Scholar Publishing Group
International Journal of Educational Curriculum Management and Research
https://doi.org/10.38007/IJECMR.2023.040206
ISSN 2790-0967 Vol. 4, Issue 2: 46-51

The Construction of Teaching Ability Evaluation System of Badminton in Physical Education Major

Bo Zhou and Zhou Wang*

School of Physical Education, Hunan University of Arts and Science, Changde 415000, Hunan, China
279498226@qq.com
**corresponding author*

Keywords: Physical Education Major, Badminton Education and Teaching Ability, Teachers' Teaching Ability Evaluation System, Practical Teaching

Abstract: In recent years, the rapid development of badminton in China has led to a great demand for badminton professionals. College students majoring in physical education have the responsibility and obligation to cultivate sports professionals related to the society. Although most colleges and universities now offer specialized badminton courses for physical education majors, compared with some specialized courses of traditional sports, badminton started late. The purpose of this paper is to study and construct a system for evaluating the teaching ability(TA) of badminton elements in physical education students. This study adopts the methods of literature review, expert interview, questionnaire survey, analytic hierarchy process, and fuzzy multilevel mathematical evaluation. Through the investigation and analysis of the present situation of TA of badminton special students, the index system and evaluation system of TA of badminton special students are preliminarily established. It provides a theoretical and practical basis for further research. The experiment proves that the practical ability of teaching creation accounts for the maximum weight of 0.467 in the evaluation system of TA.

1. Introduction

Special ability is the most important symbol for school education to evaluate whether students have all-round development. Although quality education involves all aspects, the cultivation of special abilities is undoubtedly its main aspect. Therefore, the supervision and inspection of students' special ability learning through evaluation is helpful to grasp the direction of students' special ability learning and provide a scientific basis for the next step of students' ability training. In the process of evaluation, the evaluation system is constantly improved, to give better play to the

guiding function of educational evaluation, and provide theoretical scientific basis and help for the study and cultivation of students' special abilities [1, 2].

In the research on the construction of the evaluation system of badminton TA for physical education majors, many scholars have studied it and achieved good results. For example, Dolla T put forward the best physical fitness plan in 1987, the core of which is to improve students' physical qualities such as muscle strength, aerobic endurance, and flexibility, and at the same time, make students fully realize the long-term significance of physical activity, so that what they have learned and used can accompany their whole life, and finally achieve the purpose of lifelong education Malik F S thinks that the grading standards and methods of Level 4 are not scientific and accurate enough [3], and students of different levels, which are actually quite different, are often stipulated at the same level, and the evaluation results can't objectively reflect students' progress, which is not conducive to arousing students' enthusiasm [4].

By using the methods of literature review, questionnaire survey, expert interview, observation, logical analysis, and mathematical statistics, this paper studies the badminton ability of students majoring in physical education in different universities. Through interviews with badminton experts and teachers in colleges and universities, this paper studies the ability of college students majoring in physical education from the perspective of evaluation, and deeply analyzes and studies the characteristics of college students majoring in physical education, to establish an evaluation system for college students majoring and enhance their ability.

2. Research on the Construction of the Evaluation System of Badminton TA for Physical Education Majors

2.1. Determination of Evaluation Criteria

Evaluation standard is the specific requirement for the degree to which the evaluation target actually reaches the index. In this paper, the percentile method is used to evaluate students' specific abilities in badminton. The percentile table is an evaluation standard formulated by percentile method. It is a data set converted from the original scores in order of size, with the proportion of the total number of students as the benchmark. A large number of studies show that the original data of some sports indicators are not normally distributed, which seems to be clearly skewed. Therefore, the percentile table, which uses the median instead of the average as a reference, is applicable to both normal and non-normal distribution indicators. The percentile method does not need to check the normality of the original data, therefore, it is the most commonly used method to formulate evaluation criteria [5, 6].

2.2. Formulation of Evaluation Standards and Evaluation Grades

Through the scoring table, students' scores of various special and comprehensive ability indicators can be judged intuitively. After calculating the scores of abilities, we should also establish the grade evaluation standard of students' special and comprehensive abilities, and scientifically show the level and level of students' special and comprehensive abilities, to clearly show the level of different students' special abilities in the unified special abilities. In this paper, the five-grade evaluation method and percentage method are used to divide students' achievements into five grades, and the specific grading methods are as follows: (1) Compare the highest score and the lowest score of each special ability of students, and get the difference between them; (2) Multiply the difference by 90%, 75%, 25% and 10% respectively, and add the lowest score of each single item to get the value of the five-grade evaluation interval of the index; (3) Bring students' scores into the five-grade evaluation interval, and a score greater than 90% is excellent; Scores between 75% and 90% are

above average; The score is medium between 25% and 75%; Scores between 10% and 25% are middle and lower; The score below 10% is poor. This grading standard can not only make us know the level of students' special ability more intuitively, but also has this advantage in theoretical percentage. That is, most students in the middle position, while excellent and poor students account for a small number, belonging to the category of normal distribution [7, 8].

