



Project Development Course Analysis and Data Security Research of Software Technology Major Based on Broken Line Chart

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Abstract. This paper takes the survey data of software technology teachers in many higher vocational colleges as samples, the data analysis results are displayed in the form of broken line chart, so as to illustrate the urgency of curriculum ideological and political construction. Then, the paper takes the syntax rules in the programming language and the user data security in the project development as the starting point, deeply analyzes and excavates the ideological and political elements of the curriculum, provides some methods and ideas for the construction of curriculum ideological and political of software technology major, and plays a positive role in cultivating software talents with both morality and technology.

Keywords: broken line chart · rule of grammar · Verification Code · data security · safety consciousness

1 Introduction

In recent years, the technology used for software development has developed very fast, and various new technologies have developed in a “blowout” manner. Such a development posture puts forward higher requirements for the teaching of software technology majors. The knowledge objectives in the talent training specifications should be dynamically adjusted with the changes of technology and cannot be limited to some specific curriculum objectives, but the quality objectives can be relatively unchanged. Curriculum ideology and politics is one of the important ways to cultivate quality. The difficulty of curriculum Ideological and political lies in how to integrate professional knowledge with ideological and political education. The teaching of professional knowledge focuses on the “truth-seeking” of knowledge, while ideological and political education requires the unity of “truth, goodness and beauty”. Therefore, how to integrate “truth” in the field of knowledge into “goodness and beauty” has become the primary problem faced by curriculum ideological and politics [3].

Under the background of booming and rapidly updated development technology and “great ideological and political work”, how to carry out the curriculum ideological and political construction of software technology specialty, no matter how the technology

changes, can be unchanged to cope with ten thousand changes. Then, through the teaching of professional courses, we should implement the fundamental task of “Building Morality and cultivating people” and cultivate software technology professionals with both morality and technology, which requires each software technology professional teacher to explore and Practice for a long time.

Under the background of “great ideological and political work”, how do we carry out the construction of curriculum ideological and politics of the software technology major, implement the fundamental task of establishing virtue and cultivating people through professional course teaching, and cultivate software technology professionals with both morality and technology, this requires each software technology professional teacher to explore and Practice for a long time.

2 The Current Situation of Curriculum Ideological and Politics of the Software Technology Major in Higher Vocational Colleges

The professional courses of software technology major in higher vocational colleges are mainly “theory + practice” courses. The practical operability of the courses is very strong. More than 90% of the courses need to write code. Such courses have subverted the way students learn knowledge in primary and secondary schools, requiring students to learn and comprehend the knowledge in the professional field in a new way, and apply these knowledge to practice. There is no routine or step-by-step inherent mode in the application of such knowledge. More often, students need to make careful analysis through strong logical thinking to get solutions and ideas, and write code according to this idea to realize functions.

The characteristics of higher vocational students are generally low in logical thinking ability and weak in mathematics and English. Therefore, it is quite difficult for them to learn the courses of software technology. In the process of teaching, teachers of professional courses devote almost all their energy to how to make students fully understand professional knowledge, how to make students write project code smoothly, and how to solve problems in code operation. They seldom consider which ideological and political elements in the curriculum can be mined, let alone organically integrate these ideological and political elements into the teaching process, making the curriculum ideological and politics of software technology majors in the primary stage for a long time. Some teachers who have participated in the teaching ability competition or the curriculum ideological and politics competition do a little better, because they all have high requirements for the curriculum ideological and politics in these competitions. The participating teachers, active or passive, have deeply analyzed and excavated the ideological and political elements of the participating courses, and to a certain extent have achieved the goal of promoting teaching through competition.

Figure 1 is the broken line chart results after the investigation and analysis of curriculum ideological and political situation of software technology teachers in many schools.

According to Fig. 1, only 12% of professional teachers can often carry out curriculum ideological and politics, 56% occasionally, and 32% of teachers do not carry out it at all.

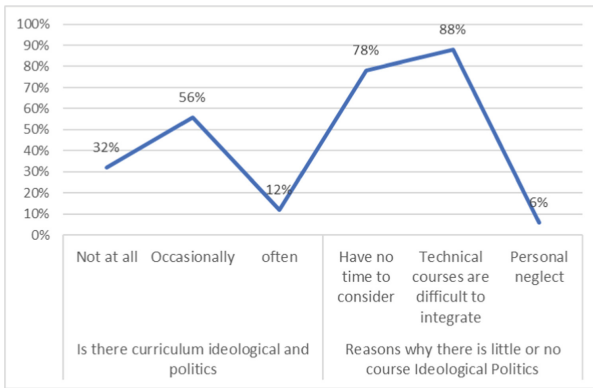


Fig. 1. The current situation of curriculum ideological and political of software technology major.

