Research on Optimization of Innovative Development Path of Ideological and Political Education in Colleges and Universities Based on Complex Adaptive System

Zhuqing Yu

Yunnan Normal University Business School, Kunming, Yunnan 650106, China

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Abstract: The theory of complex adaptive system is of general methodological significance to various disciplines, including educational science. The teaching process of ideological and political courses in colleges and universities is a complex and dynamic process, and the teaching design must focus on the uncertain and nonlinear relationship among various elements in the teaching. Starting from the spatial dimension, we should ensure the coordination of educational objectives, educational methods, educational evaluation and implementation environment. Setting up difficult and controversial links to realize disorderly and orderly transformation; Transmitting effective teaching information is helpful for students to identify and choose. Use the art of teaching language to attract students to concentrate. Based on the complex adaptive system, this paper describes the innovation and development opportunities of ideological and political education in various aspects, hoping to provide some help and reference for the development of education in our country.

1. Introduction

Since entering the 21st century, with the rapid development of digital communication technology, the application of new media has become increasingly popular. New media has the characteristics of super-space, openness, interactivity and virtuality, etc. Compared with traditional media, it has unique advantages [1]. Under the guidance of the reform and opening up, the higher education system has undergone new innovations and changes. The milestone is the application of network technology. The application of network technology has greatly changed the ideological and political work in colleges and universities, solved some problems existing in the traditional ideological and political education, and also put forward several requirements. College students, just like birds with growing wings, have their personalities, thoughts, ideals and goals. They are a group full of vitality and initiative, rather than a container or machine for passively receiving knowledge and information [2]. Ideological and political education for college students is a complete and complicated system. To study how to carry out effective ideological and political education for college students in our country, we should take Marxism as the guidance and apply CAS theory to analysis (CAS is the abbreviation of Complex Adaptive System, abbreviated as "complex adaptive system". This theory stratifies the complexity of research objects, which is conducive to grasp the development law of complex and changeable things) [3]. The core idea, core concept and target dimension of complex adaptive system theory can be applied to the teaching design of ideological and political courses in colleges and universities, thus improving the effectiveness of teaching design.

2. Overview of Complex Adaptive System (Cas) Theory

Seeing the defects exposed by the old system theory, especially the problems in complex systems such as economy and society, Holland John, a professor of computer science and electronic engineering and psychology at the University of Michigan in the United States, put forward the theory of Complex Adaptive System (CAS) in 1994. On the one hand, ideological and political education of college students is influenced by the will of the state, on the other hand, it is influenced by the social moral paradigm, and at the same time, it is also influenced by the individual's

understanding of the "three views". The proposal of CAS theory provides new ideas for people to understand, understand, control and manage complex systems. CAS theory embodies a leap in people's understanding of system movement and evolution laws. In CAS theory, the subject has initiative, the ability to learn and adapt, and its own goals and orientations. It can purposefully and directionally change its behavior and structure in the interaction with the environment to achieve a reasonable state of adaptation to the environment [4]. Ideological and political education for college students involves individuals, families, schools, society and the country, which can be summarized as a kind of CAS, that is, a complex adaptive system that affects the ideological and political realm of college students. The main body's initiative and adaptability are conducive to the evolution and evolution of the system, as well as to the survival and development of the individual.

3. Cas Characteristics of Ideological and Political Courses in Colleges and Universities

At present, ideological and political education is a compulsory course for college students in China. The ideological and political course is aimed at a large group, which is in the forming period of "three views" such as world outlook, outlook on life and values. The thought is very active and has great plasticity. It is very necessary to carry out ideological and political education for them, which is conducive to their smooth growth and success. Theory has provided us with road signs to move forward, making us begin to understand what to observe and how to do it [5]. The ideological and political courses are basically held in large classes. Classes with about 100 people are very common, including those with more than 200 people, and some even have more than 300 people. This large class has strong CAS characteristics:

3.1 It is Characterized by Aggregation

In the teaching process, there are two roles or two subjects of "teacher" and "student". They are developed in an environment more suitable for their own survival. The two subjects are "gathered" together for the common educational and teaching goals. Although the methods, implementation and evaluation of ideological and political education for college students are operable and measurable, the effect of education contains unstable ambiguity. The subject in CAS is an active and adaptive entity. Aggregation is one of the types of teaching. It is not a simple merger, nor is it a merger to eliminate the main body, but a higher level of individual appearance [6]. At the same time, the learning objects and resources are rich, and they can learn more knowledge in less time. To students, the Internet is like a library without a gate. College students can learn about ideological and political education in different regions, different societies and different humanities through the network.

