

Construction and Improvement of Process Evaluation Platform in Volleyball Teacher Education Reform Based on Big Data

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Abstract: In today's volleyball education course teaching, Using process evaluation can help students better understand their own volleyball sports ability, and process evaluation applied to volleyball teacher education reform can effectively help students build self-confidence in learning volleyball, lead students to develop interest in the process of learning volleyball, look for fun, exercise and get happy at the same time, can effectively promote students' learning Interest in volleyball education. But at present, most of the volleyball teaching in our country is still using traditional teaching methods, which has an impact on students' interest in Volleyball learning ability. The purpose of this paper is to study the process evaluation of volleyball teacher education reform under the big data, and to build and improve the process evaluation platform (PEP) of volleyball education in China. This paper starts from the theoretical research, through the use of literature review method to investigate a large number of process evaluation related literature, understand the important role of process evaluation, analyze and design process evaluation process. At the same time, it simulates the PEP to get the results of students, and makes clear that the PEP makes up for the lack of teachers' single score, which proves the importance of building a perfect PEP. Experimental research shows that 92% of volleyball teachers think that there is a lack of a complete system of volleyball teaching evaluation program in the process of teaching evaluation, 84% of volleyball teachers think that the current evaluation method still pays attention to the reward and punishment system, another 79% think that the evaluation subject is single, 86% of volleyball teachers think that the feedback effect is poor, and 75% of volleyball teachers think that the school does not pay attention to volleyball teaching. All this shows the necessity of constructing a procedural evaluation platform.

1. Introduction

At present, the volleyball teaching evaluation is usually in the final examination, through the

final examination results of students' Volleyball learning ability and quality evaluation summary [1-2]. Volleyball teachers in the teaching process, mainly around the final examination content to teach students knowledge and skills, resulting in students learning volleyball initiative interest is not high, little interest in physical exercise, volleyball teaching activities carried out by the significance is ignored [3-4]. Based on the current situation of volleyball teaching, colleges and universities will carry out classroom teaching reform, no longer define everything based on the final examination results, but to exercise students' physical quality, improve students' interest in learning, cultivate students' interest in volleyball teaching, and cultivate all-round development of morality, intelligence, sports, beauty and labor [5-6]. In recent years, the reform of the evaluation system of universities has been widely discussed by all walks of life, and actively explored in order to solve the limitations of the current traditional evaluation system, on the contrary, it ignores the function of teaching improvement and incentive, ignores the overall development and individual differences of students, only pays attention to the results and ignores the process, and has not yet formed a sound teaching evaluation system [7-8]. Based on the comprehensive evaluation of physical education teaching process, it is proposed to improve the comprehensive evaluation of physical education teaching process in China [9-10].

In the research of the process evaluation reform of physical education, many scholars at home and abroad have studied it and achieved good results. For example, LYNA pointed out that the national sports education reform policy, social and economic development and the progress of science and technology, and the mass media provided reliable guarantee for the reform of sports curriculum. In the school scope, the understanding of school leadership, the collective attitude of PE teachers and the self-consciousness of young students have great influence on the reform of physical education curriculum [11]. Betihavas V proposes to promote the combination of process evaluation and outcome evaluation in teaching evaluation, emphasizes the introduction of student self-evaluation mechanism, and whether to promote the continuous improvement of students as reference, rather than sanction conclusion. It is necessary to consider the integrity and Relevance Factors of students' quality and ability, and to conduct hierarchical assessment through a multi-disciplinary personal file form [12].

This paper studies the reform of volleyball teacher education under big data, and studies how to build a perfect PEP. This paper uses the methods of literature review, questionnaire survey, data analysis and chart analysis. This paper starts from the theoretical research, through a large number of investigation and research process evaluation related literature, understand the important role of process evaluation, analysis and design process evaluation process. At the same time, it simulates the PEP to get the students' results, makes clear that the PEP makes up for the lack of teachers' single score, and proves the importance of building a perfect PEP.

2. The Evaluation Platform of Volleyball Education Reform Process

2.1. Important Role of Process Evaluation

(1) Objective evaluation of students

Because process evaluation can reflect the students' little bit by bit in the learning process objectively, so process evaluation is an important basis for students to form objective evaluation. Traditional evaluation method uses single result evaluation to locate the value of a child, which causes many phenomena of high score and low energy. With the continuous development and progress of society, the traditional evaluation method has positioned the value of a child with a single result evaluation, the comprehensive quality of an individual is the value orientation of a

person in the society. Through the observation and record of students' learning process, it is also a record of the growth process of students to some extent. Schools and society can form a comprehensive understanding and orientation of students, and combine them with the final evaluation results, so as to form a more objective evaluation and orientation of students, and take this as the starting point of students' social role, it can make students fully reflect their own value, better and faster development, and contribute the greatest benefit to social development.

