



# Thinking About the Intelligent System of Ideological and Political Education in The Era of Artificial Intelligence

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**Abstract.** With the advent of the information age, big data technology has developed rapidly. Ideological and political education, as a science that always follows the theme of the times and has distinctive characteristics of the times, its education concept, content and mode will also be deeply affected by the big data era. Therefore, the ideological and political education in Colleges and universities should seize the technological development dividend brought by the big data era, use smart technology to lead the innovation of the whole development picture of ideological and political education, follow the trend, take advantage of the situation, and use the strength to speed up the construction of a smart ideological and political model. Smart ideological and political education is a brand-new transformation mode formed by the ideological and political education in Colleges and universities with the help of modern information technology under the background of big data era. It has innovated the evolution route of Ideological and political education in Colleges and universities. The rapid development of big data, artificial intelligence and other technologies is making ideological and political education meet a brand-new transformation and development opportunity. Ideological and political education is becoming personalized, accurate and intelligent.

**Keywords:** Promotion of information technology; Big data technology; Ideological and political education; artificial intelligence

## 1 Introduction

Ideological and political education in Colleges and universities is one of the main ways to promote college students to improve their ideological quality, moral cultivation and political standing [1-2]. With the in-depth advancement of the scientific and technological wave, high-end information technology represented by big data is setting off a new thinking, technology and information revolution in the world, adding "wings" to the transformation and upgrading of Ideological and political education in colleges and universities [3-4].

Firstly, respond to the development needs of innovation and transformation of ideological and political education in Colleges and universities in the era of big data [5]. With

the continuous updating and iteration of network information technology, high-end information technology represented by big data has set off subversive changes in industrial structure, practice mode and things in various fields, which has attracted great attention of the party and the state [6]. In 2014, big data "appeared" in the work report of the central government of China for the first time. In 2015, China officially put forward the "implementation of national big data strategy", giving big data its due strategic position. In 2018, the Ministry of education clearly put forward the "smart education innovation and development action" to cultivate a new engine and new ecology of big data enabled education development. It is no exaggeration to say that the development storm of big data has come strongly [7]. The fourth industrial revolution, represented by big data, is developing rapidly, promoting subversive changes in thinking and practice modes in various fields. In 2020, the opinions of the Ministry of education and other eight departments on accelerating the construction of the ideological and political work system in Colleges and universities clearly pointed out that "new media and new technologies should be introduced into the ideological and political teaching in Colleges and universities". There is no doubt that big data, as the core technology leading the development of the new generation of information technology is a strategic choice made by the ideological and political education of colleges and universities to adapt to the development of the times, and also an internal requirement for constructing personalized, accurate and intelligent teaching to promote the free and comprehensive development of college students [8].

Secondly, the need to build an intelligent, personalized and accurate teaching model in Colleges and universities. Ideological and political work has a high degree of systematization and coherence. Different stages and grades have different work priorities, which requires educators to fully select appropriate educational content according to students' cognitive level, knowledge reserves, stage needs, personality characteristics, etc. As the "digital indigenous" contemporary college students, their life and learning are extremely dependent on various intelligent terminals. The construction of the smart ideological and political model can create a smart ideological and political cloud platform for educators, and dynamically extract relevant data that fully reflect the value orientation, personal needs and emotional attitudes of students in real time, so that the education work at each stage can have some guidance and basis, prevent the gap between supply and demand, education fault and improve the pertinence of education. However, through the collation and research of relevant documents, it is found that smart thinking and politics as a new hot issue in the field of education. However, the academic research on this topic is still in its infancy, especially in the context of the era of big data [9]. There are only a few research results on the construction of the mode of intelligent ideological and political education in Colleges and universities, and the research content does not analyze its mode strategy in theory and practice, and lacks measures to construct the mode of intelligent ideological and political education in colleges and universities with strong operability and pertinence. Based on this, in order to build an intelligent, personalized and accurate ideological and political teaching mode, the topic of "Research on the mode construction of intelligent ideological and political education in Colleges and universities in the era of big data" was established, with a view to driving the reform and innovation of the traditional ideological and political education mode, and promoting the

ideological and political education in Colleges and universities to advance in the direction of intelligence, accuracy, efficiency and science [10-11].

Therefore, it is of great significance to study the dynamic grasp methods of Ideological and political education from the perspective of intelligent data analysis platform.

## 2 Model design

Wiener stochastic process model fully considers the randomness and dynamics of the performance degradation of ideological and political education in normal training, and can comprehensively describe the real dynamic training process of education, and has the characteristics of stability, ease of calculation and analysis.

