

“Points” and “Line” of Ideological and Political Education in Student-Centered Programming Courses

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ABSTRACT

The law of values formation is a soul "line" of curriculum ideological and political education, which guides its research. There are four main research "points" of curriculum ideological and political education. The first "point" is the element of ideological and political education which is divided into two aspects: general elements and characteristic elements. This classification is more universal and easy to be transplanted to other courses. The second "point" is research objects. There are four research objects, teachers, students, teaching content and teaching methods. They are also four elements of teaching design. The division of research objects was more comprehensive. The third "point" is the teaching mode. It's an effective means to integrate with hybrid teaching, case teaching and heuristic teaching methods. We can realize the goal of student-centered teaching by adopting this teaching mode. The fourth "point" is the evaluation mechanism. Evaluation of the teaching effect of ideological and political theory course is different from the evaluation of regular teaching. Evaluation of teaching work is implementable.

Keywords: *curriculum ideological and political education, student-centered teaching, hybrid teaching, evaluation mechanism*

1. INTRODUCTION

General Secretary Xi Jinping made an important speech at the 2018 National Education Conference, who proposed that education must foster virtue and educational reform was measured by curriculum ideological and political education. That means teachers should carry out ideological and political education in professional course that was an important duty in the new era. The educational goal included knowledge imparting and value guidance [1]. Programming courses are engineering technical courses offered by computer majors in colleges and universities. They involved "C Programming", "C++ Programming", "Java Programming" and "Python Programming". Programming languages are used to implement algorithms with computational thinking. Programming courses are the most important teaching for computer major. Teachers impart knowledge and skills which students must master. However, teachers and students often ignored "ideology and politics" intentionally or unintentionally, focused more on the promotion of "skill". Computer teachers need to figure out how to combine knowledge imparting and ideological education.

2. MISUNDERSTANDING OF CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION

First of all, there were some common mistakes or one-sided views to curriculum ideological and political education.

- Viewpoint 1(error): there are so many teaching contents in programming courses that it's no time to carry out ideological and political education.
- Viewpoint 2(error): programming was so rigid technology that it's impossible to carry out the ideological and political education.
- Viewpoint 3(error): it is difficult to get rid of the formula of "two skins" because ideological and political elements cannot be integrated with the teaching content.
- Viewpoint 4(one-sided): curriculum ideological and political education is classroom education of ideology and politics.
- Viewpoint 5(one-sided): curriculum ideological and political education is to tell cases of patriotism education.
- Viewpoint 6(one-sided): teachers share their insights of life, which is teaching is curriculum ideological and political education.

The teaching aim of programming course is that students use programming language to write programs proficiently. Teachers spend much time on explaining grammar and algorithms, because grammar and algorithms are many and difficult. Moreover, most students' computational thinking has not experienced systematic training, and their learning ability is uneven. Therefore teachers complain that class hours are not enough to carry out ideological and political education. In addition, how do ideological and political elements fit into technical knowledge? "Two skins" is a phenomenon that teacher separate curriculum content with ideological and political education in class. This phenomenon should be avoided as far as possible. Some teachers try to talk about the meaning of ideology and politics or share their own life feelings in course cases, which is a useful attempt. But it can't be seen as completing task of curriculum ideological and political education, which is a one-sided cognition.

3. CRITICAL ISSUES IN CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION

Some scholars had discussed main points and strategies to construct the curriculum ideological and political education. To programming courses, Hailong Sun explores the strategic of implementing ideological and political education in items of curriculum objectives, teaching contents, and teaching methods [2]. Zhonghua Wang pointed out that programming course not only changed teaching content, but also innovated teaching methods and teaching conditions. Teachers should grasp four aspects, the classroom time, the angle and depth of ideology and politics, words and phrases, ideological and political evaluation mechanism [3]. Ying Zhang et al. discussed methods of curriculum ideological and political education, including case teaching method, analogy teaching method, and project teaching method [4]. Guosheng Hu et al. discussed the case design methods of curriculum ideological and political education [5]. There were some insufficient as the following.