(2) Arouse students' enthusiasm

The incentive function of process evaluation can fully mobilize the enthusiasm and creativity of students, give full play to their potential, and make the evaluation of students more comprehensive and accurate. For ordinary students, the traditional teaching method makes students have little chance to be paid attention to in their study. Teachers' evaluation tends to focus on the two top students and the very poor students. If they do not receive attention for a long time, it is easy to cause students' mechanical and slack in their study, and students' potential is not easy to be stimulated. Because process evaluation can pay attention to the individual differences of each student, the effective implementation of process evaluation can make every student get the help and encouragement of teachers or students in the learning experience, effectively stimulate the enthusiasm and creativity of students, have a strong interest in learning, and constantly improve their willingness to communicate with others, after obtaining the effective information, it will produce the behavior of helping others to encourage each other, and promote the comprehensive development of students in a virtuous circle.

(3) Guide the development of students

Through the scientific analysis of the results of process evaluation, it can play the role of diagnosis and prompt. Because process evaluation is open and open, and students are not only the subject of evaluation, but also the object of others' evaluation, so students will imperceptibly learn to evaluate themselves in the process of evaluating others, that is, to diagnose and prompt themselves. On the basis of self diagnosis, with the help of teachers and students, students can improve and adjust their own development direction scientifically, make themselves less detours and never go astray in the process of growth, always move in the right direction, cultivate students' ability of self-learning, and establish the concept of lifelong learning. Therefore, the breadth feedback of process evaluation can guide students' correct and efficient development more than the point feedback of result evaluation. Therefore, the organic combination of process evaluation and summative evaluation constitutes a reasonable student evaluation system. In the reform of educational evaluation, process evaluation is still in its infancy, accounting for less than half of the whole evaluation system, but its important role can not be replaced. It is an important guarantee for the rationality, fairness, effectiveness and scientificity of the new evaluation system. We believe that with the deepening of education reform and the continuous development and improvement of the process evaluation system, it will play an increasingly important role in the evaluation system. It is an organic part of the evaluation system and a useful supplement to the summative evaluation.

2.2. PEP Link Design

(1) Determine evaluation objectives

The first step of evaluation in educational technology ability training is to make clear the evaluation intention and determine the evaluation goal. The significance of educational technology ability training is to promote the development of teachers' professional ability. Because the trainees have different educational background, subject teaching background and educational technology

theory and practice background, the unbalanced characteristics of students' development should be fully considered when establishing the evaluation objectives. We use the method of setting the general training goal and individual development goal to clarify the training goal. The general goal of training is the expected result of the training activities, the starting point and destination of the training activities, the important basis for evaluating the trainees and the effectiveness of the training activities. The individual development goal indicates the improvement degree of the knowledge, skills and teaching ideas that the trainees hope to obtain through the whole training process. Through the formulation of individual development goals, we can give full play to students' learning enthusiasm, stimulate their enthusiasm for training, and improve their awareness of training participation.

(2) Design evaluation method

Process evaluation emphasizes the diversification of evaluation subjects, through different feedback channels can obtain more comprehensive evaluation information, so that the evaluation really becomes an interactive activity of multiple evaluation subjects. Therefore, in the training of educational technology ability, we should try our best to make different evaluation subjects participate in the training evaluation, and make different perspective evaluation for the trainees' training process, mainly including the evaluation of volleyball teachers, students' self-evaluation and group members' evaluation, mutual evaluation. Evaluation is a trivial and complex thing, volleyball teachers want to take into account every student, every evaluation, and everything, which is obviously unrealistic, and the students' self evaluation is only from their own point of view, inevitably with a certain subjectivity. Therefore, in the training of educational technology ability, there should be not only teacher evaluation and student self-evaluation, but also appropriate evaluation activities among group members.

(3) Collect evaluation data

The data reflecting the learning and development status of trainees in training is the objective factual basis for evaluating trainees. Therefore, the collection of evaluation data is the basis and premise for forming evaluation conclusions. The collection of students' evaluation data mainly includes two parts: one is the original data of students' homework, questionnaire, interview record, classroom observation form, etc. in the training, the other is the evaluation of the above contents from various aspects, such as the scores, comments and opinions given by volleyball teachers to students, students' self reflection and evaluation, group peer evaluation and other information can explain the students' teaching situation.

