

# Research on the Influence of Ideological and Political Education of Digital Virtual Simulation Technology on College Students' Health

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**Abstract:** With the advent of the information age, the teaching mode of schools has changed from offline teaching to online teaching, and online teaching has become the most important teaching method in various regions. During this period, the form and content of online education have been enriched and reached a new level. During the ideological and political education under the virtual simulation technology, students' mental health is more or less damaged. As young people in the new era, the quality of their healthy growth will affect national construction and national rejuvenation. At the same time, political curriculum also brings new development opportunities. Political curriculum is a necessary means to ensure the healthy growth of students. During online education, political courses can effectively improve students' discrimination ability and prevent the negative impact of information on students' health. However, due to the changes in the network environment, the quality of political courses is unstable, which indirectly affects the health of students. Therefore, this paper tries to build a new political curriculum system according to the actual learning environment under the digital virtual simulation technology, promote the healthy growth of students, and improve the political curriculum. Through the analysis of the effect of the political course through the random forest algorithm, the comprehensive quality of students in the virtual simulation technology has improved by about 6%. In short, ideological and political education under digital virtual technology can effectively improve students' health.

**Keywords:** Student Health, Innovative Ideas, Political Education, Digital Virtual Simulation Technology

## 1. Introduction

Virtual simulation technology can build political courses into a virtual learning environment, in which students can learn courses, which can not only improve students' learning efficiency, but also solve students' psychological problems. During the period of online learning, the political curriculum environment is changing constantly, affecting the healthy growth of students. During the university period, the sound development of students is essential, and it is very necessary to carry out political courses for students to ensure their sound development. The sustainable development of students puts forward new requirements for improving the influence of knowledge and political education.

Student health is an important topic of social discussion. Huang J used two repeated cross-sectional studies to compare the effects of student competitions and explored the impact of knowledge competitions on students' health literacy. The results showed that regular health literacy competitions could help improve these levels, especially for most non-medical students [1]. In order to determine students' personal hygiene knowledge and awareness, Al-Rifaai J adopted a multidimensional health assessment method and used self-administered questionnaires, in which hygiene questionnaires were an acceptable and reliable measure of students' knowledge and practice [2]. Liu X collected and organized two dimensional facts, and conducted a descriptive analysis of legal data, as well as analyzed the changes and impact in the mental health level of students with negative psychological symptoms after 2 years [3]. Parsons K recruited students via campus email, asked them to complete a food frequency

questionnaire that assessed fruit and vegetable intake, and compared differences in health behaviors between young adults with good health and those with average health [4]. Han P proposed a method for evaluating students' mental health status based on data reduction and support vector machine, and designed a model experiment that included the classification of internal and external personality tendencies, anxiety and depression dichotomy [5]. Wattick R A investigated how the Corona Virus Disease 2019 (COVID-19) pandemic was affecting students' mental health and alcohol consumption, and determined how resilience could mitigate negative consequences. The results showed that universities should prepare students for resilience training and provide employment opportunities [6]. Zimmermann M studied static and modifiable factors associated with psychological distress and control for pre-existing psychological distress [7]. The above studies have all analyzed the relevant influencing factors of students' health, but they have not been combined with political course.

Political course can help students shape a healthy outlook on life. Kai M analyzed the opportunities and challenges brought by network technology to students' political course through a questionnaire survey. Network technology provided a new educational concept and learning platform for students' political course, and promoted the improvement of students' ability [8]. Xu B believed that classroom teaching was the key to improving the effectiveness of political course, and the political course of engineering students must be combined with the overall education [9]. Li X expounded the meaning of the concepts of curriculum integration and innovative political course, and then focused on the dialectical relationship between them. The two should be made to work together to better accomplish the fundamental task of educating people [10]. Zhou J pointed out that the new media technology should be correctly recognized, and the various challenges faced by the ideological education in colleges and universities under the new media environment should be treated reasonably. The pulse of contemporary educational progress should be grasped in time, and the pace of social development should be closely followed [11]. Hu Z pointed out that the rapid development of the mobile Internet had a certain influence on the political course of students, and also had a certain impact on the concepts and models of traditional education, which was both an opportunity and a challenge for the political course of students [12]. From the perspective of ideological cognitive science, Yu C objectively analyzed the application and shortcomings of WeChat in political course in colleges and universities. On this basis, combined with the cognitive psychology of students, a strategy to improve the effectiveness of WeChat in political course in colleges and universities was proposed [13]. Na A analyzed the current situation of Chinese students' political course in the context of the Internet of Things, and found that the application of Internet of Things technology in education was mainly reflected in three aspects: classroom teaching, extracurricular learning and education management [14]. The above studies have described the specific role of political course, but they have not applied it to student health education.

