Verification of Sports Intelligent Course Recommendation System based on Judgment of Temperament Types

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Abstract: With the reform of college physical education, to meet the needs of quality education, physical education in most colleges and universities are physical education teaching. According to their own needs and temperament characteristics of college students to divide different sports, to help students choose the most suitable for their own sports, improve students' interest in sports, ability to cultivate lifelong sports is particularly important. The development of network course selection system based on the judgment of college students' temperament has important practical needs and wide promotion significance. In this paper, we analyze the relationship between temperament type, quality assessment and sports, and design a reasonable type of sports temperament according to the physical quality of college students. Based on the judgment of temperament type, this paper designs and realizes the PE course selection system in our university.

Keywords: Temperament; Type; Determination; Sports; Course selection; Recommendation system; Design; Implementation

1. Introduction

Temperament is the dynamic characteristic of individual mental activity stability. It is influenced more by innate factors. It is slow and difficult to change. Guidance. College sport is an important part of school sports. It is an important guarantee for the development of all-round development of talents across the century. It is also one of the important ways to cultivate healthy personality. With the deepening of the reform of physical education in colleges and universities, to carry out the teaching thought of quality education, improve the students' consciousness of lifetime sports, all colleges and universities according to the state education commission in August 1992, issued by the national ordinary university sports curriculum teaching instruction summary ", opened its rich content and combining the actual situation of special sports elective course of the sports teaching organization form to satisfy the students' interest in sports and hobbies, to improve the physical quality. It ensures that college students have a lot of energy when they study other subjects. For the purpose of improving physical education in colleges and universities, better play the role of special sports elective courses. It is necessary for PE teachers to understand the influence of the different temperament types on special sports elective courses.
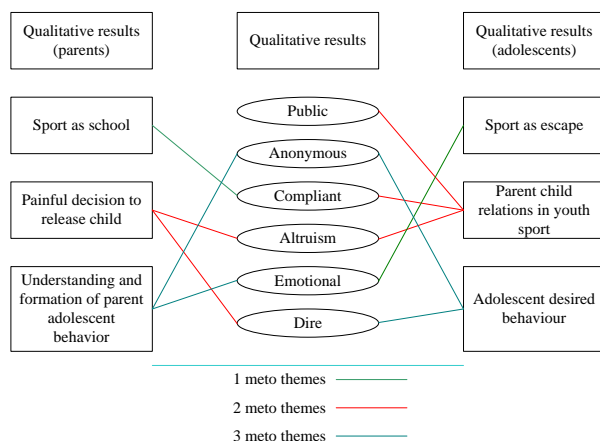

**Figure 1. The sports training system demonstration**

Temperament is a dynamic feature of a person's mental activity, which is closely related to the genetic quality. Temperament is mainly restricted by the characteristics of neural activity, and steadily permeates one's emotions and performance patterns. Psychology according to the performance of people will be divided into four types of temperament: bile quality, blood quality, mucus quality, depression quality. Therefore, how to choose the PE elective courses for them and adopt different teaching methods to make their temperament types develop in a good direction has become the focus of our investigation.Temperament is an ancient psychological problem. As early as the 5th century, Hippocrates, a famous ancient Greek physician, considered the human body to have four kinds of the fluids, namely blood, yellow bile, black bile and mucus. The difference between the proportions of each body fluid determines the temperament differences and the body's condition depends on the correct combination of the four liquids. Pavlov later explained the doctrine from a neuropsychological point of the view. So, body fluids have been used in psychology so far. Therefore, we can analyze from listed aspects.

The nature and the professional stable close correlation, and the famous occupation instructs the Master Hollaender's professional interest theory to point out that, the individual occupation stability and the endurance besides receive the makings type influence, but also to a great extent and individual professional interest close correlation. No matter the sex, along with the individual age growth, its work compatible degree and the professional stability also gradually increases, moreover the makings and the occupation uniform degree is higher, its professional stability is also higher, otherwise then lower. Along with society's fast development, all the various trades and occupations change with each new day, very many occupations and the post also unceasingly renew, we are impossible to know first and attempt all occupations and the post and then decided again oneself feels the interest suitable occupation and the post.

