A Study of the Teaching Reform of "Ideological and Political Curriculum" in Programming with C Language

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ABSTRACT. *It is a trend for colleges and universities to carry out curriculum ideological and political education. Based on the research background of "Programming with C Language" public curriculum, in this paper the foundation and advantages of curriculum ideological and political research is analyzed, the problems is faced. The implementation plan of curriculum ideological and political teaching is puted forward. In the process of reform and research, the core role of the curriculum of public basic courses has beed gradually realized, and the basic teaching has inserted the ideological and political theory education without any trace for the subject. The concept of "curriculum ideological political" has been implemented with teaching and the Synergistic effects will be created with other courses in the future.*

1. Introduction

In December 2017, the National Conference on Ideological and Political Work in Colleges and Universities was held in Beijing. The meeting stressed :" the ideological and political education work in colleges and universities is related to what kind of people, how to train people and who to train people this fundamental problem. It is necessary to persist in taking moral education as the central link, run ideological and political work through the whole process of education and teaching, realize the whole process of educating people, educate people in all directions, and strive to create a new situation for the development of higher education in our country[1] ". For the purpose of carrying out the spirit of the National Conference on Ideological and Political Work in Colleges and Universities, giving full play to the role of the main channels of classroom teaching in ideological and political work in colleges and universities, forming peer-to-peer and synergetic effects between basic courses and other courses, and promoting the reform of ideological and political education in basic courses in an all-round way, the computer-applied curriculum

group's public course "Programming with C Language" has been appraised as the "curriculum ideological and political" education and teaching reform pilot course.

Program Design of C Language is a core public basic course in computer application course group. It is the backbone course [2] of science and engineering for non-professional students. Programming with C Language is designed for students with 40% enrollment. Over the past five years, with the further development of the Internet and intelligent technology, the importance of information technology courses has become more important. Therefore, non-professional students master information technology and study public basic courses [3] - Programming with C Language course with information and intelligent skills has become a compulsory subject for all majors. Most of the [4] majors in science and engineering of the Academy of Industrial Sciences develop the Programming with C Language course as a technical tool to solve major engineering problems and use information technology tools for data prediction and simulation of complex problems.

2. Research Foundations and Advantages

2.1 Teaching Team

"Programming with C Language" course in 2010 was rated as an excellent school-level curriculum. At present, the teaching team of "Programming with C Language" has one famous teacher in Qingdao, two first prize in school level teaching effect award, one first prize in young teacher teaching competition award, and one second prize in the fourth Shandong University Young Teachers Teaching Competition. At the same time, the teaching students have gained a lot. A number of people participated in the Shandong Electronic Design Competition, and in the Shandong Modeling Competition, many students achieved a good combination with mathematical modeling with the help of Programming with C Language, and achieved satisfactory results. On the whole, the course teaching effect is remarkable, the student evaluation effect is excellent, the teaching team work enterprising promotion.

China's Socialist Core Values, Report of the Nineteenth National Congress of the Communist Party of China and the Important Speech at the National Conference on Ideological and Political Work in Colleges and Universities have been studied deeply by a number of teachers in the course of Programming with C Language. A deep understanding of the ideological and political elements has been received. The ideological and political elements is teached in the classroom and practical experimental teaching without an races[5]。

2.2 Related Teaching and Research Topics

All the front-line teachers with " Programming with C Language ", have more than ten years teaching experience, both solid theoretical foundation and practical experience in enterprises.

Nowadays, many teachers have published many teaching papers related to the course of "Programming with C Language ", and many people have received many longitudinal and horizontal research projects. Among them ," big data adaptive intelligent algorithm and optimization research (J17KB155) based on college academic test" based on "Programming with C Language" course has been approved by Shandong University Science and Technology Program Project ," Design and Development of Digital Teaching platform of Programming with C Language course "has been funded by 100000 yuan. Besides, the software copyright of "Programming with C Language "," Intelligent Test-Aided Teaching Platform" and "Paperless Examination System" were successfully applied.

2.3 The Course is Expanded Widely, The Teaching Student Number is Numerous, Occupies the Rich Dissemination Proportion

Broad audience is a prominent feature of Programming with C Language. Curriculum group implementation team unified lesson preparation, teaching unified arrangement, teaching platform collective participation, practice experiment unified standard form engaged in curriculum teaching. Teaching students almost cover most of the majors in all science and engineering academies It's the course with the largest number of lectures in the computer application coure group. A wide range of curriculum expansion, the number of teaching students and the rigorous style of front-line teachers, created the "Programming with C Language" curriculum strong communication ratio.

