



Comparison of Students' Personality Differences Based on Data Mining and Its Application in the Innovation of Physical Education Teaching Methods

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Abstract. The emergence of data mining technology promotes the analysis and comparison of individual personality differences. The deepening of the new curriculum reform promotes the reform of physical education teaching methods. The traditional physical education teaching methods can no longer meet the requirements of the society for the cultivation of people with all-round development of morality, intelligence, physique, beauty and labor. The difference of individuation is an objective phenomenon that cannot be ignored in the process of educational practice, which is also the basic premise of our educational practice. Comparison of students individual differences based on data mining and its use in the sports teaching method innovation can fully take into account the differences in each student's body and mind and personality, and fully consider the school and the parents, by actively participating in various sports classroom teaching, so as to respect the rights of every student, care and to develop each student's personality as the teaching goal, So that every student in its physical and mental and social development direction, growth rate and the ultimate degree of development can be achieved in the same. Based organization based on the data as the main algorithm, based on data mining to the student individuality difference comparing the sports classroom and traditional classroom teaching quality of practical teaching efficiency and the actual calculation, by analyzing the calculated respectively by 18.7 and 23.1% higher than that of the traditional sports teaching means in our country.

Keywords: Data mining · Personality Differences · Physical Education · Teaching Methods

1 Introduction

With the deepening of the reform of the new curriculum standard, quality-oriented education has been paid more and more attention, and the all-round development of students has been paid more and more attention. The society and teachers continue to reform the

teaching methods of the subject, in order to achieve the training goal of comprehensive development of students [1]. However, teachers will still encounter many difficulties in PE teaching under the guidance of the new curriculum standard, which requires teachers to adhere to the people-oriented, consider the actual situation of students, and constantly reform teaching methods. In physical education teaching, the teacher must admit the individual differences between students is objective existence, professor in the same sports knowledge, accepting and understanding degree of students is not the same in different, so in the actual teaching process, teachers if not adopt the unified teaching way, we should combine the actual situation of students, attention to each student's individual differences, To ensure that every student's learning needs can be met, only in this way can all students be effectively promoted on the basis of the original sports [2].

Since the mid-1980s, with the progress and pace of domestic physical education reform, the innovation and reform of physical education teaching modes and methods in primary and secondary schools have gradually developed into the research focus of experts and scholars in the field of physical education in primary and secondary schools [3]. They contain special ideas and philosophies of physical education teaching, as well as targeted physical education teaching objectives, in the unique physical education classroom environment, to realize their own physical education teaching functions, constitute a more effective physical education classroom teaching framework. It can not be ignored that different teaching concepts and implementation methods of PE classroom will form more diversified PE classroom teaching modes. At present, China's research on physical education teaching methods has been deeply explored, but due to the late start of research and short development process, the basic theory of school physical education is relatively weak [4]. In recent years, the research has made some progress and achieved good results. However, the research of physical education is still facing the dilemma that there is no breakthrough. Scientific research on foreign education model has experienced a long time. Due to the cultural background of each country and other complexity, the understanding of overseas study has a variety of definitions [5].

This paper studies the comparison of students' personality differences based on data mining and its application in the innovation of physical education teaching methods. Based on the meta-ancestor as the basis of the calculation model, the calculation algorithm is constructed according to its theoretical knowledge. Calculate the teaching efficiency and teaching quality of the traditional physical education teaching method and the comparison of students' personality differences based on data mining and the application of the physical education teaching method in the innovation of physical education teaching method. The paper discusses the significance of the physical education teaching method for traditional physical education based on the comparison of students' personality differences based on data mining and its application in the innovation of physical education teaching method.

