

Method For Discovering Youth Sports Potential Under The Background of Big Data.

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Abstract

This project involves the technical fields of direct application to students' primary material selection, accurate options to show teenagers' sports ability, detection and correction of teenagers' sports function, teenagers' sports fitness and teenagers' sports training, and a method for discovering teenagers' sports potential under the background of big data. The method steps are as follows: Step 1, measure physical quality and sports function in the form of game lessons. Set up 12 youth sports potential discovery game classes, and measure more than 60 sports function indicators through the course form; Step two, measure the body function through the instrument. The invention discloses a method for discovering youth sports potential under the background of big data, Based on the comprehensive application of sports ergonomics, sports surveying, sports material selection and big data, and combined with the accurate data report given by the big data platform, the evaluation system is more scientific, accurate and effective.

Keywords

Big Data, Teenagers, Sports, Potential.

1. Preface

The existing sports material selection methods mainly include laboratory material selection, coach experience material selection and school physique measurement.

Among them, the laboratory selection is scientific, but the measurement content is complex, which is not suitable for large-scale selection, the scientific basis for coaches' experience selection is not sufficient, the national physique measurement focuses on physical quality indicators, and the evaluation of sports ability is difficult. Our achievement can solve these three shortcomings, so that children can complete the selection measurement in happy games, which can be applied to the selection of students at all levels. What is more, it is based on the demand for children's healthy growth, which can be used in schools, training institutions and gymnasiums, and is conducive to promotion.

2. Project Content

In view of the shortcomings of the prior art, this project provides a method for discovering youth sports potential under the background of big data. Based on the comprehensive application of sports ergonomics, sports metrology, sports material selection and big data and other disciplines, this project can quantify a number of sports functions and physical function indicators of youth through interesting sports game classes. A comprehensive evaluation of children's physical function was made by senior youth sports experts combined with the data report given by the big data platform, which solved the problems of scientific laboratory material selection, but the measurement content was complex, which was not suitable for large-scale material selection, insufficient scientific basis for coaches' experience material selection, national physical fitness measurement focused on physical quality indicators, and sports ability evaluation was difficult.

The project provides the following technical scheme: the method for discovering the youth sports potential under the background of big data includes the following steps:

Step 1: Measure physical fitness and motor function in the form of game class.

Set up a game class for discovering the potential of youth sports, and measure the remaining sports function indicators through the course form;

Step 2: measure the body function through the instrument.

By measuring the remaining physical function indexes with professional instruments, they can not only improve their physical fitness in happy sports games, but also obtain more comprehensive and scientific measurement data;

Step 3: Comparative analysis of data systems.

Combine the measured data in step 3 for comprehensive evaluation, and give the most scientific evaluation report of children's sports potential tendency;

Step 4: authoritative experts make comprehensive evaluation and accurately itemize.

Combining with the expert opinions, we recommend the "advantage" sports that are most suitable for children to express their athletic ability and the "complement" sports that balance their physical fitness.

In step 1 through game courses, the design of game courses mainly includes track and field, ball games, gymnastics and martial arts, etc. Through the characteristics of basketball, volleyball, football, track and field, gymnastics and martial arts, students can be organized to create games and organize sports game teaching, so as to improve students' ability of creating sports games and teaching organization. Make children improve their physical quality in sports games, and quantify their physical qualities such as balance, coordination, sensitivity, endurance, explosive power, flexibility and speed.

In step 2, the child's height, weight, shoulder width, arm span, sebum thickness, physique ratio, sitting height, arch height, leg length, arm length, hand length, head length, neck length, foot length, chest circumference, arm circumference, leg circumference, waist circumference, hip circumference, head width, hip width, palmprint and other morphological indexes, vital capacity and heart rate were measured by professional instruments. And intelligence level are detected in detail and digitized.

In step 3, by combining the measurement results of step one and step two, relying on the data report given by the big data platform, the senior professor of youth sports combined with the data report.

