

Integrating Student-centered Ideological and Political Education into An University Computer Course

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Abstract

Effectively integrating ideological and political education into curriculum teaching is an important way for university teachers to implement moral education and cultivate talents. There are some problems in the existing ideological and political education of university curriculum, such as imperfect education system, poor effectiveness and difficult evaluation of moral education effect. To this end, a student-centered ideological and political education system is constructed through the whole teaching process in web front-end development technology course. This paper proposes the reform path of ideological and political education in the computer course from the aspects of moral training objectives, teaching content, teaching resources, teaching methods, and ideological and political evaluation. The close combination of the teaching content and moral education has improved the learning effect of students and teaching quality.

Keywords

Curriculum ideology and politics, Student-centered, Moral education, Talent cultivation.

1. Introduction

As the cradle of talents, universities adhere to the mission and responsibility of cultivating talent for the Party and the State. Students trained in universities should not only have solid and excellent skills, but also possess the virtue of serving the country, serving society, and being a good person. Curriculum is the main carrier for students to receive moral education and the main channel for shaping students into individuals with both moral and talent. Effectively integrating ideological and political education into curriculum teaching is an inevitable requirement for university teachers [1]. In the new era, university teachers not only need to study the improvement of teaching quality and student learning effectiveness, but also pay attention to students' own ideological and political growth needs from a student-centered perspective. As the leading role of the curriculum, university teachers should design curriculum ideological and political concepts that are deeply integrated with the curriculum knowledge system, innovate teaching methods to teach high-quality courses that help students achieve comprehensive development of knowledge, ability, quality and morality.

However, there are often the following shortcomings in the current ideological and political education. Firstly, the system of the curriculum ideological and political is incomplete and imperfect, which lacks top-level design concepts that run through the whole teaching process. Curriculum teaching and moral education cannot achieve synergy that results in poor effects. Secondly, teachers do not fully understand the internal needs and ideological reality of students, and do not implement moral education from a student-centered perspective that results in insufficient motivation to stimulate students and a lack of psychological resonance between

teacher and students. Finally, the current curriculum assessment mainly focuses on ability aspect, which lacks an effective evaluation system for the development of students' ideological and political qualities, as well as a lack of reflection on the effectiveness and existing problems of curriculum ideological and political teaching. In summary, it is a problem how to combine the characteristics of the curriculum and thinking methods to integrate a student-centered ideological and political education into the whole course teaching, which needs to be deeply explored and solved.

2. Courser Teaching Objectives

Web front-end development technology is a general limited elective course offered for all majors in the school, which is a course that closely combines theory and practice. The teaching objective of the course is to enable students to master the concepts, processes, tools, and ideas related to web front-end development, and to be able to comprehensively use technologies such as HTML language, CSS, JavaScript, etc. to create basic web pages and achieve diversified and good client experience page effects. It can promote students' ability to explore and learn independently in analyzing and solving problems, and provide comprehensive abilities and literacy reserves for future self-development. At the same time, the course focuses on loving the Party, State, socialism, the people, and the collective, emphasizing engineering ethics and professional ethics, improving legal literacy and strengthening cultural confidence. The course guides students to establish a correct and positive outlook on life, worldview and values, and to cultivate a sense of technology serving the country and society to undertake the mission of building a strong country.

The course conscientiously implements the Party's leadership in education and classroom teaching. It runs through the student-centered educational philosophy, which focus on the current situation and characteristics of students, their learning outcomes and their future development. In order to achieve the value guidance and educational goal of cultivating morality and talent, we implement the reform of ideological and political education in the course from the aspects of course content, ideological and political teaching resources, teaching methods and teaching evaluation.

