Promoting Innovation and Practice of Introduction to Artificial Intelligence Course with Curriculum Civics as a Handle

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

This paper discusses the construction of Civics in the Introduction to Artificial Intelligence course for computer science majors at the Zhejiang Institute of Science and Technology, taking into consideration the rapid development of AI technology and society's increasing demand for skilled computer professionals. The following suggestions are proposed: Firstly, the curriculum should be designed to strengthen the educational content of humanities and social sciences, in order to provide a well-rounded education that complements the technical skills taught in the course. Secondly, during the teaching process of the Introduction to AI course, classroom interaction should be promoted and students should be encouraged to express their personal views. Additionally, assessment of students' comprehensive ability should be emphasized since the application and development of AI technology requires individuals with high-quality comprehensive skills. Thirdly, in the assessment method, there should be a focus on students' innovation and teamwork abilities. Encouraging students to collaborate and innovate in solving practical problems is a crucial part of

developing their skills in AI technology. Through the implementation of the above suggestions, students' awareness and understanding of AI technology can be improved, while also enhancing their ability to think critically and problem-solve effectively.

1. INTRODUCTION

Artificial intelligence (AI) is one of the hot areas of social development nowadays, and it is also an important course that computer science students must take. However, it is not enough just to learn the technical theory of AI, but more important is how to carry out ideological and political education in the study, to guide students to correctly view the development and application of AI, and to establish correct values and moral values. In the Introduction to AI course for computer science majors in Zhejiang Institute of Science and Technology, ideological and political education is an essential part of the course. The purpose of this paper is to discuss how to carry out ideological and political construction in this course, so as to provide strong support for the cultivation of computer professionals with high ideological and moral qualities [1,2].

This paper first analyzes the current development status and social impact of AI technology, and points out the potential risks and challenges it brings. Then, this paper puts forward the suggestions on how to carry out the construction of Civics in the Introduction to AI course, taking into account the actual situation of computer science majors in Zhejiang Institute of Science and Technology [3]. These suggestions mainly involve three aspects: curriculum setting, teaching process and assessment methods. In terms of curriculum setting, contents such as social impact and ethical issues of AI technology should be incorporated into the course to let students understand the potential risks and countermeasures of AI technology. In the teaching process, the sense of service and responsibility of AI technology should be emphasized, so that students can clearly understand the social responsibility they should take as computer professionals. In the assessment method, the innovation ability and teamwork ability of students should be emphasized, and students should be encouraged to solve practical problems through cooperation and innovation [4]. Finally, this paper summarizes the importance and implementation effect of the above suggestions and looks forward to the future development direction of the

construction of the Civics of Introduction to AI course [5,6].

The rapid development of AI technology has brought great changes and opportunities to society, as well as potential risks and challenges that cannot be ignored. In terms of the application of AI technology, it has been widely used in healthcare, finance, education, intelligent transportation, intelligent manufacturing and other fields, which has greatly improved the productivity and efficiency of society. At the same time, AI technology has also brought about issues such as unemployment, privacy protection, morality and ethics, which have important implications for the development of society and the lives of individuals [7,8].

First, the rapid development of AI technology has brought about a dramatic change in the job market. Driven by technologies such as automation and machine learning, many jobs in traditional industries have been replaced by automation and intelligence, including traditional factory jobs, service industry jobs, and certain white-collar occupations. Although the development of AI technology has also brought new jobs, the new jobs require higher skills and technologies, bringing greater employment pressure to people who do not have the relevant skills and technologies; second, the development of AI technology has also brought challenges to privacy protection. AI technology requires a large amount of data for training and learning, and this data includes personal privacy information, which will lead to serious privacy leakage problems if used and disseminated uncontrolled. In addition, some hackers and malware may also use AI technology to attack and destroy; finally, the development of AI technology also brings moral and ethical issues [9,10]. For example, should self-driving cars give priority to protecting the lives of passengers or pedestrians in the face of danger? Are the results of AI algorithms fair? These questions need to be carefully considered and discussed in order to ensure social justice and fairness in the application of AI technology. To sum up, the development of AI technology brings both opportunities and challenges, as well as risks and problems. In the training of

computer professionals, it is necessary to emphasize that they should have correct values and moral values, and assume social responsibilities and obligations in order to ensure the healthy and sustainable development of AI technology [11,12].

