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The construction and practice exploration of intermediate financial accounting AI course based on knowledge map

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Abstract

With the rapid development of artificial intelligence technology, the application of knowledge graph in the field of education has attracted more and more attention. Based on the project of " Construction and Practice of Intermediate Financial Accounting 2 AI Course Based on Knowledge Graph " in Foshan University, this paper deeply discusses the application of knowledge graph technology in the teaching of intermediate financial accounting course. This paper first expounds the background and significance of the topic selection, then clarifies the four main objectives of curriculum construction, and analyzes in detail the gaps in the current process of achieving these objectives. Finally, the paper puts forward the targeted implementation strategy, in order to provide useful reference for the curriculum reform of accounting major in colleges and universities, promote the deep integration of accounting education and artificial intelligence technology, and cultivate innovative accounting talents to meet the needs of the digital age.

Keywords

Knowledge graph; intermediate financial accounting; AI course construction; teaching reform; digital transformation

1. Background and Significance of the Topic

In the digital age, artificial intelligence technology is profoundly changing all aspects of education[1]. As an important branch of artificial intelligence, knowledge graph provides new ideas and methods for education reform with its powerful knowledge structure and correlation ability. As one of the core courses of accounting major, the teaching content of intermediate financial accounting is systematic, logical and closely integrated with practical work, which is very important to cultivate students ' professional quality and practical ability. However, the traditional teaching mode has many deficiencies in knowledge presentation, personalized learning support

and practical ability training. Therefore, the introduction of knowledge map technology into the construction of intermediate financial accounting course can not only optimize the organization and presentation of teaching content, but also provide students with more personalized and intelligent learning support[2], improve teaching quality and students ' learning effect, which has important practical significance[3].

2. Construction Goal

2.1. Construct a Systematic and Related Intermediate Financial Accounting Knowledge Map

As the core course of accounting major, intermediate financial accounting course has many and complex knowledge points. Traditional teaching methods are often difficult to help students understand and master these knowledge systematically. Therefore, the primary goal of this project is to build a systematic and related intermediate financial accounting knowledge graph. This knowledge graph will comprehensively sort out the knowledge points in the course, deeply analyze the logical relationship between the knowledge points, and cover the core contents of the recognition and measurement of accounting elements, the processing of accounting vouchers and books, and the preparation and analysis of financial statements. Through the knowledge map, students can clearly see the structure of the accounting knowledge system and understand the internal relationship between the knowledge points, so as to grasp the intermediate financial accounting knowledge more systematically and deeply[4]. This not only helps students form a complete knowledge framework in the learning process, but also improves their knowledge transfer ability and comprehensive application ability.

2.2. Build an Intelligent Teaching Platform

In the digital age, the intelligent teaching platform is the key to improve the teaching effect. This project plans to use knowledge graph technology to develop an intelligent teaching platform, which will integrate multiple functional modules such as course teaching resources, online learning functions, intelligent tutoring systems, and personalized learning path planning[5]. The platform will automatically recommend suitable learning content and exercise topics according to students ' learning progress and knowledge mastery, and provide students with a personalized learning experience. At the same time, teachers can understand students ' learning dynamics in real time through the platform, adjust teaching strategies in time, and achieve accurate teaching. This intelligent teaching platform can not only improve the teaching efficiency, but also meet the learning needs of different students, and improve students ' learning enthusiasm and learning effect.

2.3. To Cultivate Students ' Innovative Thinking and Practical Ability

The traditional teaching mode often focuses on the teaching of knowledge, while ignoring the cultivation of students ' innovative thinking and practical ability[6]. In order to meet the diversified needs of accountants in the future workplace, this project will guide students to actively explore accounting knowledge and stimulate students ' interest in learning and innovative thinking through knowledge maps. Combined with the actual case analysis, project practice and other teaching links, cultivate students ' ability to use accounting knowledge to solve practical problems, and improve students ' practical operation level and comprehensive quality. In this way, students can not only master solid accounting professional knowledge, but also cultivate innovative thinking and the ability to solve practical problems, laying a solid foundation for future career development.

