The Practice of Ideological and Political Exploration of the Course "College Computer Foundation" in the Digital Age

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Abstract. In the digital era of rapid information growth, students' value positions are easily attacked by all kinds of bad information, leading to the wrong way. Scientific and reasonable design of computer public basic course ideological and political teaching cases can not only improve students' participation in class, but also help guide students' values and establish correct value orientation. This paper explores an applied approach in education that embeds ideological and political perspectives into various chapters of the course, achieving good practical results and improving teaching effectiveness in many ways.

Keywords. Applications in education issues, ideological and political construction, curriculum reform, college computer foundation

1. Introduction

With the rapid development of digital technology, the amount of information is growing explosively. The collision of various values has a great impact on young college students. Various fast food cultures tend to make people lose their critical thinking ability and lose their direction [1].Some students do not pay enough attention to social and political current affairs and they are easy to choose biased value positions in the multi-voice network environment. In the digital age, while students are not fully exposed to the society, teachers should develop the teaching knowledge and ideological education in parallel through the course teaching, occupy the commanding height of value leading, so that students can avoid being invaded by bad ideas. This is a necessary measure for the smooth development of students, even for society and the country, and it will benefit the present and the future.

In 2020, the Ministry of Education issued and implemented "***Guidelines for Ideological and Political Construction of College Courses***", which aims to integrate ideological and political education into the talent cultivation system and comprehensively promote the construction of curriculum Civics in colleges and universities, so as to give full play to the nurturing role of each course and improve the quality of talent cultivation in colleges and universities. The new students' worldview is not mature yet, so it is very important to establish correct worldview, life view and values. Which has a very important influence on the later learning. "***College computer***

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foundation" is a compulsory general education basic course for undergraduates. The teaching goal of this course is to make students master the basic concepts of computer and some necessary current computer technology, and master the methods of solving problems with the help of computer, and further integrate computational thinking into their minds. The course basically covers all non-computer major students in the university. Therefore, scientific and reasonable design of ideological and political teaching cases of computer public basic course can not only enhance students' classroom participation, but also help lead students' value shaping and establish correct value orientation.

Many college students, after years of efforts in junior high and high school, finally enter the college, they think they have obtained good results and can rest for a while, and are prone to form slack thoughts. As well as leave the family environment, contact with more people and things, easy to be a lot of temptation, if there are bad thinking friends around, and no correct guidance, it is easy not to study well, but to pursue pleasure, some people may go astray. If teachers can pass on all kinds of correct and positive ideas to students through ideological and political construction in the classroom, so that students can correct those incorrect ideas, and then maintain the correct three perspectives.

At present, China is in an important period of transformation from a big country in education to a strong country in education. The construction of curriculum ideology and politics is the overall deployment of "national strategy-education reform-curriculum education" by the Party and the country. After the 18th National Congress of the Communist Party of China, the education field put forward the education goal of "cultivating new people who bear the great responsibility of national rejuvenation". The cultivation of higher talents is related to the destiny of the country and the development of the nation. In terms of national strategy, in order to build a powerful modern socialist country, it is necessary to continuously provide high-quality talents through educational reform, that is, they have superb professional quality, excellent management and coordination ability, broad feelings and pattern [2]. Through ideological and political education, while teaching students knowledge, students are guided to establish correct values and form a sense of responsibility to breathe together with the nation and develop together with the country. In this way, students will have a sense of social responsibility after entering the job. At the same time, through mutual infiltration with the spirit of patriotism, students will be cultivated patriotic feelings.

2. Difficulties, objectives and significance

Ideological and political courses used to be political theory courses, which were usually carried out in combination with the development of human or Chinese history, and were mainly taught in theory. However, "College Computer Foundation" is a course focusing on practice, which requires students to master basic knowledge and experiment operation. Moreover, some teachers' ideological and political ability is weak, and they cannot fully explore and use the ideological and political teaching resources contained in the curriculum. Therefore, the ideological and political construction of practical courses is a difficult problem.

At present, many colleges and universities have carried out ideological and political practice research, and many experts and scholars have conducted in-depth research and discussion on the teaching design, teaching methods and experimental teaching of

ideological and political courses [3~6], providing a reference for the reform of ideological and political teaching of courses.

