



Analysis and Research of Emotional Education on College Students' Education Management Under Data Mining Technology

Xiangzhou Liu^(✉) and Zhang Chen

Yunnan College of Business Management, Yunnan 650106, China
liuxiangzh365@aliyun.com

Abstract. In the traditional college education management mode, more attention is paid to and reliance on system management. On the one hand, system management promotes the standardization and institutionalization of student education management, and is a solid fortress of education management; On the other hand, simple system management is easy to make management work in trouble, so we should pay more attention to the artistry in the process of management work. Under the background of the increasing pursuit of humanistic care in contemporary education, the intervention of emotional education can be said to be an essential lubricant in the educational management of college students. Moving with emotion and convincing with reason, based on data mining technology, through emotional communication and exchange, open the psychological gate between teachers and students, and use the means of emotional education while implementing system management, which will achieve fruitful results.

Keyword: Emotional education · Data mining · Student education management · Emotional needs

1 Introduction

At present, the situation faced by colleges and universities is undergoing extensive and profound changes. Contemporary college students who are receiving higher education are the pillars of the country in the future. Their quality will be directly related to the development of China's socialist modernization and the great rejuvenation of the Chinese nation. China's Higher Education Law stipulates that the task of China's higher education is to cultivate senior professionals with practical ability and innovative spirit, develop socialist science, technology and culture, and promote the development of socialist modernization. College student education management is an important part of realizing the goal of talent training in Colleges and universities, and plays an irreplaceable role in the reform and development of higher education [1]. College student education management reflects the school spirit and appearance of a school, and is an important symbol of the level of school management. How to make the education and management of college students scientific, institutionalized and legalized, and then cultivate a large number of

excellent college students and qualified talents of socialist modernization is an important topic in the current management research of colleges and universities.

The so-called emotion, in short, is a kind of psychological reflection produced by people in the process of cognition of objective things. Emotional education is to educate and infect students with emotion on the premise of fully exploiting this psychological reflection. It is the so-called “appeal to reason, appeal to emotion” and “appeal to people with emotion, convince people with reason” [2]. The process of emotional education is the blending and perception of mind and soul, the spiritual dialogue between teachers and students, and the common reflection and exchange of objective things between teachers and students.

If management is a science, then teaching management can be said to be an application of this science and the practice of management science; If education is an art, then emotion will make this art more personified. Perhaps, in many cases, we will think that emotion is the means for literati to play by emotion, the only way to carry out ideological and political education, and the research category of pedagogy and psychology. However, to some extent, the use of emotional education in teaching management is of great benefit, and it is worth our in-depth discussion.

Bai Juyi once said, “No one can move the heart without first feeling”. It can be seen how important emotion is in the communication between people. If education is an art, I think it is an art that makes people feel happy physically and mentally. Otherwise, there will be communication barriers between educators and educatees. So how to eliminate this obstacle? The answer is to be “emotional”. The answer is simple, but the implementation is not simple.

The people-oriented quality education focuses on the common development of students, teachers and schools, which requires us to look at quality education from the perspective of development. In the process of education, we should respect personalized development and strive to provide students with time and space for independent learning and innovation. This process needs to be realized by emotional education. Get closer to students, more in-depth and more understanding, and impress students with the truth.

In the past, teaching focused on examination. Teaching management often directs the teaching work of the school around this focus. The teacher takes the examination goal as the teaching goal, and the students mechanically accept the book knowledge. There is a lack of communication between the teacher and the students, let alone the blending of mind and soul. The emotional closure between teachers and students directly restricts the development of emotional education [3]. This has led to the educational phenomenon of “high scores and low abilities” and “high IQ and low quality”. Compared with exam-oriented education, the former is a new teaching mode. It aims at improving the overall quality of people and looks at the future education trend from the perspective of development. From the actual needs, comprehensively improve the quality of students. For students, it is particularly important to cultivate their self-esteem, self-improvement, enterprising and other good psychological qualities in terms of cognition, emotion and interest, and emotion is the most active factor in psychological quality. Therefore, teachers should update their ideas, especially teaching managers, and should step out of the past exam-oriented education model and use emotional education for teaching management.

