RESEARCHES ON THE CONSTRUCTION OF INFORMATION TECHNOLOGICAL MULTI-DIMENSIONAL INTERACTION-BASED IDEOLOGICAL AND POLITICAL TEACHING MODE IN HIGHER EDUCATION INSTITUTIONS

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With the enhanced reformation promoted by The CPC Central Committee Propaganda Department and the Ministry of Education on the ideological and political education in higher education institutions, a number of higher education institutions in our country are making deep self-reflections on their modes of ideological and political education. This text makes deep analysis on the concept and characteristics of the multi-dimensional interactive teaching modes for the information technology in higher education institutions in the first place, obtaining better understandings for the multi-dimensional interactive teaching mode of information technology. In the meantime, it carries out researches on the current situation of the ideological and political teaching in the higher education institutions with the standard of “teaching contents, teaching modes, teaching environment and the overall satisfaction degree for teaching” and concludes that the ideological and political education in the higher education institutions requires further researches. Besides, with the class construction for the multi-dimensional interaction in the higher education institutions and with the deep data analysis on the students’ course experience with the CEQ Questionnaire from the implementation results of the multi-dimensional interaction of information technology, it would play positive functions for the diversified teaching mode of the ideological and political teaching in higher education institutions.

Keywords: information technology, multi-dimensional interaction, ideological and political education of higher education institutions, teaching mode

1. Introduction

The multi-dimensional interaction is widely defined as “the multi-channeled and multi-layered teaching interaction process, which covers 3 forms of the interactions between teacher and students, between students and students and between human and machine” [1]. With the precondition of constructivism learning theories and the basic modes in modern teaching, the multi-dimensional interactive teaching mode allows the students to utilize the multi-dimensional interactive modes on the class and to perform the multi-sensory participating learning [2, 3], with which the students can experience with hands, to think with heads, to express with mouth and make innovation with head, therefore their autonomous researching potentials can be activated and the autonomy, multi-dimensionality and effectiveness in the multi-dimensional teaching mode for the information technology will be highlighted.

2. Analysis on the Information Technological Multi-dimensional Interaction

2.1. The Concept of Information Technological Multi-Dimensional Interaction

The information technological multi-dimensional interaction is defined as “to widely apply the computer technology and internet technology to the daily teaching practice, to make the collaboration categorization in the units of groups and to establish an open, interactive and researching teaching environment with the coordination and interaction with the dynamic factors in the teaching process, with which to improve the class efficiency effectively and take the team grade as the evaluation standard for teaching, therefore obtaining the interactive teaching goal of learning together”.

2.2. The Characteristics of Information Technological Multi-Dimensional Interaction

Subjectivity. As the information technological multi-dimensional interactive teaching mode is established on the whole-brain learning and constructivism teaching mode, the application of the information technological multi-dimensional interaction to classes will greatly improve the autonomy of the students. As the students are the major elements for the class, the application of the information technological multi-dimensional interactional teaching mode would allow the students to emerge the diversified senses into the learning environment, letting them accessible to the overall feeling from the “auditory, visual, sensational and touching” senses. By paying attentions on the students’ acquisition and application skills for knowledge, it obtains the objective as “to determine the things taught according to the things to learn” while getting free from the traditional spoon-fed teaching mode where the teachers took the major roles in the classes.
Multi-dimensionality. The “multi-dimensionality” in the information technological multi-dimensional interactive teaching mode is well demonstrated in the class teaching. The idea of the information technological interactive teaching has broken the traditional channel for information transmission and the single mode for the teacher-student interaction, instead, is establishing a new form of dimensional information transmission and teacher-student interaction from multiple perspectives. In the information technological multi-dimensional teaching, the 3 forms of teacher-students interactions as between the students, between the teachers and the students and between the human and machine, as well as the multi-sensory information perception have become the significant demonstrations for the multi-dimensionality of the multi-dimensional interactive teaching (Fig. 1).

Effectiveness. The multi-dimensional interaction of information technology would guarantee the effectiveness of the information communication. When the students raise questions for the ideological and political knowledge, the teachers can work out the synchronous learning program with the interactive electronic version, conversational system and relay session system, therefore guaranteeing the smoothness and time validity of information. In the meantime, the asynchronous information interaction means as BBS and E-mails can also be employed. Compared with the traditional teaching mode, the multi-dimensional interaction mode maintains a more effective information communication effect. Secondly, the means of information technology would not only save teachers’ time for homework correction, but would also make timely feedback for the teaching information, showing not only the correct direction of the ideology and politics and the focus on the learning process and methods, but also the generation of ideological and political contents, allowing the students’ autonomous and collaborated establishment for their outlook on the world, the life and the values in the self-reflection and experience, in which way the three-dimensional teaching objectives can be effectively obtained.