Under the application of virtual simulation technology in political courses, schools are faced with the major task of ideological education for students. They must guide students to correctly understand the mission and responsibility of the times. The targeted and innovative political courses for students promote their healthy growth. During the online learning period, there was a deviation in the growth of students. Ideological and political education can promote healthy growth and the development of the times. In addition, schools should consider students' psychological characteristics, deepen political courses and strengthen students' social identity.

## **2. Relationship between Political Course and the Healthy Growth of Students and the Current Situation Evaluation**

### **(1) The role of political course on student health**

Political course has two effects on the healthy growth of students, as shown in Figure 1. First of all, the healthy growth of students is guided: Strong spiritual power plays a guiding role in the healthy growth of students. In political course activities, it is necessary to use the best spiritual resources in China to guide students to go deep into their hearts and achieve external goals in practice, so as to promote the healthy development of students' psychology and morality [15]. Secondly, it opens the main channel for the healthy growth of students: Combined with the characteristics of students entering the stage of social growth, political course focuses on playing a leading and stimulating role, and helps students get rid of the problem of "unemployed after graduation", as well as actively plays the role of talent incubation to cultivate students' professional awareness and promote students to enter the society healthily and steadily.

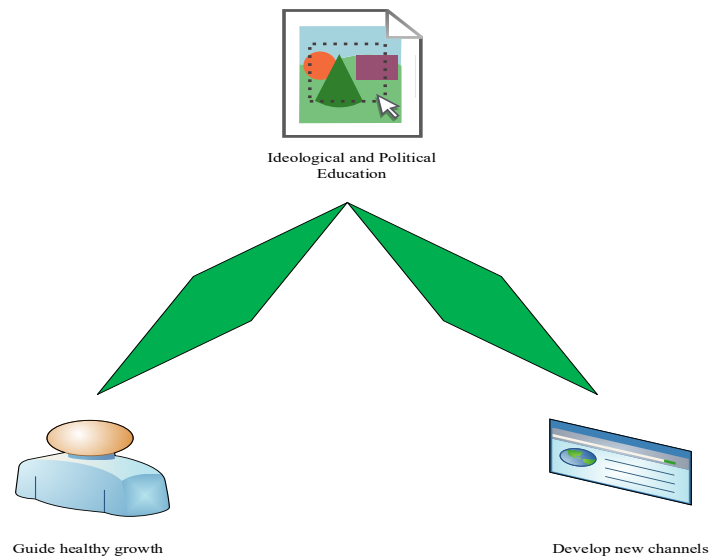


Figure 1: Effect of political course on college students' health

(2) The inner link between political course and student health

The link between political course and student health mainly consists of three parts, as shown in Figure 2.

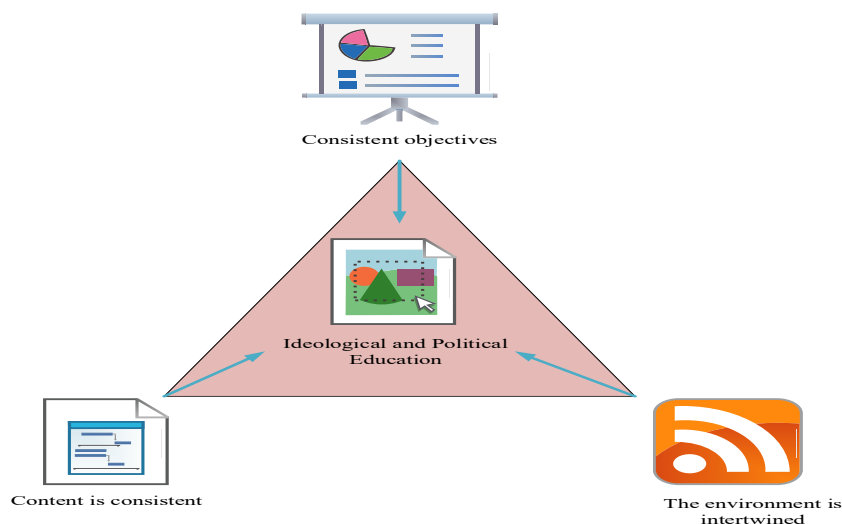


Figure 2: Internal relationship between political course and college students' health

1) The goal of healthy growth of students is consistent with the goal of political course

The all-round development of people is the fundamental goal of the healthy growth of students. political course is the fundamental guarantee for the general development of human beings and attaches great importance to improving the comprehensive quality of students. Therefore, it is necessary to ensure the healthy development of students and firmly establish the concept of health first [16]. The comprehensive development of students is an urgent prerequisite for their own healthy growth. Political course cultivates students' ideological and moral quality and improves their political quality. High-quality external study by students can enhance their ability to change the world to become active builders of the developmental needs of their homeland.