The teaching process is a bilateral activity process between teachers' teaching and students' learning. In this process, teachers are guides and students are subjects. How to give full play to the role of the guide and the main body, make teachers happy to teach and students happy to learn, so as to obtain the effect of happy teaching, in which emotional education plays a link role [4]. The infection and incentive function of emotional education in teaching management cannot be erased. Perhaps when it comes to education, people first think of the tangible results of "preaching, teaching, and dispelling doubts", while ignoring the intangible teaching management process. However, teaching management is the top priority of all school work. Only by doing a good job in teaching management can we ensure the scientific and orderly progress of education. So, how to do a good job of teaching management under the people-oriented education concept? Emotional education is obviously an effective catalyst.

In the process of teaching management, if divided, there are both pure teaching and pure management. The former can be attributed to the teachers and the latter to the head teacher. However, no matter what kind of emotion, it is inseparable from the bond that maintains the relationship between teachers and students. Of course, perhaps pure teaching is only for the so-called "preaching, teaching, and dispelling doubts", which seems to be realized independently without emotion. However, the management of the head teacher cannot be separated from emotional education in any case. Because the work of the head teacher is the work of love and emotion. If it is separated from emotional education, the work of the head teacher will look pale. Then, let alone the teaching management staff who focus on both teaching and management, emotion is undoubtedly the link in their work.

Emotional education, as a unique educational concept, its development and context trend are also very different from other educational concepts, and it is generally believed that the corresponding is cognitive education. Emotional education is to comprehensively form an internalized self-ability through the learning of various knowledge, so as to achieve the purpose of cultivating college students to form correct value feeling and emotional experience [5]. Educators need to strive to make college students have emotional identity in the process of education and teaching and management, draw nutrition from it, and finally turn it into their own ideals and beliefs, so as to promote their healthy growth and all-round development. Therefore, based on data mining technology, this paper analyzes and studies the emotional education on the educational management of college students.

2 Data Mining Technology

2.1 Overview of Data Mining

Data mining (DM) is a decision support process. It is mainly based on artificial intelligence, machine learning and statistical technology. It highly automatically analyzes the original data of enterprises, makes inductive reasoning, excavates potential patterns, and helps decision makers make correct decisions. It is generally believed that data mining is a link of knowledge discovery KDD in database. It is the most important step to automatically and efficiently extract useful patterns from data by using specific data mining algorithms in KDD.

For document m , the number of topics is K , and the probability distribution of the n th word $w_{m,n}$ in document m is expressed as follows:

$$\mathbb{P}(w_{m,n} | \mathbf{m}) = \sum_{k=1}^K \mathbb{P}(w_{m,n} | z_{m,n} = k) \mathbb{P}(z_{m,n} = k | \mathbf{m}) \quad (1)$$

The process of generating a document according to the LDA model. For document m , the probability model of generating the document is expressed as follows:

$$\mathbf{P}(t_m, z, w | \alpha, \beta) = \mathbf{P}(t_m | \alpha) \prod_{n=1}^N \mathbf{P}(z_{m,n} | t_m) \mathbf{P}(w_{m,n} | z_{m,n}, \beta) \quad (2)$$

The formula can be obtained by integrating the formula twice:

$$\int_{m=1}^M \mathbf{P}(t_m, z, w | \alpha, \beta) d_{t_m} = \int_{m=1}^M \mathbf{P}(t_m | \alpha) \prod_{n=1}^N \mathbf{P}(z_{m,n} | t_m) \mathbf{P}(w_{m,n}, \beta) d_{t_m} \quad (3)$$

The LDA model formula of the whole document set is obtained:

$$\mathbf{P}(\vec{z}, \vec{w} | \alpha, \beta, q) = \int_{m=1}^M \mathbf{P}(t_m | \alpha) \prod_{n=1}^N \mathbf{P}(z_{m,n} | t_m) \mathbf{P}(w_{m,n} | z_{m,n}, \beta) d_{t_m} \quad (4)$$

The LDA model should achieve the purpose of extracting document topics through continuous iteration to convergence. Gibbs sampling has greater usability because of its simple process of training the LDA model and its ability to converge to the global optimum.

$$\mathbf{P}(z_i = k | z_{-i}, w) - \mathbf{P}(z_i = k, w_i = t | z_{-i}, w_{-i}, w_{-i}) \quad (5)$$

Emotional analysis, also known as opinion mining, for its definition, some researchers believe that text emotional analysis is the process of analyzing, processing, summarizing and reasoning subjective texts with emotional colors⁴. Some researchers also believe that text emotion analysis is the process of mining and analyzing the subjective and objective, viewpoint, emotion and polarity of the text through computing technology to classify and judge the emotional tendency of the text [6].