The main reason is that they have no time or think that technical courses are difficult to integrate into curriculum ideological politics.

In general, the construction of curriculum ideological and politics of the software technology major in higher vocational colleges still has a long way to go.

3 Construction Measures of the Construction of Curriculum Ideological and Politics of the Software Technology Major in Higher Vocational Colleges

3.1 Improving Teachers’ Ability of Curriculum Ideological and Politics

In order to cultivate students with both morality and skills, teachers with both morality and skills are required. As the saying goes, “To forge iron, one must be strong”. College teachers, as the “main force” of curriculum ideological and politics, should take the initiative to build and actively participate in it, so that all kinds of courses can protect a section of canal and plant a responsible field even better, and form a synergistic effect with ideological and political courses [4]. To improve the curriculum ideological and political ability of professional teachers, we can start from the following aspects.

First, strengthen teachers’ awareness of educating people. It has been mentioned above that the software technology professional teachers consider more professional and technical issues, and pay more attention to teaching in the teaching process. This does not mean that the professional teachers do not have the moral level of educating people, but that they do not have enough awareness of educating people. They think that educating people is the work of counselors or class teachers, and educating people in class will affect the teaching progress of the course.

Second, we should dig deep into the ideological and political elements of professional courses. Through the seminar, we will jointly discuss the curriculum ideological and political routines that can be used in the software technology professional courses, and fully tap the curriculum ideological and political elements of each class of courses. These elements will not be eliminated because the technology update iteration is too

fast, but can form the curriculum ideological and political element Library of software technology through continuous precipitation and accumulation.

Third, improve the curriculum ideological and political ability of professional teachers. After having a library of curriculum ideological and political elements, in order to avoid the problem of rote copying in the classroom, it is necessary to regularly organize curriculum ideological and political competitions within the major, so that professional teachers can deeply understand these elements, integrate the teaching content with curriculum ideological and political elements in the classroom, and achieve the educational effect by “moistening things silently”.

3.2 Analyzing the Curriculum Ideology and Politics at the Professional Level

The so-called professional level curriculum ideology and politics refers to the curriculum ideology and politics applicable to the vast majority of professional courses. The courses of software technology major are mainly divided into front-end courses, back-end courses, graduation project design and graduation internship. As a highly practical computer course, the mining and integration of curriculum ideological and political elements should be accurate, practical and natural, fit the teaching design, and arouse the empathy of students, so as to improve the students' thinking ability and make the students' thinking extend vertically to produce behavior identity [5].

3.2.1 Extend the Grammar Rules in the Program to Various Rules, and Cultivate Students' Awareness of Rules

Both front-end courses and back-end courses will encounter grammar rules at the beginning of learning. For example, requirements for the use of semicolons, quotation marks, dots, brackets, or the definition and access methods of constants, variables, arrays, functions, objects, etc. If there is a problem with the syntax anywhere, it will lead to the failure of a part or even the whole of the project to run as scheduled. When explaining these grammar rules, teachers can constantly instill in students the awareness of “Nothing can be accomplished without norms or standards”, which extends from abiding by school rules and disciplines to the cooperation rules in the team, and then to abiding by laws and regulations. Whenever students make mistakes in typical grammar rules, teachers can take the opportunity to guide students and warn them that they will be punished if they do not comply with the rules. Some rules are violated and there is room for repair, but some rules are violated and they will bear serious consequences, so as to cultivate students' “rule awareness”. Only when everyone abides by the rules, obeys the management, restricts their own behavior, and advocates civilization and harmony, can we actively cultivate and practice the core socialist values in a real sense.

3.2.2 Explain the Details in the Project Development, and Instill the Idea that “Details Determine Success or Failure”

Details in project development determine success or failure. There are many seemingly inconspicuous details in the project code. Such details often do not have any syntax errors at runtime, but often make the running results far from the expected. Take the

boundary value problem in the cycle condition or judgment condition as an example. For example, if the cycle condition of the cycle variable is less than or equal to 10, it is written as less than 10 in the program, and the operation process is less than once, the result may be unpredictable; In the multi branch structure, if a branch is neglected or omitted due to its very low probability of occurrence, and it is not found during the test, once the product is put into operation, it may cause serious problems such as project failure, downtime and even system paralysis. To avoid such problems, students need to be very rigorous in the development process. Only with a rigorous attitude can they write rigorous code and control all possible risks within a controllable range.