Teachers are inseparable from the use of dynamic models in teaching. Models can solve problems in teaching. In the classroom, the biggest advantage of teachers using dynamic models for teaching is that dynamic models show that students can easily grasp knowledge. Teachers use the teaching model. It can open up students' knowledge horizons during class. All excellent teachers will display models when they teach in the classroom. The purpose of this is to evoke the imagination of students. In particular, it is possible to simplify complex knowledge points, and the role of teaching models in teaching is crucial. As long as teachers use models to teach in the classroom, the efficiency of the classroom can be greatly improved.

In the process of dynamic perception, due to the diversity of the actual training environment, it is vulnerable to external interference. The number of interference can be represented by a Poisson random process with an intensity.

$A(t_1), A(t_2), L, A(t_n)$  represents test,  $t_1, t_2, L, t_n$  equipment data at time;  $A(t_i)$  table monitoring value. The nonlinear model is:

$$A(t_i) = \phi + \theta e^{\beta t_i + \varepsilon(t_i) - \frac{\sigma_A^2}{2}} \quad (1)$$

In the above formula,  $\phi$  is a fixed parameter variable;  $\theta$  and  $\beta$  are random variables;  $\varepsilon(t_i)$  is a random error.

Logarithmic transformation is performed on equation (1) to obtain:

$$L(t_i) = \ln \phi + \eta + \beta t_i + \varepsilon(t_i) \quad (2)$$

$\ln \phi$  is the initial dynamic perception quantity;  $\eta = \ln \theta - \frac{\sigma_A^2}{2}$ ; Is a random variable.

The number of environmental disturbances can be  $N(t)$  represented by a Poisson random process with an intensity of  $\lambda$ . Then the probability of secondary interference at time is:

$$p[N(t) = n] = \frac{(\lambda t)^n}{n!} e^{-\lambda t} \quad (3)$$

In the above formula,  $n$  is the number of interference,  $Q_1, Q_2, \dots, Q_k$  is calculated by Poisson distribution table. In order to train the degradation amount at different times, which is a random variable, it is usually obtained from the test data samples. The dynamic perceived degradation model considering the external environment is proposed as follows:

$$L(t_j) = \ln \phi + \sum_{j=1}^{N(t)} Q_j + \eta + \beta t_i + \varepsilon(t_j) \quad (4)$$

(1) Determine a priori distribution

The conjugate prior distribution is adopted,  $\eta$  and  $\beta$  the sum of random parameters obeys the normal distribution. Let the sum be a random variable  $\eta$  and  $\rho_0 = 0$  independent of each other. The sum can be obtained, i.e.  $(\eta, \beta) : N(\mu_0, \mu_1, \sigma_0^2, \sigma_1^2, 0)$ . Then the probability density function is:

$$\pi(\eta, \beta) = \frac{1}{2\pi\sigma_0\sigma_1} \exp \left\{ -\frac{1}{2} \left[ \frac{(\eta - \mu_0)^2}{\sigma_0^2} + \frac{(\beta - \mu_1)^2}{\sigma_1^2} \right] \right\} \quad (5)$$

(2) Determine the posterior distribution

The Bayesian estimation property is combined with the conjugate prior distribution, so the posterior distribution also follows the normal distribution:

$$p(\eta, \beta | L_j) \propto f(L_j | \eta, \beta) \pi(\eta, \beta) \quad (6)$$

At time, the observation data is  $L_j = l_1, l_2, \dots, l_k$ , and the corresponding joint probability density function is:

$$f(L_j | \eta, \beta) = \prod_{j=1}^k \frac{1}{\sqrt{2\pi n_j \sigma^2}} \exp \left\{ -\frac{[l_j - (\eta + \beta t_j + n_j \mu)]^2}{2n_j \sigma^2} \right\} \frac{(\lambda t_j)^{n_j}}{(n_j)!} \exp(-\lambda t_j) \quad (7)$$

After the posterior distribution is obtained, the parameter estimation can be obtained by Bayesian theorem  $\mu_\eta, \mu_\beta, \sigma_\eta^2, \sigma_\beta^2$ .

(3) The maximum likelihood estimation method is used to estimate the parameters and obtain the sum expression.

(4) Density function of residual life. The model is established and solved to obtain the distribution function of pipeline residual life:

$$L(T + t_k) : N(\mu_\eta + \mu_\beta(T + t_k) + \mu n_{l_k}, \sigma_\eta^2 + (T + t_k)^2 \sigma_\beta^2 + n_{l_k} \sigma^2) \quad (8)$$

In the above formula,  $t_k$  is the current measurement time;  $T$  is the residual practice;  $t_k + T$  is the time of perceived failure.

If the failure threshold is a known parameter, the distribution of the time when the pipeline degradation reaches a certain time should be obtained.