3. Analysis on the Ideological and Political Teaching Status in Higher Education Institutions

For the evaluation and analysis over the ideological and political teaching status in higher education institutions, the Questionnaire researching method is employed. The research mainly covers the question as the higher education institutions’ satisfaction level over their ideological and political teaching conditions, including the “teaching contents, teaching modes, the teaching environment and the overall satisfaction for the teaching”. The research takes place from X,Xth to X, Xth, 2012 and covers a participants of 200.

3.1. The Ideological and Political Classes in Highereducation Institutions is Taught with Old-Fashioned Contents, with the Time Validity and Innovation Being Lacked

The research finds out that 61% students of the higher education institutions believe the ideological and political contents they are learning call for a reformation, as the traditional ideological and political education in higher education institutions pays attention to the theoretical courses, which have bored them and in which the time validity and innovation are lacked. A number of teachers from these institutions have
paid too much attention on the accomplishment of the teaching objective and detach the theories from the reality; therefore, the students of the higher education institutions would feel bored with the ideological and political classes and feel unacceptable for the corresponding knowledge.

3.2. The Single Mode of Ideological and Political Teaching in Higher Education Schools

The traditional ideological and political teaching mode takes the single mode of theoretical feeding and the mechanical repeated training. The research finds 65% students unsatisfactory with the current teaching mode of ideological and political teaching in higher education institutions, only 13% students satisfactory with it and the 22% left find it just so-so and stand in the impartial position. As shown in the research, a majority of students are satisfactory with the teaching mode in the ideological and political classes. As a result, the single-teaching mode should be improved and more diversified teaching mode should be integrated to it, breaking the traditional “teachers’ dictatorship” and “spoon-fed” teaching mode in the higher education institutions and paying more attentions on the students’ capacities for autonomous researching (Fig. 2).

3.3. The Teaching Environment for the Ideological and Political Classes in Higher Education Institutions

The continuously-changing social ideological form is creating a more complicated teaching environment for the ideological and political education in the higher education institutions. The college students in current days are being exposed in the influences of the “subcultures” and “money worship values”. 42% of the students maintain a high level of satisfaction for the physical construction of the teaching environment. In the meantime, a majority of them believe in the insufficient ideological and political educational development. Harmony dominates the spiritual environment, while the autonomy and system for the ideological and political education is lacked.

3.4. A Majority of Students Maintain a High Level of Satisfaction over the Ideological and Political Education in Higher Education Institutions

The research for the students’ general satisfaction level over the ideological and political education in higher education schools finds 54% students with comparatively sound satisfaction over the current education status, 32% with a general satisfaction and only 13% with a low level of satisfaction over it. The dissatisfaction for the 13% students is majorly concentrated on the single mode of ideological and political education in higher education institutions. Therefore, the top priority to improve the education quality for the ideological and political classes is the implementation of diversified teaching modes.

4. The Construction of Information Technological Multi-dimensional Interaction-based Ideological and Political Classes in Higher Education Institutions

The construction of the information technological multi-dimensional interaction-based ideological and political classes can be categorized into 3 links as the interaction introduction, the interactive teaching mode construction and the extension of interactive teaching. As the major chain for the construction of the multi-dimensional interactive ideological and political classes, the major interactive forms of the interactive teaching modes include 4 aspects of interactions as between the teacher and the students, between the students, between human and machine, as well as between knowledge (Fig. 3).
4.1. Human-Machine Interaction

Human-machine interaction refers to the interactive process between the students and the environment of media information resources. The human-machine interaction is an innovated form of information technological multi-dimensional interaction by taking advantages of the computer information technology in the human-machine interactive process for the specific items as the courseware making, information communication, information inquiry and internet operation, etc. By making the courseware of the ideological and political courses or constructing the internet resources database, the teachers can implement the ideological and political teaching with computers, which helps to enhance the situational stimulus for the students and increase their interests in knowledge. For the students, with the computer information technology, they are allowed to carry out the information inquiry, data reading and downloading, webpage browsing or perform the teachers-students interaction with the network communication tools as BBS and E-mail, with which their autonomous researching capacities can be enhanced.

4.2. Students-Students Interaction

The students-students interaction refers to the interactive process between students, which takes the major form of the interaction and communication between a number of students. It is a way for the students to express their own ideas, opinions and solutions in the discussion and a process for them to locate the problems and solve them autonomously. They are allowed to employ the interactive electronic version, the conversational system and the relay session system for the synchronous communicative learning program, therefore the information smoothness and time validity can be guaranteed. In the meantime, the asynchronous information communication can be realized with the means as BBS and E-mails. Compared with the traditional teaching mode, the information technological multi-dimensional interactive mode maintains a more effective information communication effect. In the meantime, it would improve the students’ efficiency in ideological and political courses. The students-students interaction creates a more harmonious learning atmosphere and a more open academic communication for the students, getting them accessible to the knowledge that can’t be obtained on class in the communication, improving their capacities for independent researching and mutual learning, leading them to establish the correct outlooks on the world, on life and values.

