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Research on the innovative application of financial shared service course teaching under the background of big data and artificial intelligence

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Abstract: *With the booming development of big data and artificial intelligence technology, the financial field is undergoing profound changes, and the financial shared service model has emerged and is constantly evolving. Against this background, the teaching of financial shared service courses in colleges and universities faces an urgent need for innovation and change. This paper deeply analyzes the impact of big data and artificial intelligence on the teaching of financial shared service courses, elaborates on the problems existing in current teaching, and then proposes a series of teaching innovation strategies based on big data and artificial intelligence, and verifies the effectiveness of these strategies through actual case analysis. The study aims to provide useful reference for colleges and universities to cultivate financial shared service professionals who meet the needs of the times, and promote the continuous development and progress of financial shared service course teaching.*

Keywords: *big data; artificial intelligence; financial shared services; course teaching innovation*

1. Introduction

In recent years, big data and artificial intelligence technologies have developed rapidly and have been widely used in various fields . Big data technology can efficiently store, process and analyze massive amounts of financial data, explore the potential value behind the data, and provide strong support for corporate decision-making; artificial intelligence technology uses machine learning, deep learning and other algorithms to achieve automation and intelligence of financial processes. For example, financial robots can automatically complete repetitive tasks such as accounting processing and report generation, greatly reducing the workload of financial personnel. In this wave of technology-driven financial change, the traditional financial department management model can no longer meet the development requirements of new technologies [1] . At the same time, the teaching of financial shared service courses is also facing severe challenges. The traditional teaching model and content can no longer meet the industry's demand for new financial talents. How to integrate big data and artificial intelligence technologies into course teaching and cultivate students with corresponding technical application capabilities and innovative thinking has become an urgent problem for financial educators in colleges and universities .

2. Theoretical Basis and Related Concepts

2.1 Big Data and Artificial Intelligence Technology

Big data has the "4V" characteristics, namely large data volume (Volume), diverse types (Variety), fast processing speed (Velocity), and low value density (Value). Its technology covers data collection, storage, processing and analysis. Artificial intelligence aims to study the theories, methods, technologies and application systems that enable computers to simulate, extend and expand human intelligence. In the field of finance, machine learning and deep learning are widely used. Machine learning enables computers to automatically learn patterns and rules from large amounts of data and predict and classify new data . Common algorithms include decision trees, support vector machines, and naive Bayes. Deep learning is a branch of machine learning. It builds multi-level neural network models to represent and learn data, automatically grasp complex patterns and features, and plays a role in financial statement analysis, risk prediction, etc. It has also achieved remarkable results in image recognition and natural language processing .

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2.2 Concept of Financial Shared Services

Financial shared services is a management model that centralizes the financial operations of enterprises in different regions and departments into a shared service center for unified processing. Through standardized and process-based operations, the financial shared service center integrates multiple financial functions such as financial accounting, fund management, and tax management, and provides standardized and professional financial services to various departments within the enterprise.

2.3 Course Teaching Innovation Theory

2.3.1 Constructivist learning theory

Constructivist learning theory believes that learning is a process in which students actively construct knowledge rather than passively absorb it. In the teaching of financial shared services courses, based on this theory, teachers should create real problem situations and guide students to actively construct their understanding of financial shared services knowledge and skills through independent exploration and cooperative learning. For example, by introducing actual financial shared services project cases, students can gain an in-depth understanding of the business processes and key links of financial shared services in the process of solving practical problems, and cultivate their independent learning and problem-solving abilities [2] .

2.3.2 Blended teaching theory

The hybrid teaching theory combines the advantages of traditional classroom and online teaching, and provides students with a flexible and personalized learning experience through an organic combination of online and offline. In the financial shared service course, teachers can use online teaching platforms such as China University MOOC and XuetangX to provide students with rich learning resources, and students can learn basic knowledge independently before class. In class, teachers guide students to deeply understand and apply knowledge, solve learning problems, and realize knowledge internalization and improvement through organizing discussions, case analysis, practical operations and other activities, giving full play to the leading role of teachers and the main role of students, and improving teaching effectiveness [3] .

3. Current Teaching Status of Financial Shared Services Courses

3.1 Overview of Traditional Teaching Model

3.1.1 Teaching content

The teaching content of traditional financial shared services courses mainly revolves around the basic concepts, development history, business processes and other basic knowledge of financial shared services, focusing on core business modules such as financial accounting sharing and fund management sharing. However, with the widespread application of big data and artificial intelligence technologies in the financial field, the teaching content has failed to keep up with the pace of technological development, and the application of big data analysis and artificial intelligence algorithms in financial shared services is rarely involved, resulting in a disconnect between the knowledge students learn and actual work needs.