(4) Treatment evaluation results

Process evaluation is a complex and meaningful process, from the determination of evaluation objectives, the design of evaluation approaches and methods, the collection of evaluation data to the treatment of evaluation results, each link needs rigorous thinking and action, which takes more time and energy than the traditional summative examination evaluation, the evaluation data and information obtained by process evaluation is of great significance to students and volleyball teachers. Using process evaluation can obtain students' knowledge and skills, emotional attitude and other aspects in the training process, and feedback the evaluation results to students in time, which is helpful for students to better understand their own development and adjust their learning behavior in time. At the same time, it can also help the volleyball teachers to reflect on the teaching organization activities and evaluation implementation plan in the training on the basis of understanding the students' training situation. According to the evaluation results, the volleyball teachers can clearly see what the students' overall grasp is not good enough, so as to adjust the teaching in time.

2.3. Evaluation Index Weight Algorithm

This paper mainly studies the establishment and improvement of the process evaluation in the reform of volleyball teacher education, in order to better find the problems existing in the teaching of volleyball teachers in the process of education, and to integrate the evaluation of students, to provide quantitative feedback of the PEP, to stimulate students' interest in volleyball teaching, so as to facilitate volleyball teachers to find the shortcomings in teaching. Therefore, in order to quantify the result feedback for process evaluation, the PEP designs a scoring template, which is convenient for volleyball teachers to evaluate students. The calculation of this scoring template is based on the weighted summary method, the formula is:

$$A = \sum_{i=1}^I \lambda_i \left[\sum_{j=1}^m \lambda_{ij} \left(\sum_{k=1}^n \lambda_{ijk} a_{ijk} \right) \right] \quad (1)$$

At the same time, when the evaluation method is designed to collect and process the information, the weighted sum scoring method will be used to evaluate the volleyball teachers' teaching ability, the formula is:

$$S = \sum_{i=1}^n Q_i S_i (i=1,2,\dots,n) \quad (2)$$

Among them, a and s are the comprehensive scores, and the indexes are I, J, K. through the analysis and processing of the indexes, the evaluation information data is calculated, and the process evaluation of volleyball teachers and students in Volleyball education is carried out, so as to understand the performance in the process of Volleyball Teaching.

3. Experimental Research

3.1. Experimental Objects

In order to study the education reform of volleyball teachers under big data, carry out process evaluation analysis, and build a perfect PEP, this paper studies the important role played by volleyball teachers in the process of volleyball teaching. By analyzing the difference between process evaluation and traditional evaluation, it explains the importance of process evaluation and the necessity of building a perfect PEP Sex.

3.2. Experimental Process Steps

This paper mainly studies the process evaluation of volleyball teacher education reform under the big data, collects and consults a large number of relevant data to understand the importance of process evaluation in the current volleyball teacher education reform, and improves the volleyball teaching education evaluation by constructing the PEP design. At the same time, by using the method of weighted summation to process and summarize the process evaluation results, it helps volleyball teachers to understand the effect of the teaching process and students to understand their own performance in volleyball teaching. In this paper, through the questionnaire survey, the use of data charts to analyze the traditional volleyball teaching process volleyball teachers found by the way of evaluation problems.

4. Experimental Research and Analysis of Volleyball Teaching Process Evaluation

4.1. Analysis of Traditional Volleyball Teaching Evaluation Methods

In order to understand the traditional volleyball teaching evaluation method which is still in use at present, this paper uses the method of questionnaire survey, through the distribution of 100 volleyball teachers' teaching evaluation questionnaires, to understand and analyze the feelings of volleyball teachers in the traditional teaching evaluation. Through the collection of questionnaires, we found that there are many problems in the current volleyball teaching, the main results are shown in Table 1.