From the level of technical teachers' moral education, the integration of thinking and politics into course teaching can help teachers change the status quo of "teaching without educating" and change the concept of teaching that only focuses on the improvement of practical ability but not on the improvement of professional quality, so as to effectively enhance teachers' sense of mission and responsibility of moral education to educate people and ultimately achieve the teaching goal of educating people and the fundamental task of educating people with moral values.

To introduce ideological and political education, from the perspective of students, on the one hand, we should make full use of the classroom as an important position, through the study of computer knowledge system to explore their own logical thinking mode, cultural connotation and values; On the other hand, it is necessary to cultivate students' sense of innovation and entrepreneurship, teamwork and great power craftsman spirit through the operation of various hardware and software, so as to cultivate students' professional ethics and professional ethics, combine their personal development with the development of the country and society, and enhance their sense of social responsibility and mission. These two aspects are combined to guide students to discern the truth, goodness and beauty, and ultimately promote the healthy development of students' body, mind and personality and the formation of correct ideals and beliefs.

3. Chapter content and specific ideological and political point design

In this paper, the exploration of ideological and political elements in the curriculum starts from the following aspects [7~9]: (1)Enhancing cultural confidence from the perspective of history; (2) Focusing on the frontier and broadening academic horizons; (3) Inspiring the will through great people; (4) Building Empathy through Storytelling; (5) Encouraging self-improvement through gaps. In the process of excavation, we should be realistic and not far-fetched. With this as the guidance, around family and country feelings, cultural literacy and moral cultivation, we sort out the knowledge points of the curriculum, capture excellent traditional culture, refine the ideological and political elements contained therein, and build the mapping relationship between knowledge points and ideological and political examples. See Table 1 for details.

Table 1. Content Design of Ideological and Political Education

Teaching unit	Corresponding ideological and political content design
Chapter I: Computer System	1. According to Moore's Law, the knowledge system must be constantly upgraded to avoid being abandoned by the times. And with the development of artificial intelligence, manual labor will be devalued. You have to keep up with the times and learn new techniques. 2. From the calculation methods of the ancients, the great contributions of Zu Chongzhi are introduced, including the calculation of pi and the invention of the guiding car, and the preparation of the "Daming Calendar", which was the most advanced calendar in history at that time. 3. Describe China's achievements in supercomputers, such as Tianhe II, "Shenwei Taihu light", and illustrate the role of hardware and software development in national development by describing the main tasks these supercomputers perform in high-tech fields, such as weather forecasting, genetic analysis of life sciences, nuclear industry, military and aerospace.

	4. Through the blockade of Huawei and ZTE companies in China by the United States, students will be guided to realize the importance of technological development to the development of the country and be motivated to work hard to build the motherland.
Chapter II: Operating system	1. To enhance students' national pride through the introduction of domestic operating systems, including the current popular Hongmeng operating system. 2. By describing the functions of management information systems, the requirements of companies in terms of development capabilities are elicited, and students are guided to understand the requirements of future work capabilities.
Chapter III: Data representation and storage	1. When talking about binary, we will introduce the ***Zhou Yi*** in ancient China. Then it leads to Lao Tzu's integration of the thought essence of ***Zhou Yi*** into the ***Tao Te Ching***, creating a philosophical system with dialectical thinking as the core. 2. When talking about data representation, it leads to the plan for digital economy and digital development and construction in the 14th Five-Year Plan outline and long-term goals. 3. When talking about the data output, the Chinese character laser phototypeset system invented by Academician Wang Xuan is introduced, which is a technological revolution that can replace printing industry.
Chapter IV: Data Management	1. Introduce the domestic database technology and the development of domestic databases. 2. Explain that mastering data analysis can help to plan life and make decisions in life; In work, if one have the ability of data analysis, which can improve their competitiveness of the workplace, and enable them to report on their work accurately and effectively. 3. Describe the core competitiveness of the enterprise, including technology, skills and management mechanism.
Chapter V: Fundamentals of algorithm and programming	1. Propose that programming errors may cause huge problems. Taking the "Ariana" explosion accident as an example, it leads to that who can't ignore the problem because it is small. A bad habit can destroy life. 2. According to the characteristics of the algorithm, the method to solve the problems is introduced, like the algorithm, there are many ways. When encountering problems, we should broaden our thinking and solve the problem in many ways. 3. In the study of choice structure, through the explanation of choice conditions, students are guided to do things in different categories, to make the right decision when facing choices in life, and not to do things that harm other people's interests and illegal crimes. 4. In the study of loop structure, through various examples of cycles in life, such as the alternation of days and nights throughout the year, students are instructed to think repeatedly and thoughtfully about things. Then, through the example of "increasing strength by 1/1000 every day can increase strength by 44% in a year" (see Figure 1 for the procedure), students are told to work hard every day. In the long run, it will add up to a lot. We will carry out education on the spirit of craftsmanship and core socialist values of "dedication, excellence and innovation". 5. Through the introduction of modular program structure, guide students to do things with clear division of labor, both independent and cooperative, to jointly complete tasks, to cultivate students' team spirit, and to realize self value in the team and integrate into the team. 6. Through the examples of relational operation and logical operation program, this paper describes the diversity of connections, and the essence of thinking is realized by human brain with calculation, to carry out the materialistic education.