2) The characteristics of students' healthy growth are consistent with the content of political course

The characteristics of students' healthy growth enrich political course, and the content of political course must meet the basic requirements of students' healthy growth. The political course activities are continuous and synchronous, which takes into account the gradual characteristics of the growth of the student group and the individual differences of the students. The content of political course should adapt to the characteristics of the overall development level, and conform to the law of human growth,

as well as serve the fundamental goal of human healthy growth and comprehensive development to become a solid link. The effectiveness of education should be brought into full play, which plays an irreplaceable role in promoting the healthy growth of students.

3) Students' healthy growth environment and learning ideological and political environment are intertwined

Family education and school education are coordinated and unified, and school education and social education develop simultaneously. Family education and school education together constitute the micro-environment for students' growth, while social education is the macro-environment for students' growth [17]. They constitute the external environment for students to grow together, and focus on the overall and healthy development of people. Good family education is the foundation of school social education, and the quality of school education can be improved by promoting family education. The development of modern social pedagogy can provide elements of life and guarantee school and family education.

(3) The problem of healthy growth of students under political course

The problems existing in the healthy growth of students under political course mainly include the following three aspects, as shown in Figure 3. First, the ideological and political quality of some students should be improved: Some students do not have high-level thinking, so they must be motivated. The improvement of students' ideological and political quality puts forward new tasks for students' political course. Second, some students' moral quality is not high, and some students' spirit is not firm and they are afraid of difficulties and pain. As a result, they cannot make correct choices about group and individual relationships. Third, the psychological quality of some students is shocking. Some students have problems or setbacks in their studies, life, emotional development, employment, etc, but they are unable to resolve the setbacks.

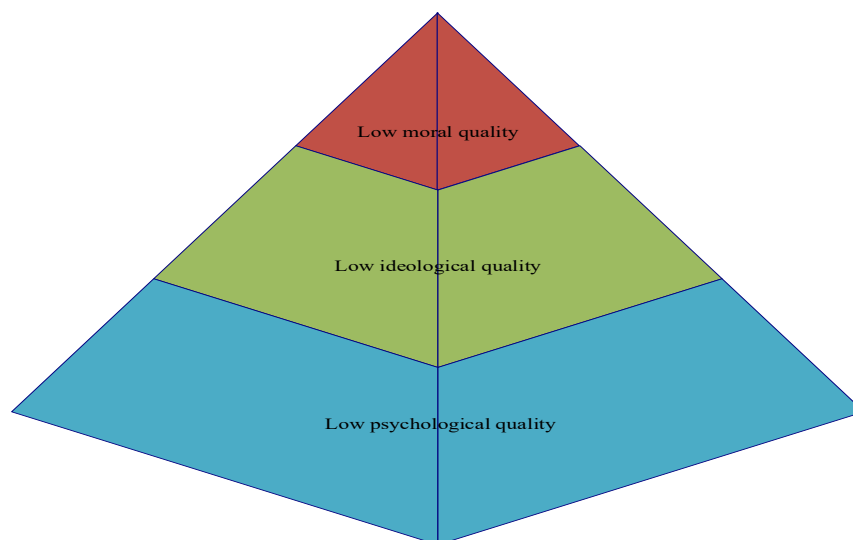


Figure 3: Problems of healthy growth of college students under political course

### 3. The Dilemma and Countermeasures of Students' Political Course under Digital Virtual Simulation Technology

(1) The influence of virtual simulation technology on students' political courses