3. The Reform of Ideological and Political Education in Courser

3.1. Content and System of Ideological and Political Education

The course is aimed at first-year college students. It can be found that almost all students have been applied to web system through various means before class and they are familiar with the application of web systems. However, the students lack a basic understanding of the overall structure and working principles of web system. The students have already completed the course of Computational Thinking before the start of the class. Although they can establish the idea of using computer science methods and modern tools to analyze and solve problems, their practical abilities are clearly insufficient and their ability to apply computers to solve practical problems urgently needs to be improved. Web front-end development course covers a wide range of knowledge, which is easy to understand and has strong practicality. In each class, students are able to design and finish beautiful web pages that show personal style through brainstorming and hands-on experience. Therefore, students have a strong interest in learning the course and are able to actively participate in classroom activities.

The ideological and political reform starts from the top-level design of the course on the basis of fully understanding students' learning situation and internal needs. Based on the course characteristics, we deeply explore the ideological and political education elements contained in the course, and naturally integrate them into the whole process of teaching.

The vigorous development of web front-end development technology in China is introduced, especially the rapid rise in the past decade, which enhances students' sense of national pride and fills them with confidence in Chinese technology and culture.

The story of Tim Berners-Lee, the father of the World Wide Web, is told with the aim of guiding students to establish values of selfless dedication. Tim Berners-Lee abandoned his patent application and opened the web to the world for free, which not only makes a milestone chapter in the globalization and popularization of the internet, but also allows people around the world to enjoy the wonderful joy brought by this great invention for free.

Students should realize through course learning that software jointly developed and implemented by the front-end and back-end not only refers to programs running on a computer, but also includes relevant regulations, documents and data. Software development involves intellectual property protection and other aspects. It is necessary to comply with the Intellectual Property Law of the People's Republic of China and Cybersecurity Law of the People's Republic of China. The course will guide students to respect the achievements of others' labor and become loyal advocates, conscientious followers, and steadfast defenders of socialist rule of law.

The use of non-standard coding in web front-end development can affect webpage browsing speed and adaptability. In programming, it is necessary to apply various programming libraries and application programming interfaces to write standardized and readable code. The course will cultivate students' rigorous academic spirit by guiding them to value code quality and comply with programming standards.

The story of Chinese cryptographer Wang Xiaoyun is told to guide students to turn China into a strong technology country. Professor Wang proposed the theory of collision attack of cryptographic hash function, found out the weakness of MD5, SHA-1 cryptographic algorithms, and designed a new international standard of cryptographic hash function. In order to achieve the Chinese Dream of the great rejuvenation of the Chinese nation, everyone should, like professor Wang, combine their ideals with nation progress and work tirelessly.

Integrating a global perspective into CSS page layout, which will guide students to establish a holistic and harmonious vision of overall situation.

The course practices can promote students' cultural confidence and cybersecurity awareness, and cultivate their research spirit by designing and creating webpages such as classic poetry appreciation pages, the survey questionnaires for college students' cybersecurity awareness, and the rotation charts of national craftsmen.

3.2. Constructing the Diverse Ideological and Political Teaching Resources

The teacher combs the course content, selects representative figures, deeds, international current events, social hot spots and other ideological and political materials, and makes teaching resources. The diverse teaching resource libraries that integrate ideological and political elements are constructed to provide rich resources for the implementation of ideological and political teaching.

Due to the fact that the learning outcomes of the course are webpages with strong expressiveness, it is highly feasible to combine teaching content with ideological and political elements in teaching. The course adopts case teaching, which effectively integrates knowledge points and ideological and political elements into specific teaching cases based on a thorough understanding of students' ideological trends and interests. For example, creating a personal motto webpage reflects the integration of moral education into teaching content.

Students have strong initiative in the learning process because of the extensive practice tasks in the course. They can more deeply receive moral education by expressing ideological and

political elements in their own works. Therefore, a practical project library, which contains multiple practical cases, is constructed in the course.

