluation in poor range, wide, quantitative evaluation index is too broad, difficult to adapt to graduation quantitative evaluation system demand for quantitative performance, also is not conducive to sample individual cognition of their sports level, to promote training level and reasonable quantitative evaluation of sports level is limited, make more detailed

**Table 2.** Table of variable correspondence

Distribution position	Standard variable	D value
X-5S	-5	0
X-4.5S	-4.5	0.5
X-4S	-4	1
X-3.5S	-3.5	1.5
X-3S	-3	2
X-2.5S	-2.5	2.5
X-2S	-2	3
X-1.5S	-1.5	3.5
X-1S	-1	4
X-0.5S	-0.5	4.5
X	0	5
X + 0.5S	0.5	5.5
X + 1S	1	6
X + 1.5S	1.5	6.5
X + 2S	2	7
X + 2.5S	2.5	7.5
X + 3S	3	8
X + 3.5S	3.5	8.5
X + 4S	4	9
X + 4.5S	4.5	9.5
X + 5S	5	10

[Note]: X represents the mean, and S represents the standard deviation.

and reasonable scoring standard, is conducive to promote training level and reasonable quantitative evaluation of sports level. In addition, it should be noted that the cumulative scoring method is based on the scoring method of sample distribution acquisition. Therefore, therefore, the applicability of specific scoring rules is limited, that is, it can only be applied to the same population or similar samples, such as the assessment performance of students of the same class in the project academic year.

## 4 Conclusion

This paper analyzes the problem of sports score in the graduation quantitative evaluation, and believes that the four-grade rating standard is too broad, and can not reflect the differences of different students in sports, which is inconsistent with the original intention of the graduation quantitative evaluation. In order to better quantify the sports differences

of students in each academic year, it is necessary to formulate new scoring standards and comprehensive scoring standards of various sports projects to meet the needs of quantitative evaluation of the sports level of college students.

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