



# The Evaluation Model of College Ideological and Political Education Reform Based on SVM

Xinnan Li

Nanchang Institute Of Science & Technology, Nanchang, Jiangxi, 330100, China

\*Corresponding author's e-mail: gyx84562@163.com

## ABSTRACT

The Internet, as a computer Internet network, has a lot of images, sound, text and other types of information and data, which makes most of the network resources mainly appear in the form of text. In view of the problems of information feedback stagnation and imperfect early warning mechanism in ideological and political education in higher vocational colleges, better technology is needed to solve them. In order to better understand the results of ideological and political reform and development in colleges and universities, this paper establishes an evaluation model based on ideological and political education reform in colleges and universities in SVM, expounds the current status of ideological and political development in colleges and universities, and puts forward their own views in view of the current problems, aiming to accelerate the progress of ideological and political teaching reform in colleges and universities.

**Keywords-SVM; university ideological and Politics; big Data**

## 1. INTRODUCTION

With the society of science and technology, the rapid development of culture and economy, especially the rapid development of computer network technology and communication technology, as the human society from industrial society to information society transition trend more and more obvious, people information consciousness, the development and use of information resources is more and more strong, these promote the rapid rise and Internet technology and rapid development. The development of the Internet has also gradually driven the reform of college education, especially for the ideological and political aspects, an evaluation model of ideological and political education reform in colleges and universities based on SVM (Support Vector Machine) is proposed. Using orthogonal design and hierarchical analysis method to calculate the input and output data, taking the GAUSS radial basis function as a kernel function, it can quickly establish an accurate and fast running education reform evaluation model.

## 2. THE SVM OPERATION PROCESS DECOMPOSITION

Compared with conventional algorithms, SVM has

the advantages of excellent learning performance of small sample, good model generalization and low dimension sensitivity. The results confirm that the identification accuracy of SVM in solving high-dimensional small sample data is significantly better than that of machine learning methods such as neural network and Bayesian network. By substituting SVM into the ideological and political teaching activities in universities, the following formulas can be used for accounting:

$$R(w) \leq R_{emp}(w) + \sqrt{\frac{h(\ln(2n/h)+1) - \ln(\eta/4)}{n}} \quad (1)$$

**Figure 1.** The SVM algorithm

It represents the VC dimension of the set of functions, and the VC dimension is a way to measure the complexity of the function class, realized by evaluating the degree of bending of the function in the function class. The VC dimension can present the function set learning ability, the larger the VC dimension, the more complex the learning machine, that is, the larger the capacity. In the process of dealing with multi-class classification problem, multi-class classification problem into multiple two-class

problems. Set the training set to:

$$T = \{(x_1, y_1), \dots, (x_l, y_l)\} \in (X \times Y)^l \quad (2)$$

$$x_i \in X = R^n$$

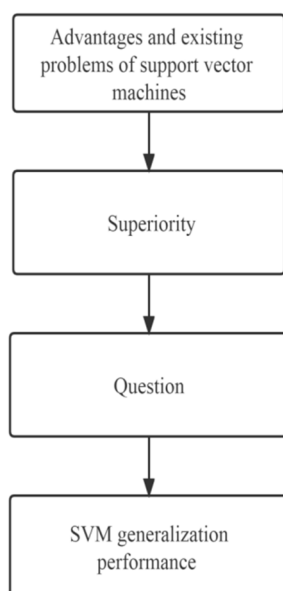
$$y_i \in Y = \{1, \dots, M\} \quad (3)$$

**Figure 2.** The process that the SVM deals with multiple types of problems

Furthermore, to obtain SVM weight results requires both input and output of the training sample. First, the input data of SVM training sample is calculated, and the training sample weight is calculated by Analytic Hierarchy Process (AHP). The evaluation results of the index training sample obtained are taken as the training sample output, and finally the weight value of each index is determined through the input and output. Learning ability, teaching influence, applicability of teaching materials and advanced assessment method are taken as the influence elements of training samples, and orthogonal design is adopted

It is divided into ideal, mean and not ideal cases respectively [1]. The training sample input is selected in the evaluation index system according to the actual situation of the elements.