3.2.3 Integrate “Learn, Understand and Do Well in a Down-To-Earth Manner” into the Project Development, and Cultivate Students’ Principles of Treating Others and Dealing with Affairs

The courses of software technology major mostly adopt project-based teaching. No matter the size of the project, it can always complete a function independently. Taking “learn, understand and do well in a down-to-earth manner” in the study of political theory as the ideological and political element of the course in project-based teaching and learning can better cultivate students’ project-based thinking. Students are required to learn and understand. Students are required to consciously and actively learn the grammar rules in the project development. These rules are the theoretical basis. They should strive to form their own project-based thinking under the guidance of the theoretical basis. As long as they persist, they will surely add up and let themselves have a deep project development foundation. The students are required to make sure that they understand it. By smoothing out the steps in the project development and understanding the logical thinking relationship between multiple documents, you can easily draw the flow chart of the whole project, so that you can be comfortable in the project development. Only at this stage can you truly form your own project thinking. Students are required to do the project well. “do well” in a software project means that every step of the project is very rigorous, leaving no loopholes and no opportunities for others to attack. Users can use such a project with confidence. “learn, understand and do well in a down-to-earth manner” is a three-step process in project learning and development, a principle of treating others and dealing with affairs, and an indispensable element of “craftsman spirit”.

In summary, the awareness of rules, the fact that details determine success or failure, and the sturdy style of learn, understand and do well in a down-to-earth manner can be integrated into all programming courses, and can be used as the ideological and political elements of the courses at the professional level in the software technology major.

3.3 An Analysis of Curriculum Ideology and Politics at the Curriculum Level

3.3.1 In the Front-End Course, We Focus on Searching Materials and Web Page Design to Shock and Shock Students’ Hearts

The commonness of front-end courses is that they do not involve information security and leakage, and emphasize interface design, material selection, special effect implementation, etc. Teaching items and materials can be used as the carrier of Ideological and

political elements of such courses. Students should search for materials by themselves and design web pages of red tourist resorts. During this period, students can browse more revolutionary materials and cultivate their patriotic feelings; Volunteer service websites or various public welfare websites can be designed to let students learn more about public welfare undertakings through this form, and cultivate students' love, responsibility and public welfare of caring for the earth home. The shock that students feel in the design process and the degree of education they receive will be much better than the effect of teachers' oral preaching. In addition, from the aspect of website display effect, it is also required that the works designed by students, whether in terms of style design, content selection or access speed, should be able to meet the aesthetic requirements of most users, that is, to meet the needs of the public. In this way, students can be trained to consider problems from the standpoint of others and get rid of their self-centered awareness.

3.3.2 In the Back-End Course, Students' Sense of Responsibility and Safety Consciousness Are Cultivated by Taking the Opportunity of Protecting User Data

Back-end courses are generally associated with databases and involve various data issues. Therefore, teachers need to pay more attention to the education of responsibility and security awareness in project development.

For example, in the application of verification code in the registration or login function, if there is no verification code, a simple registration machine software can register hundreds of accounts in a few seconds. If multiple registration machine software are opened at the same time, the registration speed will increase linearly, and broken line chart results of database data growth is shown in Fig. 2. After adding the verification code, the software script of the registration machine cannot obtain the value of the verification code and cannot construct HTTP packages, so it cannot complete the automatic registration function, thus protecting the security of the database server.

Another example is the problem of password encryption in the registration function. The process of encrypting the password is unknown to the user, but we cannot ignore the encryption of the password because the user does not know it. Otherwise, once the

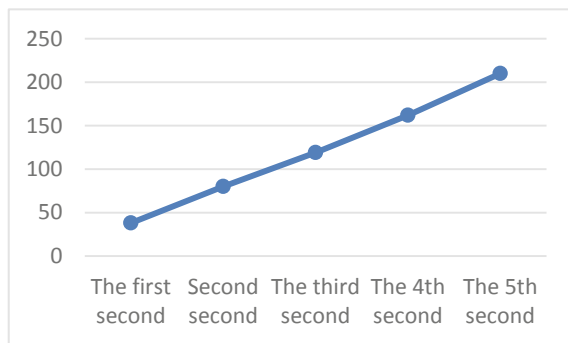


Fig. 2. The results of database data growth.

database content is stolen, all users' accounts and passwords will be easily stolen by intruders, and the consequence of user account information leakage may be the loss of huge amounts of property.