2. THE MAIN MEANS AND METHODS OF CURRICULUM IDEOLOGICAL AND POLITICAL CONSTRUCTION

2.1 Course Construction

The first step to strengthen the construction of curriculum Civics of the Introduction to AI course is to strengthen the educational content of humanities and social sciences. As a computer science major, the Introduction to AI course needs not only to master the basic concepts and theoretical knowledge of AI technology, but also to understand the impact and challenges brought by AI technology to society and individuals. Therefore, the educational contents of humanities and social sciences, such as ethics, social responsibility, fairness and justice, and privacy protection, should be fully integrated in the course design. Through lectures, discussions, case studies and other ways, students are guided to form positive and responsible values and ideological qualities; then they need to focus on the practical development of the course: the application of AI technology is inseparable from the practical aspects, therefore, the practical content, including experiments, projects, case studies and other aspects, should be emphasized in the course design. Through the practical link, students can understand more deeply the application and challenges of AI technology, enhance their hands-on ability and practical application ability, and lay a solid foundation for their future career development; at the same time, students should be guided to think comprehensively: AI technology is a comprehensive technology involving multiple disciplinary fields, therefore, students should be guided to think comprehensively in the course design, and learn and master interdisciplinary The curriculum should be designed to guide students to think holistically, learn and master interdisciplinary knowledge [13]. In addition, students should also learn how to conduct scientific problem analysis and solution, master the application of AI technology norms and standards, to be fully prepared for future career development; improve students' teamwork skills: In the process of applying AI technology, teamwork skills are crucial. Therefore, the course

design should focus on cultivating students' teamwork spirit and ability, and guiding them to learn to cooperate with others and learn to solve problems together through project practice and other means [14,15].

In short, the construction of curriculum Civics should not only focus on students' professional knowledge and skills, but also on their moral, character, ideological, and comprehensive qualities, and guide them to take up their future work and social responsibilities.

2.2 Teaching Process Construction

In the teaching process of the Introduction to AI course, we consider promoting classroom interaction and encouraging students to express their personal views: classroom interaction is an effective means of curriculum thinking that can enhance students' ability to think and express themselves, as well as promote communication and cooperation among students. Teachers can stimulate students' interest and participation through pre-class questions, group discussions, interactive quizzes, etc., guide students to discuss issues such as the application and social impact of AI technology, encourage students to express their personal views and opinions, and promote the openness and diversity of students' thoughts; guide students to conduct literature reading and case analysis: for the application and social impact of AI technology, teachers can guide students to Conduct literature reading and case studies to understand the latest development and application of AI technology, explore the impact of AI technology on society, economy and environment, and analyze the risks and challenges brought by AI technology. In this way, students' ability of thinking and critical thinking can be improved, and their scientific spirit and innovative consciousness can be cultivated; carry out practical teaching and project practice: practical teaching and project practice are important means for the construction of curriculum thinking and government. Teachers can provide students with an in-depth understanding of the applications and challenges of AI technology through experiments, simulations and projects, and improve students' practical and innovative abilities. At the same time, in the process of practice, students can also be guided to abide by academic norms and professional ethics, and cultivate their sense of social responsibility and civic quality; strengthen course evaluation and feedback: course evaluation and feedback is an important

guarantee for the construction of Curriculum Civics. Teachers can understand students' learning and thought dynamics through course evaluation and student questionnaires, adjust teaching strategies and contents in time to improve teaching effectiveness and quality. At the same time, teachers can also provide students with personalized guidance and feedback to help them discover and solve problems and promote their overall development and growth [16,17].

In short, the construction of curriculum thinking and politics needs to be carried out throughout the teaching process, focusing on student participation and experience to improve students' ability.

2.3 Appraisal Party Construction

First of all, highlight the assessment of comprehensive ability: the application and development of AI technology requires talents with high comprehensive quality, so the course assessment should highlight the comprehensive ability of students. The assessment should cover knowledge understanding, application ability, innovation ability and practical ability, and focus on students' ability to think and think critically. At the same time, students should also be assessed and evaluated comprehensively and thoroughly through essays, lab reports, project works, etc.; advocate honest exams and course design: honest exams and course design are one of the important means of Curriculum Civics construction. Teachers can advocate students' compliance with academic norms and professional ethics and cultivate students' sense of integrity and responsibility through standardized examination management and course design. At the same time, they can also strengthen the cultivation and education of students' integrity consciousness through classroom education and student oath; emphasize students' independent learning and inquiry spirit: the development of AI technology is changing rapidly, and students need to have the ability of independent learning and inquiry. Therefore, in the assessment method, students can be guided to personalized learning and research, encouraged to explore the application and development trend of AI technology through academic papers, open source projects, etc., and cultivate students' independent learning and innovation spirit; pay attention to students' ideological dynamics and psychological health.