- The above research was "point" or "face" of the curriculum ideological and political education in programming courses. They all lacked the research on the law of values formation and the core of teaching design. For ideological and political elements, teachers have done what they wanted to do without any rules, just follow their heart. The law of values formation should be studied, which is the "line" of teaching design and the "soul" of curriculum.
- Researchers ignored students' dominant position. Teachers' explanation and students' understanding is not the same thing. Do students resonate with the ideological and political elements designed in the teaching content, and then put them into practice?

- How do teachers get the teaching feedback in time? Teaching feedback is a benefit to revise the teaching process or strengthen the teaching effect.

These problems must be faced in doing teaching design for curriculum ideological and political education. Addressing these issues would base on the following principles.

- Teachers not only teach knowledge correctly in the classroom, but also educate people through words and deeds in teaching process. Curriculum ideological and political education is benefit to improve students' comprehensive ability.
- Programming courses are the basic courses of computer major, which play an important role in teaching computer theory, knowledge and skills. Traditional teaching paid more attention to cultivate computational thinking and the ability of software development. In fact, teachers should not only impart professional knowledge but also treat students as the main body of education. That is to say, it's equally important to cultivate students' computational thinking ability, programming ability, independent thinking ability, teamwork ability and innovation ability, and right values.
- It's necessary to understand what student-centered education is, to study the definition of value and the law of values formation, to reconstruct the teaching design process, to apply new educational technologies or multiple teaching means flexibly.

4. METHODS OF CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION IN PROGRAMMING COURSE

There are eight methods when programming courses teaching integrates with ideological and political education.

4.1. To Study the Law of Value Formation and the Strategy of Value Education

"Values" is a concept system of value, which is systematized and theoretical. It is people's basic position, viewpoint and attitude in dealing with universal value problems. It is universal, highly abstract, general, and the core of value consciousness. Irrational value consciousness and rational value cognition are the internal factors of the formation of values. Irrational value consciousness includes desire, interest, emotion and will. Rational value cognition includes belief and belief. Irrational value consciousness to rational value cognition is a developing process from low to high. Social mainstream ideology is the external fundamental condition of values formation. As a result, there are the following strategies in value education: (1) to advocate dominant values strongly. (2) to cultivate people with firm beliefs. (3) to promote

traditional culture vigorously, which is mainly reflected in national spirit [6].

4.2. To Divide the Elements of the Curriculum ideological and political education

Based on the strategy of value education, the elements of ideological and political education are divided into two parts: general educational elements and characteristic educational elements. The so-called general education elements have no inevitable connection with course, major and school. But they have educational significance for students, such as the spirit of science, the spirit of struggle, excellent traditional culture, red culture, history and culture, "Great, my country" and so on. The so-called characteristic education elements mainly refer to the school history, the discipline characteristic, the curriculum background.

4.3. Revision of Syllabus and Teaching Plans

The syllabus is the baton of course teaching. The curriculum goals of programming course should include not only professional skills goal but also professional ethics goal. It could integrate the contents of moral belief, value orientation, political belief and social responsibility into the education of socialist core values. It need to make college students understand and argue right and wrong confirmedly, as well as make students become talents who carry forward the main melody, spread positive energy, have both moral and talent, and develop in an all-round way.