Large scale data set is the research object of data mining, which is vividly described as “the source of knowledge”. It can be structured, such as data in relational database, or semi-structured, such as text, graphics, image data, and even heterogeneous data distributed on the network. Data mining technology is application-oriented. It makes micro or macro statistics, analysis, synthesis and reasoning on specific data to guide the solution of practical problems, attempts to find the relationship between events, and even uses the existing data to predict future activities. In this way, it improves people’s application of data from low-level end query operation to providing decision support for business decision-makers at all levels [7]. It should be pointed out that the knowledge mentioned here is relative. It should be oriented to specific fields and have practical application value under specific preconditions and constraints [2]. At the same time, it should be easy to be understood by users, and can even be expressed and described in natural language.

2.2 Data Mining Process

Nominal attribute: its value is the name of some symbols or things. Each value represents a certain category, code or state, so the nominal attribute is also regarded as classified. These values need not have a meaningful order. In computer science, these values are also regarded as enumerations. It is meaningless to find the mean or median in the nominal attribute, while the mode is meaningful. **Binary attribute:** It is a nominal attribute with only two categories or states: 0 or 1, where 0 usually indicates that the attribute does not appear, and 1 indicates that it appears. Binary attribute is also called Boolean attribute. If the two states correspond to true and false. **Ordinal attribute:** there is a meaningful order or rank evaluation between its possible values, but the difference between successive values is unknown [8]. The central trend of the ordinal attribute can be expressed by its mode and median (the median of the ordered sequence), but the mean value cannot be defined. **Numeric attribute:** The numeric attribute is quantitative, that is, it is a measurable quantity, expressed as an integer or a real value. The numeric attribute can be interval scaled or ratio scaled. (1) **Interval scale attribute:** measure in equal unit scale. The values of interval attributes are ordered and can be positive, 0 or negative. Therefore, in addition to the rank evaluation of the value, this attribute allows us to compare and quantitatively evaluate the difference between the values. (2) **Ratio scale attribute:** numeric attribute with fixed zero point. In other words, if the measurement is scaled by ratio, we can say that one value is a multiple (or ratio) of another [9]. In addition, these values are ordered, so we can also calculate the difference between values, as well as the mean, median and mode. The definition is always smelly and long, not as simple as the summary of symbols and tables, as shown in Fig. 1.

- The type of an attribute depends on which of the following properties it possesses:
 - Distinctness: = ≠
 - Order: < >
 - Addition: + -
 - Multiplication: * /

 - Nominal attribute: distinctness
 - Ordinal attribute: distinctness & order
 - Interval attribute: distinctness, order & addition
 - Ratio attribute: all 4 properties

Fig. 1. Quantitative value attribute

Data mining is a multi-stage data processing process, which mainly includes the following steps:

Step 1: understand the knowledge of application field. Before starting knowledge discovery, the first and most important thing is to understand your data and business problems.

Step 2: data integration and data cleaning. Data integration combines the data of multi file or multi database operating environment related to the research problem. Data cleaning solves the semantic fuzziness in the data, corrects inconsistencies, and deals with omissions, noise and dirty data in the data.

Step 3: data reduction and preprocessing. Data reduction will get the compressed representation of the data set [10]. Mining on the reduced data set will be more effective and produce the same or almost the same analysis results, so as to improve the quality of data mining. Preprocessing is to organize and arrange the data orderly according to a specific algorithm.

Step 4: select data mining function. Select the corresponding mining functions according to the needs of mining tasks, such as classification, clustering or association rule mining.

Step 5: select the appropriate data mining algorithm for data mining.

Step 6: model evaluation. Evaluate the mined patterns, visualize, transform and express knowledge.

Step 7: expression of knowledge.

Figure 2 shows the basic process of data mining.

