A Design of the Interactive Ideology and Politics Teaching System Based on Computer Networks

Juan Du¹, Xiaohong Wang²

¹ Hebei University, Baoding071000, China
² Beijing Jiaotong University Haibin College, Huanghua061199, China

Abstract

Interactive teaching was first proposed by Palincsar in 1982, and its design direction is to provide multiple entry points for teaching methods and then to achieve the clarification of the teaching subject. When the teaching platform can effectively stimulate the participation degree of teachers and students, inevitably, an obvious quality improvement can occur in the actual teaching process. As far as the ideology and politic teaching is concerned, communication with students should be strengthened and student feedback should be timely collected, which is a key direction for fully standardizing the teaching content of ideology and politics courses. As computer networks rapidly progress, the interactive teaching model obtains more extensive development space. Based on the interactive analysis on computer networks, this paper puts forward a design scheme of the interactive ideology and politics teaching system (IIPTS), and aims at improving the universality and the quality of ideology and politics curriculum and innovating the learning environment and communication mode for students and teachers.

Keywords: Interactive Mode, Ideology and Politics Curriculum, Teaching System, Computer Network.

1. RESEARCH BACKGROUND

1.1 Literature review

As a philosophical category, the ideology and politics course has a relatively vague understanding level in the actual teaching process, and teachers have a low mastery degree of student feedback during the teaching period. In order to acquire more understanding from students, most of the research proposed to employ the interactive teaching model for the design, to highlight the teaching focus and to collect the understanding situation of students. A wider range of application space can be designed by means of computer networks, teaching model and teaching methods (Wang, 2010). In the process of interactive learning, teachers of ideology and politics courses are not the single knowledge transmitter, but the persons who co-study problems with students, thus highlighting the significant role of students as learning subject (Ma, 2010). At the same time, Mooc, microlecture, multimedia applications and other technical aspects provided by computer networks have expanded the corresponding teaching areas for the ideology and politics courses and consequently broken the time and space constraints of the traditional classroom teaching. At present, there are triple definition criteria for computer interactive learning. First, interactive teaching can employ the application effect of computer networks to enhance learners’ subjective initiative (Liang and Zeng, 2010). Secondly, the interactive learning model adopts computer networks to build a learning platform, which, in essence, creates communication space for teachers and students so that teachers access to student feedback (Gong, 2010). Thirdly, this new type of learning model promotes both learning parties in the process of interaction. A dynamic communication environment is formed under the interactive mode, and the efficiency and effect of universal teaching is further enhanced.
1.2 Research objectives

Interactive, a commonly used computer term at the earliest, especially refers to the expression process where information is input from the terminal and returns to the interface through the central processor. From the perspective of communication, interactive teaching mode also falls into the scope of man-machine dialogue. The main feature of its teaching activities is that teachers can enter all the teaching information into the system platform and establish a favourable communication model with students through space media (Wang and Dai, 2015). In the past ideological and political education, teachers lack a timely understanding of the psychological changes of students, leading to a deviated link between teaching planning and implementation direction. Ideological and political education itself means to guide students’ thought, consciousness and ideas. Without an actual understanding of students, the teaching plan must be biased and the oriented needs would even change, which would eventually influence the effect of ideological and political education (Liu, 2015). A number of contributing factors are involved. The application effect of interactive teaching can be reinforced through computer networks. Furthermore, by virtue of the interactive mode, more adaptable teaching content is planned by mastering students’ understanding degree and acceptance level of the ideological and political content. Especially through the technology of computer networks, more learning content can be expanded to enrich the scope of students. In view of the actual situation of students, the interactive teaching system can also be employed to provide students with more oriented learning content and to improve the quality of ideological and political education (Yang, 2015). To this end, this paper redefines the computer network technology which can be borrowed by ideological and political education in the realistic dimension, constructs the IIPTS, and lays a theoretical foundation for the innovation of ideological and political education.