2.4 Advantages of Course Construction

After more than ten years of development " Programming with C Language "curriculum construction has made great advantages. The excellent teaching courseware has been made, the mature teaching platform and the experimental platform have been successfully studied and applied, the experimental courseware and the digital test question bank have been improved, and the contents of the teaching materials have been enriched. The Programming with C Language and the Programming with C Language guide have been approved by the Ministry of Industry and Information Technology in the 13th Five-Year Plan of general higher education.

3. Analysis of Research Issues

Although the project has solid foundation and obvious advantages, there are still some problems that need to be solved in the following aspects:

(1) Insufficient teaching planning time

Programming with C Language course is a required core course in science and engineering, and is the main course in programming. Ideological and political courses and "Programming with C Language" curriculum, to some extent should increase the number of hours. However, there is no change in curriculum learning, which is one of the problems in the implementation of education and teaching and the reform of ideological and political curriculum.

(2) The excavation of ideological and political elements needs to be deepened

It is not enough for professional teachers to excavate the ideological and political elements. The ideological and political elements are not deep, Unscrupulous or far-fetched. These are the problems that need attention in the implementation of the project. If the project team can introduce the excellent teachers of ideological and political specialty of Marxism College to carry out the curriculum construction together, it will be targeted and the subject research will be more perfect.

(3) The need to explore the combination of curriculum ideological and political implementation and students' majo

Education and teaching of "Ideological and Political Curriculum" in Programming with C Language should be carried out in combination with students' specialty characteristics. In the course of teaching, we should dig deeply into the ideological and political connotation of the main course, carry out the research and teaching, revise and perfect the syllabus of the course, and reform the teaching patterns and methods。Enrich the teaching resources of ideological and political education, clarify the integration point, teaching patterns and carrier way of ideological and political education, perfect the practical teaching of curriculum supporting, and reform the method of curriculum examination[6].

4. Project Implementation Programme

4.1 Preparation for Project Implementation

In order to introduce ideological and political elements into the classroom, to be a good guide for contemporary college students, the computer curriculum group sets up a strong research team, explores ideological and political elements and introduces socialist core values into the curriculum teaching of Programming with C Language.

Some teachers have introduced ideological and political elements into teaching in combination with their own practice. Deep integration of informationization and industrialization [7, 8]" made in China 2025" leads to the development of the

five-year policy of "innovation-driven, quality-first, green development, structural optimization and talent-oriented" in China.

4.2 Project Implementation Programme

"Curriculum Ideological and Political" curriculum construction of "Programming with C Language" should change the concept of teacher education, enhance the awareness of education, deeply understand the connotation of "curriculum ideological and political ", organize the first-line teachers to study the important speech of the National Conference on Ideological and Political Work in Colleges and Universities, the concrete curriculum construction work plans and implementation steps are as follows:

(1) Revision of the new syllabus of the Programming with C Language course; the collective preparation of lessons by teachers, the full exploitation of ideological and political elements, the strengthening of the core values of Chinese socialism and the content of Chinese excellent traditional culture and education in the course teaching content, the formation of new courseware reflecting the characteristics of ideological and political education, and the PPT of teaching courseware and related teaching resources and practical platform to carry out the soul and main line of ideological and political education teaching.

(2) Planning and perfecting the teaching/practice platform of the Programming with C Language course, and implementing the reform practice of the teaching plan of the first phase of ideological and political elements entering the classroom, emphasizing the teaching of knowledge system while emphasizing value guidance, and combining ideological and political education with computer application curriculum group.

(3) Summing up the implementation of the first phase of the ideological and political elements into the teaching plan, putting forward a reform plan, for the second phase of the ideological and political elements into the teaching plan to improve and plan, to achieve the effective link between the two phases of education and teaching, to provide data support for the subsequent ideological and political teaching.

(4) Implementation of the second phase of the ideological and political elements into the classroom teaching plan reform pilot, and the two phases of the plan to summarize, collate relevant materials, the two ideological and political elements into the classroom implementation of the results of collation and summary, for the development of follow-up plans to provide strong data support.

4.3 Project Implementation Process

The research and implementation process of the subject is mainly carried out from the goal of curriculum moral education, the integration point of moral education in professional education, the educational patterns and carrier approach

and the teaching carrier. Below from patriotism, traditional culture and so on as a project implementation case detailed description.

4.3.1 Cultivating 1 : Students' Patriotism

1) the goal of moral education: while mastering the history of computer development and conversion, we should cultivate students' self-confidence in ancient Chinese culture, stimulate students' sense of identity and pride in the country, and cultivate students' patriotism, national pride and self-confidence. 2)The Integration Point of Moral Education in Professional Education

①Take the development of national computer as the integration point.

At the same time, the history of computer development in China is described and the history and position of computer development in China is explained to the students ,so that students' national pride and self-confidence will be enhanced.