In step 4, the senior professor of youth sports combined with the data report, made a comprehensive evaluation of sports for the children face to face, found and corrected the deficiencies in children's physical development, and accurately identified the children's "advantages" and "short board" projects.

Using anthropometry to measure the data from outstanding students in various sports events, the students' shape and body shape characteristics of each sports event are determined, which is used as the basis for selecting students. When passing the investigation and test, the information on the shape, heredity, physiology, psychology and various sports abilities of children and adolescents is obtained, and quantitative description and scientific analysis are carried out. Finally, we can get the information of various realities, and make the first comprehensive "diagnosis" of students' initial exercise ability. According to this diagnosis, we can analyze the potential of students' ability and the suitable exercise direction, so that we can accurately identify the children's "advantages" and "short board" items, and give exercise prescription and exercise option guidance.

3. Chuangxindian

The method of discovering youth sports potential under the background of big data is based on the comprehensive application of sports ergonomics, sports measurement, sports material selection and big data. Detailed detection and data analysis of external morphological characteristics such as height, sitting height, arch height, leg length, arm length, hand length, head length, neck length, foot length,

chest circumference, arm circumference, leg circumference, waist circumference, hip circumference, head width, shoulder width, hip width, body weight and sebum thickness, combined with accurate data report given by big data platform, It makes the evaluation system more scientific, accurate and effective, with wider application range, stronger practicability, operability and popularization, and is suitable for large-scale material selection, which greatly increases the scientific basis for experience selection of coaches and reduces the difficulty of sports ability evaluation.

The method of discovering youth sports potential under the background of big data is different from the measurement method of pure material selection in the past. In the game course, according to the characteristics of basketball, volleyball, football, track and field, gymnastics, martial arts and other sports, the teaching content of sports games is designed, students are organized to complete the course, and the data of material selection is obtained during the children's games. Easy for children and parents to accept.

The method of discovering teenagers' sports potential under the background of big data, through data analysis, can reveal the problems existing in children's physique, and provide sports assistance in time. According to the comprehensive evaluation of doing sports for children according to the report, the senior professor of sports made clear the children's "advantages" and "short board" projects. Therefore, we can give guidance on exercise prescription and exercise options, and find out the strengths and weaknesses of children's sports.

Youth sports potential discovery method under the background of big data, by discovering children's sports strengths and weaknesses, combined with expert opinions, recommend children's "advantage" sports which are most suitable for expressing their sports ability, and at the same time, give "complementary" sports which balance their physical quality, so that children can make up their shortcomings and make their specialties more prominent, so that children can avoid detours and parents can save time and money. Avoid blind registration.

Under the background of big data, the method of discovering youth sports potential, using anthropometry to measure the data from outstanding students in various sports events, can roughly determine the individual shape and body shape characteristics of students in various sports events, which can be used as the basis for selecting students. Get the information of children's students' morphology, heredity, physiology, psychology and various sports abilities, and make quantitative description and scientific analysis, so as to finally get the information of various realistic states. The selection of athletes is the first comprehensive "diagnosis" of athletes' initial sports abilities. According to this diagnosis, firstly analyze the potential of their students' abilities and the suitable sports direction. Therefore, accurate children's "advantage" items can be achieved, and children with outstanding specialties can be recommended to take the professional sports road to serve sports teams at all levels.

Implementation mode 4

Referring to fig. 1, the method for discovering youth sports potential under the background of big data includes the following steps:

Step 1: Measure physical fitness and motor function in the form of game class.