If the SQL injection problem in login is not solved, any malicious user can log in through the malicious string without registration, and then publish malicious content in the website or tamper with the information of other users. If unlimited attempts are allowed in the login process, no matter how high the security level of the password is, it may be tried out after countless attempts. Therefore, in the login process, it is required to lock the account password after several wrong attempts, which is also an important means to protect the user information.

The security issues in the login function are shown in Fig. 3.

The login function with added security is shown in Fig. 4.

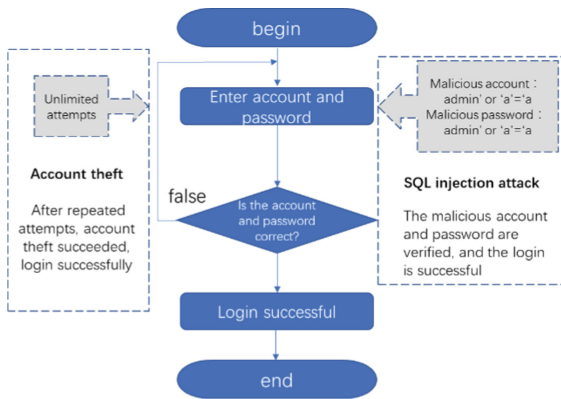


Fig. 3. The security issues in the login function.

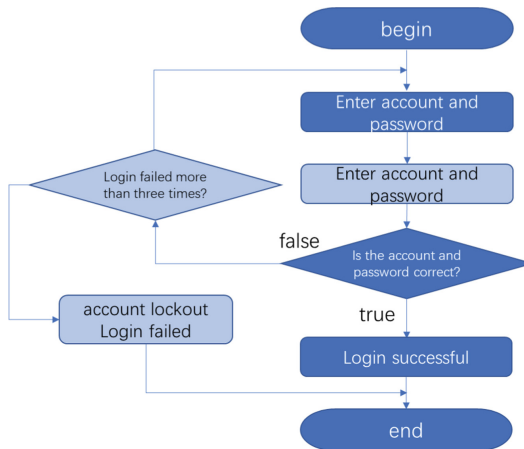


Fig. 4. The login function with added security.

Whether it is verification code, password encryption, SQL injection or account locking, if these functions are not reflected in the project, there will be no syntax errors or logic problems in the project implementation, but these are security vulnerabilities in the project. During the teaching process, students must be warned to have a sense of project security and responsibility for customers, and be good at thinking about and solving vulnerabilities in the program. The project development should have the craftsman spirit of keeping improving with the supremacy of customers' interests.

3.3.3 Cultivation of Innovative Spirit, Cooperation Ability and Mission Bearing Spirit in Practical Courses

Practice courses mainly refer to two courses: graduation design and graduation practice. When doing graduation design, students are required to apply their professional knowledge to develop certain software functions. When doing graduation practice, students are required to apply their professional knowledge to develop certain software functions. The developed software is not required to be too large, but it should be innovative and practical [2]. Such requirements urge students to investigate or tap the specific needs in real life, and realize the corresponding functions through the developed projects. In the process of investigation and design, students' integration and innovation spirit can be greatly improved. Because the works are developed to solve problems in real life, so that students have a strong mission and sense of responsibility.

Graduation practice is a special stage. Students should accept the dual management of schools and enterprises at the same time. After leaving the school, many students always want to get rid of the control and management of the school. Therefore, this is the most difficult stage for the school to manage. This requires giving students enough ideological work before leaving the school, so that they can understand that the practice instructor has both management and love for them, and understand the importance of cooperating with the teacher to complete the internship tasks specified by the school; For enterprises, there will always be some instability in the entry of new employees. Many enterprises are worried that the new employees they have just trained will change jobs. Cultivating the mission bearing spirit of employees is very important for each enterprise, and it is the premise and foundation for employees to create value for the enterprise. The mission bearing spirit, which cultivates students' spirit of selfless dedication based on their posts, needs to be jointly cultivated by enterprises and schools, and is a necessary quality for students on the road to success.

4 Conclusions

To sum up, the curriculum ideology and politics of software technology specialty is divided into professional level and curriculum level. According to the characteristics of professional courses, the cultivation of craftsman spirit, professional ethics and professional ability will be organically integrated into the whole process of education and teaching, and the way of "feeling salty through invisible salt" will promote the comprehensive development of students' morality and technology [1].

The curriculum ideological and political construction of software technology courses has a long way to go. The teachers should try best to undertake the important task of

curriculum ideological and political teaching reform, unify “For learning, for doing, for being human”, be a good guide for students’ growth, and make contributions to the training of builders and successors of the socialist cause with all-round development of morality, intelligence, physique, beauty and labor.

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