Micro videos have the characteristics of precise content, strong sense of immersion and lively rhythm, which are more in line with educational cognition. Students are more inclined to accept the ideological and political contents based on micro videos. The course utilizes online teaching platforms and adopts micro video methods to integrate ideological and political content into the course. This not only fully stimulates students' enthusiasm and participation, but also guides them to think about the ideological and political education elements behind the content of micro videos. At the same time, the course encourages students to create micro videos to promote positive energy and spread goodness and beauty through individual or team collaboration. These micro videos are uploaded to online classrooms. Students can actively participate in the ideological and political education of the course through sharing, liking, commenting on micro videos, and other means.

The new knowledge and technologies in the web field have a strong attraction for students, which is conducive to stimulating their interest in learning. Therefore, the course constructs a dynamically updated web front-end result library, such as 4D perspective, DNA spiral structure, etc. Through the cool website effect, students can feel the charm of the front-end and stimulate their learning interest.

Excellent works from students are selected to build a student work library in the course. Displaying excellent works through online teaching platforms and classroom teaching can inspire students and form positive incentives.

3.3. Adaptability Reform of Teaching Methods

The student-centered ideological and political education reform fully utilizes various teaching methods and integrates moral education into knowledge transmission and ability cultivation.

Typical teaching cases containing ideological and political content are designed to achieve the integration of course knowledge, skills, and ideological and political elements. Through case analysis and practice, students can unknowingly receive ideological and political education while solving practical problems.

Vivid and diverse teaching scenarios such as micro videos and animations have been created, which can help students understand history and establish a correct outlook on life, worldview and values.

Question and answer, discussion, and other forms are used to increase the content of ideological exchange, which can guide students to actively participate in classroom and express their opinions. Interaction can enhance students' classroom participation and achieve a transformation from one-way indoctrination teaching to multi-directional empathy experience. Harmonious interactions between teacher and students, as well as between students, can generate psychological resonance between teaching and learning, and improve the effectiveness of course teaching.

The ideological and political elements are integrated into the course practice. With the goal of problem-solving and under the guidance of teacher, students solve problems through self-directed learning, in-depth exploration, and group collaboration on practical content. It enables students to receive ideological and political education while solving problems, which promotes their physical and mental development.

The online teaching platform is used to assign previews before class and homework after class to consolidate and deepen the ideological and political education of the course [2]. Students study in a team to complete assignments with themes such as traditional culture, moral stories, heroes, scientists and hometown introductions. They create pages, conduct group presentations and answer questions in class on technical and ideological aspects. It not only

extends the ideological and political education in the classroom to extracurricular activities, but also urges students to search for relevant materials, which not only improves their learning ability and ideological level, but also cultivates their teamwork spirit. The content of ideological and political education is extended outside the classroom. Students are able to acquire ideological knowledge and moral education during the learning process.

3.4. Evaluation of Course Ideological and Potical Education

The course constructs a multidimensional evaluation system of “teacher to student, student to student, and student to teacher”. Based on the results of the direct evaluation and indirect feedback, continuous improvement measures are proposed and a closed-loop teaching implementation evaluation process of “course evaluation, feedback & revision, teaching practice” is formed. The multidimensional teaching evaluation system of the course is shown in Fig. 1.

