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Research on the Application Strategies of Artificial Intelligence in Accounting Teaching in Universities - Taking S School in Shandong Province as an Example

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Abstract: Against the backdrop of the booming development of new generation information technologies such as big data, cloud computing, and artificial intelligence, the accounting industry is facing transformation, which puts higher demands on accounting talents. Universities need to explore the path of accounting professional teaching reform. Artificial intelligence technology has significant value in interdisciplinary teaching of accounting, helping to cultivate students' composite professional competence, innovate accounting education and teaching models, and accelerate the upgrading and reconstruction of accounting disciplines. Taking S School in Shandong Province as an example, its accounting major has applied smart teaching tools and skill competition platforms in teaching, and carried out school enterprise cooperation, but the results are not significant. There are problems such as a shortage of interdisciplinary teaching staff, an imperfect talent training system, a low level of intelligent teaching resources, and the need to deepen the human-machine system of industry education integration and collaborative education. To this end, practical paths such as building a knowledge graph based accounting learning cognitive model, designing interdisciplinary collaborative practice projects based on blockchain, developing an intelligent financial decision simulation system based on reinforcement learning, and developing an intelligent financial report analysis engine based on natural language processing can be taken to promote the deep integration of accounting and artificial intelligence technologies and cultivate high-quality composite accounting talents.

Keywords: artificial intelligence; higher vocational colleges; accounting teaching; interdisciplinary teaching; talent training

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1. Introduction

With the vigorous rise of artificial intelligence technology, the accounting industry is undergoing unprecedented and profound changes. The wide application of artificial intelligence technologies such as machine learning, natural language processing, and robotic process automation (RPA) is like a disruptive storm, completely transforming the operation mode of traditional accounting work. This transformation implies that the functional positioning of accounting personnel must undergo a fundamental adjustment, shifting from the traditional accounting-oriented role to an analytical and decision-making role with higher professional skills and comprehensive qualities. They should devote more energy to high-end work areas such as financial analysis, risk control, and strategic planning. Through in-depth mining and interpretation of

data, Provide more valuable support for the business decisions of enterprises. However, while the introduction of artificial intelligence technology has brought about efficiency improvements and industry changes, it has also presented brand-new challenges to financial and accounting personnel. They need to constantly learn and master new technical tools, analytical methods, and management concepts to adapt to the changes in job capability requirements brought about by technological iterations. Under such an era background, as the main base for cultivating accounting talents, S University not only needs to make systematic adjustments to the talent cultivation plan in a timely manner, but also needs to integrate artificial intelligence technology, big data analysis, the application of digital tools and other contents into traditional accounting teaching. More importantly, it should pay attention to the innovation of teaching methods and the strengthening of practical teaching. By introducing an intelligent financial training platform and conducting cross-disciplinary project practices, we aim to comprehensively enhance students' professional accounting capabilities, especially their comprehensive qualities in solving practical problems in an artificial intelligence environment. This ensures that they can seamlessly integrate into the rapidly developing accounting industry, accurately position themselves in the industrial transformation driven by artificial intelligence, and become high-quality talents who can promote the progress of the industry. How to effectively achieve this goal has become an important issue that urgently needs to be studied and solved in the current field of higher education [1].

2. The significant value of artificial intelligence in interdisciplinary teaching of accounting

Artificial intelligence possesses a vast amount of data processing capabilities, intelligent analysis and prediction capabilities, as well as automated process reengineering capabilities.

2.1. It is helpful to cultivate students' compound professional quality

With the development of artificial intelligence, the demand for accounting talents is also increasing. Simple financial accounting knowledge can no longer meet people's needs. They need to possess mathematical thinking, digital technology and the ability to integrate across fields. Introducing cutting-edge technologies such as big data analysis and artificial intelligence into the teaching of traditional accounting majors, and offering interdisciplinary courses in multiple disciplines such as "Data Science", can enhance the cultivation of students' mathematical logic and improve their abilities in data analysis and modeling. Meanwhile, a cross-disciplinary cooperation platform can also be established by means of interdisciplinary practical activities, innovation and entrepreneurship, etc., to enhance students' comprehensive abilities in cooperative research. Cultivate applied talents with compound specialties and innovative potential in "accounting + new engineering", and provide urgently needed high-quality talent resources for emerging fields such as intelligent finance and big data auditing [2].

2.2. It is helpful to innovate the teaching mode of accounting education

Through the application of the "knowledge map", the internal and external knowledge context of the accounting major can be better presented, thereby achieving the optimal teaching design. On this basis, through adaptive intelligent algorithms, personalized teaching for students is realized to achieve the goal of teaching students in accordance with their aptitudes. Through virtual simulation and intelligent mentor systems, an immersive situational experience can be created, the simulation of financial decision-making can be realized, and the deep integration of "teaching - learning - doing" can be achieved. Through the analysis of big data, the transparency of the entire learning process of students has been achieved, the real-time evaluation of students' learning effects has been conducted, and the teaching methods have been improved. On this basis, by integrating emerging application scenarios such as intelligent finance and taxation and blockchain, and through cooperation with enterprises, practical teaching resources with project-based and case-based approaches are developed, enabling students to enhance their hands-on abilities in actual business scenarios. Thus, a brand-new smart accounting education ecosystem is created [3].