Table 1. Traditional volleyball teaching evaluation methods

problem	number
Lack of systematic teaching ability evaluation scheme	92
Evaluation attaches importance to rewards and punishments	84
Single evaluation subject	79
The feedback effect of evaluation is poor	86
Not enough attention to Volleyball Teaching	75

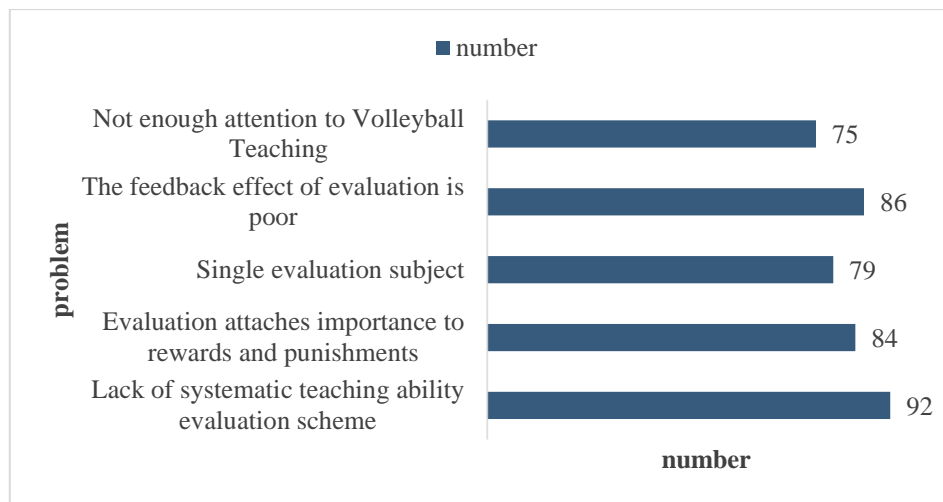


Figure 1. Traditional volleyball teaching evaluation methods

As shown in Figure 1, it can be seen that almost all volleyball teachers think that there is no complete system of teaching evaluation system at present, 84% of volleyball teachers think that the current evaluation method is based on the system of rewards and punishment, while 79% think that the evaluation subject is single, they are self-contained, 86% of volleyball teachers think the feedback effect is poor, 75% of volleyball teachers think that the school is not good at volleyball teaching. The importance of the PEP to the teaching reform of volleyball teachers is illustrated.

4.2. Analysis of Process Evaluation Methods

In order to understand the practicability of the experimental process evaluation method, the process evaluation method is realized by simulation. The evaluation index weight algorithm and the

weighted summary algorithm are used to evaluate the feasibility of the experimental process. Ten students are selected as samples to evaluate the score of the experiment. The specific results are shown in Table 2.

Table 2. Performance analysis table of process evaluation method

Student code	Teacher score	Self score	Group score	Final score
A	79	85	83	82.33
B	83	88	85	85.33
C	80	90	81	83.67
D	79	86	83	82.67
E	82	92	90	88
F	81	85	80	82
G	84	90	88	87.33
H	86	95	95	92
I	87	96	94	92.33
J	81	88	87	85.33

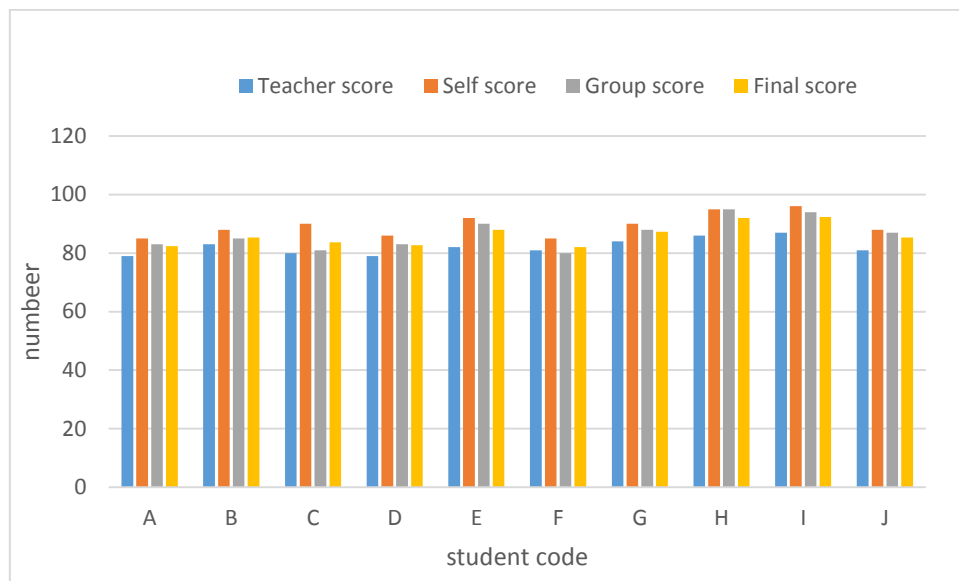


Figure 2. Performance analysis table of process evaluation method

As shown in Figure 2, in the use of process evaluation method to simulate the performance evaluation in volleyball teaching, in the final result, each student's score is higher than the teacher's, for example, the teacher's score of E student is 82, but the final result is 88, which is based on the group score of 90, indicating that the daily efforts of E student are concerned by the students, which also plays a very good role in the enthusiasm of students in volleyball teaching Enhance.