	7. Through the narration of the Divide-and-conquer method, it leads out that only when everyone is civilized and harmonious, can the country be civilized and harmonious. Only when everyone takes the responsibility of rejuvenation, can the whole nation be revived.
Chapter VI: Internet technology and Application	1. By analogy with the network protocol as traffic rules, it leads out that everyone must abide by the traffic rules, so that the traffic can be orderly and smooth, and then leads to that everyone should abide by the law and discipline. 2. Introduce the advantages of China's Beidou system: there are three kinds of orbital satellite combinations, which have strong anti blocking ability and improve the accuracy through multi frequency signals; It integrates navigation, communication capabilities, has precise positioning. 3. The fact that the domain name operating system and domain name resolution software are monopolized by foreign countries leads out the fact that we should try to change the status quo. 4. To stimulate students' interest in advanced technology by speculating that big data will evolve to a point when humans can predict the future. 5. Stimulate students' interest in learning these knowledge by explaining the integration of artificial intelligence development with computer technology, mathematics, cognitive science and neuroscience.
Chapter VII: Information Security	1. Remind students to install genuine software as much as possible to avoid computer system being invaded by viruses and unnecessary data risks. 2. Through the file recovery function of the operating system, to remind students that if they do something wrong, they still have a chance to make up for it and succeed if they correct it in time.

4. Specific implementation method

Here, we take the ideological and political case construction of the choice structure and loop structure in Chapter V as an example.

4.1. Case design

Former leader of the state Mao Zedong once wrote the inscription "Study hard and make progress every day", which has become a classic quotation that has inspired generations of Chinese to work hard. In view of the fact that some students are not clear about their learning goals and will after entering the university campus, and their learning effect is not good when they fish for three days and bask in the net for two days. When teaching the program control structure of Chapter V "Algorithm and Program Design", we designed an ideological and political case in combination with the example of "The Power of Daily Upward". As is shown in Figure 1:

```
strengh=1 #Initial energy
rate=0.001 #Try a little every day
workhard=input("Enter yes if you are trying, otherwise enter no:")

if workhard=="yes":
    for i in range(365):
        strengh=strengh*(1+rate)
    print("As a result of these efforts, power becomes:",strengh)
else:
    for i in range(365):
        strengh=strengh*(1-rate)
    print("The result of not working hard is that the power becomes:",strengh)
                                                                      Ln: 7
========================= RESTART: D:/ttxs.py =========================
Enter yes if you are trying, otherwise enter no:yes
As a result of these efforts, power becomes: 1.440251313429521
>>>
========================= RESTART: D:/ttxs.py =========================
Enter yes if you are trying, otherwise enter no:no
The result of not working hard is that the power becomes: 0.6940698870404746
```

Figure 1. Ideology and political case construction of Select structure and Loop structure.