3.1.2 Teaching methods

The teaching method is mainly based on teacher lectures, and students passively accept knowledge. In class, teachers usually use blackboard writing or PPT presentations to explain theoretical knowledge to students, which lacks interactivity and interest. The practical teaching link is relatively weak. Although some universities have set up financial shared service simulation experiment courses, the experimental content is often limited to simple business process operations, lacking simulation of complex business scenarios and solving practical problems, making it difficult to effectively cultivate students' practical ability and innovative thinking.

3.1.3 Assessment Method

The assessment method is mainly based on the final exam results, and the regular scores account for a relatively small proportion. The final exam questions are mostly objective questions such as multiple-choice questions, fill-in-the-blank questions, and short-answer questions, which focus on testing students' memory of theoretical knowledge and are difficult to fully evaluate students' practical ability, problem

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analysis and problem-solving ability. This assessment method easily leads students to memorize in order to cope with the exam, neglecting the understanding and application of knowledge, which is not conducive to the cultivation of students' comprehensive qualities.

3.2 Challenges and opportunities of big data and artificial intelligence for teaching

3.2.1 Challenges

Big data and artificial intelligence technologies are highly specialized. Due to insufficient professional knowledge, some teachers find it difficult to explain in depth the technical principles of complex big data algorithms, artificial intelligence models, etc., resulting in poor teaching results. For students, the complexity of the technology can easily cause understanding barriers. When performing actual operations such as big data programming and artificial intelligence model training, students progress slowly due to unfamiliarity with the operation. Once the teaching rhythm does not match, they will develop fear of difficulty and reduce their enthusiasm for learning. For colleges and universities, technology iteration is rapid. In order to ensure the timeliness of teaching content, teaching resources need to be continuously updated. This requires not only a lot of time to screen materials, but also huge amounts of money to upgrade the practice platform, which brings a heavy burden to resource allocation [4].

3.2.2 Opportunities

Big data and artificial intelligence technologies have opened up new paths for education. In teaching, teachers use big data to analyze students' learning time, homework completion, test accuracy and other data, and customize personalized teaching plans based on this data to achieve teaching in accordance with their aptitude. Intelligent teaching systems and virtual simulation platforms create realistic teaching situations to stimulate students' interest in learning. For example, in physics experiment classes, students can repeatedly operate complex experiments through virtual simulation platforms, avoiding danger and resource loss, and improving participation. Universities and enterprises jointly build practical platforms to allow students to participate in actual projects, apply theory to practice, and improve practical ability and professional quality.

4. Teaching innovation strategies based on big data and artificial intelligence

4.1 Innovation of teaching content

4.1.1 Integrating big data and artificial intelligence technology content

In the teaching content, this course adds a module on the application of big data and artificial intelligence technology in financial shared services. For example, the course explains the application of big data analysis in financial risk warning and cost control. Through actual case analysis, the course allows students to master how to use big data analysis tools to mine and analyze financial data, extract valuable information, and provide support for corporate decision-making. The course introduces the application of artificial intelligence algorithms in financial process automation, such as introducing the working principle and development process of financial robots and their application in accounting processing, report generation, etc., so that students can understand how artificial intelligence technology can improve the efficiency and quality of financial shared services.

4.1.2 Real-time update of teaching cases

The course is accompanied by a teaching case library, which is updated regularly to ensure the timeliness and authenticity of the cases [5]. The case library should cover financial shared service cases from different industries and enterprises of different sizes, including both successful and failed cases. In the teaching process, teachers guide students to deeply understand the business process, key links and application points of big data and artificial intelligence technologies of financial shared services by analyzing actual cases. For example, teachers select a case of a company using big data analysis to optimize the operational efficiency of a financial shared service center, and ask students to analyze the company's practices and experiences in data collection, analysis method selection, and result application, so as to cultivate students' practical application ability and problem analysis ability.

4.1.3 Integrating multidisciplinary knowledge

Financial shared services involve knowledge in multiple disciplines such as finance, information

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technology, and management. Therefore, in the design of teaching content, we should focus on integrating multidisciplinary knowledge and breaking down disciplinary boundaries. For example, when explaining the construction and operation of a financial shared service center, we should integrate information technology knowledge and introduce how to use cloud computing, big data and other technologies to build a financial shared service platform; we should introduce management knowledge and explain the organizational structure design, personnel management, performance appraisal and other contents of the financial shared service center to cultivate students' comprehensive knowledge literacy and interdisciplinary thinking ability.

4.2 Innovation in teaching methods

4.2.1 Project-based Learning

Design learning tasks based on real enterprise projects and divide students into several groups, each of which is responsible for a project. The project content covers all aspects of financial shared services, such as financial process design, data collection and analysis, and artificial intelligence applications. During the project implementation process, students need to use the knowledge they have learned to independently formulate project plans, solve problems encountered, and finally submit project results. For example, given an optimization project for an enterprise's financial shared service center, students need to analyze the problems of the existing process, use big data analysis technology to propose optimization plans, and try to introduce artificial intelligence technology to automate some processes. Through project-based learning, students' teamwork ability, practical ability and innovative thinking are cultivated.