$L(t + t_k) = \eta + \beta(t + t_k) + \sum_{j=1}^k Q_j$ ,  $l_1, l_2, \dots, l_k$   $L(t_k + t)$  the corresponding mean and variance are:

$$\begin{cases} \mu_0(t + t_k) = \mu_\eta + \mu_\beta(t + t_k) + n_{l_k}\mu \\ \sigma_0^2(t + t_k) = \sigma_\eta^2 + \sigma_\beta^2(t + t_k)^2 + n_{l_k}\sigma^2 \end{cases} \quad (9)$$

### 3 Experimental analysis

With the power of information technology, intelligent ideological and political education is playing an increasingly prominent role in the innovation and transformation of Ideological and political education in Colleges and universities by virtue of its advantages such as precise teaching, intelligent management, efficient interaction, personalized service and scientific evaluation, and is developing towards a wider application. Therefore, in the experimental analysis stage, 20 students are taken as the perceptive objects of Ideological and political dynamic education training to verify the effectiveness of the training model proposed in this paper.

Firstly, the survey information of 20 students is taken as the input data of the model. After the model perception training, the satisfaction of students is collected as the evaluation standard. The educational dynamic perception model proposed in this study is compared with the traditional educational dynamic perception model to verify the superiority of different models. As shown in Table 1.

**Table 1.** evaluation effect perception

Student	Satisfaction with this re- search model	Satisfaction with traditional model
1	0.80	0.72
2	0.82	0.67
3	0.88	0.80
4	0.79	0.72
5	0.81	0.79
6	0.83	0.74
7	0.84	0.69
8	0.80	0.77
9	0.78	0.72
10	0.72	0.69
11	0.81	0.76
12	0.80	0.77
13	0.88	0.75
14	0.80	0.77
15	0.79	0.72
16	0.88	0.80
17	0.83	0.82
18	0.83	0.71
19	0.85	0.70
20	0.86	0.80

Through the evaluation results, we can know that the model has a high degree of dynamic perception of the overall education and training, has achieved a certain training effect.

Through the in-depth analysis of the experimental results, teaching mode refers to the teaching methods, planned teaching procedures and designed teaching framework

adopted by teachers in the process of education and teaching. Generally speaking, the formulation and implementation of teaching mode will greatly affect teachers' teaching thinking, teaching ideas and teaching experience. Teaching mode is the "bridge" for educators to "land" educational objectives, teaching theories, etc. for teaching practice. It can provide a set of stable, stylized, systematic and standardized models and paradigms for educators' teaching practice. It plays an important role in educators' grasping teaching laws and optimizing teaching process. Therefore, it is particularly important to choose a scientific and reasonable teaching mode. With the further development of the new generation of information technology revolution, intelligent technology with big data as the main force has set off a wave of reform in education mode, thinking mode and learning mode. In the era of big data, the adoption of scientific and reasonable teaching mode urgently needs the empowerment of modern information technology to demonstrate the sense of the times, affinity and attraction of the teaching mode. Obviously, the teaching mode of smart thinking and politics is the innovative practice of effectively embedding big data technology into the ideological and political education mode.

At the same time, the teaching staff is the main force to strengthen and improve education and teaching, and the backbone force to promote the intelligent, digital and accurate reform of education. The professional ability, information literacy and innovation ability of the teaching staff directly affect the effectiveness of students' learning, and determine the quality and effect of education. China's big data technology has entered the stage of rapid development, which is giving birth to new business forms and cultivating new models. It can be said that the potential value of big data technology is being constantly explored and applied, and has become the core driving force to promote industrial upgrading, quality and efficiency. While big data has quietly changed the world, it has also put forward new tests and new requirements for the public opinion ecology, information dissemination and education pattern. The construction of Ideological and political education teachers in Colleges and universities is no exception. As a teacher team shouldering the heavy responsibility of Building morality and cultivating people, we must meet the challenges of the times, bravely shoulder historical responsibilities, and cultivate ourselves into an intelligent team that can adapt to the development of intelligent education and has information-based teaching quality. Only in this way can we shoulder the social responsibility of value guidance, moral education, personality building and knowledge teaching.

## 4 Conclusion

Intelligent learning has increasingly become the main learning mode of "digital indigenous" students. Therefore, it has become an important topic in the ideological and political education work of colleges and universities to construct a smart ideological and political model to conform to the trend of the times. In the world of big data, the important issues we have to face are whether we are prepared for the changes brought about by it, whether we have taken actions in the face of these changes and what we can find from them. The problems in the intelligent ideological and political education of colleges and universities in the era of big data have to a certain extent limited the

"rooting" of intelligent ideological and political education in Colleges and universities. This research is problem-oriented and takes the existing problems as the starting point of strategy construction. It puts forward an effective perception model on how to promote the mode construction of smart thinking and politics in Colleges and universities in the big data era, and conducts empirical analysis and thinking.

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