

The Educational Concept of Adolescent Mental Health in Colleges and Universities Based on Multimedia Big Data

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Abstract. College students have developed mature self-awareness and psychological abilities, but it is undeniable that their mental health is facing enormous challenges. During a critical period of personal development, how university teachers and their related workers construct mental health education determines whether they can help students overcome many challenges and cultivate their strong psychological abilities. By preprocessing the data and utilizing the matrix based Apriori algorithm to mine the relationships between psychological dimension factors, association rules are obtained. In this regard, the core of positive psychology, the concept of building an independent college mental health education model, has become a problem. All colleges and universities attach great importance to the current situation. All colleges and universities are committed to studying effective optimization strategies to help improve the mental health education model.

Keywords: Big data; Innovative education; Mental health; Educational concept

1 Introduction

With the development of information technology, mobile phones have become a necessary tool for college students to stay with them. Sleeping late and playing games have become the norm, which has caused some college students to lose their rules in their study and life. According to a national survey of 126,000 college students, 20.3% of them have different degrees of psychological barriers. The number of college students who have dropped out of school because of various psychological diseases has accounted for about 50% of the total number of students who have dropped out of school, and a considerable proportion of them have psychological problems such as interpersonal relationship, environmental adaptation, emotional obstacles and anxiety[1]. At the same time, with the rapid development of the internet, college students gradually appear role dislocation, and interpersonal relationship has become "man-machine" communication; The imbalance of personality structure forms a "digital" personality disorder; Moral self-discipline began to weaken, and slowly began to lose themselves; How to improve students' positive attitude from the perspectives of mental health, legal consciousness and public morality and morality is a problem that universities should take seriously at present[2]. College students majoring in mental health must proactively face the opportunities and challenges brought by Big Data and make use of all Big Data. Colleges and universities should use big data to develop mental health services and improve the mental health of Chinese college students (Figure 1).

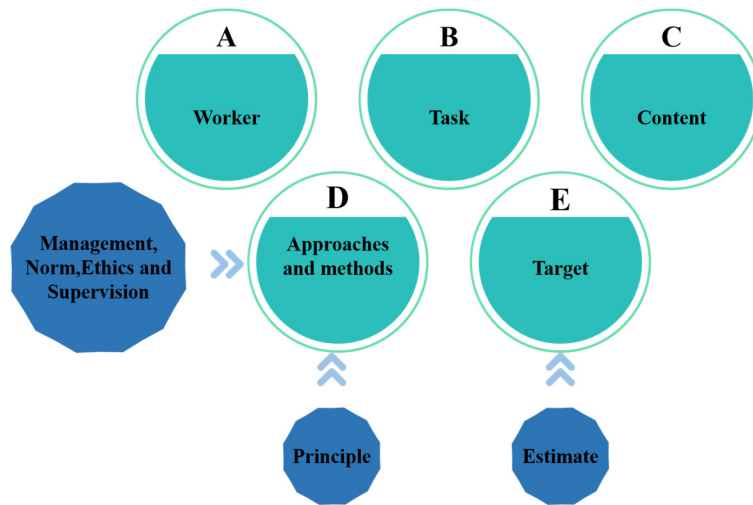


Fig. 1. Innovation of College Students' Mental Health Education

2 Innovative strategies for mental health education

2.1 Enhance students' initiative in the education process and help students establish a sense of ownership.

College students are an important force in the use of new media and an important group to accept and spread new things. In the era of big data, the convenience of new media carriers enables college students to obtain different levels and different needs of new media usage at any time and place, to search for various learning resources such as pictures and videos in a relaxed and free communication environment, and to make scientific and reasonable adjustments according to their diversified needs, and to publish their unique opinions on the multimedia platform[3]. Because of the equal interaction of new media and many-to-many education methods, students' enthusiasm for participation has been improved, so educators should also guide students to actively explore the content of mental health education in combination with students' differences. Through emotional communication between teachers and students, helping students to establish a dominant position in the classroom will help students enhance their sense of ownership[4].