2. DEMAND ANALYSIS OF THE IIPTS

2.1 Data source of demand analysis

In view of the curriculum of the ideological and political education as well as the specific requirements of the syllabus for ideology and politics courses in China, this study refers to the General Office of CCCPC[2004] No.16 Document - Opinion on Further Strengthening and Improving Ideological and Political Education of College Students issued by the CPC Central Committee and State Council and design a questionnaire that analyzes the target and needs of ideological and political education. Three revisions were made on this questionnaire with the consideration of recommendations from experts with years of ideological and political education experience. Eventually, 7,965 questionnaires were issued to three regular institutions of higher learning, including Tianjin Foreign Studies University, South China University of Technology and Shanghai Jiao Tong University. 6,927 questionnaires were retrieved, with a recovery rate of 86.97%. Related questionnaires were excluded in case of more than 12 hours of recovery duration, repeatedly changed content and under the influence of environmental factors during the writing period. At the same time, this study focuses on the feedback of college students’ questionnaires, comprehensively evaluates and refers to expert opinion and designs the questionnaire for ideology and politics teachers. The questionnaire was mainly issued to five vocational institutions and six ordinary colleges and universities. The five vocational colleges include Shenzhen Polytechnic, University for Science and Technology in Beijing, Xingtai Polytechnic College, Chengdu Polytechnic and Qingdao Vocational and Technical College of Hotel Management. The six general colleges and universities are China University of Petroleum, Beijing University of Posts and Telecommunications, China University of Geosciences, Beijing Forestry University and Tongji University in Shanghai. The questionnaire mainly collected the information of the existing teachers’ needs for interactive teaching and then comprehensively evaluated the opinions of both students and teachers.

2.2 Demand analysis results of the IIPTS

This study inputs the above questionnaire feedback information in the SPSS 19.0 statistical software and sums up the needs of both students and teachers in the IIPTS. Five major needs are taken as the principle, including academic nature, understanding level, the breadth of knowledge content, the depth of learning materials and the practicalness of educational content of ideological and political education, as shown in Table 1. First of all, there are some differences between students and teachers in the direction of academic needs. Considering that students are unaware of the direction of ideology and politics courses, needs of this kind can be regarded as an exclusive teacher project. Secondly, according to the breadth and comprehension degree of ideology and politics courses, the needs of both students and teachers are basically the same, belonging to the same scope of system construction. Last, as far as the in-depth needs for ideology and politics courses, the percentage of student needs is 8 percentage points higher than that of teacher needs. It is clearly indicated that
students are eager to learn about more theoretical content in the ideological and political education, but teachers do not think that students can comprehend ideological and political content at a deep level. In addition, from the practical direction of ideological and political education, teachers obviously hope to achieve high practical results by means of the interactive teaching model, in other words, they hope guide students to actively fulfill and regulate their behaviour and ideological categoriesthrough the ideological and political content. Students demonstrate a low degree of emphasis on the practice direction.

<table>
<thead>
<tr>
<th>Table 1A</th>
<th>Comparative Analysis of Columns in the System of Ideological and Political Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Teacher needs</td>
</tr>
<tr>
<td>Academic</td>
<td>16%</td>
</tr>
<tr>
<td>Understand</td>
<td>26%</td>
</tr>
<tr>
<td>Breadth</td>
<td>24%</td>
</tr>
<tr>
<td>Depth</td>
<td>23%</td>
</tr>
<tr>
<td>Practice</td>
<td>16%</td>
</tr>
</tbody>
</table>

3. MODEL DESIGN OF IIPTS BASED ON COMPUTER NETWORKS

3.1 Model function analysis of the IIPTS

According to the above research results, in the specific link of constructing the teaching system model, three main functions of the ideology and politics curriculum should be realized: the explanatory function of the ideology and politics course content, the wide area of curriculum content development, the in-depth analysis function of ideological and political content (Ma and Ji, 2017). Meanwhile, academic nature and practicalness, namely theory teaching and practice direction of ideological and political education, should be equipped. This study builds on the AR autoregressive model and designs the construction method of the system model theory of ideological and political curriculum. Assuming that the interactive teaching system is a discrete linear system and the final presentation method is the demand index, the difference equation is designed according to the input and output method of the interactive function:

\[
U(n) = X_n + \sum_{k=1}^{P} a_k X(n - k) \tag{1}
\]

In the formula, U indicates that the interactive system achieves the expected teaching function; n is the implementation direction of teaching function; X represents the variable factors that can lead the realization of curriculum function; P stands for the variable value that studentsparticipate in teaching activities; k is the behavior-oriented direction that can be ignored in the interactive teaching model.