Set up 12 games for teenagers' sports potential discovery, measure more than 60 sports function indexes through the form of courses, and make children improve their physical qualities in sports games, and quantify their physical qualities such as balance, coordination, sensitivity, endurance, explosive power, flexibility and speed. The level of physical quality and athletic ability is the physical quality such as strength, speed, endurance, agility and flexibility and the physical athletic ability such as walking, running, jumping, throwing, climbing, etc. In the game curriculum design, the emphasis is on track and field, ball games, gymnastics and martial arts, etc., which can be realized through the characteristics of basketball, volleyball, football, track and field, gymnastics and martial arts. Organize students to create games and organize sports game teaching, so as to improve students' ability of creating sports games and teaching organization. Compared with the past simple material

selection measurement, children complete material selection measurement to obtain data in happy games, which is easy for children and parents to accept.

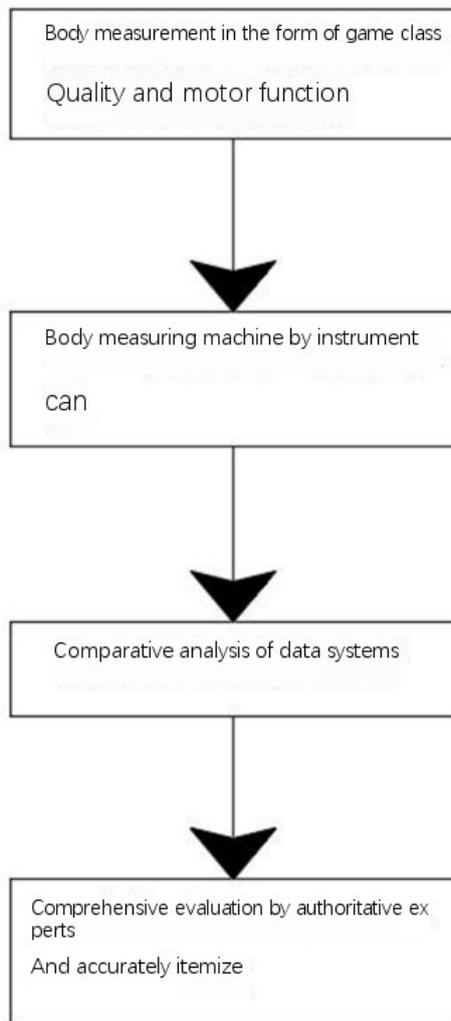


Fig. 1 is a schematic diagram of the method steps and flow structure of the project.

Step 2:measure the body function through the instrument.

By measuring more than 20 physical function indexes with professional instruments, they can not only improve their physical fitness, but also obtain more comprehensive and scientific measurement data. By measuring children's height, weight, shoulder width, arm span, body fat, vital capacity, heart rate, bone age, muscle type, physique ratio, palmprint, intelligence form and functional indexes with professional instruments,The indexes reflecting external morphological characteristics include height, length, circumference, width and fullness, in which height includes height, sitting height and arch height, length includes leg length, arm length, hand length, head length, neck length and foot length, circumference includes chest circumference, arm circumference, leg circumference, waist circumference and hip circumference, width includes head width, shoulder width and hip width, and fullness includes weight and sebum thickness.Among them, body shape indexes include height, weight, sitting height, chest, waist, buttocks and skin fold thickness, etc., while physiological evaluation indexes include muscle strength, electromyography and joint extension, and muscle strength can be detected by isokinetic muscle strength testing and training system.Isokinetic muscle strength testing and training system can test the muscle strength of every joint of human body, recover the muscle strength after sports injury, train students' muscle strength and control their nerves and muscles. Muscle strength evaluation mainly includes maximum muscle strength, explosive force and muscle endurance, etc. There are three forms of isometric strength, isotonic strength and isokinetic force.Electromyography (EMC) is a graph obtained by amplifying and recording the action potential

generated when muscle fibers are excited by electromyography. The joint extension can evaluate the flexibility of students by measuring the activity range of related joints of subjects. Among the circulatory system indexes, the circulatory system indexes mainly include the indexes of heart shape, structure and cardiovascular function. The indexes of respiratory system and energy metabolism mainly include vital capacity, time vital capacity, lung ventilation, maximum oxygen ventilation, oxygen uptake, maximum oxygen uptake and respiratory endurance. The indexes of nervous system and energy metabolism mainly include simple visual-dynamic response time, simple auditory response time, comprehensive response time, visual flash fusion threshold, limb balance function, hand coordination function, vestibular organ stability function, visual depth and muscle proprioception, etc.