4.2.2 Case teaching method

Select representative financial shared service cases and organize students to conduct case analysis and discussion in class. Teachers distribute case materials to students in advance so that students can preview and think before class. In class, teachers guide students to analyze cases from different perspectives, raise questions, solve problems, and encourage students to express their own opinions. For example, taking the challenges and solutions encountered by a company's financial shared service center in the process of implementing artificial intelligence technology as a case, organize students to discuss whether the company's practices in technology selection, personnel training, process change, etc. are reasonable, and how to further optimize them. Through case teaching methods, students' understanding of theoretical knowledge is deepened and their ability to analyze and solve problems is improved [5] .

4.2.3 Flipped Classroom

Using the online teaching platform, some teaching content is made into teaching videos, allowing students to study independently before class. While watching the video, students can communicate with teachers and other students through the online discussion area and raise questions. In class, teachers provide centralized answers to questions encountered by students during the preview process, and organize students to conduct group discussions, practical operations and other activities to consolidate the knowledge they have learned. For example, when explaining the big data analysis methods in financial shared services, teachers make relevant theoretical knowledge into teaching videos, and students study independently before class; in class, teachers use actual cases to guide students to use the learned analysis methods for data processing and analysis, and organize students to conduct group reports and exchanges. The flipped classroom model can give full play to the main role of students and improve their autonomous learning ability.

4.3 Innovation in practical teaching

4.3.1 Establishing a financial shared service training platform

Colleges and universities cooperate with enterprises to establish a financial shared service training platform to simulate the real environment of an enterprise financial shared service center. The training platform should have core business modules such as financial accounting, fund management, and tax management, as well as functional modules such as big data analysis and artificial intelligence applications. Students can conduct practical activities such as financial business process operations, data processing and analysis, and artificial intelligence model training on the training platform to experience the actual operation process of financial shared services. For example, students can use big data analysis tools on the training platform to analyze corporate financial data and predict financial risks, and try to use artificial intelligence technology to develop simple financial robots to automate some financial

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processes.

4.3.2 Introducing actual enterprise projects

Strengthen cooperation with enterprises and introduce actual financial shared service projects of enterprises into practical teaching. Enterprises provide actual project requirements to schools, and teachers organize students to participate in project implementation in the form of project teams. During the project implementation process, enterprise mentors and school teachers jointly guide students to ensure the smooth progress of the project. By participating in actual enterprise projects, students can be exposed to real business scenarios, understand the actual needs of enterprises, and improve students' actual work ability and professional quality. For example, an enterprise needs to optimize the cost control process of its financial shared service center and introduce the project into the school's practical teaching. Students apply what they have learned under the guidance of enterprise mentors and school teachers .

4.3.3 Carry out financial technology competitions and industry exchange activities

This course group actively organizes financial technology competitions and encourages students to form teams to participate, focusing on cutting-edge topics such as the application of big data in financial decision-making, optimization of financial processes by artificial intelligence, and innovation of blockchain in the financial field. For example, the "Financial Big Data Analysis and Forecasting Competition" encourages students to use practical training platforms and knowledge mining to analyze corporate financial data and build forecasting models to help companies formulate financial strategies, train students' professional knowledge, innovative thinking and collaboration capabilities, and stimulate their enthusiasm for exploring cutting-edge financial technology. At the same time, the course group builds a financial industry exchange community, inviting corporate financial executives, industry experts, university teachers and students to participate, and regularly holds online and offline lectures to share financial shared service industry dynamics, technology application cases and career development paths, organizes exchange forums for students to discuss practical problems with experts, broadens students' industry horizons, helps them grasp the development trends in the financial field, and prepares for future career development.

5. Research Conclusion

This study clarifies the challenges and opportunities that big data and artificial intelligence technologies bring to the teaching of financial shared services courses, and proposes innovative strategies for teaching content, methods, and practical teaching, aiming to cultivate professional talents that meet the needs of the times and promote the reform of financial education in colleges and universities. However, in the implementation, there are problems such as improving teachers' technical capabilities, updating teaching resources, and controlling the difficulty of students' learning. In the future, with the development of technology, on the one hand, we should pay attention to the application of new technologies such as blockchain and deep learning algorithms in financial shared services, and integrate them into course teaching to explore cutting-edge teaching models; on the other hand, we should deepen school-enterprise cooperation, collaborate and innovate to carry out scientific research and talent training, so that teaching content and methods are more in line with enterprise needs, and cultivate high-quality financial shared services talents .

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