

## Research on the evaluation of college students' comprehensive quality

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*Abstract: Through the comprehensive quality evaluation, we can help students understand some problems existing in the process of growth, and then analyze the possible causes of these problems, and constantly find solutions to these problems, and ultimately effectively promote the overall improvement of college students' comprehensive quality. In this paper, we explore the research status of comprehensive quality for university students. In view of the problems existing in the evaluation of comprehensive quality, we study some ways to improve the comprehensive quality, in which the depth learning method is to use extract the more essential evaluation information, and support vector machines is use to structure the more consistency comprehensive quality evaluation model.*

*Keywords: Comprehensive quality, depth learning, support vector machines, quality evaluation model*

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### 1. INTRODUCTION

At the time of Internet era, we can get vast amounts of information easily, meanwhile this information can brought more temptation to our life and study, especially for the college students with poor self-control, so how to learn more useful knowledge and information for their own development and how to make full use of the Internet is very important, which require college students have higher comprehensive quality. In this paper, the purpose to study college students' comprehensive quality is to help students to correctly understand their advantages and disadvantages, through continuous explore to find suitable learning ideas and improve their learning ability, and not analyzed the learning evaluation of college students only.

Through the comprehensive quality evaluation model to help students understand some problems existing in the process of growth, and then analyze the possible causes of these problems, and constantly find solutions to these problems, and then ultimately effectively promote the overall improvement of college students' comprehensive quality.

Many scholars have study the theory and method of evaluation of comprehensive quality of college students, but because of the complexity of the comprehensive quality evaluation of

college students, on the current situation, the college students comprehensive quality evaluation model can not be widely used in various colleges and universities, and the evaluation index system is unable to meet the demands of the Internet age, in which the students' moral quality and self-control ability has been unable to match the needs of the information age. In order to solve the above problems, we put forward the comprehensive quality evaluation of college student.

## **2. RELATION WORK**

At present, many colleges make great importance to the promotion of college students' comprehensive quality. The fair evaluation of college student' comprehensive quality is the key to improve the effect of talent training. Many colleges evaluate students according to a series evaluation index, and then feedback the evaluation results to students to find their own strengths and weaknesses. To improve their comprehensive quality, colleges can provide many talents with high quality for the society, which can constantly promote the rapid development of the society [1].

Some American educational experts have made a very famous teaching reform program. Other scholars have put forward the basic principles of evaluation activities to discuss the principles and rules of using different methods for teaching evaluation, and then gradually formed the evaluation model of behavior objectives as the main body. Subsequently, various comprehensive quality evaluation models based on advanced mathematics theory are emerging. For example, some scholars put forward the CIPP comprehensive quality evaluation model, and others put forward the comprehensive quality evaluation model based on the goal free theory. Some scholars put forward the comprehensive quality evaluation model based on the balanced scorecard. These excellent research results provide a good theoretical and technical support for us to study the comprehensive quality evaluation of college students.

Since the 70s of last century, researchers have paid more and more attention to the research and analysis of the evaluation system of college students. Especially in recent years, with the development of the internet, the increasing employment pressure of college students, and the lack of practical experience, the employment pressure grow with each passing day, therefore how to enhance their own quality based on the evaluation of the comprehensive quality of college students is more and more necessary. Based on the comprehensive development of college students, many scholars think that the critical step is to design a reasonable evaluation index.

Li et al put forward from the five dimensions of moral, professional, physical and psychological development and construct the index system [2-3]. In order to reflect the different indicators of the contribution of the ideological and political practice, Dong et al [4] classified comprehensive quality based on the professional knowledge, innovation, and human mind, in which the different weight is be determined by experience. However, many scholars believe that the quantification of indicators restricts the fairness of the evaluation results. It is suggested that the combination of qualitative and quantitative methods should be adopted in

paper [5]. For the comprehensive quality evaluation method, we first numerical process the evaluation index according to the scores of comprehensive quality, then we introduce the right index weight to evaluating the importance of each index, last we express evaluation results with a intuitive fraction form based on mathematical method.

The commonly used methods are weight comprehensive index method, information entropy empowerment, factor analysis method, fuzzy analytic hierarchy process, evolutionary algorithm, FAHP, etc. Recently, many scholars study some comprehensive quality evaluation of college students based on the machine learning method, such as fuzzy network analysis method, BP neural network method proposed, comprehensive analysis and evaluation proposed, grey fuzzy clustering analysis method proposed, hierarchical Fuzzy model [6-9].