5. Conclusion

This paper mainly studies the process evaluation of volleyball teacher education reform under the big data, through the use of literature survey method, collecting and consulting a large number of relevant information, to understand the importance of process evaluation in the current volleyball teacher education reform, its role, and also studies the PEP link design, through the construction of PEP to improve volleyball teaching Education evaluation. At the same time, using the evaluation index weight algorithm, through the use of weighted summation method to process and summarize the process evaluation results, to help volleyball teachers understand the effect of the teaching process, so that students understand their own performance in volleyball teaching. In this paper, through the questionnaire survey, the use of data charts to analyze the traditional volleyball teachers in the process of teaching evaluation problems, simulation process evaluation scoring, through the final data found that a variety of scoring methods to a certain extent will make up for the lack of teachers' scoring sheet, improve the enthusiasm of students in teaching.

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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] J Loughran, Hamilton M L. *International Handbook of Teacher Education // Reform Efforts in Teacher Education*. 2016, 10.1007/978-981-10-0366-0(Chapter 7):267-308. https://doi.org/10.1007/978-981-10-0366-0_7
- [2] Curtis E, Martin R, Broadley T. *Reviewing the Purpose of Professional Experience: A Case Study in Initial Teacher Education Reform*. *Teaching and Teacher Education*, 2019, 83(5):77-86. <https://doi.org/10.1016/j.tate.2019.03.017>
- [3] Kim I. *Exploring Changes to a Teacher's Teaching Practices and Student Learning Through a Volleyball Content Knowledge Workshop*. *European Physical Education Review*, 2016, 22(2):1-18. <https://doi.org/10.1177/1356336X15599009>
- [4] Zuber J, Altrichter H. *The Role of Teacher Characteristics in an Educational Standards Reform. Educational Assessment Evaluation & Accountability*, 2018(1):1-23.
- [5] Rooholamini A. *Program evaluation of an Integrated Basic Science Medical Curriculum in Shiraz Medical School, Using CIPP Evaluation Model*. *Journal of Advances in Medical Education & Professionalism*, 2017, 5(3):148-154.
- [6] Torill, Holth, Ole, et al. *Lost in Transition: The Dissemination of Digitization and the Challenges of Leading in the Military Educational Organization*. *Frontiers in psychology*, 2019,(10):2049-2049. <https://doi.org/10.3389/fpsyg.2019.02049>

- [7] Chianca T K, Ceccon C. *Pedagogy in Process Applied to Evaluation: Learning from Paulo Freire's Work in Guinea - Bissau*. *New Directions for Evaluation*, 2017, 2017(155):79-97. <https://doi.org/10.1002/ev.20259>
- [8] E Zala-Mezö, Raeder S, Strauss N C. *More Knowledge Helps Implement Change: Evaluation of a Training Program during Educational Reform*. *Studies in Educational Evaluation*, 2019(61):105-111. <https://doi.org/10.1016/j.stueduc.2019.03.008>
- [9] Derting T L, Ebert-May D, Henkel T P, et al. *Assessing faculty professional development in STEM higher education: Sustainability of outcomes*. *Science Advances*, 2016, 2(3):e1501422. <https://doi.org/10.1126/sciadv.1501422>
- [10] Tan L S, Ang K C. *A School-Based Professional Development Programme for Teachers of Mathematical Modelling in Singapore*. *Journal of Mathematics Teacher Education*, 2016, 19(5):399-432. <https://doi.org/10.1007/s10857-015-9305-z>
- [11] Lyna, Hung D L, Chong S K. *Promoting Teachers' Instructional Practices in Alternative Assessment through Teacher Collaboration*. *Educational Research for Policy & Practice*, 2016, 15(2):131-146. <https://doi.org/10.1007/s10671-015-9189-9>
- [12] Betihavas V, Bridgman H, Kornhaber R, et al. *The Evidence for 'Flipping Out': A Systematic Review of the Flipped Classroom in Nursing Education*. *Nurse Education Today*, 2016(38):15-21. <https://doi.org/10.1016/j.nedt.2015.12.010>