4.2. Ideological and political guidance

Through the implementation of the program code, students can personally feel from the operation results of the code that if they make a little progress every day, it is an amazing power, and if they don't work hard every day and step back a little, it will have serious consequences. So as to guide students to clarify their learning objectives and persevere in it, and cultivate students to gradually establish a dedicated craftsman spirit.

5. Results and Evaluation

After the implementation of the curriculum construction, the curriculum has improved the teaching effect in all aspects. The effectiveness of the project is now evaluated from the following perspectives:

- Through the questionnaire, let the students feedback the effect of practice: Whether they have increased their interest in learning? Whether they have increased their enjoyment of the course? Whether they have increased the significance of learning? And whether they have improved the effectiveness of learning? The results showed that more than 70% of the students have made positive feedback on the above issues.

- The activity of the class has improved a lot than before. The students are more focused, less distracted in the class, and more actively participate in the discussion.

- As for the experimental part, it was found that after conducting the practice, the percentage of students submitting their experimental results increased a lot, and the experiments were more completed and better finished.

- By checking the test results and comparing with those before ideological and political integration, the average score of the course was improved, which really shows that students are more interested in the course, study more seriously, and the teaching effect is better.

- According to the statistics of the Computer Level Examination (MSOFFICE) of the students in these courses, it is found that more people take the examination than before, and the passing rate has increased.

6. Conclusion

This practice is based on the educational reform project "Ideological and Political Construction of University Computer Foundation", aiming at the course construction of "University Computer Foundation" (mainland enrollment) and "Information Technology" (foreign enrollment). The students' evaluation scores for both courses have been improved (more than 95% of the students rated the courses). From the evaluation, this practice has played a very good role in improving the teaching effect of the curriculum.

It is expected that in the future, the research methods and results of this paper will be applied to more courses, especially practical courses. Analyze according to the discipline background, development history, application scope, etc., combined with the typical cases involved in knowledge, deeply analyze the social and historical problems reflected in the cases, and let students reveal the corresponding philosophy through discussion, conversation and other forms, so as to exert a subtle influence on the students of academic production, and enable contemporary college students to achieve balanced development in all aspects. Consolidate and improve the effect of ideological and political education on students through ideological and political construction of multiple courses.

References

[1] Fu Huijun. Building university campus culture to enhance cultural nurturing ability--New exploration of university campus culture construction under the new media perspective. China Educational Technology, 2021(08):136-138.

[2] Li Jiao. The Path of Constructing Ideological and Political Education of Curriculum: A Perspective of the Strategy of Reinvigorating China through Human Resource Development. Journal of Lanzhou University (Social Science Edition),2022,50(4):10-18.

[3] Du Zhen-yu. All Visible Matters Contain Principles for All --The Principles and Strategy in Course Ideology and Politics Teaching in Science and Technology Education. Higher Education of Sciences, 2021(1):19-25.

[4] Zhou Xiaomeng, Qin Yuming. Innovative Exploration on Ideological and Political Construction of Journalism and Communication Education Curriculum, Chinese Higher Education. 2022,(11):35-37

[5] Lu Xueying, Huang Hongwu, Han Yong, Gao Xiujing. Practice and Thinking on Ideological and Political Construction of Engineering Postgraduate Education Curriculum ,Chinese higher education. 2022,(09):35-37.

[6] Hu Hongbin. The system structure and mechanism of curriculum ideological and political teaching evaluation, China University Teaching. 2022,(04):66-74.

[7] GUO Ying-shu, ZHENG Xiao-fei, LI Guo-hong, WANG Qian. Exploration and Reflection on Ideological and Political Teaching of Chemical Biology. Education Teaching Forum. 2022,(17):161-164.

[8] Wang Guoliang, Zhang Qing, Wang Tao, Zhang Xiaoning, Jiang Baobi. Exploration and Practice of Ideological and Political Education in Engineering Physics. Journal of Higher Education. 2022,(7): 158-161.

[9] Zhang shuhuan, Feng weigang. Research on Ideological and Political Education through all Curricula in Universities Based on Curriculum View: Theoretical Premises, Core Elements and Implementation Approaches. Journal of Beijing Union University, 2022,10(36): 25-31.