Curriculum Design under the Game of Postgraduate Entrance Examination and Employment - Taking the Principle and Application of Database as an Example

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Abstract: Taking the course of database principle and application as an example, this paper proposes the reform measures of curriculum design, which can make the curriculum meet the different needs of students for postgraduate entrance examination and employment, and help to eliminate the anxiety of college students about the game between postgraduate entrance examination and employment.

1. Introduction

In recent years, the employment pressure of graduates has increased, leading to a rising number of postgraduate candidates. How to choose between postgraduate entrance examination and employment becomes a game problem. Those who choose to take the postgraduate entrance examination need to spend more time learning professional knowledge, brushing questions and understanding the postgraduate entrance examination information; Those who choose employment need to invest more time in internship or practical projects to gain project experience.

In order to solve the game problem of postgraduate entrance examination and employment selection, we need to carefully design the course content and assessment content in those courses involving postgraduate entrance examination subjects, so that students can have practical experience in the course, know well about the postgraduate entrance examination knowledge points of professional subjects, and add politics to the course to make students confident about their future life.

This paper starts with the database principle and application course of software engineering major, sorts out and analyzes the real postgraduate examination questions of software engineering related majors in popular schools in recent years, which are distributed to the knowledge points of the course, and designs the real database cases of the postgraduate examination think tank system, so that students can be familiar with the application of the real postgraduate examination questions in the real cases. The teacher curriculum team and previous students jointly create rich online resources. The teacher guides students to use the knowledge points of the postgraduate entrance examination to continuously improve the real questions of the postgraduate entrance examination into the database of the think tank system, and can query the real questions they need at any time in the think tank for practice. This way of using curriculum knowledge to establish cases of postgraduate examination think tanks enables each class of students to constantly enrich the real questions in the think tanks. It can not only

strengthen the practice of real questions of students' postgraduate examination knowledge points, but also enable students to understand the knowledge points in real applications, explain the experience of real cases in the employment interview process, and it is a long-term task that can continuously stimulate students' interests, and can well create online and offline integrated resources, Achieve the effect of combining the intensive training of postgraduate entrance examination knowledge points with the practical employment projects.

2. Current Situation of Database Principle and Application Course

2.1 No innovation in curriculum design

Some college teachers only focus on the design of classroom teaching links at the level of explanation and demonstration, and lack guidance on actual computer tasks for students' real cases, resulting in limited improvement of students' ability to solve problems [1]. At the same time, although some college teachers have provided professional guidance to students, they have not improved and innovated the cases according to the real needs of students, and have not mobilized students' enthusiasm for learning. In addition, some professional teachers in colleges and universities have a certain tendency of formalism in the setting process of curriculum teaching goals, copying traditional goals, and lack of innovation, which leads to the sameness of knowledge and skills, processes and methods, emotional attitudes and values goals, which is not conducive to college students to clarify their own learning goals in the learning process, and is not conducive to the improvement of students' database construction ability.

2.2 Unable to give consideration to the needs of postgraduate entrance examination and employment

The focus of the postgraduate entrance examination for the course of Database Principle and Application lies in theory, while the focus of employment lies in the practical application of the project. How to combine theory with practice is a problem that needs to be solved under the game between postgraduate entrance examination and employment. Wang Jing proposed in "Research on the Reform of Database Principles and Applications Curriculum Based on Big Data" [2] that we should enrich curriculum teaching by using network resources and combine employment demand with theoretical teaching by using data analysis. Wu Huang and Xiong Huan proposed in the Research on Curriculum Reform of Principles and Applications Based on Internet plus Database [3] that teachers should use Internet resources such as micro video, MOOC, AI online learning platform, start from students' interests and actual needs, scientifically formulate teaching plans, and organize targeted teaching activities. This kind of reform is just to build or draw on online course resources to provide students with more learning channels, and does not lead students to invest in practical projects and lead students to analyze and solve problems in practical projects. The key is to rely on students' own learning initiative. Such reform has little effect on improving students' employment competitiveness and postgraduate entrance examination scores. Zhang Xiaoli and others put forward in the Course Reform and Practice of Database Principles and Applications Based on Engineering Practice Ability Training [4] that in teaching, through the use of case teaching method, problem driven method, task oriented method, group discussion method and other teaching methods, practical project cases are integrated into classroom teaching to improve students' innovative design and engineering practice ability. This kind of curriculum reform focuses on the training of operational skills, neglects the needs of postgraduate entrance examination, and does not carry out classified deployment of practical tasks for students in different employment directions.

2.3 The scope and form of course assessment are relatively fixed

In the actual process of teaching in colleges and universities, most colleges and universities' assessment of the teaching of database principle and application courses remains at the memory level of the teaching materials, and the assessment scope and form are relatively fixed. The scope of assessment is generally the exercises and appropriate changes after the textbook. Without reference to the real postgraduate entrance examination questions over the years, it has little effect on students' postgraduate entrance examination score. The examination is generally in the form of written examination. There is no examination on the database design and script implementation of various practical projects, and the examination of actual professional ability is not complete and sufficient.

3. Reform measures of Database Principle and Application Course Design

According to the problems in the course of database principle and application, our curriculum team has carried out the following curriculum reform.