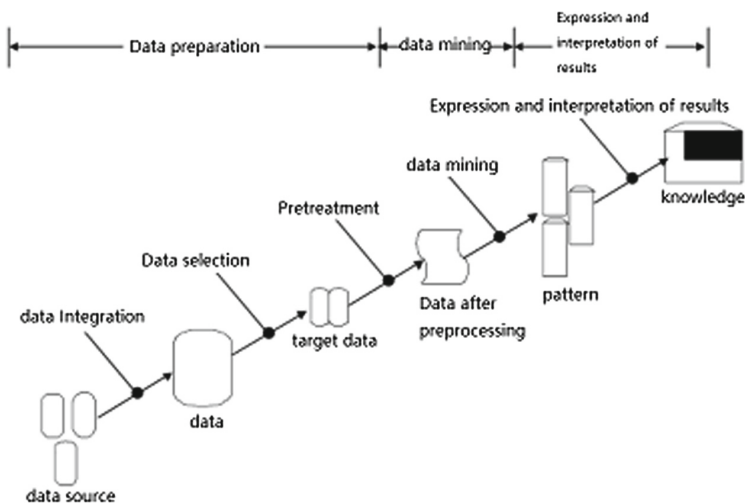


Fig. 2. Data mining process

3 College Student Education Management

3.1 Visualization of Emotional Analysis Results

After the emotional analysis results are obtained, the analysis results should be displayed by visual means such as charts, so as to provide decision support services for users or enterprises.

Considering the quantity of online course text data and the accuracy of the experiment, the method of emotion dictionary is used for emotion analysis, which mainly depends on the number of positive and negative emotion words in the sentence to calculate its overall emotional tendency. Considering the influence of degree adverbs and negative words in sentences, the basic calculation formula is as follows:

$$E_s = \sum_{i=1}^n Q_{w_{ai}} * Q_{w_{bi}} * W_i \quad (6)$$

In formula (6), E_s It represents the final emotional polarity of the sentence, n represents the number of emotional words in the sentence, W_i represents the extreme strength of emotional words, w_{ai} represents the weight of degree adverbs, w_{bi} represents the weight of negative words.

Generally, the data encountered in the actual experiment process will have the difference between structured data and unstructured data. Structured data such as students' education background, height, etc., unstructured data such as students' text profiles, published discussion content, etc. Structured data can be used after vectorization, while unstructured text data often needs to be analyzed and processed by vector space model to obtain feature representation before it can be used [11]. When the data to be processed is text data, the feature extraction of text resources, The commonly used TF-IDF (term frequency-inverse document frequency) algorithm is implemented by extracting the n keywords with the highest weight and calculating their weights. The weight calculation formula is as follows:

$$Q(w, t) = \text{tf}(w, t) * \log(n_w + \beta) \quad (7)$$

where $Q(w, t)$ represents the weight of word w in text t , $\text{tf}(w, t)$ represents the word frequency of word w in text t , n represents the number of texts in all training sets, and n_w represents the number of texts in which word w appears in the training set, β As an empirical value, the general values are 0.01, 0.1 and 1

According to the constructed content feature vector, learn the user's preference features to construct the user feature vector. The commonly used learning algorithms include DT, KNN, NB, Rocchio algorithm, etc.

According to the content feature vector and user feature vector obtained from the analysis, the matching degree is calculated using cosine similarity, Pearson coefficient and other methods, and the top N items with the highest matching degree with users are recommended to users.

3.2 Definition of College Student Education Management

College student education management is a kind of student education management. Student management, also known as student affairs management, refers to the organizational

activities to promote the all-round development of students by guiding, standardizing and serving students. Student management can be divided into broad sense and narrow sense. The broad sense of student management is what we usually call student work, including ideological and political education, student affairs management, student work technology and methods, student work assessment and evaluation, student growth and development guidance and so on [12]. In a narrow sense, student management refers to the content of student affairs management. It focuses more on some daily affairs than thematic and developmental education, that is, class construction and management, freshman enrollment management, safety guidance and management, student rewards and punishments, loan assistance, dormitory management, employment guidance, career development services, etc. College student education management is an important part of college management. The level and quality of college student education management are directly related to the quality of talent training, the reform and development of colleges and universities, and the establishment of social image of colleges and universities [13]. Therefore, it is the mission and obligation of colleges and universities entrusted by the times to do a good job in the education and management of college students.

According to China's regulations on the administration of students in Colleges and universities, the educational management of college students refers to "Colleges and universities should focus on cultivating talents, follow the national educational policies and educational laws, and constantly improve the quality of education; run the university according to law, strictly manage, improve and perfect the management system, and standardize the management behavior; combine management with strengthening education, constantly improve the management level, and strive to cultivate qualified socialist builders and reliable successors."