2.2 Enhance the interest and application of psychological education classroom, and enrich the teaching content.

Because the new media itself stores more information and data, its resources are extremely rich, and its dissemination is also very fast. For mental health educators, it provides a lot of real materials for mental health education. Therefore, mental health educators can effectively collect knowledge materials and teaching contents in a short time, and sort out relevant typical cases, update the curriculum resource database, sort out new media that students often pay attention to, and integrate fresh cases into the classroom teaching process to make the classroom content more convincing[5]. Incorporating mental health activities into the classroom can contribute to classroom improvement and help create a strong foundation for mental health education in

students' minds, and teachers can avoid advocacy and advocacy. Bring goals and specific psychology lessons. At the same time, the use of new media can create communication between teachers and students and between students and students [6]. Also, teachers can communicate with students on the Internet in their own capacity, listen to their voices and needs, understand their real feelings, make educational plans, and improve the effectiveness and efficiency of teaching.

2.3 Psychological evaluation system for college students

Most decision tree algorithms use top-down recursion to generate decision trees. The first step is to determine the split attribute, use it as the root node, create branches according to the different values of the attributes, and divide them into different subsets accordingly. The second step is to recursively call this method for the subsets on each branch, and then branch until only the subsets of the same type of samples are included, thus completing the construction of the decision tree and generating the decision tree classification model. New samples can be brought into the model for classification. A classification rule is a path from a root node to a leaf node[6].

How to split samples on a given node is determined by splitting rules, also known as attribute selection metrics. The ID3 algorithm uses information gain as a splitting rule. Information gain tends to select attributes with more attribute values, but sometimes attributes with more attribute values have no specific classification significance, such as student ID. The C4.5 algorithm improves on this and uses the gain ratio as its splitting rule instead[7].

The expected value required for the classification of samples in A can be obtained from the following Formula (1).

$$\text{Info}(D) = - \sum_{i=1}^m \frac{|C_{i,D}|}{|D|} \log_2 \left(\frac{|C_{i,D}|}{|D|} \right) \quad (1)$$

Info(D) is also known as entropy, it is used to measure the degree of chaos in the system.

This leads to the following Formula (2).

$$\text{Info}(D) = - \sum_{i=1}^m \frac{|C_{i,D}|}{|D|} \log_2 \left(\frac{|C_{i,D}|}{|D|} \right) \quad (2)$$

The amount of entropy reduction due to the attribute A can be given by the following Formula (3):

$$\text{Gain}(A) = \text{Info}(D) - \text{Info}_A(D) \quad (3)$$

The information gain rate of the attribute is defined as the following Formula (4):

$$\text{GainRatio}(A) = \frac{\text{Gain}(A)}{\text{Splitinfo}(A)} \quad (4)$$

GainRatio(A) represents the data generated by dividing the training sample set by the behavioral test value plot. Its formula is similar to Data(D) [8].

The general concept of the psychological assessment process for college students is based on the

standard process method, which is divided into three layers: presentation process, layer business, and layer layer, as shown in Figure 2.

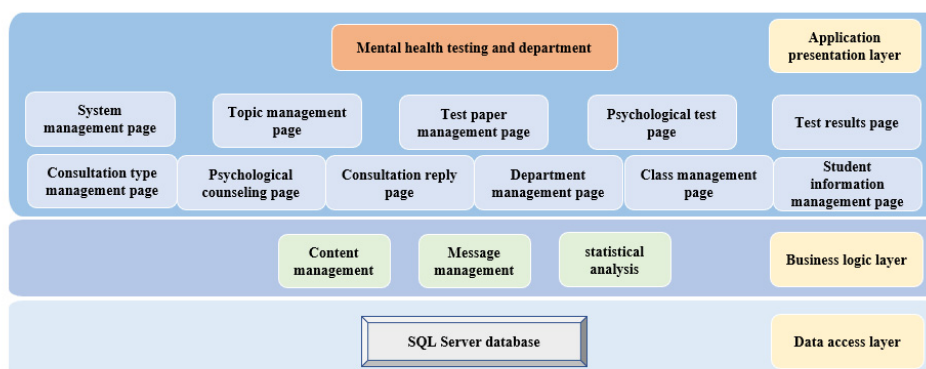


Fig. 2. Overall system architecture diagram

3 Application of innovative education model in adolescent students' sexual mental health education

3.1 Experimental subjects

Subjects: 300 students who graduated from junior high school and passed the examination and are admitted to vocational secondary schools, half male and half female, aged 14-15, healthy, with no relevant education history and self-reported asexual contact history.