2.4. Perfecting Teaching Evaluation System

Teaching evaluation is an important part of the teaching process[7]. It can provide feedback for teachers and help teachers find problems in the teaching process in time and adjust them. Therefore, this project will construct a diversified teaching evaluation system based on knowledge map, and comprehensively evaluate students from multiple dimensions such as knowledge mastery, learning process performance, innovative thinking and practical ability. Using intelligent analysis tools, we can accurately analyze students ' answers, homework completion, project practice results, etc., and provide teachers with detailed feedback information. This diversified evaluation system can not only fully reflect the students ' learning results, but also help teachers to find out the problems in the teaching process in time, adjust the teaching strategies and improve the teaching quality. In this way, teachers can better understand students ' learning situation, so as to provide more targeted teaching support and improve teaching effect [8].

3. Current Situation and Gap Analysis

3.1. Knowledge Graph Construction

At present, although there have been some studies on the application of knowledge graph in the field of education, there are relatively few knowledge graph constructions specifically for intermediate financial accounting courses. The existing research mostly focuses on theoretical discussion and conceptual model construction, and lacks in-depth combing and relationship analysis of specific course knowledge points. In the actual construction process, how to accurately extract and integrate the key concepts, rules and the complex relationship between them in accounting knowledge is still an urgent problem to be solved. In addition, the dynamic update mechanism of knowledge graph is not perfect enough to reflect the changes of accounting standards and the latest developments in the industry in real time, which limits the long-term effectiveness of knowledge graph in teaching to a certain extent.

3.2. Intelligent Teaching Platform Construction

Although there are some intelligent teaching platforms in the market, these platforms still have many shortcomings in functional design and user experience. For example, the knowledge recommendation system of some platforms is not accurate enough to provide personalized learning content according to students ' learning progress and knowledge mastery ; the answering function of the intelligent tutoring system is not intelligent enough to accurately understand the students ' problems and provide detailed answers. In addition, the stability, compatibility and security of the platform also need to be improved to meet the needs of large-scale online teaching[9].

3.3. Students ' Innovative Thinking and Practical Ability Training

Under the traditional teaching mode, students ' learning enthusiasm and innovative thinking are often limited. Teachers pay more attention to the teaching of knowledge in the teaching process, while ignoring the cultivation of students ' practical ability and innovative thinking. In practical teaching, there is a lack of project practice opportunities closely integrated with practical work, and it is difficult for students to apply the knowledge they have learned to practical problem solving[10]. In addition, the school 's practical teaching resources are relatively limited and cannot meet the needs of all students, which also affects the improvement of students ' practical ability[11].

3.4. The Improvement of Teaching Evaluation System

The existing teaching evaluation system is mainly based on test scores, and lacks a comprehensive evaluation of students ' learning process. The single evaluation index can not accurately reflect the students ' learning ability and comprehensive quality. In practical teaching, teachers ' evaluation of students often depends on subjective judgment and lacks objective data support, which may lead to inaccurate evaluation results. In addition, the application of evaluation results is also insufficient, and it is difficult for teachers to adjust teaching strategies in time according to the evaluation results to meet the learning needs of students.

4. Implementation Srategy

4.1. Knowledge Graph Construction Strategy

In-depth combing of course knowledge points. Organize accounting teachers and industry experts to comprehensively sort out the knowledge points of intermediate financial accounting courses, and clarify the key points and difficulties of each knowledge point, as well as the logical relationship between them[12]. Through the combination of text mining and expert annotation, key concepts and rules are extracted to ensure the accuracy and integrity of the knowledge graph.

Establish a dynamic update mechanism. Establish a cooperative relationship with accounting industry associations, corporate finance departments and related research institutions to obtain timely information on changes in accounting standards and the latest developments in the industry[13]. Regularly update the knowledge map to ensure the timeliness and frontier of teaching content[14].

Optimize knowledge graph visualization. Using advanced visualization technology, the knowledge map is presented to students in an intuitive and easy-to-understand way. Reasonable graphic layout and interactive functions are designed to enable students to easily browse and query the content in the knowledge graph and enhance the learning experience[15].