Characteristics of some temperament itself is no good or bad, only illustrates this people have a certain personality characteristics, the character and personality aspects such as power, social value, can't decide a person does not have the significance of social moral evaluation that is painted with a certain color to people's words and deeds. Temperament does not determine the size of individual achievement and the level of intellectual development. It will affect the form of individual activities and make intellectual activities with a certain color. In real life, people find that temperament affects human's work efficiency and working style to some extent, for example, bile and blood reactivity are faster and more sensitive than mucoid and depressive.

On the external factors, family relations, especially the relationship between individuals and parents have been fully proved by the previous studies is an important factor affecting the individual loneliness two long-term effect of the film, with the previous relationship between family factors and loneliness Research on the one hand, the majority of children as the object of study, the other more than the family from the family function, individual and parental attachment to start with the mode of education on the sense of loneliness less systematic empirical research that is not only the most mode of education and there are variables that improve the likelihood of direct family intervention and have been shown by many studies to be the most important factor in many family factors that affect individuals and their emotional development. Bile Qualitative Type group: lively and cheerful personality, adaptability, coherent, words, simple straightforward, but impatient irritability with the good impulse. Multi-blood temperament type of population: a typical type of extroverted, outgoing, lively, sociable, easy to expose; experience is not profound, cumbersome. Mucus quality temperament types of people: quiet and steady, moderate intercourse, words less, with introversive features. Melancholy temperament Type of population: introverted, slow words and deeds, indecisive, sensitive and thoughtful, often keen insight into other people cannot find the phenomenon, with a high degree of emotional vulnerability.
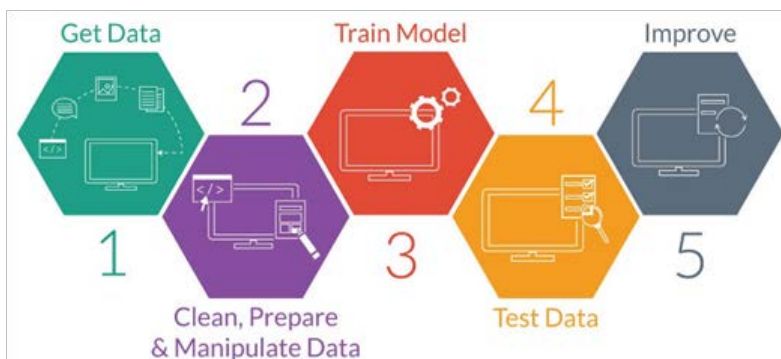
Figure 2. The data mining steps

Most vocational college physical education courses are optional class teaching, students according to their own hobbies, choose their favorite sports. Through the study of temperament, the author can help students to better understand themselves, choose the sports project that suits their own temperament, and different temperament students have different reflection on teaching materials and teaching methods in PE teaching. The degree of preference of the elective courses, to provide a reference for better guide and change the type of student temperament through more physical exercise.

2. Temperament Type Judgment

2.1. Temperament questionnaire

A questionnaire survey was conducted on 50 students of different majors, science and liberal arts in three vocational colleges. We use the temperament questionnaire is based on the "temperament type test scale" compiled by Comrade Chen Huichang Beijing Institute of Development Psychology, revised on the basis of 60 topics it consists of two parts: the quality of the scale and the amount of lying table. Chen Huichang and others temperament based on the four types of temperament prepared by the temperament questionnaire, composed of 60 questions, these 60 questions test, subjects were asked to determine the performance characteristics of each subject stated in line with their actual situation. If the respondents answered with their own situation "fully consistent" mind 2 points, "more consistent" mind 1 points, "between coincidence and non-compliance" recorded 0 points, "less consistent" mind -1 points, "complete Does not meet the "mind -2 points.