Virtual simulation technology has a positive and negative impact on students' political courses, as shown in Figure 4. Virtual simulation technology can improve the efficiency of the course from a positive perspective. Virtual reality technology must be applied to the practical teaching of ideological and political courses. Teachers use their intelligent imagination and use virtual technology to create virtual learning scenes in virtual space. Scenes, events, and characters should attract students' feelings and experiences through virtual homework and practical learning activity scenes. Virtual simulation can play the main role of students. In the virtual learning environment, students' subjective skills can be more effective. Virtual simulation technology can also create personalized learning environment for

students. With the help of simulation technology, teachers design different virtual learning environments according to students' personal differences, meet students' various knowledge needs, and provide students with a comprehensive and personalized learning environment. On the other hand, the biggest obstacle to the widespread use of virtual reality technology is the technical defect of virtual modeling technology itself [18]. In order to introduce the field of virtual simulation, the support of virtual reality devices is needed. At present, the most common virtual reality device is earphones, which have low resolution in the market. It is difficult for users to obtain real image quality, and the update speed is also low, which not only affects the user experience, but also disturbs some users.

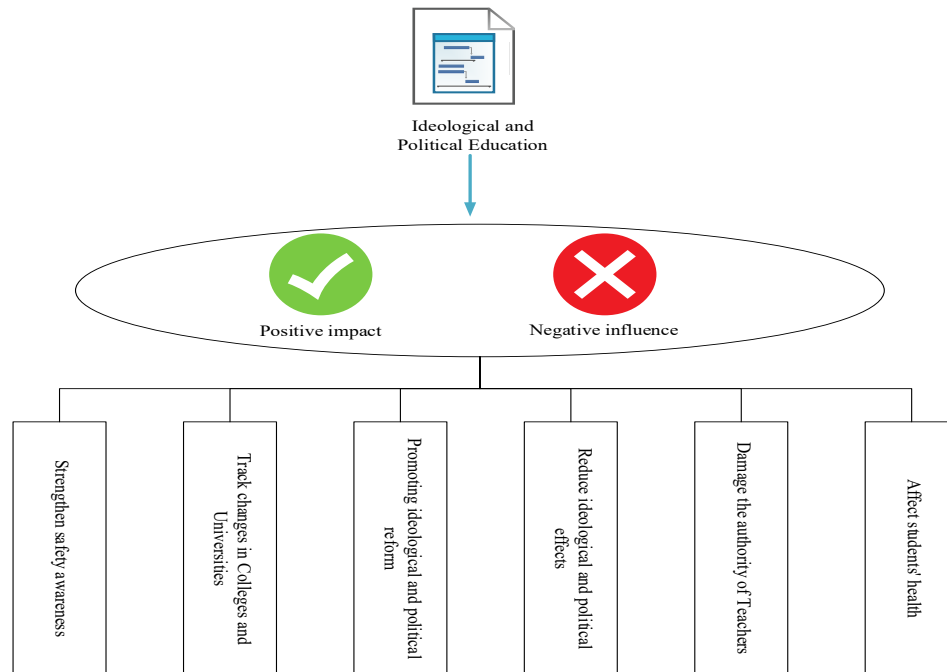


Figure 4: The influence of virtual simulation technology on students' political courses

## (2) The Dilemma of Students' Political Course under Virtual Simulation Technology

### 1) The network political course team is immature

Teachers should also have the ability to capture and filter as well as effectively process and transmit network information for students. In the future, educators would face enormous challenges in making the most use of online classrooms and addressing the lack of personal connection, and teachers should fully consider the plight of students when discussing important topics. The pre-class preparation work not only requires students to be informed in advance, but also should consider how to overcome the shortcomings of the network, so that students can be more active, flexible and easy to accept.

### 2) The discrimination of the objects of online political course is weak

The low level of network informatization and lack of information hinder the development of network political course. Students are constrained by the Internet information culture, and they usually lack the ability to distinguish between real and false information when they identify it. Due to the existence of invalid and bad information, it is easy to mislead students, which would lead to the failure of network ideological and political construction [19]. In addition, students' values and worldviews are not developed, and their political views are rather vague. Therefore, they are vulnerable to a decline in specific consciousness. To a certain extent, this weakens the students' national outlook and shakes their sense of national superiority and national pride.

### 3) The network political course environment is complex

With the development of virtual simulation technology, the new era of information and technology era has changed the production and lifestyle of people around the world, bringing innovation and challenges to education and learning methods. At the beginning of this century, with the development of hardware and software, the popularity of the new generation of information technology represented by virtual reality technology has expanded its influence to the field of education. These problems will lead to changes in the learning environment and, to a certain extent, affect the healthy development of

students.