4.2. Intelligent Teaching Platform Construction Strategy

Optimize the knowledge recommendation system. Based on knowledge graph and student learning data, machine learning algorithm is used to optimize knowledge recommendation system. By analyzing students ' learning behavior, knowledge mastery and learning preferences, personalized learning content and practice topics are recommended for each student to improve the learning effect.

Improve the function of intelligent tutoring system. Strengthen the application of natural language processing technology in intelligent tutoring system and improve the semantic understanding ability of the system. By constructing a detailed question-answering knowledge base, it is ensured that the system can accurately understand the students ' questions and provide detailed answers[16]. At the same time, increase the interactivity of the intelligent tutoring system, such as through voice interaction, online question answering, etc., to enhance students ' learning experience[17].

Improve the stability and compatibility of the platform : adopt advanced technologies such as cloud computing and big data to improve the stability and compatibility of the intelligent teaching platform. Ensure that the platform can support large-scale online teaching to meet the needs of different devices and operating systems. Strengthen the security protection measures of the platform to protect students ' learning data and privacy.

4.3. Strategies for Cultivating Students ' Innovative Thinking and Practical Ability

Combined with the knowledge map, the project-based learning tasks closely integrated with the actual work of accounting are designed. The complex accounting business scenario is decomposed into multiple sub-tasks, each of which corresponds to the relevant knowledge points in the knowledge graph. Through project practice, students are guided to actively explore accounting knowledge and cultivate students ' innovative thinking and practical ability.

Increase practical teaching resources. Cooperate with enterprises to establish prac-

tice bases to provide students with more practical opportunities. At the same time, the accounting practice teaching software is developed by using virtual simulation technology to simulate the real accounting work scene, so that students can carry out practical operation in the virtual environment and improve the practical teaching effect.

Hold accounting skills competition. Regularly hold accounting skills competitions to encourage students to actively participate. Through competition, students ' interest in learning and sense of competition are stimulated, and students ' innovative thinking and teamwork ability are cultivated. At the same time, the competition also provides a platform for students to show their practical ability and enhance their self-confidence and sense of achievement.

4.4. The Improvement Strategy of Teaching Evaluation System

Build a diversified evaluation index system. A diversified teaching evaluation index system is constructed from multiple dimensions such as knowledge mastery, learning process performance, innovative thinking and practical ability. In addition to the traditional test scores, the evaluation of students ' classroom performance, homework completion, project practice results, innovation ability and other aspects is increased to fully reflect students ' learning results.

Using intelligent analysis tools. With the help of big data analysis and artificial intelligence technology, the students ' answers, homework completion and project practice results are accurately analyzed. Provide teachers with detailed feedback information to help teachers find problems in the teaching process in time and adjust teaching strategies[18].

Strengthen the application of evaluation results. Establish a feedback mechanism for evaluation results, and feedback the evaluation results to teachers and students in a timely manner. Teachers adjust the teaching content and methods according to the evaluation results to meet the learning needs of students. According to the evaluation results, students can understand their own learning situation, adjust their learning strategies and improve their learning effect.

5. Conclusion

By constructing a systematic knowledge map, creating an intelligent teaching platform, cultivating students ' innovative thinking and practical ability, and improving the teaching evaluation system, this project aims to promote the digital transformation and innovative development of intermediate financial accounting courses[19]. Although there are still some gaps in the construction of knowledge map, the construction of intelligent teaching platform, the cultivation of students ' practical ability and the improvement of teaching evaluation system, through the gradual promotion of the above implementation strategies, it is expected to effectively solve these problems, achieve the goal of curriculum construction, and provide useful ref-

erence for the curriculum reform of accounting major in colleges and universities[20]. In the future, we will continue to deepen research, constantly explore the application of knowledge graph in accounting teaching, promote the deep integration of accounting education and artificial intelligence technology, and cultivate more high-quality accounting talents to meet the needs of the digital era.

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Public Disclaimer

The authors declare that there is no conflict of interest.

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