### **3. EXISTING PROBLEMS IN THE EVALUATION**

Some colleges have considered the scientific and reasonable comprehensive quality evaluation system of students, and make the evaluation as a part their daily management. Some advanced mathematical methods have been applied to the comprehensive quality evaluation activities, and achieved certain results. However, there are many problems in the evaluation process.

In internet era, society put forward higher requirements for students' learning ability, but the current evaluation system is outdated, which ignore the learning of new knowledge. Meanwhile, qualitative analysis and quantitative analysis combined is not enough for the learning evaluation, there are a lot of redundant information between indicators, which can reduce the evaluation effect, and can not meet the needs of college students' quality evaluation. In the process of comprehensive quality evaluation, there are lots of subjective factors, which make the evaluation of objectivity and consistency not be guaranteed, and then we will not be able to put forward targeted measures for improvement.

### **4. IMPROVE THE EVALUATION OF COMPREHENSIVE QUALITY**

Aiming at the problems of college students' comprehensive quality evaluation, such as comprehensive quality elements can not keep up with the development of the times, the artificial participation issues in the evaluation process. In this paper we put forward the corresponding solutions. At the same time, each college students can understand their advantages and disadvantages through the evaluation results in the internet age, and finally improve themselves through the targeted learn and improvement methods.

#### **4.1. Analyzing the elements of evaluation system**

The evaluation index system of comprehensive quality of college students should reflect the concept of quality education, especially the ability of learning in the internet age under the environment of college students. In the Internet age, we require college students not only to develop observation ability, analytical ability, logical thinking ability and self-learning ability,

but also to cultivate students' self control, teamwork, communication skills, strong will and resolute character.

Therefore, in the construction of college students' comprehensive quality evaluation index system, the system of university students' intelligence not only must develop the requirements, but also can reflect the information age college students' self-learning ability and ability to update. At the same time we must consider the operability requirements of evaluation. Through in-depth analysis of information era of comprehensive quality of college students, we should consider the physical and mental health, moral quality, learning ability, practical ability to update as an index of college students' comprehensive quality evaluation system.

#### **4.2. Extracting the effective information**

Because of its simple operation, the commonly used AHP and fuzzy mathematics evaluation method use more in the comprehensive quality evaluation for college students, but these methods have some problems such as: each weight factor of evaluation index need to manual setup, the analysis process does not consider the problem of redundancy information related to the evaluation index, so these methods is poor to the complex quality evaluation for college students. At present, the popular depth machine learning method can extract complex evaluation information from unlabeled samples by continuous learning strategy [10].

This paper adopts the deep learning method to analysis the comprehensive quality. Based on the comprehensive quality of college student's evaluation of original characteristics, we simulate the brain network structure through the analysis of construction process, which can obtain the essence index characteristics of college students from simple to complex and from the bottom to the top at the top level.

#### **4.3. Constructing the fair evaluation model**

The SVM model in machine learning theory has the ability of self-learning and only be provided a small amount of tag sample [11]. Based on the evaluation information, this paper proposes an evaluation model based on support vector machine (SVM) to evaluate the comprehensive quality of College students.

Specifically, we construct the evaluation index system of the comprehensive quality of college students, and then use the deep learning method to extract effective features from the original evaluation information, finally we use the effective evaluation of features as the input characteristics of support vector machine model, and the evaluation results of labeled samples as the output of support vector machine model. We can obtain the best model comprehensive quality evaluation model by learning adjustment strategy. This evaluation process can ensure the consistency of the comprehensive quality evaluation of college students. Finally, the society, schools, teachers and student's self can guide students to improve their comprehensive quality in the internet era, and make greater contributions to the society.

## 5. CONCLUSION

This paper deeply analyzed the situation of college students' comprehensive quality evaluation. When building the evaluation index system, we must fully consider the self-learning and control ability and moral quality and other requirements of college students in information age. Through continuous learning evaluation expert experience, we can obtain the optimal quality evaluation model parameters and can quantitative the evaluation object. At the same time, combined with theoretical analysis and practice, we can use the machine learning theory to solve the problem of excessive subjective factors in the evaluation process. The next step of the research plan is to make empirical analysis of the proposed countermeasures, and constantly revise the evaluation model, and then carry out the promotion test.

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