Research on Problem chain Teaching for Business Data Collection and Processing

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Abstract

The problem chain teaching based on relevance and subject core thinking involves learners in reflective learning activities through the use of questions, constructs new knowledge during the question-solving process, and establishes rich network structures between concepts, which is conducive to the formation of deep understanding among learners. This study mainly analyzes and studies how vocational colleges should carry out course teaching under the "1+X" certificate system based on the analysis of the current teaching situation of the course "Business Data Collection and Processing" using problem chain teaching method.

Keywords

Problem chain, Teaching Innovation, Business Data Collection and Processing.

1. Introduction

With the deepening of the global Digital transformation and the rapid development of the digital economy, data has become a core factor of production. Enterprises are increasingly aware of the importance of data for the development of the industry, and have set up data analysis departments. E-commerce application enterprises unanimously believe that they need to set up full-time positions for e-commerce data analysis to improve their ability to use data for decision-making. The demand for data talent in enterprises is increasing day by day. However, the e-commerce data analysis of vocational skills talent cultivation in universities does not match the needs of industry enterprises well, and cannot meet the talent needs of the industry and enterprises.

The problem chain teaching method is a new teaching mode in which teachers, based on teaching objectives, set the teaching content as a link with questions[1], with the formation and development of knowledge and the cultivation of students' thinking abilities as the main thread, and the basic form of teacher-student cooperation and interaction. It greatly stimulates students' learning enthusiasm and interest, highlights their dominant position in learning activities, encourages students to think independently and boldly question, and unknowingly solves questions, Obtaining knowledge or methods to improve the quality and efficiency of course teaching. Question solving teaching is one of the meaningful and important teaching methods, and the driving problem chain is the core strategy of question solving teaching. There are certain misconceptions in the design of driving problem chains in teaching practice, which is relatively inefficient in promoting students' cognitive development. On the basis of theoretical analysis and teaching practice, the cognitive function analysis of teaching content was explored, and the core elements and models of driving problem chain design for promoting students' cognitive development were constructed. The design strategies of driving problem chain for promoting students' cognitive development were discussed.

We have explored a classroom teaching model that focuses on problems, students as the main body, and development as the main theme the problem chain teaching model. Its core is based

on contents and carefully designed questions according to students' cognitive laws, which is an exploratory teaching model. The entire teaching activity revolves around questions, with questions as the center, from shallow to deep, step by step, and interconnected, from questions to questions, Moving from problems to transcendence. This teaching mode takes students as the main body and group Cooperative learning as the main form. The classroom atmosphere is active, students' subjectivity is fully reflected, and students' thinking ability and group cooperative inquiry ability are effectively cultivated[2].

2. Problem chain Research Framework

In problem-solving teaching, teachers need to create a series of questions, forming a spiral "problem chain", and ultimately achieve the teaching goal of problem-solving through layer by layer solutions. The "driving problem chain" is a series of questions that are pushed forward layer by layer, serving as a ladder to solve quesitons. Each question in the "driving problem chain" needs to have a certain driving effect, with logical and motivational relationships between questions. It can show and reveal the learning process and thinking methods, making the problem-solving process have universal knowledge and methodological significance. In the process of classroom teaching, teachers should scientifically and reasonably create driving problem chains, help students acquire knowledge and methods in the process of constantly asking and solving questions, and cultivate the habit of positive thinking. Curriculum is the core element of talent cultivation, and curriculum is a micro issue of education. Improving the quality of curriculum is the core operation for implementing the effectiveness of moral education and talent cultivation. The "1+X" certificate system focuses on vocational skill level certificates to promote the improvement of course quality.

3. Design and Implementation

Given the importance of the course, this project takes students' professional abilities as the cornerstone of course development. Based on the ability needs of the job position, a "three docking" teaching framework is constructed. In the course design process, the skill requirements of the "1+X E-commerce Data Analysis Vocational Skill Level Certificate" are aligned with enterprise standards and work tasks, presenting a real work environment, focusing on practicality, and better strengthening students' professional skills.

This topic innovates the teaching method of "four types of problems", designs several problems in the teaching process, forms a problem chain, avoids rigid theoretical indoctrination, focuses on key and difficult problems, stimulates students' learning interest, improves their initiative, develops habits of using their brains, doing things and solving problems, and enhances their sense of achievement.