3.1 Course design based on postgraduate entrance examination think tank system

Based on the sorting and analysis of the real postgraduate entrance examination questions and the construction of the postgraduate entrance examination think tank system, the knowledge points of the real postgraduate entrance examination questions are distributed in the course content, and the tasks of the postgraduate entrance examination think tank system are designed, completed and improved, so as to stimulate students' enthusiasm for applying the real postgraduate entrance examination questions in a task driven way, accumulate practical experience, and master the knowledge points of the postgraduate entrance examination in the process of completing the tasks. For example, the transformation of relational algebra and query statements, which is a theoretical calculation based test question, is a common question type in the postgraduate entrance examination, but it is rarely used in practical projects. In the course design of knowledge points of relational algebra and query statements, it is necessary to design two groups of different tasks for students with different goals, and let students choose one group of tasks at random. The first group of tasks is used to meet the needs of students who have specified their postgraduate entrance examination, and the second group of tasks is used to meet the needs of students who want to take part in postgraduate entrance examination and employment.

AI task assessment module is provided in the postgraduate entrance examination think tank system. Teachers can publish multiple assessment tasks for each class for different types of students in the system. Students can submit the results or operation process of the task in the system. The system can automatically score and give further learning suggestions and links to reference resources according to the completion of each student's learning tasks.

Through the AI task assessment module in the postgraduate entrance examination think tank system, students can conduct personalized learning, efficiently use learning resources, improve their weak links, and expand their interested skills.

After completing the course, the students have practical experience in the project of demand analysis, conceptual structure design, logical structure design, physical structure design, database implementation, database operation and maintenance of the database of the postgraduate entrance examination think tank system, and develop professional qualities such as loving the job, being good at communication, fearing difficulties, and being proactive.

3.2 Design assessment methods and contents that take into account the needs of postgraduate entrance examination and employment

The reform of the assessment content and form will provide different assessment methods for students who have made it clear that they have already taken the postgraduate entrance examination or want to give consideration to both the postgraduate entrance examination and employment. Students can choose the highest score of many simulated tests in the think tank system as the assessment result of this course, and at the same time, it is used to check the students' mastery of the knowledge points of the postgraduate entrance examination; Students can also choose to complete the practical tasks of the think tank system, which can examine students' practical application ability and problem-solving ability to knowledge points. The actual combat tasks will also be classified and deployed for students in different employment directions. For example, students who want to become software development engineers can choose tasks such as high-performance data addition, deletion, modification and query of the actual combat system, while students who want to become DBAs can choose to complete tasks such as database creation script, index creation script, data backup script, database cluster deployment of the actual combat system, and provide appropriate assessment methods for students with different goals, It can achieve a state that students take the initiative to self check and stimulate students' internal drive.

After completing the course, students can skillfully use the knowledge points of the database principle and application course for postgraduate entrance examination, and can enable students who are interested in postgraduate entrance examination to obtain more than 90 points in the simulated postgraduate entrance examination of the think tank system, while reducing the make-up examination rate of this course through the think tank system.

3.3 Integrate teaching contents according to the needs of postgraduate entrance examination and employment practice

To meet the needs of postgraduate entrance examination and employment practice, on the one hand, integrate the video resources, MOOC, micro video and other high-quality Internet resources of the existing database principles and application courses to the Learning Pass course website, and form a resource library that integrates the analysis of postgraduate entrance examination knowledge points; On the other hand, lead students to develop the postgraduate examination think tank system, and form teaching video resources for the database design and performance optimization process in the process of developing this system, which will be published to the Learning Pass course website. Furthermore, according to the recruitment requirements of DBA, the teaching videos of books such as MySQL, How MySQL Works, MySQL Technology Insider, High Performance MySQL, Oracle Efficient Design, and Oracle Programming Art: Deeply Understanding Database Architecture (Version 3) are integrated into the Learning Pass course website. Thus, the teaching resources integrate the knowledge points of postgraduate entrance examination and the database design and optimization skills required by recruitment, so that students can conduct online learning through the resources constructed by the course anytime and anywhere, and solve most problems in the course tasks through online learning.

4. Summary

The curriculum design of this project will meet the needs of postgraduate entrance examination and employment practice at the same time, so that students can devote themselves to the curriculum learning and tasks with no worries or entanglements in the process of school curriculum.

In the process of leading students to build a think tank system for postgraduate entrance

examination, we will stimulate students' enthusiasm for applying real postgraduate entrance examination questions in a task driven way, accumulate practical experience, and master knowledge points for postgraduate entrance examination in the process of completing tasks.

Break the traditional formative evaluation methods, such as written examination questions or large assignments, which rely on the content of the textbook, and explore the process evaluation method. In combination with the highest scores of many simulated examinations in the think tank system, we will examine the students' mastery of knowledge points in the postgraduate entrance examination, and in combination with the degree of students' completion of the tasks in the think tank system, we will examine the students' practical application ability and problem solving ability to knowledge points, and achieve a state that students take the initiative to self check, Stimulated students' internal drive.

Students can also select course tasks suitable for their own goals through the AI task assessment module, and can efficiently enter the next step of learning according to the scoring, learning suggestions and reference resource links given by the system.

References

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