Design and Exploration of Ideological and Political Teaching Mode for Computer Hardware Courses in Colleges and Universities——Taking the Course "Principles of Computer Composition" as an Example

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Abstract: According to the problems in the teaching process of the hardware courses in college, the paper constructs an "ideological and political + classroom diversification" teaching mode. Through the selection of ideological and political content in the textbooks, the design of teaching ways and the implementation of teaching methods, the ideological and political cases are integrated into the problem-oriented and task-driven, forming a "student-centered" and "educating" as the main line. The course cultivates the formation of students' values and enable students to have the ability of independent learning. At the same time, it follows the concept of students' learning and development, builds a systematic curriculum ideological and political system, and creates a teaching concept of "cultivating morality and cultivating people + curriculum teaching", so as to achieve the long-term significance of allowing students to have both ability and integrity.

Keywords: Ideological and political education+classroom; Diversified teaching; Ideological and political case base

1. Introduction

With the implementation of the strategy of rejuvenating the country through science and education and the acceleration of the process of social informatization, higher requirements have been put forward for the teaching of computer hardware courses in colleges and universities. It is not only necessary for students to learn the corresponding course knowledge, but also to consciously integrate the concept of education into teaching, deeply integrate ideological and political elements with classroom content, and stand from the perspective of taking students as the theme, cultivate socialist successors and builders who have knowledge, ability, and comprehensive development of morality, intelligence, physical education, and labor. In the talent training goal of the computer composition principle course, first of all, the school motto of "learning to enlighten wisdom, cultivating morality and cultivating people" is integrated into the teaching, and the ideological and political work is run through the whole process of curriculum teaching, so as to realize the whole process of educating people, all-round education, and never forget the mission of teachers; secondly, we should deeply explore the ideological and political education resources and the ideological and political elements of the curriculum, let the two be well combined, not only cultivate students' patriotism, integrity, dedication and other excellent qualities, enhance students' sense of national industrial responsibility and mission, but also enable students to have excellent professional ethics and stimulate students' interest in learning the course. By integrating the teaching of ideological and political elements into the curriculum, it not only shapes the value of students, but also pays attention to the cultivation of ability and the teaching of knowledge.

2. Problems in the Teaching Process of Hardware Courses

"Principles of Computer Composition" is a science and engineering course. The course itself is abstract, difficult, with many

professional terms and high requirements for logical thinking ability. At the same time, it mainly explains the working principle, internal structure and organization mode of the five major hardware, involving the principle and implementation knowledge of each part of the chip at the bottom of the computer. Only by mastering each part can students integrate and master the concept of the whole machine, so as to enhance the students to complete the systematic design and development. The working principle of each part is abstract, the internal circuit structure is complex and complicated, the learning of the course is far less interesting and vivid than that of the software course, some contents cannot be displayed in kind, students' interest in learning is not high, the teacher has great difficulty in class, and the teaching content and teaching effect are more difficult to complete. Considering that computers are also called computers, the design ideas of each part of them are similar to life examples. Under such curriculum background and status, it determines the advantages of ideological and political education in hardware courses. Combining morality and teaching, moistening things silently, while explaining professional knowledge, it also integrates the principles of being a person and doing things and the requirements of socialist core values.

3. The Construction of "Ideological and Political + Classroom Diversification" Teaching Mode

The hardware curriculum in colleges and universities is separated from hardware, program and abstract in content when explaining, so how to make every knowledge point of the curriculum vivid so that students can understand, teachers try to integrate ideological and political elements from different perspective in curriculum teaching, and combine knowledge points and life cases from each chapter to solve students' fear of difficulties in learning and make them fall in love with hardware courses, and to achieve the purpose of ideological and political education.

3.1 Module Mining of Ideological and Political + Teaching Content

The teaching content of composition principle mainly includes five hardware and bus connections. The focus of the course is to explain the composition principle and implementation technology of each part from the CPU subsystem, storage subsystem and input and output subsystem and the connection between them, so that students can have the concept of a whole machine. The difficulty of the course is to establish and strengthen the ability of computer system on the basis of mastering the principle. Many principles and thoughts of these hardware are interlinked with human thoughts, so it is necessary to carry out ideological and political education for students while learning knowledge, which can not only stimulate students' interest in learning hardware courses ideologically, but also enable them to further enhance their interest in learning and improve their ability to develop and apply computer systems on the basis of consolidating and applying the knowledge of leading courses; at the same time, it helps students to master the most basic principles and design techniques. For example, in the development of CPU chips, it can correspond to the development of Huawei chips; the bus working principle in computer systems corresponds to the road in life; the structure of memory corresponds to the school's accommodation building or classroom; the instruction system in computer systems corresponds to the school's leadership, and so on. In view of the above problems, how to improve the teaching quality and teaching effect of computer hardware course under the condition of relatively tight class hours. This requires professional teachers to make more efforts to prepare lessons, supplement knowledge, increase course materials, think more, feel more, and take students into the chip world.

3.2 Implementation of Ideological and Political + Teaching Methods

How to teach the principle of hardware to students in the classroom mainly depends on how to innovate teaching methods, seek a variety of carriers, increase the affinity, attraction and interest of ideological and political teaching, change the boring explanation in the past and students do not like the situation of hardware courses, which can greatly improve the teaching effect. The reform of this course mainly adopts the problem-oriented ideological and political case teaching method. For example, the transmission of the synchronous bus can be combined with the "school bell. Teachers can ask corresponding questions: what is synchronization? How do teachers and students synchronize? By what? And the problem of pedestrians and vehicles on the road and so on. Through the introduction of heuristic questions, the ideological and political content can be skillfully integrated into the classroom content, inspire students' understanding of the content, enable students to have a very clear understanding of knowledge, highlight student-centered, and improve students' interest in learning; teachers also impart knowledge to students invisibly, and students turn knowledge into ability.

3.3 Design of Ideological and Political + Teaching Process

Change the teaching method, highlight the education orientation, and make the professional courses highlight the ideological

and political elements; how to integrate the ideological and political content in every important chapter of the hardware curriculum requires teachers to adopt effective teaching methods, and cannot completely separate the ideological and political content and the curriculum content. For this reason, the reform of this course adopts a mixed teaching method of online and offline before, during and after class, deeply integrates the mixed teaching based on the learning platform with ideological and political education, and puts forward the teaching of "Heuristics+task driven+Case method+inquiry oriented professional application". Before the class, arrange relevant heuristic problems online and consult relevant literature materials; In the class, explain in detail the professional knowledge points of ideological and political integration and discuss them. After class, arrange relevant test questions online to deepen students' understanding and play an effective role in the integration of ideological and political education.

4. Concluding Remarks

The important chapters in the composition principle are memory, CPU operation, controller design, a large number of homework questions after class, and heavy correction tasks. Through the diversified teaching mode of ideological and political education+classroom, the quality of students' homework has been improved, and teachers' correction is easy and efficient. Compared with the previous hardware curriculum teaching, the biggest feature of the reform is that under the premise of ideological and political elements, the combination of teaching cases and professional applications can be implemented, focusing on the bits and pieces related to student life, and the ideological and political elements of the curriculum can be moistened and silently Integrate into classroom teaching, greatly improve teaching quality and teaching effect, truly realize the education orientation, so that students can really think, understand, and gain, it gives full play to the role of the classroom as the main channel of teaching and educating people, achieves the effective connection between professional education and ideological and political education, imperceptibly realizes the value guidance of ideological and political education in the course content, and promotes the all-round development of curriculum ideological and political education.

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