Case interview survey: take 20-30min, the survey was particularly typical temperament students, the same reasons for the selection of sports investigation.

2.2. Temperament questionnaire

The distribution of college students' temperament types can be seen from the statistical results, four university students temperament distribution trend is dominated by blood clotting followed by mucus male, female college students in temperament type distribution is no significant difference.

According to the survey to know the number of people choose basketball and aerobics, accounted for 14% and 18% of the total number, the second is table tennis, badminton, 12% and 11% respectively, the least is football and volleyball. At the same time, it can be seen that 14 out of 54 students of the bile quality category chose basketball as the top spot, followed by calisthenics and football. In 112 sanguineous temperament type 17 people that is 16% of the students chose aerobics, followed by basketball and table tennis, badminton, in the temperament types, distribution of the number is more, the se-

lected project is much also, not too big difference; Among the 90 mucous types, 17 were selected for aerobics, followed by table tennis and volleyball, and the selection of each item was also balanced. Among the 34 students who were depressed, there were many badminton players. From the above data, it can be seen that the students of the mucous students are more balanced in the selection of each project, followed by the multi-blood type students, and the most uneven distribution is the biliary type students.

2.3. Analysis

According to the students' personality and temperament, the teaching of classification options, ball games is a strong collective project. It is of great significance to cultivate students' sense of "cooperative spirit". Can enhance the student to overcome the difficulty the courage, gradually builds the strong self-confidence. Depression is often associated with a lower amount of adrenalin, sports can be stimulated more adrenaline, which increases the adrenaline secretion, improve brain excitability of the nervous system, so as to adjust the action of the depression is a bad personality psychology.
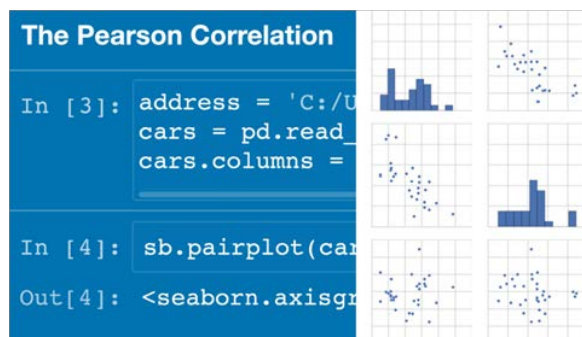

Figure 3. The data processing references

Mucus students sentiment more stable, not easy to expose, strong tolerance, physical learning is practical, but not flexible, learning inertia, lack of initiative; for students of this type of temperament in the early learning to give specific and careful guidance, Multi-decomposition method is used. Once the students master the initial movements, they will be allowed to exercise their own skills. They will use the game method and competition method to increase their excitement and allow them to practice highly flexible actions.

Much blood students active, sentiment is fast, easy changeable, rich expression, responsive, easy to adapt to the new environment, but the attention is not stable, easy to be transferred, if the lack of appropriate and timely education to them, can lead to the superficial study. This kind of student is unwilling to learn the monotonous action, has the intense interest to the difficulty big action, likes oneself to try the new action.

Biliary temperament type student extroversion is obvious. High emotional excitability, high - level neural activity has strong and unbalanced characteristics. The excitement and inhibition of disequilibrium in the relative strength of these two kinds of neural process, to choose a choleric temperament type student sports should with taijiquan "wuqinxi", "eight jinyijinjing" and so on Chinese tradition sports keeping in good health project.

In the sports teaching should be aimed at students of different temperament types due to the "quality" teaching distinguish and treat different temperament types of students, promote their positive psychological dynamic characteristics on temperament, improve the learning efficiency. Special attention is paid to the characteristics of unstable mood among students with bile and depression. Students with choleric temperament may develop offensive and aggressive behavior characteristics. Students with depression may experience anxiety and anxiety. In PE teaching, teachers should correctly guide and discriminate between two types of students.