②Enterprise development as an integration point

According to the market share of Chinese Huawei mobile phones (more than 15% in 33 countries), the market share that the country will be stronged with an core technology. It is important in Huawei mobile phone development for C language the students' course interest with "Programming with C Language" has been to stimulated study virtually.Now patriotism is born and the confidence grows for the realization of national science and technology modernization and "China Dream".

③Using ancient Chinese computing technology and decimal as integration points

It is emphasized that although the research of computer technology in China is relatively late, the ancient Chinese computing technology and computing foundation are not backward. The abacus of ancient China can be said to be the earliest computing tool in the world. The decimal of ancient Chinese currency, the decimal of the dry earth branch and the hexadecimal of the weight, etc., are the wisdom crystallization of the ancient Chinese people. In the historical development of China, excellent culture is far from long, so that students can understand the charm of Chinese traditional culture, thus enhancing students' national pride and self-confidence, and cultivating students' patriotism and developing their sense of the identity and pride in traditional chinese culture.

3)Educational Methods and Carrier Approaches

① Teacher's uestions and classroom discussion: Who knows china's a achievement in computer development? Who knows a chinese computer technology or network technology in china to achieve excellent results of the enterprise? Who tell us the research results or specific applications of ancient China in computing technology and system? From this cut into the teaching theme.

②Combining the teacher's intensive teaching with the student's self-study, the teacher speaks the present computer technology, the computer language and the system conversion content, deepens the ideological and political elements to the teaching without the mark; the characteristics of "Programming with C Language" will be studied by the students.

③After class, the teachers share the courseware of ideological and political elements to the students, and the students understand the charm of Chinese traditional culture and strengthen their patriotism.

4)Teaching effectiveness

①Observe students' mental outlook and behavior: energetic, not late and leave early, stimulate interest in learning.

②Through WeChat, QQ、 chat, discussion and other forms to check the students' learning effect after class, and discuss the influence of students' development in computer technology and Programming with C Language on their patriotic values.

4.3.2 Love of Traditional Culture

1) The pride thought will be educated following with the traditional culture education the chinese traditional culture.

A number of cases of traditional Chinese culture such as poetry/poetry/classical numeral/ antithetical couplet are presented in Programming with C Language. By narration, it not only enables students to master the modeling and programming ability of "Programming with C Language ", but also strengthens students' love of traditional culture, showing the civilization of Chinese traditional culture, and also the expression of Chinese national soft power.

2) Integration point of moral education in professional education

①As an integration point in the couplet

The case of "palindrome number" of Chinese traditional culture is introduced as the "palindrome number" of character array, which strengthens the students' traditional knowledge without marks in teaching. It inspires their love of Chinese traditional culture and strengthens students' national pride and self-confidence.

②Take the traditional culture of the number problems as the integration point

Many of the classical numerical problems in Chinese traditional culture are the crystallization of the wisdom of the Chinese people, such as the famous "one hundred money buys one hundred chickens" problem put forward by the ancient mathematician Qiu Zhang in the Book of calculation. Chinese traditional culture is extensive and profound, and countless numerical problems can intangibly deepen students' attention to Chinese traditional culture, stimulate students' interest, and

gradually form cultural confidence one of the "four self-confidence" of socialism with Chinese characteristics.

3)Educational Methods and Carrier Approaches

①The combination of teacher's intensive teaching and guide students' self-study to excavate more ideological and political elements in teaching;

②By adding the courseware of ideological and political elements with the characteristics of Chinese traditional culture are shared with students, stimulate students to find more Chinese traditional culture of ideological and political elements, and achieve the purpose of education and teaching by combining classroom discussion, after-class communication and practical experimental teaching.

4)Teaching effectiveness

①By putting the students' practical experiment into the scope of performance assessment in peacetime to achieve the combination of practical experiment teaching and classroom performance and the combination of traditional culture education and curriculum education of Programming with C Language.

②After class, through WeChat, QQ,WeChat, discussion and other forms to check the students' learning effect, and talk about the students' personal understanding and influence on their own development in Chinese traditional culture.

4.4 Project Implementation Effectiveness

From the beginning of the project, the project group organized the members of the project group to "learn from the experience ", referred to the excellent" curriculum ideological and political "course cases and analyzed, combined with this course to fully tap the ideological and political elements, after the design organized excellent teachers for teaching implementation. The members of the research group not only impart professional knowledge in teaching, but also properly integrate the elements of "curriculum thinking and politics ", and have achieved the following results:

(1) Further improvement of the syllabus. The ideological and political elements have been excavated and integrated into the new syllabus, and the syllabus has been enriched.

(2) Further enrichment of teaching resources. Full teaching resources, in addition to the basic PPT courseware, experimental courseware, the development of experimental teaching management platform, and the examination system, the intelligent question bank extraction system, computer intelligent marking of teaching resources to further enrich.