3.2 Has Non-Linear Characteristics

The teaching system is made up of teachers, students, teaching contents, teaching media and other elements. The elements are interrelated and influence each other, and complex nonlinear effects occur in some or more ways [7]. Binding means to link various means and approaches of ideological and political education to form a certain educational fit, to improve the performance of ideological and political education, and to improve the matching function of ideological and political education in predictable internal dislocation. The interaction and influence between individuals and between individuals and the environment is the main driving force for system evolution and evolution. System theory tells us that the evolution of non-linear systems is full of uncertainty. If a parameter in the system changes slightly or the system is disturbed by some external disturbance, the evolution path of the system may change fundamentally, resulting in unpredictable results. This is the so-called "butterfly effect". To make the educated accept the idea of the educator unconsciously, to achieve the purpose of moistening things silently, and to effectively overcome the defects of traditional ideological and political education such as single means and lack of charisma.

3.3 There Are Various Information Flows

Flow in classroom teaching mainly refers to various information flows. Like other courses, the flow in ideological and political course teaching includes all kinds of information flow existing and generated in the class. That is to say, the manifestation of ideological cognition and attitude existing in the minds of college students is changed into measurable processing methods, the behavior of college students' ideological politics in specific environment is shown in quantitative presentation, and abstract evaluation is changed into concrete and measurable evaluation methods. CAS theory organically links macro and micro, pointing out that the interaction between the main body as a micro unit and other main bodies leads to the macro evolution and evolution of the system [8]. For example, the information flow transmitted by teachers to students through language, gestures, multimedia, etc., and the information flow fed back by students to teachers through language, expressions, actions, etc. The core of the ideological and political education system should be the party committees and class groups with different opinions in schools, so as to perfect the whole ideological and political education organization. Teachers and students from different schools and regions can fully communicate and discuss a certain issue, effectively promoting students' autonomy and enthusiasm in learning.

3.4 With Diversity Characteristics

The diversity in teaching is mainly manifested in the differences among students, including students' personality, interests, abilities, knowledge background, expectations, etc. It is worth noting that numbers are the manifestation of abstract things and cannot fully represent the substance of things. CAS theory holds that random factors affect not only the state but also the organizational structure and behavior patterns in CAS. In the information age linked by mass media, new media such as network and mobile phone not only make it easier and faster for people to obtain information and information, but also can integrate the content and purpose of ideological and political education into it and express it in a way that college students like to see. Students in the same ideological and political class generally have different professional backgrounds, some come from different majors in the same college, some come from different majors in different colleges, and some even work in the same class of arts and sciences. Therefore, the difference between subjects is larger than that in the general class. Some dominant thoughts will cover the abrupt thoughts and eventually lead to the weakening of the abrupt thoughts, which will gradually disappear. The steady state of cooperative education in ideological and political education for college students is similar to the steady state of complex and changeable ecological game evolution.

4. Ways to Innovate Ideological and Political Education in Colleges and Universities

College students are dynamic and dynamic individuals with diverse personalities, interests, thoughts, ideals, goals, etc. and learning and self-adapting abilities. Management elements are the unity of scale effect and integration effect, and are the specific structures formed by each system [9]. For example, the subtle coordination of teaching activities formed between teachers and students. As an integral and equal component, it constantly influences each other, which leads to the change of teaching design and the complicated overall state of teaching activities. The space-time dimension is mainly the coordination of education organization, environment construction, teaching objectives and teaching methods, etc. At the same time, it also takes into account the compact relationship between education sequence and synchronization, which is an important basis for steady state.

4.1 Understand the Students' Learning Background and Guide the Unity of Goals and Interests

Teachers should have a basic understanding of the diversity of students' knowledge structure, relevant knowledge background and learning interests, so that teaching can be targeted. Today's college students are mostly in the post-90s, and their ideas are relatively advanced. They are often

not interested in the traditional education mode. It is often counterproductive to accept the indoctrination of teachers' ideas in a closed environment. It is necessary to adhere to the guiding position of Marxism and make a new interpretation and understanding of Marxism in the new historical period so as to guide the ideological and political education in colleges and universities under the new situation. Its complexity is mainly reflected in students' adaptability, initiative and differences in teachers' teaching ability. Teachers should consider the above problems as much as possible when designing teaching. That is to say, teachers should not only separate from the syllabus, but also do a good job in teaching according to the actual situation of students. Change the constraints of time and space in the past and the constraints of traditional class concepts, get closer to students' hearts, ensure the orderly development of teacher-student relations, fully cultivate humanistic care, and implement ideological and political education in the imperceptible process.