3.2 Verification mode of ideology and politics teaching system model

In the IIPTS model, it is necessary to judge teaching achievements through empirical analysis. In the AR model, the completion degree and completion effect of the interactive teaching mode are analyzed based on the linear regression situation, and its verification formula is:

\[
S_k = \frac{1}{1 + \sum_{k=1}^{P} a_k z^n} = \frac{x_k}{y_z} \tag{2}
\]
In the verification formula, the result of the interactive teaching model is represented by S. Z is assumed to be the known teaching effectiveness. The feasibility of the IIPTS is judged by the percentage of variable factor and expected effect (Li and Wang, 2017). In the end, the smoothness of Gaussian signal indicates that teaching effect holds a higher degree of fitness, and linear results are applied to indicate that the interactive system achieves the desired.

4. IMPLEMENTATION MODEL OF THE IIPTS

4.1 Apply computer networks to achieve the application dimension of teaching model

When the interactive system model of ideological and political teaching is constructed, three basic functions must be implemented from the technical level, namely, the triple application dimension of machine/system, person and interface (Mou, 2011), as illustrated in Figure 1. First, the machine equipment system has played the basic function of operating teaching content in the interactive teaching mode. Ideology and politics teachers need to edit and organize teaching materials or extracurricular content and enter them in the system platform. In this way, technical equipment is adopted to achieve the collection, collation, preservation, download, upload and change and other basic functions of teaching materials. Secondly, the specific requirements for users in the application dimension are divided into two standard levels. The first level is the teaching direction when teachers make use of this system, and the second level is the learning direction when students implement the functions (Sun, 2016). Thus, as far as ideology and politics teachers are concerned, no matter what type of teaching method is adopted, the application functions of computer networks should first be mastered, in order to upload the relevant content of ideology and politics courses to the teaching system and timely update the relevant information. In case of students, certain application methods should also be learnt so as to employ computer networks to download learning materials at any time and use interactive software to make online communication with teachers (Ning, 2017). The third function involves interface needs, namely the teaching effect of its IIPTS. In the actual application process, the interface presentation methods include personal PC terminal, smart phone terminal, mobile data terminal, tablet PC terminal, etc. Teachers and students should fully grasp the basic functions of such teaching tools and completely understand the application method of the communication software or platforms such as campus network platform or communication software platform. Only with a full control of the application method of its terminal and presentation in the output interface, can the application value of computer-network-based interactive ideological and political teaching be ultimately fulfilled, which is also a perfect utilization of computer networks.

![Figure 1](image)

**Figure 1.** Triple Application Dimension: Machine/System, Person and Interface

4.2 The application focus of the IIPTS

From the perspective of cognitive psychology, the interactive model can finally demonstrate the expected teaching effect, and the design of ideological and political education is conducted from four dimensions (Zhu, 2016). Operable hints, teaching metaphor, mapping perception and mental understanding, as indicated in Table 3. First of all, high visualization standards are required inoperable hints, and the indexes that indicate the smooth system operation are also evaluated by the degree of visualization. In the meanwhile, visualization results are the necessary condition for teaching information feedback. Therefore, when computer networks are adopted to present the interactive mode, ideology and politics teachers must grasp the optimal configuration of visualization degree in order to provide students with a favourable learning environment and standard interface display demands. Secondly, in the process of applying the IIPTS, the function of its teaching metaphor lies in the consistent and enlightening learning appeals. Consistency is to ensure that the same function in the interactive system presents a unified form of expression in the operation interface and output interface.
Students comprehend the corresponding direction led by teachers by learning the ideological and political teaching content and further make a profound understanding of the teaching content. Suggestive understanding scope takes a reference through the content of ideology and politics course. When students have a higher awareness of ideological and political knowledge, teaching metaphor is expressed significantly (Tang, 2012). On the contrary, there may be a poor summary of learning materials or a low adaptability to teaching content. In the end, as the ultimate goal of ideological and political education, mental understanding refers to students’ ideological level that can be improved by the interactive teaching model. On the one hand, it specifically indicates whether students generate ethical awareness after the phased learning, namely the sublimation and experience of students’ ideological level. On the other hand, it indicates whether students receive education of behavior intention and eventually express a thoughtful direction by means of practice. Further evaluation is carried out on whether the application of the interactive mode achieves the goal of ideological and political education.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Cognitive Psychology Provides Basic Design Principles for Interactive Design</th>
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<tbody>
<tr>
<td>Features</td>
<td>Operable hints</td>
</tr>
<tr>
<td>Visibility</td>
<td>Consistency</td>
</tr>
<tr>
<td>Feedback</td>
<td>Enlightening</td>
</tr>
</tbody>
</table>