### (3) The innovation of political curriculum model under virtual simulation technology

With the rapid development of digital virtual simulation technology, many schools have launched online teaching, but the effect of political courses is not obvious [20]. Therefore, this paper improves teaching methods, organically combines virtual simulation technology with political courses, deepens students' ideological and theoretical knowledge, and then uses the network platform to open a good course of ideological and political education, strengthen the management mode of political courses, strengthen home-school cooperation during online learning through various forms of ideological and political propaganda, to promote students' ideological quality and participate in virtual learning environment practice, thus promoting students' healthy growth, The specific mode is shown in Figure 5. In this learning process, students can better establish a scientific outlook on life, world and values by participating in novel, diverse and vivid practical teaching activities.

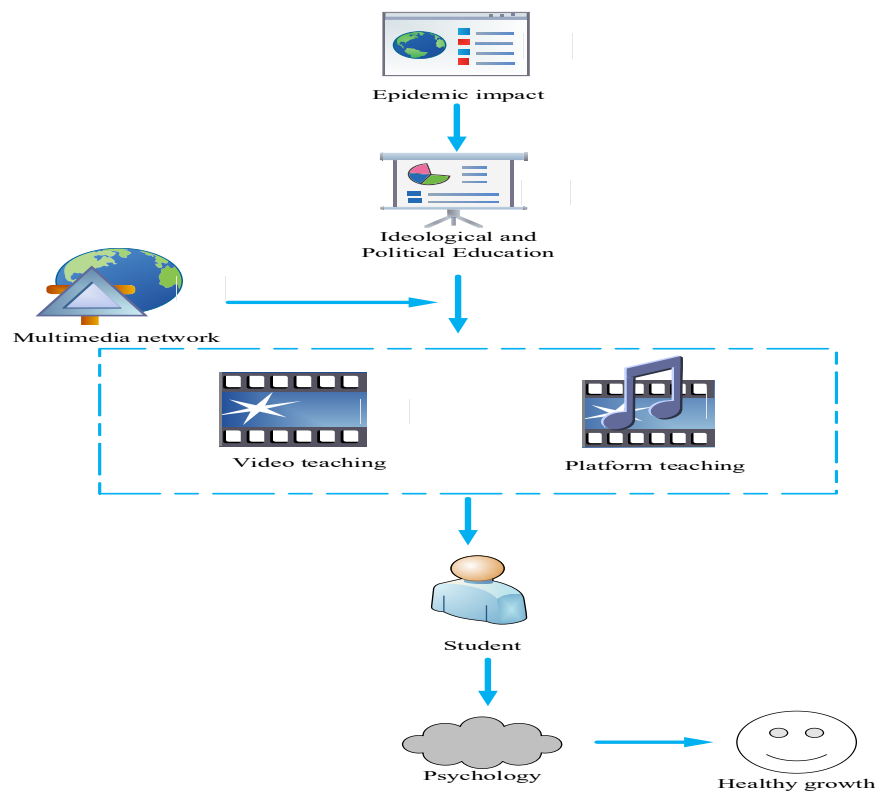


Figure 5: The innovation of political curriculum model under virtual simulation technology

## 4. Application Evaluation of Random Forest Algorithm in Innovative Political Course Model

In order to further explore the impact of innovative ideology and politics on students' health, this paper uses the random forest algorithm to evaluate and analyze it. Firstly, the degree of coordination of expert opinions is analyzed, and the sum of the grades is:

$$A_j = \sum_{i=1}^{m_j} X_{ij} \quad (1)$$

The arithmetic mean of the index level is:

$$B_j = \frac{1}{n} \sum_{j=1}^n A_j \quad (2)$$

The rank and mean difference sum of squares are calculated as:

$$\sum_{j=1}^n d_j^2 = \sum_{j=1}^n (A_j - B_j)^2 \quad (3)$$

Through calculation, the correction coefficient can be obtained as:

$$C_i = \sum_{i=1}^m (c_i^3 - c_i) \quad (4)$$

In the formula, m represents the same evaluation number, and the coordination coefficient is:

$$W = \frac{12}{x^2(y^3 - y) - y \sum_{i=1}^m C_i} \sum_{j=1}^n d_j^2 \quad (5)$$