3.1. Refactoring a new pattern

The theoretical and practical learning under the "1+X" certificate system of vocational education has educational attributes and functions of knowledge transmission, ability cultivation, value guidance, and quality improvement, and they are integrated in connotation. This topic takes ideological and political education as the starting point, further explores the ideological and political elements contained in professional courses, and under the corresponding value guidance, deeply understands the "1+X" certificate system of vocational education, improves the comprehensiveness of the vocational education system, organically combines the three major curriculum goals of knowledge transmission, ability cultivation, and value guidance. In the design of the teaching system, the "1+X" certificate standard is connected, and patriotism, craftsmanship spirit, and Adhering to laws and regulations, dialectical thinking and other ideological and political elements, achieving the integration of ideological and

political content, professional standards, and teaching content, and comprehensively implementing the task of curriculum education.

3.2. Building a new framework

Developing courses based on "standard guidance, job guidance, and task driven" principles, with vocational skill level standards aligned with teaching standards, job work processes aligned with teaching processes [3], and job tasks aligned with teaching tasks, enhancing the pertinence, professionalism, and practicality of teaching, and enhancing the level of talent cultivation. Task driven teaching allows students to continuously gain a sense of achievement, guide them to actively learn, explore their creativity and sustainable development ability, and effectively cultivate their ability to independently analyze and solve problems, thus better adapting to the practical requirements of their positions [4].

According to the curriculum standards and the professional ability requirements of the 1+X certificate, the relevant content of the "1+X" certificate will be used as the practical training content of the academic education curriculum, and a new framework for integrating "X" into "1" will be constructed, highlighting the cultivation of "1+X" professional abilities such as "data cognition, construction of data indicator system, business data collection, and data classification and organization". Through enterprise research and analysis of typical work tasks in real enterprise projects, the knowledge points of relevant courses are extracted. Each enterprise project is first synthesized and then decomposed to form a comprehensive training project that is gradual, easy to enter difficult, and runs through the entire process. As a result, each chapter and sub task are decomposed, and all knowledge points are assigned and integrated into each chapter and sub task. Each chapter and sub task are interrelated, and the previous task is the foundation of the subsequent tasks. After completing the sub tasks of each chapter, the comprehensive project can be completed. Through practical training tasks, students can better grasp the knowledge points contained in the tasks and proficiently apply these knowledge points to solve practical problems, further strengthen their professional abilities, and better adapt to the requirements of work and society.

3.3. Innovating a new style

Problems are the source and driving force of thinking. Teaching centered around problems guides students to learn through high-level thinking, connecting relevant knowledge points through problem chain, continuously deepening knowledge and skills, and constructing an understanding of knowledge [5]. Firstly, use an introductory problem chain to drive students to review old knowledge, and carefully design problem scenarios based on task points, highlighting that existing knowledge cannot solve problems in the context, and using the proposed problems as a means to achieve teaching objectives. Secondly, by stimulating the emergence of students' exploratory thinking through the teacher's exploratory problem chain, students are gradually guided out of their vague thinking activities and directed towards clear problem-solving directions. Thirdly, taking the mistakes made by students during practical training as a diagnostic problem chain, through exploring the reasons for failure and reflecting on the process of incorrect thinking, cultivate students' innovative thinking, and enable them to acquire true knowledge and skills in making mistakes, pointing mistakes, investigating mistakes, and correcting them, Finally, let students summarize the structure or internal connections of the knowledge learned in this lesson or unit, and use a summary problem chain to form the main task line, allowing students to experience the formation process of knowledge integration[6].

4. Conclusions and Suggestions

The design of the problem chain should follow the principle of interlocking from simple to complex, from known to unknown, and from concrete to abstract, guiding students to gradually deepen their thinking. The problems are interrelated, with differences in the order of knowledge and difficulty. Usually, the latter problem is a deep excavation of the previous problem, forming a chain of problems. The classroom has designed four step-by-step and in-depth questions, allowing students to master knowledge, experience the profound connections between knowledge, and improve their ability to analyze and solve problems in the step-by-step process of thinking improving.

Acknowledgements

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