In preparing the teaching plan, teachers should take into account time and duration of ideological and political cases, teaching methods and forms. So that students can resonate, enjoy themselves and initiate in-depth discussions

4.4. Analysis of the Learning Environment and Learning Style of Contemporary College Students

- Firstly, quality education resources are no longer scarce in a sense. There are many online open courses and "gold courses", which come from famous teachers or famous school. Course resources are free to everybody. According to the data provided by the Ministry of Education in July 2019, the number of open courses had exceeded 12000.
- Secondly, mobile internet is the main channel to communicate for most people, and cell phones are becoming an indispensable tool for everyone. It becomes a reality that students bring cell phones to class.
- Finally, Post-95 and Post-00 College students are native to mobile internet. Students' ability and willingness in acquiring knowledge are

significantly enhanced. And their information acquisition habits are becoming more and more fragmented. According to the Ministry of Education, the total number of learners on each platform had exceeded 120 million at present. A lot of students use their cell phones or laptops to watch other teachers' teaching videos in class, ignore what their teacher is talking about.

The above three characteristics bring challenges to the teaching method that knowledge impartation is the main form. It is no longer the only important thing that a teacher speaks knowledge correctly in the classroom, because students could learn from famous schools, lying in bed with their cell phones [7].

4.5. Integration of Multiple Teaching Methods

There are hybrid teaching, case teaching, heuristic teaching method.

- Teachers should actively carry out hybrid teaching by using high-quality online learning resources. It could strengthen interaction with students in class and after class, find out their learning bottlenecks in time, share their learning perception, and solve their learning puzzles. There are two advantages. On the one hand, it can change learning state from passive to active. On the other hand, it can also carry out curriculum ideological and political education. It is a good teaching reform.
- Case teaching method is often used to improve students' application ability. In designing case, the ideological and political elements are integrated into the teaching content systematically.
- Heuristic teaching method is fitted to explain impenetrable knowledge by recreating historical scene. Question marks and ellipses are more used in the teaching process and courseware than periods and exclamation marks.
- Intelligent teaching tools would also be used, such as Rain Class or Superstar Learning.

4.6. Setting up the Teaching Link to Present the Ideological and Political Education Effect

According to the law of value formation, teachers design some training or projects. They not only integrate course knowledge but also train students to have teamwork spirit and innovation spirit. This also extends the ideological and political education in class to outside class. Students think and practice the elements of ideology and politics in a real environment.

4.7. Teachers Build People by Virtue and Promote Teaching by Scientific Research

There is no forbidden zone in academic research. There is a discipline in classroom teaching. There is the bottom line in speech behaviour. College teachers always insist on the above. Teachers should avoid transmitting negative energy in class as well. Teacher's attitudes will affect students' attitudes towards the curriculum, which is the most direct ideological and political education.

Furthermore, teachers should reflect the scientific research achievements of individuals or teams in the teaching content as appropriate. Students are interested in how to do scientific research and how to use basic knowledge to make academic breakthroughs. These are the best materials of curriculum ideological and political education.

4.8. Introducing Reasonable Evaluation Mechanism of Curriculum Ideological and Political Education

Teaching evaluation is an indispensable link in the implementation of curriculum ideological and political education. It's difficult to make qualitative evaluation accurately and reasonably. And it's more difficult to quantify its effect. It is because ideological and political education is potential, comprehensive and development. Evaluation of teaching effect should be carried out carefully, but evaluation of teaching work could [8]. The evaluation of teaching work advocates the following the principle of "two main, two auxiliary and two combination". Qualitative evaluation is mainly, quantitative evaluation is auxiliary. Work evaluation is mainly, and effect evaluation is auxiliary. Combine the evaluation of course materials with the evaluation of teaching process. Combine supervision evaluation, peer evaluation and student evaluation.

5. CONCLUSION

At present, the data of teaching and management services in many colleges and universities is in sleeping, and segmented state [9]. General teachers are difficult to access data from different functional departments. So it's impossible to establish a big data platform to cover teachers teaching data and students' learning data, or other network behavior. The big data analysis technology is discussed usually when teachers implement reform of ideological and political education. It's difficult to produce a practical effect in a short time. This paper proposed "points" and "line" of curriculum ideological and political education based on student-centered theory. The research results are easier to be practiced in the teaching process and could produce significant benefits. But the establishment of big data platform is the trend of teaching reform, and its bottleneck needs to be broken faster.

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