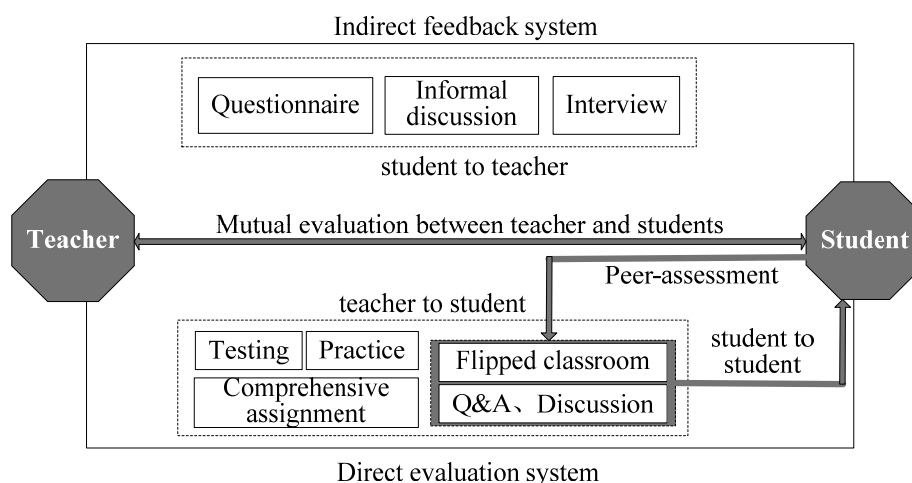


Figure 1. Multidimensional teaching evaluation system

The course adopts a full process formative evaluation. The proportion and score criteria of the evaluation methods are shown in Table 1.

Table 1. The proportion and score criteria of the evaluation methods

Evaluation methods	Proportion	Score criteria
Flipped classroom and interaction	25%	Evaluate grades based on students' cognitive level, analytical ability, emotional attitude of participating in course.
Testing	20%	Automatically evaluates grades based on the scoring criteria of objective questions through the online teaching platform.
Practice	30%	Evaluate grades based on the completeness of submitted documents and the correctness of the submitted codes.
Comprehensive assignment	25%	Evaluate grades based on the assessment requirements and scoring criteria for comprehensive assignment.

There are ten assessment requirements for comprehensive assignment. The first item of the requirement is whether the website theme is positive and creative, which is an evaluation of

students' moral education and three values on life. Flipped classroom, interaction and comprehensive assignment all have a clear proportion of ideological and political assessment scores. Although there is no explicit proportion of ideological and political assessment in testing and practice, the effectiveness of ideological and political education is usually "internalized in the heart and externalized in the actions", which often are reflected in students' external behavior. The seriousness of students' efforts towards the course, the standardization of code writing, and the practical application of exploratory projects also implicitly reflect the teaching effect of ideological and political education in the course.

In addition to direct evaluating the effectiveness of ideological and political education, the course also adopts indirect feedback methods. The informal discussions between teacher and students, interviews, and survey questionnaires distributed on the network teaching platform are implemented to obtain feedback on the evaluation of course ideological and political effects. Through students' subjective evaluation, it is possible to have a clearer understanding of their views on the ideological and political elements and cases, as well as their interests. It makes easier to choose cases and materials in future teaching. In addition, natural language processing technology can be used to analyze the questionnaire, and word cloud technology can be used to visualize the core concerns in feedback [3], which implies the common interests of students.

Based on the direct evaluation and the indirect feedback, teachers can identify the shortcomings in ideological and political education, analyze their causes, and strive to seek improvement measures. The ideological and political education can be improved with a focused goal and the course resource libraries are updated timely, which continuously improve the effectiveness of ideological and political education.

4. Conclusion

This paper elaborates on the design and practice of integrating student-centered ideological and political education into the web front-end development technology course. Through the implementation of course ideological and political reform, students' learning enthusiasm is full, classroom interaction is active, and learning effectiveness is significantly improved

Acknowledgments

This work was financially supported by Undergraduate Education and Teaching Foundation of Dalian Polytechnic University (No.JGLX2023102, No.JGLX2023030).

References

- [1] J. Zhang. The foundation of establishing a university lies in cultivating morality, Party Course Reference, (2020), No.19, p.63-65. (In Chinese)
- [2] Z. Q. Wang, Z.F. Yin. Online education oriented design and estimation of ideological and political: an edge computing approach, Journal of Multimedia Information, vol. 10 (2023) No. 2, p.137-144.
- [3] L. Y. Tu, L. Wu. An ideological and political education method of university students based on data mining, Third International Conference on Advanced Hybrid Information Processing, Nanjing, China, September 21-22, 2019, p. 401-408.