Through the significance test of the coordination coefficient, the following formulas can be obtained:

$$\eta_R^2 = \frac{1}{xy(n+1) \frac{1}{y-1} \sum_{i=1}^m C_i} \sum_{j=1}^n d_j^2 \quad (6)$$

$$df = y - 1 \quad (7)$$

According to the degree of freedom df, the coordination of expert evaluation opinions can be obtained. The position is updated according to the wraparound method, as shown in Formula 8 and 9:

$$D = |c \bullet R^*(t) + R(t)| \quad (8)$$

$$R(t+1) = R(t) - Q \bullet D \quad (9)$$

Among them, Q and c are coefficients, and the calculation formulas of Q and c are:

$$Q = 2n \bullet u_1 - n \quad (10)$$

$$c = 2u_2 \quad (11)$$

Among them,  $u_1$  and  $u_2$  are random variables, and the value of n is as in Formula 12:

$$n = 2 - \frac{2t}{W_{\max}} \quad (12)$$

Among them,  $W_{\max}$  is the maximum number of iterations. According to the spiral mathematical model, the position is updated as Formula 13:

$$R(t+1) = R^*(t) + e \bullet D \bullet \sin\left(\frac{\pi}{2}l\right) \quad (13)$$

$$R(t+1) = \begin{cases} R^*(t) + e \bullet D \bullet \sin\left(\frac{\pi}{2}l\right) & (p > 0.5) \\ R(t) - Q \bullet D & (p \leq 0.5) \end{cases} \quad (14)$$

Through global search, a model is established, as shown in Formula 15 and 16:

$$D = |c \bullet R_{rand}(t) - R| \quad (15)$$

$$R(t+1) = R_{\text{rand}} - Q \bullet D \quad (16)$$

According to the predicted results, the parameters are optimized and selected, and the accuracy rate  $L$  is selected as the adaptation function.

$$L = \frac{\text{right}}{\text{Total}} \times 100\% \quad (17)$$

Among them, Total is the total number of samples, and right is the number of correctly classified samples, as well as the health status of the students is calculated.

$$V = L / D \bullet R(t+1) \quad (18)$$

By arranging it, the following formula can be obtained:

$$L = \frac{\text{Total}}{\text{right}} D \bullet R(t+1) \quad (19)$$

Finally, a comprehensive evaluation index of student health can be obtained:

$$Z = \frac{\eta_R^2}{W} L \quad (20)$$

## 5. Experimental Evaluation on Student Health under Innovative Political Course by Random Algorithm

In order to better test the effect of innovative thinking and politics on students' health, the investigation and analysis are carried out under the virtual simulation technology. In this paper, students and teachers from a certain school are selected for comparative analysis through random algorithm. Among them, there are 100 teachers and 100 students each, mainly counting the psychological status of teachers and students during the political course learning under the virtual simulation technology, as shown in Table 1.

Table 1: Psychological status of teachers and students

|         | Optimistic | Anxious | Fear |
|---------|------------|---------|------|
| Teacher | 41         | 32      | 27   |
| Student | 27         | 39      | 34   |
| Total   | 68         | 71      | 61   |

To make the results more intuitive, it is plotted as a histogram, as shown in Figure 6.

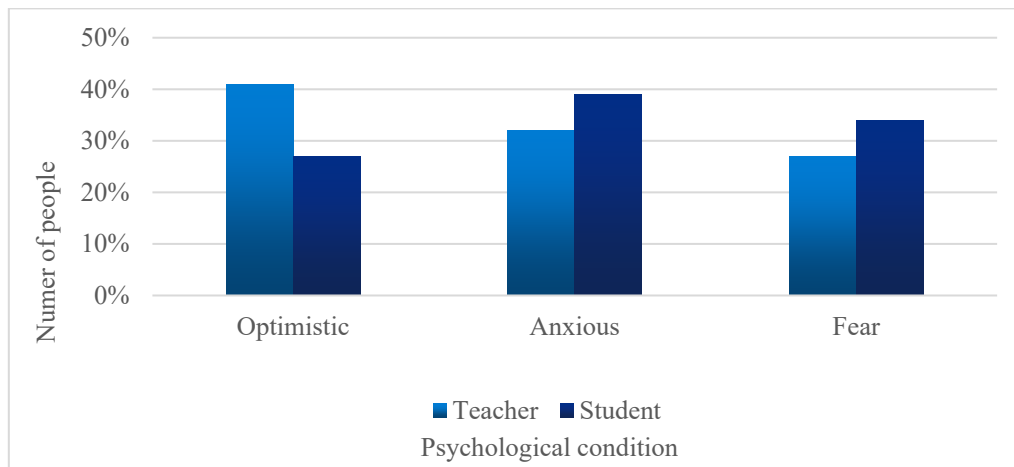


Figure 6: Psychological status of teachers and students

It can be seen from the figure that the number of students and teachers who are positive and



optimistic is less than half of the total number, and most of them are negative and anxious. Because during the virtual learning environment, the situation in all regions is very severe, and students and teachers are in contact for the first time. With the continuous improvement of the learning environment built by virtual simulation technology, students' anxiety and fear are increasing, and they also ignore the benefits of virtual learning environment built by virtual simulation technology for students' health. Other optimists are still very optimistic during the virtual learning environment because they believe in the government.