2.3. Calculation of Index Weight

By using T.L Starr's pairwise comparison judgment matrix, the power method or approximate power method can be used to calculate its maximum eigenvalue and the corresponding canonical eigenvector. The specific steps are as follows:

(1). Calculate the product Mi[9, 10] of elements in each row of judgment matrix B:

$$M_i = \prod_{j=1}^{n} b_{ij}, i = (1,2,3\mathrm{K}\ n) \tag{1}$$

(2). Calculate the n-th root value of Mi in each line:

$$\overline{W_i} = \sqrt[n]{M_i}, i = (1,2,3\mathrm{K}\ n) \tag{2}$$

Try n as the matrix order.

(3). Normalize the term quantity ($\overline{W_i}$)T and calculate it as follows:

$$W_i = \frac{\overline{W_i}}{\sum_{j=1}^{n} \overline{Wj}} \tag{3}$$

Wi is the weight value of each index.

3. Research and Design Experiment on the Construction of TA Evaluation System of Badminton for Physical Education Majors

3.1. Evaluation Content

The main content of the evaluation index system is the evaluation indexes at all levels. Because the particularity of badminton teaching determines the complexity of teaching evaluation, educational evaluation is the value judgment of teaching effect. The badminton teachers' teaching evaluation can't be simply measured by the number of class hours, the length of working hours, etc. It is undeniable that they are only a part of teaching, but they can't be the main body of teaching evaluation, let alone the main body of TA evaluation. Generally speaking, the content to be evaluated is determined by the evaluation object and goal. This paper evaluates the TA of badminton teachers [11, 12].

3.2. Experimental Design

This paper aims at the physical education major constructed in this paper. The evaluation system of badminton TA is analyzed. Firstly, the weights of the first-level indexes are calculated and sorted. According to the first-level index, the weight of the second-level index is calculated, and some indexes are deeply analyzed.

4. Research and Experimental Analysis on the Construction of TA Evaluation System of Badminton for Physical Education Majors.

4.1. Weight of First-Level Indicators

The construction method of this paper is the geometric average method in analytic hierarchy process. Through the investigation of experts, the obtained data are summarized, and finally the judgment matrix of the first, second, and third indexes is formed. Take the calculation method of the weight of the first-level index relative to the total target as an example, and the calculated data are shown in Table 1.

Table 1. Ranking of primary indicator weights

	weight	sort
Practical ability of teaching creation	0.467	one
Ability to create theories in teaching	0.0083	four
Practical TA	0.293	2
Teaching evaluation ability	0.043	five
Comprehensive TA	0.111	four

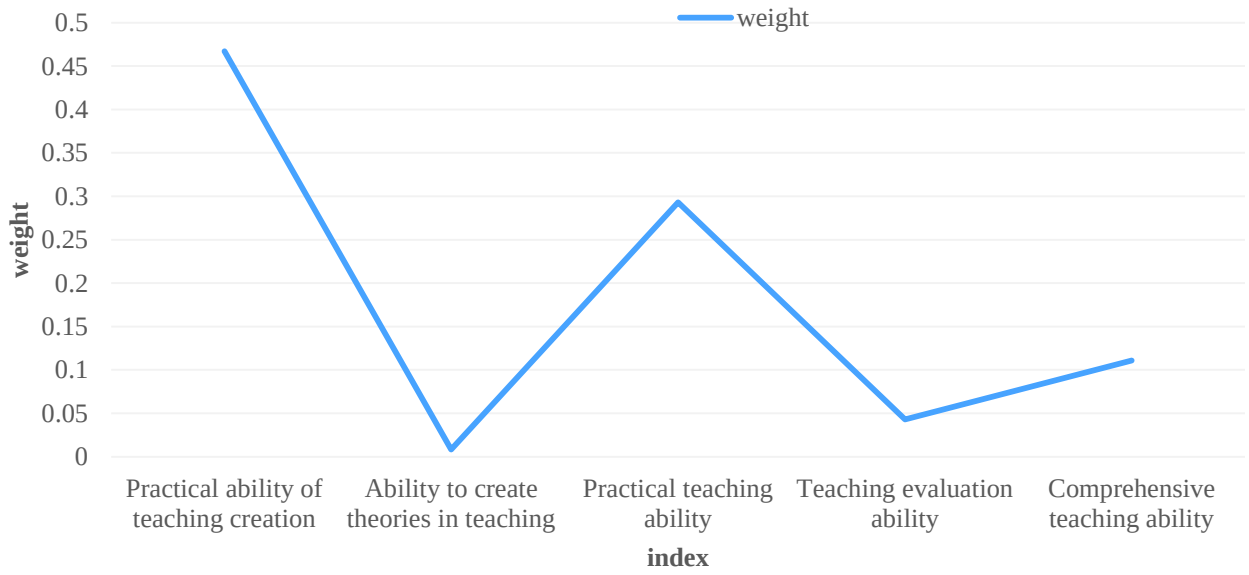

Figure 1. First level weight index of badminton TA

As can be seen from Figure 1, the practical ability of teaching creation, the practical ability of teaching, and the comprehensive ability of teaching play a major role in badminton teaching. Therefore, college badminton teachers should pay attention to the cultivation and improvement of the practical ability, practical ability, and the comprehensive ability of teaching creation.