2 Students' Personality Differences and Physical Education Teaching Methods

2.1 Personality Differences Among Students

Personality difference refers to individual differences in physical characteristics, psychological structure, personality characteristics and other aspects influenced by biological heredity and social environment [6]. The scholar Gardner put forward the theory of multiple intelligences, dividing human intelligence into linguistic intelligence, visual-spatial intelligence, introspective intelligence, interpersonal intelligence and so on, and demonstrated the individual differences between people from the aspect of intelligence. The famous psychologist Erich Fromm once said, "All people have their own unique personalities". This is determined by the characteristics of an individual's living environment. Students' learning activities and a person's growth process have unique personalities, and students' personality differences are necessary factors in educational and teaching activities. Only with the promotion of educational reform can educators and others better realize the value and significance of education [7].

The differences in education received by students, the neglect of the collection and research of learning situation before teaching, the outdated teaching philosophy of teachers, and the unscientific evaluation methods of teachers are the main reasons for the individual differences among students, which are obtained from the routine education and teaching and the observation of students' learning practice and situation.

2.2 Physical Education Teaching Methods

With the acceleration of quality-oriented education, the reform of physical education mode in middle schools has become an important link in the improvement of education level, and also an important factor affecting students' all-round development of morality, intelligence, physical education, beauty and labor. Not only that, high school physical education teachers from the perspective of as much as possible, a comprehensive understanding of the new curriculum goal put forward specific requirements in the reform, and understand the dominant position of student education, insist on many aspects to improve education pattern, the education content innovation, constantly improve the students' learning desire, a more scientific way, improve the comprehensive quality of students, to carry out the quality education concept, further complete the teaching goal.

According to the famous theory of "Optimizing the Educational Process" established by Pedagogy Babanski, the physical education discipline refers to the educational content and teaching methods of physical education. The best teaching plan should be formulated for students according to their individual differences and then flexibly applied to improve the teaching efficiency [8]. Physical education teaching methods should highlight the key points and difficulties, consider the students' own acceptance ability, take care of the general students, pay attention to the feedback collection of students' learning in teaching, so that students can carry out more targeted sports theory learning and sports practice activities [9]. There are many PE teaching methods, including the PE stratified teaching method based on the concept of people-oriented, the PE pair teaching method based on students' personality differences, the PE competition

teaching method to improve students' enthusiasm and the PE difficulty teaching method to set up difficulties, etc.

3 Study on the Comparison of Students' Personality Differences Based on Data Mining and Its Application in the Innovation of Physical Education Teaching Methods

3.1 Innovative PE Teaching Methods Based on the Comparison of Student Personality Differences Based on Data Mining

In physical education, there are many factors that should be considered in the determination of educational goals. However, in actual physical education, many teachers ignore the differences of students' personal level when setting educational goals, which is easy to occur the phenomenon of "equalizing the water in a bowl" without considering the actual situation of students. At the same time, the traditional physical education teaching method is very single, with the "collective teaching method" as the main teaching method. This teaching method seems to face all students, but actually ignores the differences of students. Educational evaluation is an indispensable link of education and an important activity to judge the value of educational process and results. However, in the evaluation of students in physical education, the individual differences of students are ignored, which does not reflect the real significance of educational evaluation.

"Physical Education and Health New Curriculum Standards" pointed out that in the teaching process should pay attention to individual differences, teachers are required to pay attention to the similarities and differences between students, not only pay attention to the teaching content, but also pay attention to the actual situation and students combined. Teachers must allow students of different levels and talents to see their starting points and conditions for developing their potential, so that students can achieve important learning through hard work, improve their self-confidence, stimulate their enthusiasm, allow students to devote their whole body to physical education and lay a good foundation for their future.