4.3. Teacher-Students Interaction

The teacher-students interaction is one form of the main body interactions. It takes two major forms: the interactions between teacher and the single students, and the interaction between the teacher and a group of students. The interaction between teacher and the single student, which belongs to the category of remedial teaching, occurs when the single student raise questions to the teacher when confronted with
The teacher-students interaction contains not only the “face-to-face” interactive answering, but also the interactive answering mode with the communicative tools as E-mail and BBS, etc. The interaction between teacher and a group of students, which belongs to the teaching mode, happens in the teaching process. The teacher can ask questions to his students through this platform. With the information exchange between the teacher and the students, the students’ knowledge-grasping capacities can be enhanced. The application of this interaction in the teaching process would activate the students’ positivity for autonomous learning. The students, who were once received the spoon-fed education, would positively take part in the ideological and political norms, therefore internalizing the thoughts and obtaining sound effects for teaching. As the organizer, assistant and instructor for the teaching activity, the teacher takes the dominant position in the teaching process. This calls their attentions on the teaching design and teaching mode, creating a sound knowledge-acquiring environment for the students, taking positive instructions on the teaching thought and disciplines, keeping tracks of the dynamic ideological status of their students and implementing targeted teaching practice.

4.4. Knowledge Interaction

Knowledge is always intercommunicative and there is no such knowledge that can exist independently. Even for the ideological and political course, which composes an independent system itself, it also has a multiple disciplines covered. As a result, attentions should be paid on the knowledge intercommunication in the ideological and political education, realizing the sound interaction between the knowledge of the diversified disciplines and composing a more perfect knowledge network for the students. The process of knowledge acquisition is a collision process between the new and old knowledge, in which the learners are making continuous searching for the linking point between the knowledge learnt to obtain the knowledge linkage. The knowledge intercommunication would enhance the knowledge-grasping level and learning efficiency for the students.

5. Analysis on the Implementation Effects for Information Technological Multi-dimensional Interaction

5.1. Researching Method

100 students are withdrawn from the higher education institutions for the students’ satisfaction level over the ideological and political courses with the Course Experience Questionnaire. The test aims to perform analysis on the implementation effects for the information technological multi-dimensional interaction with the comparison between the evaluation opinions on the ideological and political education before and after the implementation of the information technological multi-dimensional interaction.

5.2. Researching Tool

The Course Experience Questionnaire (CEQ) is a widely-applied questionnaire evaluated, examined and implemented by the Higher Education of Australia. With the three key indexes as good teaching, generic skills and overall satisfaction item, this is a systematic questionnaire for the standardized assessment of teaching. Being widely applied in Australia and with a comparatively mature development, its data maintains certain reference value. Based on the key indexes, this assessment has taken the additional testing ones as “learning positivity”, “on-class learning efficiency”, “cognition conversion rate” and “knowledge-application skills” based on the specific characteristics of ideological and political courses.

5.3. Data-Processing Tool

This text has employed SPSS10.0 Software for data processing and the comprehensive evaluation, and has employed the Difference Comparison Analysis and Relevance Analysis methods for data analysis.

5.4. Assessment Contents

To make comparisons for the class evaluation before and after the implementation of the information technological multi-dimensional interactive teaching, refer to Table 1.
Table 1. The difference comparisons between the class evaluation before and after the implementation of multi-dimensional interactive teaching (m ± sd)

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Good Teaching</td>
<td>2.437±0.300</td>
<td>2.763±0.320</td>
</tr>
<tr>
<td>Generic Skills</td>
<td>2.494±0.353</td>
<td>2.832±0.410</td>
</tr>
<tr>
<td>Learning Positivity</td>
<td>2.307±0.399</td>
<td>2.934±0.315</td>
</tr>
<tr>
<td>On-class Learning Efficiency</td>
<td>2.238±0.309</td>
<td>2.654±0.358</td>
</tr>
<tr>
<td>Cognition Conversion Rate</td>
<td>2.423±0.332</td>
<td>2.524±0.398</td>
</tr>
<tr>
<td>Knowledge Application Skills</td>
<td>2.456±0.310</td>
<td>2.689±0.330</td>
</tr>
<tr>
<td>Overall Satisfaction Item</td>
<td>2.364±0.323</td>
<td>2.756±0.238</td>
</tr>
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</table>

As shown in the data research and analysis, the average value of the Questionnaire Scale is laid between 2.374 ~ 2.837. The Scale Table tells that the ideological and political classes gain a higher grade after the implementation of the information technological multi-dimensional interaction in the education process, in contrast to the low grade before. This shows a significant difference before and after the implementation of the information technological multi-dimensional interaction, especially in the items of “good teaching”, “on-class learning efficiency” and “learning positivity”, which calls for further analysis.