3.3 Principles of College Student Education Management

The coordinated operation and effective management of college student management should follow the following principles:

- (1) The principle of practicality. The principle of practicality is to make the education and management of college students proceed from reality and integrate theory with practice. Therefore, the key to the education and management of college students is to proceed not only from the actual situation of the school, but also from the actual situation of students [14]. By proceeding from the reality of the school and students, decompose the functions of student education and management, and establish and improve the education and management of college students. The organization of education management, determine the objectives of student management, and study the ideal mode, system and means of college student education management.
- (2) Institutionalization principle. The institutionalization principle requires university student workers to formulate and apply various systems for student education and management according to the relevant national laws and regulations, combined with the training objectives and school running style of colleges and universities, so as to make the education and management of college students have rules to follow. The student education and management system of colleges and universities mainly includes the laws and regulations formulated by the state and formulated by the

University Formal management system and informal system, etc. both formal system and informal system are good experience summary and accumulation in all aspects of colleges and universities, and become rules that people consciously abide by [15]. The institutionalized principle is an inevitable requirement for the order and efficiency of student management. Only through institutionalized management can we continuously promote the order, effectiveness and science of student education management Sex.

4 Implementation and Application of Emotional Education in College Student Education Management

- (1) To go deep into students' hearts and accurately understand students' emotional needs, we must fully love and trust students

To fully understand and master the ideological and emotional dynamics of students, we must first fully respect, love and trust students, and treat them sincerely with a frank attitude, which is the basic criterion that students' education managers should follow. According to Maslow's theory of psychological needs hierarchy, we know that love, respect and trust are what students want to be satisfied in their communication with teachers. Students hope to thrive in an environment surrounded by love, respect and trust [16]. Students' education and management workers need to understand and study students' individual moral quality, academic performance, interests and hobbies, personality characteristics, family background and social growth environment. They should be able to go deep into students' groups and be good at exchanging ideas with them, Communicate feelings and care about their daily life, learning status and mental status. If student workers can treat students with heartfelt love and trust and have friendly and deep conversations with students from the bottom of their hearts, students will regard you as a close friend and open their hearts to you unreservedly, so that you can find the best education method [17]. As an education management worker The author should be aware of "teaching without class" We should be good at discovering the advantages and strengths of each student, give praise and affirmation when we see their bright spots, encourage them to cultivate self-confidence, and guide students to move forward on the right track of life development. On the premise of fully loving and trusting students, the management mode of emotional education will achieve good results Effective.

- (2) To go deep into the hearts of students and accurately understand their emotional needs, we must treat students sincerely. As a student education manager in Colleges and universities, we must pay sincerely, make sincere dedication, and think for students wholeheartedly. The starting point and foothold of our work should be on the sincere care and help to students [18]. We must strive to guide them to grow up and become talents on the road of life, and we will win students. Students' education managers must go deep into students' lives, not only understand their learning and living conditions in time, but also fully master their daily life habits and strive to become their life mentor and close friend. Students' education managers should be good at heart to heart talks with students, and properly choose the way/skill and attitude of heart to heart talks, so as to create a kind of integration [19]. The atmosphere of conversation enables teachers and students to open their hearts and talk freely with

a relaxed attitude. On the basis of full conversation, conduct comprehensive analysis and research, so as to achieve targeted, practical guidance and help students. Student education managers must be mindful of students, sincerely make unremitting efforts for their interests, be able to understand students' difficulties, and do not seek complete blame and boast about them. Fault finding. We should be able to make good use of the two different educational means of criticism and praise to enable students to grow and improve. Students who occasionally make small mistakes can be handled with a generous attitude on the premise of not violating the seriousness of rules and regulations, so that they can understand their mistakes through reflection and avoid repeating them in the future. Once they find the bright spots on students, they should be affirmed and praised [20] And encourage them to perform better in their future work. When students encounter difficulties in life or emotional fluctuations, they should be able to find them in time and help them tide over the difficulties. In particular, they should be given strong enough spiritual support and encouragement, and continue to give them correct guidance, so that they can find the right way to solve problems, so as to improve students' adaptability. The ability to study, live and work in school.

5 Conclusion

To sum up, emotional education is a contemporary interdisciplinary education mode, and an important means for college education managers to give full play to their personality charm and creatively use the art of management in their work. Emotional education can be said to be an important supplement to college system management education and an important guarantee for the smooth development of system management. College education management. Only by working hard to create a harmonious, harmonious and pleasant working atmosphere, let students study and live in a relatively loose environment, and properly organize some lively and rich amateur activities. Through the development of various recreational and sports activities and competitions, everyone has the opportunity to display their talents and enhance individual self-confidence and collective return. Emotional education is an important means that can not be ignored in the education and management of college students. Only by making rational use of institutional education and emotional education can the education and management of college students be carried out smoothly.

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