3.2 Data Calculation Formula

Based on the meta-ancestor theory, excluding all the influencing factors, the research focus is placed on the influence of physical education teaching methods on students' learning quality and learning efficiency, and then the collected data samples are classified, summarized and integrated. The calculation formula of learning efficiency of the traditional PE teaching method and the comparison of students' personality differences based on data mining and its application in the innovation of PE teaching method is as follows:

$$H = (P_1 - P_2) \div P_g + v_2^2 - v_1^2 \quad (1)$$

On this basis, the specific calculation formula of learning quality of physical education teaching method under the comparison between traditional physical education

teaching method and students' personality differences based on data mining and its application in the innovation of physical education teaching method is as follows:

$$P = (Z_1 - Z_2)2^n \cdot x^k x^{nk} \quad (2)$$

4 Comparison of Students' Personality Differences Based on Data Mining and Data Analysis Under the Application of Physical Education Teaching Method Innovation

4.1 Comparison of Students' Personality Differences Based on Data Mining and Advantages of Innovative Physical Education Teaching Methods

Physical education teaching methods based on the individual differences of students, change the original teacher's single setting of teaching objectives and methods, according to the actual situation of students, detailed analysis of educational objectives, so that each student can learn physical knowledge and skills according to their own goals, so as to maximize the realization of the purpose of physical education classroom. The physical education teaching method based on students' personality differences pays attention to the needs of individual students, so that the education received by different students can be more effective on the students. Teachers changed their teaching methods on the basis of flexible and varied teaching methods to better take into account individual differences and encourage students to learn more in the physical education class and improve their personal development.

In the process of carrying out physical education, teachers should try their best to ensure that students take an active part in teaching. Under the traditional physical education model, organizational elements have always been the main index to measure the effect of physical education, and educational activities emphasize the unity of students. In fact, from the concept of health education, every student's physical quality, sports performance, sports needs are very different. In the process of carrying out physical education teaching, teachers should follow the characteristics of students' individual differences to ensure that students' health is not affected, and on the basis of students' different interests and hobbies, carry out physical education activities purposefully.

By investigating some school class of traditional sports teaching method compared with students individual differences based on data mining and its different classroom participation of innovative teaching methods, we can see students for traditional sports teaching methods and students individual differences based on data mining to compare different attitude and innovative teaching methods, further reaction of classroom teaching, The details are shown in Table 1.

4.2 Analysis of Calculation Results

Based on the meta-ancestor theory, we calculated the differences of students' personalities between traditional PE teaching methods and data mining, and the efficiency and quality of students' learning under innovative PE teaching methods. According to the

Table 1. Comparison of students’ personality differences between traditional physical education teaching methods and students’ personality differences based on data mining in a certain school class and different classroom participation of innovative physical education teaching methods

The teaching method	The class 1	The class 2	The class 3	The class 4	The class 5
Traditional PE teaching methods	65.8%	58.9%	62.9%	69.1%	64.6%
A comparison of students’ personality differences based on data mining and its innovative physical education teaching methods	86.3%	79.8%	82.4%	89.6%	83.8%

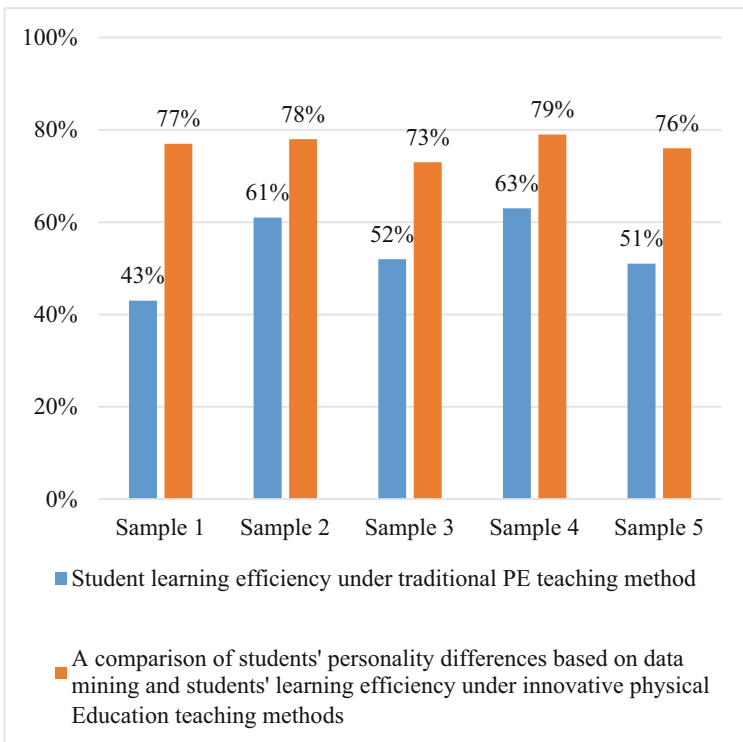


Fig. 1. Comparison of students’ personality differences between traditional physical education teaching methods and data mining and comparison of students’ learning efficiency under innovative physical education teaching methods