6. Discussion

The major elements for the “good teaching” include the “the subject and object in the teaching activity, the teaching contents and the teaching carrier” [4–6]. With the practical on-class application of the information technological multi-dimensional interaction, the time validity for the ideological and political knowledge taught will be improved and the knowledge taught will be endowed with the sense of time and the things taught will be enriched, as shown on Figure 4. The students are allowed to obtain the latest and the most inclusive course materials, therefore the teaching quality can be effectively improved.

Further, it has realized the diversification of the teaching carrier and the visualized teaching mode. The traditional teaching took the single mode of language transmission as the carrier, therefore the multi-sensory learning experience couldn’t be obtained [7, 8]. While for the information technology, it is one form of the cognitive tools, which refers to the tool that can assist people to accomplish the cognitive tasks, to enhance their capacities to think about and solve problems and acquire the cognitive abilities. With the wide application of the information technology, the information technology has become one of the significant tools to improve the students’ cognitive capacities. The on-class application of the informational technological multi-dimensional interaction could realize the visualized teaching and improve the learning efficiency of the students. The visualized teaching was firstly generated in the middle part of the last century, when the US educationist Dell proposed the concept of “visualized teaching method” and illustrated the basic concept of “visualized teaching” in its work “Visualized Teaching Method” as the process of the externalized expression for the mental image in the visual form [9, 10]. Then, later in 1987, US National Natural and Scientific Funds defines “visualize” as the process to convert the data to the figures or pictures with the computer graphics and the computer processing technology and perform the interactive processing [11]. Therefore, the information technological multi-dimensional interaction would push the “knowledge visualization” for development, realizing the effective learning in each steps of learning, improving the students’ understanding output for knowledge and the affirmative degree for teaching, therefore improving their experience for teaching [12].

![Figure 4. The Teaching System that Centered with Information Technology](image-url)
Operation Research and Decision Making Models

On the learning efficiency. The improvement of the class efficiency would allow students to obtain the knowledge conversion within the shortest time, to obtain the understandable input and output of knowledge, allowing the students to grasp and learn how to apply the knowledge in the shortest time. The key factor in the improvement of the class efficiency lays in the improvement in the teaching concepts, teaching means and teaching thoughts. The effective ideological and political teaching in traditional sense focused majorly on the theoretical input, which really made the teaching process boring and, consequently, lowered the learning efficiency. With the information technological multi-dimensional teaching mode, however, students are allowed to practice with hands, to think and innovate with heads, to mark books with memory, which would realize the multi-sensory participation and obtain the whole-mind learning. The whole-mind learning theory holds that “as the life system for the human, the brain is a dynamic integration covering the body, mentality and brain”. Therefore, our cognition for knowledge is not limited to the mental activity, but also the physiological functional parameter and only with the linkage between the physiology and psychology will we be equipped with the learning abilities for sure. The multi-dimensional interaction would effectively improve the sensory experience and emotional experience for the students in higher education institutions, getting them the enhanced learning capacities and accessible to the fun of knowledge learning. With this, the “immediate memory” in the cognitive process of the students, after the repeated stimulation, would be converted into the “long-term memory”. By getting rid of single mode of language teaching in the traditional sense, it would further enhance the class efficiency [13, 14].

Furthermore, the Constructivism Teaching Theory by Ausubel holds that “Where there is the combination of the new and old knowledge into the established cognitive structure, which is when the new and old knowledge is correlated to each other, there, will be the meaningful learning”. The current ideological and political teaching is still dominated by the receptive knowledge learning and the mechanical repeated training, which has resulted in the low knowledge-conversion rate of the students. In the multi-dimensional interactive teaching mode, the dominant position is held in the hands of learners’, therefore their autonomous knowledge construction would be realized in the teaching situation and the learning efficiency will be enhanced, too [15].

7. Conclusions

This text first of all takes a deep analysis on the concept and characteristic of the information technological multi-dimensional interaction in the higher education institutions, then, it makes deeper understanding for its teaching modes. In the meantime, it carried out an analysis on the ideological and political teaching status in higher education institutions and performs researches on it with the indexes as “teaching contents, teaching mode, teaching environment and the overall satisfaction item”. With the researches, it discovers that the teaching mode for the ideological and political classes of the higher education institutions call for a further development. Moreover, with the class construction for the information technological multi-dimensional interaction and the deep assessment over its implementation effects, it would pose positive effects on the diversified development for the teaching mode of the ideological and political classes in higher education institutions.

References


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