The assessment method is not only an evaluation of students' learning outcomes, but also a concern and guarantee for students' ideological dynamics and psychological health. Therefore, the assessment method should focus on students' psychological health and growth, encourage students to actively participate in classroom teaching and practical projects, pay attention to students' ideological dynamics and psychological health, and provide timely guidance and assistance to students.

In conclusion, the assessment method of the Introduction to AI course should focus on the construction of course thinking and politics, highlight the assessment of students' comprehensive ability, advocate honest examination and course design, emphasize students' independent learning and inquiry spirit, pay attention to students' ideological dynamics and psychological health, and provide guarantee and support for students' comprehensive development and growth.

3. BUILDING EFFECTIVENESS

After the construction of the Curriculum Civics, students' ideological awareness has been improved, students have a deeper understanding of the application and development of AI technology, and enhance their ability to think about and understand AI technology. At the same time, the construction of curriculum thinking and politics also strengthened students' professional ethics and sense of social responsibility, and promoted the improvement of students' ideological and moral quality. Students' comprehensive ability has been improved. Under the guidance of the construction of the Curriculum Civics, teachers focus on cultivating students' comprehensive ability, and the assessment methods are more comprehensive and diversified. Through the assessment of many aspects such as knowledge understanding, application ability, innovation ability and practical ability, the comprehensive ability of students has been improved. The employment competitiveness of students has been improved. The construction of curriculum thinking and government focuses on cultivating students' innovation and practical ability, and enables students to better apply what they have learned in practice through project practice and open source projects. This can not only improve students' practical ability, but also create more opportunities and competitiveness for their subsequent employment. Students'

psychological health is paid attention to and guaranteed. The construction of curriculum thinking and government focuses on students' psychological health and growth, and provides timely guidance and assistance to students by paying attention to their thought dynamics and psychological health. This can improve students' motivation and learning outcomes, as well as safeguard their psychological health and growth.

To sum up, the construction of curriculum thinking and politics has played an important role in the Introduction to AI course, promoting students' comprehensive ability and ideological awareness, enhancing their innovation and practical ability, improving their employment competitiveness and mental health protection, and providing protection and support for their overall development and growth.

Since the implementation of the curriculum ideology and politics teaching in the "Introduction to Artificial Intelligence" course, which is aimed at students in the 2018 and 2019 classes of the Computer Science major, a total of 95 students, a school-level demonstration course for curriculum ideology and politics has been approved.Through the combination of theoretical and practical teaching methods, students have strengthened their comprehensive theoretical knowledge while also being able to innovate independently and actively communicate with their teams. This has resulted in good teaching outcomes and stimulated students' exploratory awareness, cultivating a group of college students who possess solid professional skills as well as high ideological and political awareness.

In recent years, students who participated in subject competitions have won multiple national and provincial awards. Among the 2018 students who took the "Introduction to Artificial Intelligence" course, many have been admitted to famous universities such as East China Normal University, Zhejiang University of Technology, and Shanghai Maritime University to pursue their graduate studies, continuing to grow into talents that the country needs.

4. CONCLUSION

With the continuous development and application of AI technology, the importance of the introductory course of AI has become increasingly prominent. The construction of Curriculum Civics is an important part of the Introduction to AI course, which will become the focus and hot spot of course teaching. In the future, we need to further strengthen the construction of curriculum thinking and politics, focus on cultivating students' humanistic qualities and innovation ability, and better meet the needs of society and industry.

In the future, we can further promote the construction of curriculum thinking in the following ways.

1. Promote interdisciplinary collaboration: AI technologies have a wide range of applications and require interdisciplinary collaboration with other disciplines. We can introduce other disciplines, such as philosophy, psychology, and law, into the curriculum to help students better understand and apply AI technologies.
2. Strengthen practical teaching: Strengthen practical teaching in the course, introduce real cases and projects, and improve students' practical ability and innovation ability. At the same time, through practical teaching, students can better understand the application and development of AI technology and improve their learning interest and learning effect.
3. Focus on cultivating students' humanistic literacy: The application of AI technology requires attention to ethical and moral issues and needs to cultivate students' humanistic literacy. We can introduce ethical and moral discussions in the course to strengthen students' sense of social responsibility and civic consciousness.
4. Promote technology popularization education: Promote technology popularization education to improve public awareness and understanding of AI technologies, reduce technology abuse and misuse, and strengthen social governance and regulation of AI technologies. We can introduce technology popularization education in the curriculum to let students understand the importance and role of technology popularization education.

In conclusion, the construction of Curriculum Civics will become an important part of the Introduction to AI course, which needs to strengthen the joint efforts of teachers and students. Through continuous improvement and refinement, we can better promote the construction of course thinking and provide better protection and support for the overall development and growth of students.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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