2.4. The influence of temperament type on the choice of special sports elective course

Nowadays, male students in colleges and universities have a deep choice in special sports. According to the number of elective courses, according to 7 owing to football, screen ball, tennis, table tennis, martial arts and other items. This is closely related to male students' interest in resistance, skill and collectivity. Because these projects embody the individual or collective in the technology, tactics, physical strength, intelligence and other aspects of the contest with the volleyball options, only four, accounted for 6.4 percent. This is mainly due to the lack of resistance of the volleyball, and the high requirement of the individual technology, resulting in the lack of interest of the male students, and even most of them did not expect to choose this project. That way as it is difficult to carry out a male volleyball match on campus. In the extracurricular activity towel, it is difficult to see the boys in volleyball. But volleyball as a combination of skill and fun as one of the movement and it is very suitable to be widely carried out in colleges and universities, as long as we strengthen the extensive and correct guidance. Then, in the 1980s, when the national women's volleyball team was "five consecutive champions", the whole country was in full swing in the practice of volleyball.

Different temperament types of boys in the selection of special elective sports elective projects. There are obvious differences. Bile quality and blood quality of the two temperament types of students in the behavioral characteristics of the outgoing, their courses are selected set to football, basketball and other items to meet and achieve self-worth day; mucus and inhibit from 15 Stu-

dents of both types of temperament are introverted in behavioral traits. They have a wide choice of courses, but there is a significant difference in the selection of football and hammer between students with bile and blood. Due to the cautious, quiet and poor communication students with slime and depression, their subjective participation in sports activities is not strong. Even sports activities are held only for those with small activities.

2.5. Personalized recommendation

The new course recommendation module can recommend new courses to students, allowing them to choose the course that suits them on the basis of the original ones, and increase their interest in the courses based on their own horizons. The algorithm of the module first needs to generate the student attribute preference matrix, and then extract the attribute values of the new curriculum and save it in the curriculum, and match the student attribute values with the new curriculum attribute values to find the students with high similarity.

The personal recommendation module calculates based on the nearest neighbor recommendation in the attribute value preference matrix, which is mainly divided into two parts. First, according to the target user, the initial user is acquired through the SVD matrix to collect the students' course selection record and the evaluation record and map the records in real-time to the project property values to generate a base user property value preference matrix. The second one is to calculate the similarity of the matrix, so as to get the nearest neighbor set of the target user and to make personalized curriculum recommendations through the nearest user selection record.

Recommended courses in the hot courses recommended courses are divided into two categories, one is the use of mathematical statistics to calculate, come to the evaluation of the value of each course, and rank the evaluation mode, select the first M courses recommended According to the elective system recommended, the recommended course for the M+N. The other is based on the number of students choose the course in a certain period of time based on the ranking of courses, and for students to make hot courses recommended.

2.6. Establish evaluation matrix

The evaluation matrix is used to collect the data of students' history selection through the students' choice of specialty, interest, degree of study and course selection record. If we need to extract from the teaching system, we should pay attention to the corresponding processing of the data, so that the data can meet the structure of the students' evaluation matrix.
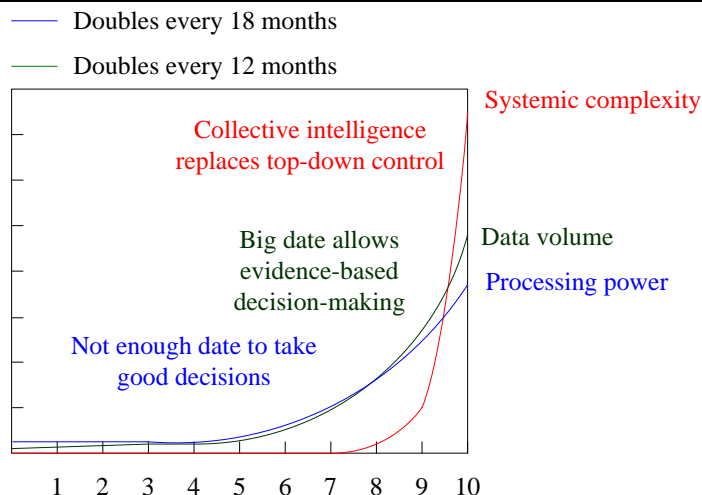
Figure 4. The numerical simulation on the proposed method