Step 3: Comparative analysis of data systems.

Combine the measured data in step 3 for comprehensive evaluation, and give the most scientific evaluation report of children's sports potential tendency. By combining the measured results in step 1 and step 2, relying on the data report given by the big data platform, the senior professor of youth sports combined with the data report, Senior professors of physical education should master the basic theories and knowledge of biological science, clinical medicine and physical education, as well as the analytical methods of students' physical function diagnosis and evaluation, physical health care and rehabilitation, and have the basic ability to engage in teaching, research and experimental operation of sports human science. There is a certain dependency relationship between sports events and morphological characteristics in physical education. The data measured by anthropometry from outstanding students in various sports events can roughly determine the individual morphological and body characteristics of students in various sports events, which can be used as the basis for selecting students. Get the information of children's students' morphology, heredity, physiology, psychology and various sports abilities, and make quantitative description and scientific analysis, so as to finally get the information of various realistic states. The selection of athletes is the first comprehensive "diagnosis" of athletes' initial sports abilities. According to this diagnosis, firstly analyze the potential of their students' abilities and the suitable sports direction. Testing information is an important basis for the implementation of early professional sports training programs. Young sports senior professors need to use big data methods, based on the comprehensive application of sports ergonomics, sports surveying, sports material selection and big data, and combined with accurate data reports given by the big data platform. The evaluation system is more scientific, accurate and effective, with wider application range, stronger practicability, operability and popularization, and is suitable for large-scale material selection.

Step 4: authoritative experts make comprehensive evaluation and accurately itemize.

Combining with expert opinions, we recommend children's "advantage" sports which are most suitable for expressing athletic ability and "complement each other" sports which balance their physical quality, and make comprehensive evaluation on sports for children face to face through senior professors of youth sports combined with data reports, so as to discover and supplement the deficiencies in children's physical development. Accurate children's "advantage" items and "short board" items, as well as children's "advantage" items and "short board" items, can give guidance on exercise prescription and exercise options. The data measured from excellent students in various sports events by anthropometry can roughly determine their own shape and body characteristics, which can be used as the basis for selecting students. Find out the strengths and weaknesses of children's sports, recommend the "advantage" sports that are most suitable for children to express their sports ability in combination with expert opinions, recommend the most suitable sports for children, and be good at recommending the "complementary" sports that balance their physical qualities, so that children can make up their shortcomings and have more outstanding specialties, so that children can avoid detours, parents can save time and money, and avoid blindly reporting to classes. At the same time, children with outstanding specialties can be recommended to take the professional sports road and serve sports teams at all levels.

Acknowledgments

(Supported by the Innovation and Entrepreneurship Project of Liaoning University of Science and Technology in 2022).

References

- [1] Interpretation of youth sports mission and its research dimension from the perspective of "Healthy China" [J]. Wan Bingjun, Zeng Xiaoxiao, Shi Yan, Shi Bing. Sports Science .2017 (10).
- [2] Renewal of PE Teachers' Educational Concept under the Background of "Healthy China" [J]. Journal of He Zhong and hubei university of arts and science .2017 (08).
- [3] School Physical Education under the Background of Great Health [J]. Li Hongjiang. Physical Education .2016 (11).
- [4] Research on the Cultivation of Youth Sports Health Literacy from the Perspective of Synergy [J]. Yang Pin, Wu Lingmin. Contemporary Sports Science and Technology .2016 (12).
- [5] yulin university strengthens sunshine sports and trains innovative talents of the times [J]. Fan Li. Education and occupation .2014 (10).