4.3 Analysis on interactive application logic of computer network

The IIPTS presented by computer networks is equipped with a high educational applicability, but no system can completely replace human instruction. It is important to emphasize that, as users and operators of the IIPTS, teachers can not rely entirely on the basic functions of this system and weaken their essential responsibilities of imparting knowledge and educating students. If teachers throw all the energy into the application of the interactive system, it would inevitably lead to decentralized teaching and possibly even an ambiguous teaching focus. Therefore, concerning the phased application of the IIPTS, student feedback should be emphasized and adjusted in a timely manner, meanwhile, teaching focus should be appropriately shifted to the traditional classroom based on the understanding degree of students. Reasonable online and offline teaching practice distribution guides students and ideology and politics teachers to re-examine and reflect the learning content. In the actual application process, ideology and politics teachers should flexibly adopt the IIPTS, rather than being bound by it. Besides, in the application link, the application mode and methods of the communication platform should be emphasized and a comprehensive record should be made concerning student feedback in the communication platform, in order to achieve a comprehensive understanding of students’ learning progress, thinking dimension, understanding degree, etc. (Yi and Liao, 2013). Learning materials of the system platform are timely adjusted or updated in accordance with student feedback, or more targeted learning materials are drawn up as the case may be, which aims to enhance the applicability and universality of the IIPTS and to ultimately improve the general teaching effect of ideology and politics courses. In addition, the IIPTS mainly designs the application direction according to students’ demand analysis, and teacher feedback information is adopted as the auxiliary reference variable. If the direction of student demand switches or changes, the actual application process, a small range of adjustment needs to be conducted. Relatively speaking, if teachers produce a fairly vague application effect during the process, adjustments would be made in view of students’ ideological and political awareness or the predominating direction of campus culture, so as to achieve a wider range of adaptability in the IIPTS.

5. CONCLUSION

In summary, computer networks are adopted to achieve various functions of interactive teaching. First of all, basic needs are determined on account of the basic situation of each school. As indicated by this survey, students and teachers mainly have five aspects of basic needs of interactive teaching: academic nature, understanding level, the breadth of knowledge content, the depth of learning materials and the practicality of educational content concerning ideological and political education. For this purpose, this paper designs the corresponding IIPTS on the basis of the research results. However, this system is not entirely applicable to the ideological and political education in all the colleges and universities. The ideological awareness of students and the campus culture are the unpredictable influencing variables of the system model. Therefore, in the process of applying the IIPTS, teachers should adequately collect students feedback, then evaluate and verify the feasibility and adaptability of the teaching system and make appropriate adjustments in order to improve the universality of the IIPTS. Because research results have certain one-sidedness and more empirical research needs to be analyzed, a
narrow conclusion is not drawn. However, further study on the IIPTS can focus on the setting of the teaching platform, the improvement of the communication mode, the collection of feedback information, the updating of teaching materials and other aspects, thereby constantly perfecting the application value of the IIPTS.

REFERENCES


Tang J.J. (2012). Analysis of the creation and application of the ideological and political course network course teaching platform, Heilongjiang higher education research, 30(2), 118-120.