### 3. ADVANTAGES AND EXISTING PROBLEMS OF SVM



**Figure 3.** the Advantages and existing problems of support vector machines

Due to the openness of the network and the diversification of communication path, the network information is in an explosive state, where the cultures

and opinions of different schools converge, and even the completely opposite values fill the network. As the values of college students have not been fully formed, it is easy to touch the various values on the Internet for a long time to shake their inherent values, leading to the inclined values of some college students, and even have doubts and waver about the socialist beliefs, which greatly reduces the results of ideological and political education. At the same time, the network information is extensive, rich and other characteristics, easy to attract a lot of time for online chat, browsing useless information. Thus, the interest of college students in participating in ideological and political education activities decreases, and the role and influence of ideological and political education in colleges and universities decreases. The Internet provides people with a wonderful virtual world. Due to their various purposes and hobbies, college students can play the virtual hornfish completely different from the real life electricity in the network. Due to the limitations of age and social experience, college students have not fully developed a good sense of social norms, self-education, self-management ability is not strong. Virtual network lifestyle makes it easy for them to get rid of the shackles of many factors in the real society, indulge their own behavior, forget their social responsibility, and lose their morality. The hidden energy and virtuality of information network have a strong impact on the formation of good moral quality of college students.

#### 3.1. Superiority

Support vector machine (SVM) is to seek the best compromise between the learning ability and the complexity of the model according to the limited sample information, in order to get the best generalization ability[6]. Support VM method master

There are three advantages:

The algorithm of the actual problem through nonlinear transformation to high dimensional feature space, is constructed in high dimensional space linear discriminant function to realize the nonlinear discriminant function in the original space, it cleverly solves the dimension problem, special properties can guarantee the machine has good promotion ability, its sample dimension has no relationship with the complexity of the algorithm.

The algorithm will eventually be transformed into a quadratic optimization problem. Theoretically speaking, it obtains the global best advantage, and solves the local extremal problem that cannot be avoided in other methods.

Is specifically for the finite sample case, its main goal is not only the optimal value when the sample number tends to infinity, but the optimal solution under the existing information.

### 3.2. Question

The first is the speed problem, and the more it needs to be solved, the classification speed is slower. This limits the application of SVM and becomes a bottleneck for SVM methods to enter a relatively large-scale practical stage. How to improve the classification speed of SVM and reduce the support vector in the decision function has always been a hot issue in the research of SVM, which is of great significance for the promotion of SVM method in practical application.

Secondly, the SVM generalization performance is a subset of this whole data, i. e., the support vector, without relying on the entire training data. Since the number of support vectors is very small compared to the whole training dataset, the study of incremental learning in the SVM classification algorithm has great practical value and theoretical significance. However, the existing support vector machine incremental learning algorithms are mainly for single standard sample incremental learning, and class increase [2].

Quantitative learning and concurrent sample incremental learning, up to now, still lack an effective SVM classification party law.

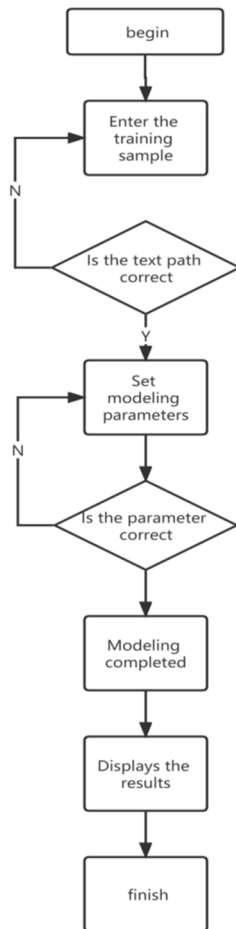


Figure 4. Text flow chart

### Experimental analysis and testing of the SVM

The reform of ideological and political education in colleges and universities is a non-linear regression problem. SVM learning is used to clarify the index weight. The index weight obtained is not an explicit function, but hidden in the evaluation model of SVM,

The establishment of index weight is actually the selection and structural design of SVM type. In order to verify the reliability of the proposed model, college students were taken as the research goal, the questionnaire survey for several ideological and political education teachers was carried out, and the anonymous method was used to ensure the recovery rate and authenticity. Statistical survey results and classified data were collected from 300 questionnaires. Based on improving SVM algorithm of ideological education dynamic early warning system overall logic mainly includes ideological education implementation submodule, ideological education effect analysis submodule, ideological education dynamic warning module, based on early warning classifier of ideological education dynamic early warning system mainly realize vocational ideological education practitioners, higher vocational colleges, ideological education function departments coordinated interaction, clear ideological education goals, set ideological and political defense in higher vocational colleges [3].