3.2 Methods

Students are randomly divided into blank group, control group and experimental group, with 50 students as an experimental unit (half male and half female) and 100 students in each group. All students are tested in the form of examination at the same time (full score: 100). Then, the blank group won't have sex education, while the control group and the experimental group used traditional classroom-based sex psychological education and innovative psychological education, both of which lasted for 2 class hours. Then, the above groups used the same method to test the sex psychological test table II (full score: 100). The measurement data are expressed by $(\bar{x} \pm s)$, and the self-paired t test is used, and the counting data is tested by four-grid table 2. $P < 0.01$ was the significant difference[9-10].

4 Results

The changes of sexual psychological evaluation scores of 300 students before and after education are shown in Table 1.

Table 1. 240 students Change in performance ($\bar{x} \pm s$)

Group indication	Number of people	Pre-intervention mean scores	Post-intervention mean school scores
Blank group	80	45.2 \pm 8.34	50.1 \pm 7.02
Control group	80	48.3 \pm 9.12	70.8 \pm 10.2*
Experimental group	80	46.9 \pm 8.65	95.4 \pm 12.5*

The difference between the control group and the experimental group in the improvement rate of sexual psychological evaluation results is shown in Table 2.

Table 2. Results of control and experimental groups The difference in the improvement rate, n (%)

Group indication	Achievement improvement	The results did not improve	Amount to	The increase rate is (%)
Control group	77(66.45)	3(13.55)	80	96.3*
Experimental group	61(52.64)	19(27.36)	80	76.3
Amount to	138	22	100	86.3

The above results show that sex education can obviously improve the cognitive level of adolescent students' sexual mental health, while teenagers can't master the above knowledge completely and accurately through their own learning and understanding, which is not conducive to the construction of sexual mental health. At the same time, it also shows that the "innovative" education mode is obviously superior to the existing classroom preaching mode in terms of educational effect, and the students' psychological cognition is obviously improved.

"Innovative" education model is an ideal health education model popular in Europe and America. It has been widely used in China in recent years, and its distinctive features are also very suitable for sexual mental health education. Sexual psychological health education is a special and sensitive subject. Facing simple adolescent students, its contents and methods must be scientific and advanced, otherwise it will bring a series of negative effects and affect the actual effect and social recognition of sexual psychological education. In the past, due to the interference of many factors, the methods of sexual psychological education often just stayed on the surface, thinking that students could master it by reading books themselves, or the methods were blunt and preaching blindly, which could not resonate with young students under the new situation. The reason is that it is not based on students and "learning". The "innovative" education mode highlights the two characteristics of "communication" and "practice", allowing teachers to walk among students as the host. By flexibly using psychological methods and skills such as "communication", "guidance" and "regulation", students can give full play to their subjective initiative, self-discovery and self-exploration, and in the process of practical learning, they will have emotional resonance and stimulate strong learning enthusiasm. This learning process of psychological identity is the best teaching realm to achieve educational effectiveness. Another innovative performance of this model is to strengthen the evaluation measures of teaching effect, which can make scientific feedback evaluation in time, correctly reflect the students' cognitive improvement and exposed

problems, and quickly feed back to the teaching process, so as to continuously improve teaching activities.

5 Conclusion

In a word, mental health education in colleges and universities under the concept of positive psychology needs to update educational objectives, innovate teaching contents, establish diversified educational systems, update educational means, update educational models, expand educational channels, pay attention to the positive integration of individuals and the whole, respect students' enthusiasm, tap students' potential, awaken their love for life, and then get a better life. We believe that "innovative" teaching mode is an ideal method of sexual mental health education for adolescent students, and it should have more extensive application value.

Acknowledgment: Scientific Research Program of Wuhan Business University: A Study on the Ideological and Behavioral Characteristics and Educational Strategies of the Post-95s College Students (NO: 2017KY026)

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