4.2 Do a Good Job in the Teaching Design of the Course

Teaching design, in a narrow sense, is how to organize the teaching of a lesson. Broadly speaking, it is to carefully design the teaching of this course from macro-level to micro-level in order to achieve the best results. A scientific management system can create a positive management environment for ideological and political education, infiltrate ideological and political education into education in various disciplines, and lead ideological and political education to be pragmatic and profound. However, the "non-linear thinking" in the classroom will disrupt the teaching plan, making it impossible to complete the pre-set teaching objectives and to completely follow the pre-designed teaching contents. The whole teaching activity goes beyond the "preset track" [10].

Ideological and political education for college students is a complex and adaptive system. For example, the diversity of educational objects, the objectives, methods and contents of ideological and political education, and the diversity of environment will make the formation of cooperative education more complicated. Table 1 below shows the subsystems and elements of the complex adaptation system of ideological and political education for college students.

Table 1 Each Subsystem and Element of the Complex Adaptation System of Ideological and Political Education for College Students

	Subsystem	Element
Complex adaptive system of ideological and political education	Education target	Individual ideological consciousness and psychological development are different
	Educational objectives	Psychological quality, moral and legal system, political consciousness
	Educational method	Curriculum education, self-cultivation, peer education, model education, practical experience
	Education content	Growth experience, moral and legal knowledge, personal ideal, communist belief
	Educational environment	Educational platform, educational resources

Strengthening the supervision of teaching quality is a key measure to strengthen teaching management in colleges and universities. Strengthening the management of teaching quality can promote the significant improvement of ideological and political teaching quality of college students. Instead of one-way explaining the truth to students, situational teaching is introduced to enable students to judge right and wrong by themselves, to give them a free and open learning environment, and to fully share educational contents, methods and methods, so as to truly contribute to improving the effectiveness of ideological and political education in colleges and universities.

4.3 Setting Up Difficult and Controversial Links to Realize the Transformation of Disorder and Order

Considering the non-linear characteristics of ideological and political courses, teachers should master the dynamic balance between orderly and disorderly teaching activities, that is, to grasp the orderly teaching activities as a whole, to ensure the smooth realization of teaching objectives, and to pay attention to disorder. Teachers are the manpower guarantee of ideological and political

education. There must be strict requirements for the selection of university ideological and political teachers. Ideological and political teachers must have a firm political orientation and a strong sense of social responsibility. In the teaching process, the interaction between students and teachers and students is not a simple, passive and one-way causal relationship, but an active adaptation, coordination and mutual causal relationship. With the help of self-media tools, college students can share network resources, improve their self-study ability, and supplement the practical problem of insufficient knowledge reserve caused by space-time and regional restrictions in traditional education. In the ideological and political class, some class discussions can be arranged to allow students to speak freely, and even to set up some controversial topics for students to argue or debate with each other. Grasp the direction of their ideological development. Otherwise, the ideological and political education system can only be empty talk. Ideological and political education is an organic whole criss-crossing with the correct direction of public opinion. This is a complicated job, otherwise it would be difficult to mobilize all aspects of the school.

4.4 Use the Art of Teaching Language to Attract Students to Concentrate

The teaching language also contains some marks in teaching and is an important means to attract students' attention. Generally speaking, students' behavior in the classroom is anisotropic. If teachers cannot control the classroom well, the classroom may be a mess. The diversity of social demand for talents and the diversity of the subjects to be taught objectively require the coordination of multiple goals of ideological and political education. Classroom teaching has the complex characteristics of openness and dynamics. Classroom teaching is not a closed and static teaching process that is separated from macro objectives, but is linked with social development and specific national talent training objectives. Ideological and political education in colleges and universities should also conform to the times, understand the advantages of the network and make use of it. Establish a network platform for ideological and political education, and strengthen extracurricular communication and ideological and political education with students. Adhere to the correct guidance of public opinion and spiritual communication to realize the supervision and development of students' all-round physical and mental growth. In the teaching of ideological and political courses, special attention should be paid to the use of language arts. Plain and straightforward language and feeble preaching can only arouse students' rebellious mentality, let alone any teaching effect.

5. Conclusion

We should strengthen the discipline construction of political theory courses in an all-round way, establish and perfect grass-roots organizations. Grass-roots organizations in schools are class groups, and improve the organizational ability of young students. Let students master certain educational knowledge, which is an important condition for the formation of collective thought. Starting from the evolution of adaptive subject, the theory of complex adaptive system reveals the root of system complexity and the general law of development and evolution of complex adaptive system, which provides methodological guidance for improving the effectiveness of teaching design. The orderly development of ideological and political education in colleges and universities requires the deep integration of faith, science, class and off-class, as well as the integration of teachers and students and the integration of schools and society. When formulating the cooperative education strategy, each subsystem should be organized and organized, adjusted in dynamic and developed in linkage, starting with the object of education, to improve the timeliness of ideological and political education for college students.

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