Chart 1 magnitude and probability

magnitude	35	65	23	41
probability	25%	47%	13%	32%

The implementation sub-module of ideological and political education is mainly based on personalized ideological and political education programs based on the relevant policies and regulations of higher vocational colleges and their own characteristics of higher vocational colleges, including the selection of teaching materials, practical course design, higher vocational college students thought dynamic research [4]; The submodule of ideological and political education effect analysis mainly evaluates the multi-dimensional effect of the personalized ideological and political education program formulated by the implementation submodule of ideological and political education. Including ideological education goals and the new situation of the relevant policy fit, ideological education task is adapted to the ideological education goals, ideological education plan depth to meet the demand, higher vocational college students thought dynamic control meet the expected goal, higher vocational college students accept ideological education scheme, etc. The dynamic early warning submodule of ideological and political education mainly realizes the detection of students with dangerous ideological dynamic tendency in advance and the early warning, timely and active intervention measures [5]. By focusing

on the students' psychological traits, lay a good foundation for its healthy development, Provide a guarantee for the smooth development of China's overall national security concept. Through the above three functional sub-modules, the closed-loop dynamic early warning mechanism of ideological and political education in higher vocational colleges is constructed to form a virtuous cycle and they provide a basic guarantee for the development of ideological and political education in higher vocational colleges [7].

#### 4. CONCLUSION

In order to better meet the needs of ideological and political education in higher vocational colleges under the new situation and overcome the problems of lagging information feedback in ideological and political education in higher vocational colleges, an evaluation model of ideological and political education reform based on SVM is designed. The model can accurately present the correlation between reform objectives and evaluation results, with fast evaluation rate and strong practicability. By building a large log database based on user news, introducing the improved support vector machine algorithm and integrating it into the early warning classifier to establish a dynamic early warning model for ideological and political education, the personalized ideological and political education programs in colleges and universities can be realized. However, this method considers few factors in the evaluation index construction, and the number of index items needs to be increased to further improve the utility of the evaluation model.

#### REFERENCES

- [1] Bibo Hu,Wentao Zuo, Liang Wang. Thinking on Deepening undergraduate Education in the New Era under the ideological and political background [J]. Industry and Technology Forum, 2022,21 (05): 115-116.
- [2] Jiayang Sun . Innovation Analysis of Ideological and Political Education of Higher Vocational Students in the Era of Big Data [J]. Liaoning Higher Vocational Journal, 2022,24 (02): 90-94.
- [3] Chuan Li,Wei Huang,Wei Sun,Huan Hao. A multi-source situation data association method using SVM classification [J / OL]. Telecommunications technology: 1-4 [2022-03-21]. <http://kns.cnki.net/kcms/detail/51.1267.TN.20210124.1018.002.html>
- [4] Feihong He,Qingsong He. Research on Personalized Service of Ideological and Political Education in Universities in the Era of Big Data [J]. Chinese Journal of Multimedia and Network Teaching (Chinese Ten Journal), 2022 (01): 148-151.
- [5] Kun Li. The Evaluation Model of College Ideological and Political Education Reform Based on SVM [J]. Automation Technology and Applications, 2021,40 (12): 164-167.
- [6] Gang Wang . Research on Student Behavior in the Second Class of Ideological and Political Education Evaluation [D]. University of Electronic Science and Technology, 2021.DOI:10.27005/d.cnki.gdzku. 2021.000085.
- [7] Weihua Xi. Research on Dynamic Early Warning System of Ideological and Political Education Based on Improving SVM algorithm [J]. Microcomputer applications, 2020,36 (09): 27-31.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