(1) Analysis of students' attitudes towards political courses in the learning environment based on virtual simulation technology

In order to further understand the impact of innovative political course on students' health, the analysis is conducted by investigating the attitudes of students and teachers towards political course, as shown in Figure 7.

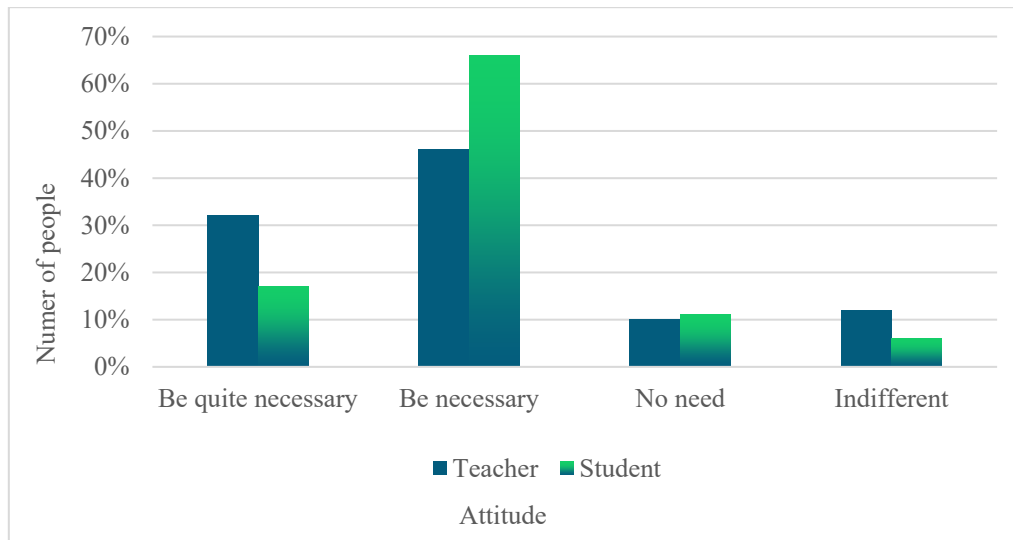


Figure 7: Analysis of college students' attitudes towards political course during the epidemic period

It can be seen from the figure that most students and teachers feel that it is necessary to carry out innovative political course, and only a small number of people feel that it does not matter or even unnecessary. Carrying out political courses in schools can not only give students a good psychological comfort, but also promote their positive and healthy growth and create a good growth environment. In the eyes of those who think it unnecessary or indifferent, innovation and politics will waste their time.

(2) Application analysis of random forest algorithm in innovative political course

In order to further understand the specific effect of the innovative politics course, the random forest algorithm was used to conduct comprehensive evaluation and coordination coefficient test on students' health, and the coordination coefficient test and comprehensive evaluation analysis of the learning environment in the middle school students under the digital virtual simulation technology were compared and analyzed, as shown in Figure 8.

It can be seen from the figure that the coordination coefficient and the comprehensive evaluation index are in an overall rising state, and the average test value of the coordination coefficient of student health in the virtual learning environment is 0.264, and the average value of the comprehensive evaluation index is 4.143. This shows that the health of students continues to improve with the time of political courses, and also reflects that political courses can promote the healthy growth of students.

(3) Analysis of the influence of political courses on students under the digital virtual simulation technology

In order to further understand the impact of political course on students, this paper evaluates and analyzes students' health and comprehensive quality under innovative political course, as shown in Figure 9.