experiment and calculation, students in a class of a certain region were selected as data samples to calculate the learning efficiency of students under different physical education teaching methods. According to the relevant calculated data, Fig. 1 can be drawn as follows.

At the same time, the corresponding formula was used to calculate the learning quality of students in different physical education teaching methods, and the data were compared and analyzed, as shown in Fig. 2.

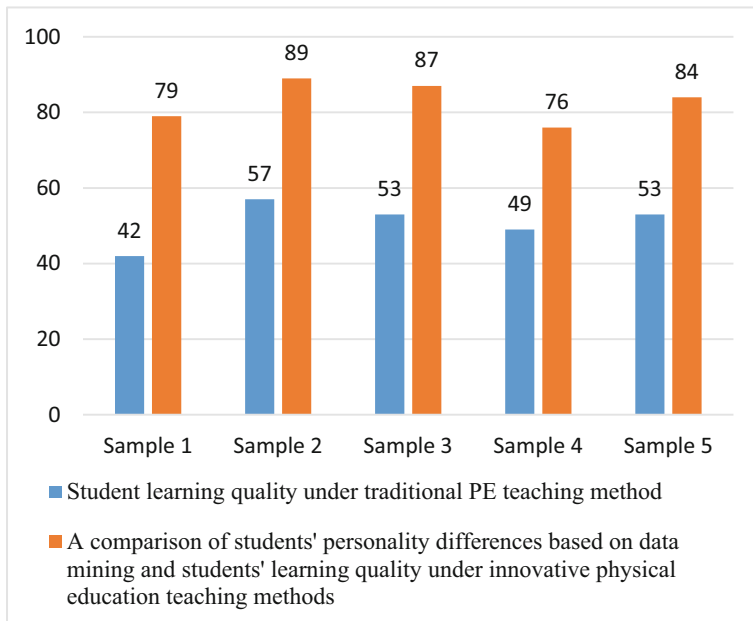


Fig. 2. Comparison of students' personality differences between traditional physical education teaching methods and data mining and comparison of students' learning quality under innovative physical education teaching methods

The comparison of students' personality differences based on data mining and its innovative physical education teaching methods are based on the differences of students' learning ability, knowledge, hobbies, personality, intelligence, structure, personality and thoughts in teaching, changing the traditional physical education under the guidance of the concept of exam-oriented education. For the unity of the traditional style of education content, education target, education method, to change the teaching evaluation, according to the students' learning basis, cognitive ability of personalized, differentiated education, vary from person to person to choose the education goal, teaching method and content, such as respect for each student's development rights, and promote students' academic progress and individual development, Provide sufficient possibility for students' personality growth, so that students can really learn and gain something in the physical education class.

5 Conclusions

Under the traditional education idea of physical education teaching method is easy to kill the students' individual character, also has restricted the students' all-round development, under the new curriculum standard of physical education teaching method, should be people-oriented, attention to student's individual differences, to conform to the education of students individual differences, timely feedback of students' classroom learning, also want to in many ways to inspect students' sports ability, reasonable use a variety of ways of evaluation, comprehensive evaluation of students, let the students to be able to own a objective cognition [10]. Teachers should actively apply the curriculum concept of "caring for students' personal differences" in the new curriculum standards into physical education teaching, take "health first" as the guiding ideology of physical education teaching, innovate physical education classroom teaching methods based on students' individual differences, and fully implement them to lay a foundation for the healthy growth of students in the future.

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