The system mainly adopts three-layer architecture mode and sends data access request through unified interface. These three were the business logic layer, data encapsulation layer and presentation layer, business logic layer series mainly complete the data processing and reached to the data encapsulation layer, data encapsulation and data encapsulation layer in the form of the object back to the presentation layer. There are three subsystems in this recommendation system, which are teacher subsystem, student subsystem and management subsystem. The database of the system consists of three basic tables: teacher's table, student table and curriculum schedule. Therefore, for the modelling of the item, we should be based on the following steps.

Students who choose the same option have very different physical fitness and option scores. If you create a single forecasting model for each data set, the accuracy of your grade forecast can be significantly reduced. This conclusion has been fully demonstrated in the previous experiment.

Physical health is the foundation of students gets options, we can use one or more of the physical fitness test scores as classification basis and the premise is that these test indexes and option results are closely related. Using these index alternatives as a basis for classification of data sets, the differences in the elements within the subsets can be reduced.

The establishment of subdivision model is to minimize the differences among elements within the same subsets and also maximize the differences among different subsets of elements. Thus, the clustering method naturally fits this target.

Which chooses to test the target to take the forecast model the input cannot only choose and the option result correlation coefficient high target, because other targets also can have certain influence to the option result. If time excavation forecast model still removed them in outside,

could affect the in fed information the integrity, thus reduced the forecast the rate of accuracy.

First of all, classification is more consistent with the requirements of mining prediction model than clustering, while other methods such as regression and time series analysis do not meet the requirements completely. Secondly, the classification algorithm depends on the characteristics of the data set. Different data sets may have their own suitable classification algorithms, which can be verified by experiments.

In essence, standards reflect voluntariness. Thus, a sports standard is a document in sport that defines common and the repeated rules, guidelines or characteristics for sporting activities or its outcomes in order to obtain the best possible sporting order. A large body of research evidence shows that there is a dose-effect relationship between physical activity expenditure and health. That is, the greater the physical activity, the more conducive to reduce the risk of morbidity and mortality. However, since exercise intensity, duration of exercise, frequency of exercise, and mode of exercise are all important factors that make up the amount of exercise, the "dose" of physical activity includes both the total physical activity expenditure and the associated single factor of the physical activity intensity, duration of exercise, exercise frequency and exercise patterns, etc. Compared with the first two qualities, the flexible quality reflects the human body's other ability. It is very important to improve the coordination ability of the body, to exert power and speed, to master motor skills and to prevent sports injury. With good flexibility, the athletes can then make more movements and more graceful posture.

In order to recommend a more accurate courses to students, this system to establish the evaluation matrix and the evaluation matrix to the influence factors of students in middle course selection process is analyzed, such as students' professional level, learning degree, hobbies, and

course notes, etc, through the analysis of the class information and establish a corresponding to the students, with the evaluation matrix of comparison, find out the user the highest similarity of course records, from the completed courses recommended for the students. The establishment of the recommendation system of college course selection includes establishing evaluation matrix, searching the nearest neighbor and generating three parts.

3. Conclusion

According to different types of temperament, improving elective courses in sports quality, temperament type of two different with the same temperament type of two people with the more easily obtain good performance and performance. In teaching, teachers can deliberately group their activities by the temperament, which can enhance students' mutual understanding and trust so that they have the opportunity to exert their own unique qualities and thus improve the quality of physical education.

4. Acknowledgement

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