(3) The ideological and political elements are looming. The members of the research group try to realize the gradual infiltration in the teaching practice, and the

ideological and political elements   are integrated into the course teaching wihtout any traces.

(4) Teaching methods are further enriched. The excavated ideological and political elements are integrated into the teaching to fully borrow information technology such as rain classroom and other information means and TRIZ innovation theory and PDCA cycle to realize the implementation of classroom teaching.

(5) Great progress has been made in teaching papers. Four papers are published in time such as " Journal of Qingdao University of Science and Technology "," Computer Education "," Education and Teaching Forum "and" Curriculum Education Research "and so on.

(6) The recognition of "ideological and political courses" has been further enhanced. The school "curriculum thought politics" belongs to the pilot teaching curriculum reform project, What is the acceptance of teaching students, How about recognition? Is it worth promoting? For the purpose of understanding the students' real thoughts on the course of "Curriculum Thought and Politics" and "Programming with C Language ", The questionnaire of the members of the research group will be released after the examination results published at the end of the semester, in this way the true intention of the students wll be reflected. According to the data analysis of the questionnaire, It was "necessary in some respects " that the course of the Programming with C Language can be combined with the course ideological and political teaching by 64.4 per cent; "Programming with C Language" curriculum and "curriculum ideological and political" teaching method is "moisturizing everything silent" accounted for 55.9%, "Not obvious, But realize that the proportion of ideological and political teaching is 32.2%; Your assessment of this semester's "Programming with C Language" is A) lively, interactive, and taking seriously in Class reached 96.6%.

5. Conclusion

During the research and exploration of the course teaching reform, the members of the research group insist on the three key elements of teaching materials, teachers and teaching, reform and innovate from the teaching team, teaching organization, curriculum content, teaching method, practical teaching, teaching display and so on, insist on strengthening the improvement, enhance the affinity and pertinence of ideological and political education, and meet the needs and expectations of students' growth and development. Give full play to the basic and core role of public basic courses, adhere to the concept of teaching and educating people, keep a good section of canal, plant a good field of responsibility, in basic teaching strive to moisten all things silently inserted into ideological and political theory education, the implementation of the "curriculum ideological and political" concept throughout the teaching, strive to form a synergistic [9, 10] with other courses.

As the innovation window and reform pilot course of ideological and political education, the foundation including political elements has been born about the

course of Programming with C Language. Introduction of Ideological and Political Elements in the Teaching of Programming with C Language, That's good support for the 19th, It is also a favorable embodiment of the comprehensive promotion of socialist nuclear values, More deeply into the hearts of students, thereby improving the patriotism of students, It will do their bits for the greatness of the Chinese nation and the China Dream.

References

[1]Guozhong Meng(2017). Four Points to Improve the Effectiveness of Ideological and Political Work in Colleges and Universities. Educational exploration [J],vol.1,no.06, p.71-74.

[2]Baojun Wang（2019）. Characteristics and Teaching Design of Ideological and Political Science Courses in Universities. Chinese University Teaching [J], vol.1, no.10, p.37-40.

[3]HUinv Chen（2019）. Thinking on the Teaching of "Ideological and Political Course" in "Computer Foundation" of Military College. Computer Engineering and Teaching [J],vol.4,no.1,p.190-192.

[4]Min Li（2020）. Exploration and Practice of Teaching Reform of Ideological and Political Education in Engineering Courses. University education [J],vol.1,no.12, p.120-122.

[5]Xianqun Shi（2020）. Exploration on the Teaching Reform of "Ideological and Political Course" in Law Majo. School Party Building and Ideological Education [J], vol.2, no.619, p.59-60.

[6]Mei Feng（2020）. On the Teaching of Ideological and Political Education in College Curriculum Based on the Case of Ideological and Political Affairs. Higher Education in China [J], vol.1, no.15, p. 37-39.

[7]Xiao-ying DONG(2017).A Probe into China Engineering Education Reform Based on "China Manufacturing 2025, 2017 4th International Conference on Education Reform and Modern Management(ERMM 2017) ,vol.1,no.1, p.30-33.

[8]Wang Min(2020). Stage Analysis of the Chinese Dream Created by the Communist Party of China. Open Journal of Social Sciences, Vol.08, No.09

[9]Guihua Yu（2020）. Analysis on Teaching Practice Path of "Ideological and Political Course" in Teaching . Educational Theory and Practice [J], vol.40, no.15, p.27-29.

[10]Erdong Zhao（2018）. Cultivating Mind and Understanding Virtue and Taoism - The Way of Constructing the Integration of Information Technology and Teaching. Chinese University Teaching [J],no.9,p.52-55