4.2. Weight of Secondary Indicators

According to the calculation method of the weight of the first-level index relative to the total target, the corresponding weight of each second-level index relative to the first-level index is calculated as follows, and some second-level indexes are shown in Table 2 and Table 3.

Table 2. Percentage of the weight of the second level indicators in the total goal under teaching practical operation ability

	Language expression ability	Action demonstration ability	Organizational management ability	Ability to use teaching methods
Weight percentage	9.4	13.1	1.8	4.8

The weights of the second-level indicators under the practical TA are, respectively, language expression ability 0.094, action demonstration ability 0.131, organization and management ability 0.018, and teaching method ability 0.048. Table 2 shows that the action demonstration ability is frequently used in badminton teaching. As a badminton teacher, the action demonstration ability and language expression ability are essential in the whole teaching process. Accurate action demonstration and concise and understandable badminton action terms are helpful for students to quickly master the action.

Table 3. Weight percentage of secondary indicators under teaching evaluation ability in total target

	Teaching effect evaluation ability	Student performance evaluation ability
Weight percentage	1.2	3.5

The weight of the second-level indicators under the evaluation ability of teaching effect is 0.012, and the percentage of students' achievement is 0.035, which is 1.2% and 3.5% respectively. It shows that aerobics teachers should focus on the evaluation of students' achievements, and timely evaluation of students' achievements can stimulate students' learning, shorten the distance between excellent and poor students, and promote students' common progress. At the same time, the evaluation of students' achievements is beneficial to aerobics teachers' further improvement of teaching work.

5. Conclusions

This paper intuitively expounds the process of building the evaluation system and clearly explains the contents of each element in the evaluation system. The principles of constructing the evaluation system and the construction steps include consistency detection. By evaluating and understanding the strengths and weaknesses of the students to be observed in their special abilities, this paper points out the direction of students' next study and training, which is of great value for improving the ability level of badminton students majoring. This paper suggests that the evaluation criteria and methods of badminton special ability should be applied to study training and practice. The research results should serve the practice in addition, in the special study, only by feeling and experience, the special study will be in a blind state, and the means and methods of learning will not work, and what role they will play will often be understood in practice. And quantitative learning and training can sometimes be too stiff. Therefore, it is suggested that teachers should combine the two methods to achieve a completely scientific learning and training of special abilities, to achieve the greatest learning effect.

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] Taniguchi, K., Kubota, S. and Yasumuro, Y. (2022) Quantitative Visualization of Physical Barriers for Vulnerable Pedestrians Based on Photogrammetry. Construction Innovation, 22(3):604-623.

[2] Jannat, N., Islam, R. and Chowdhury, S. (2022) Carbon Footprint Evaluation of Local Dwellings in Bangladesh towards Low Carbon Society. Built Environment Project and Asset Management, 12(3):433-446.

[3] Dolla, T., Mallisetti, V. and Laishram, B. (2022) Unpacking the Framework of Unsolicited Proposal for Public Private Partnership Projects – the Indian Case. Journal of Financial Management of Property and Construction, 27(2):179-198.

[4] Malik, F. S. and Clarke, S. (2022) Carbon Monoxide: Raising Awareness of the Silent Killer in the Emergency Department. BMJ Open Quality, 11(2):1163-7.

[5] Fleischer, C., Charette, K. and Goodrum, D. (2022) Cognitive Impairment and Frailty Screening in Older Surgical Patients: A Rural Tertiary Care Centre Experience. BMJ Open Quality , 11(2):125-32.

[6] Lianopoulos, Y., Theodorakis, N. D. and Alexandris, K. (2022) Testing the Relationships among Event Personality, Event Image and Runners' Loyalty: A Study of An International Running Event. Sport, Business and Management: An International Journal, 12(2):189-207.

[7] Ismail, Z. A. (2022) Exploring E-Complaint Method: Learning from the Malaysian Polytechnic Institutions. Journal of Facilities Management, 20(3):501-519.

[8] Pauwels, D., Bosmans, J. and Balliauw, M. (2022) Does the Quality of a Youth Academy Impact A Football Player's Market Value? Sport, Business and Management: An International Journal, 12(3):269-283.

[9] J, Zhou.,X, Feng. And W, Li. (2021) Construction of Rural Primary School Teachers' Professional Ability Promotion System based on Cloud Platform. Journal of Physics: Conference Series, 1881(3):032034 (8pp).

[10] Agbabiaka, H. I., Jaiyeoba, E. B. and Olowu, F. Y. (2022) Rented Apartments An Alternative Shelter: Characteristics and Quality across the Residential Densities in the Ancient Town of Ile-Ife. Property Management, 40(2):207-229.

[11] (2021) Construction of Maker Competencies-Oriented Smart Classroom Model in College English Listening and Speaking Teaching. Journal of Physics: Conference Series, 1992 (4):042030 (7pp).

[12] Zhenxin, S. and Qiang, W. (2022) Unmanned Technology-Based Civil-Military Intelligent Logistics System : From Construction to Integration. Journal of Beijing Institute of Technology, 31(2):140-151.