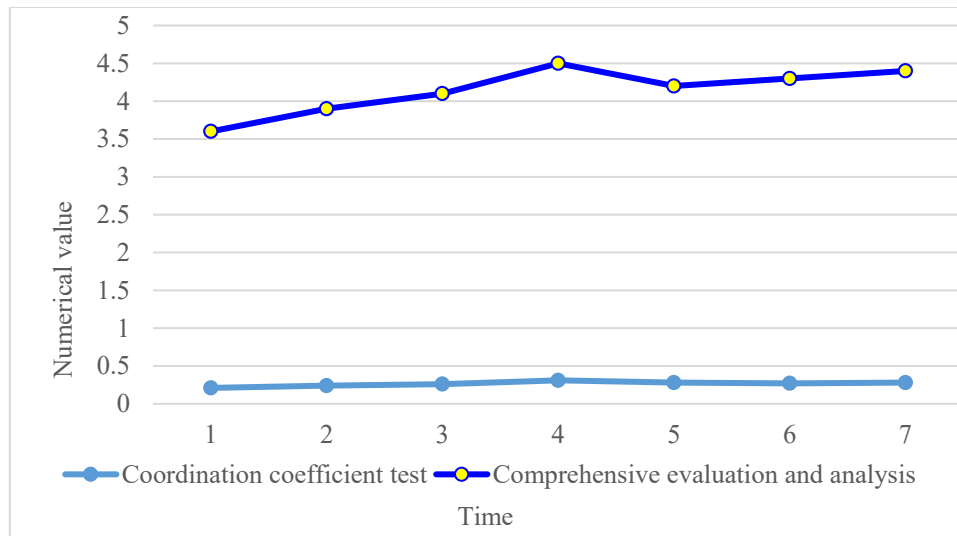


Figure 8: Application analysis of random forest algorithm in innovative political course

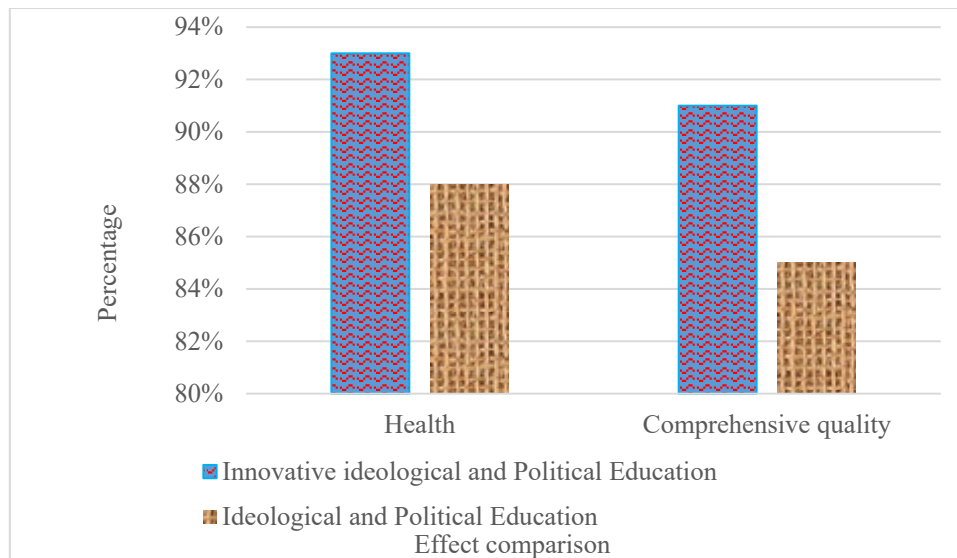


Figure 9: Analysis of students' health and comprehensive quality under innovative political course

It can be seen from the figure that under the innovative political course, students' health and comprehensive quality are constantly improving. The health of students is improved by about 5% and the comprehensive quality is improved by about 6%, which also shows that innovative political course has a better effect on improving students' health. It can promote the formation of students' social awareness, and cultivate them into talents under the healthy growth of students. Innovative ideology and politics also bring teachers a better teaching environment, and they can teach according to the specific conditions of students, so that the healthy growth of students can be promoted.

## 6. Conclusions

With the application of digital virtual simulation technology, political courses can convey important content information to students through virtual environment. And build a psychological defense line for students to improve their health. In the virtual learning environment, students' political courses must keep up with the development of the information age. Through innovative political course, the effectiveness of students' online political course can be further improved. It is necessary to develop various models according to local conditions, and improve the quality of political course, as well as give play to the role of personnel training to adapt to the characteristics of students. In addition, the innovation of political course should aim at the healthy growth of students, and change the nature of political course, as well as understand the specific living conditions of students, so as to realize the harmony between the social and personal value of political course, and promote the healthy

development of students.

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