2.3. It helps to accelerate the upgrading and reconstruction of accounting discipline

The integration of information technologies such as artificial intelligence and big data with accounting teaching has not only brought new vitality to traditional accounting but also led to research directions and applications in multiple cutting-edge fields such as intelligent auditing and blockchain accounting, thereby driving the transformation and development of the accounting discipline. The reconfiguration of the curriculum system has laid a solid foundation for the cross-integration of the accounting discipline. During this process, teachers can also utilize the research results of cross-disciplines to explore the combination of data-driven auditing, blockchain and electronic invoices, thereby further deepening the theoretical research of the cross-discipline of "accounting + artificial intelligence". The digital transformation of accounting education also provides a new data resource for the development of disciplinary innovation. Against this backdrop, interdisciplinary teaching practices oriented towards artificial intelligence will be an important engine for accelerating the upgrading and reorganization of finance and accounting disciplines [4]

3. The current teaching situation of the Artificial Intelligence and Accounting major in S School, Shandong Province

Artificial intelligence is a powerful technological driving force. It is triggering a technological revolution and pushing the entire society into an intelligent era. To keep up with this development trend, all accounting majors in colleges and universities have begun to use artificial intelligence technology in teaching, among which the most frequently used are the related tools of smart education and professional skills competition platforms. Some schools and enterprises have carried out in-depth cooperation, introducing advanced intelligent accounting teaching tools such as RPA financial robots into the classroom, establishing intelligent accounting classrooms, industrial colleges, etc. To a certain extent, this can improve the teaching quality of the big data and accounting major, but there are still certain limitations. The "Accounting Major" is a traditional advantageous major of our school. We have made beneficial explorations on the application of artificial intelligence technology in accounting teaching. For instance, we have comprehensively promoted the smart vocational education platform in the classroom, rationally utilized the skills competition platform in some classes, and jointly established the Kingdee Digital Intelligence Financial Management College Internship Base with enterprises. All these have achieved excellent results. However, due to certain practical factors, The effect is not obvious and there is an urgent need for improvement [5].

4. Problems Existing in the Interdisciplinary Teaching of Accounting major with Artificial Intelligence in S School, Shandong Province

At present, the application of artificial intelligence technology in the interdisciplinary teaching of accounting is still in its infancy and there are still many difficulties and challenges.

4.1. There is a shortage of interdisciplinary teaching staff

Accounting and artificial intelligence are two completely different disciplines, with significant differences in their knowledge systems and methodical tools. Most finance and accounting teachers lack systematic ways and means to learn the cutting-edge knowledge of technology, and their development and application of technologies such as big data analysis and machine learning are not deep enough. In addition, in the research practice of integrating cutting-edge technologies with innovative accounting theories, teachers lack the accumulation of cross-disciplinary research, making it difficult to guide cross-disciplinary exploration. This has led to the difficulty in establishing high-quality interdisciplinary courses [6].

4.2. The talent cultivation system needs to be optimized and improved

In terms of talent cultivation, University S lacks a practical teaching platform that effectively combines cutting-edge

technologies with industrial realities, and the pertinence and comprehensiveness of the training programs are relatively poor. A regular collaboration mechanism has not yet been established between the two disciplines of finance and accounting and science and engineering. The barriers between specialties are still very significant, and the sharing of resources is not sufficient either, making it difficult to fully exert the effect of collaborative education [7].

4.3. The level of intelligence of teaching resources is not high

Driven by emerging technologies such as artificial intelligence and big data, the development of accounting shows a vigorous momentum, but the corresponding teaching resources are seriously insufficient. When preparing lessons, teachers find it difficult to obtain high-quality engineering examples of artificial intelligence. There is a lack of experimental operation plans that closely integrate cutting-edge technologies with tax and finance business. High-quality online and offline smart teaching resources are seriously scarce, which affects the teaching effect. At present, the multimedia teaching systems in most colleges and universities are relatively simple, lacking interactive and intelligent applications. It is difficult to realize intelligent teaching functions such as student learning situation analysis, learning monitoring, and personalized push. At present, there are not many courses on artificial intelligence in the finance and accounting major in our country, and high-level virtual simulation experiment courses are extremely rare. The efforts of universities to conduct independent research need to be strengthened urgently. The lack of suitable and intelligent teaching resources has become a bottleneck restricting the reform and innovation of interdisciplinary teaching models [8].

4.4. The collaborative education mechanism of integrating industry and education needs to be deepened

At present, the connection between the accounting major of School S and the artificial intelligence industry is not yet close enough, and the depth and breadth of the integration of industry, academia and research still need to be further enhanced. There are still problems in terms of talent cultivation plans and curriculum Settings, such as the lack of deep integration with advanced artificial intelligence enterprises, the inability of teaching content updates to keep up with industry development, and the mismatch between training objectives and norms and market demands. In interdisciplinary practical teaching, the cooperation between universities and enterprises in jointly formulating curriculum plans and establishing off-campus internship bases is insufficient, and the content of practical teaching lacks pertinence. A comprehensive and long-term mechanism for industry experts to participate in training has not been established. The systems and mechanisms for engineers to enter classrooms and give part-time lectures are still not perfect. The role of university think tanks in serving industrial development has not been fully exerted. The training of accounting talents is still far from meeting the needs of new forms such as intelligent finance and taxation and big data auditing. It is necessary to rationalize the effective connection between supply and demand sides, and it is difficult to establish a working model of collaborative education in multiple aspects [9].

5. Practical Path of Artificial Intelligence in Interdisciplinary Teaching of Accounting Major in S School, Shandong Province

5.1. Construction of accounting learning cognitive model based on knowledge graph

Knowledge maps are an important direction in current artificial intelligence research. They can effectively mine the knowledge of various disciplines in accounting and other disciplines, such as data science and computer science. Through knowledge maps, teachers can accurately describe students' cognitive patterns and learning characteristics, design progressive and networked interdisciplinary teaching content, and guide students to systematically master complex interdisciplinary knowledge. Through the visualized knowledge map, students can clearly understand their learning trajectory, actively explore the integration points of accounting and cutting-edge technologies, and enhance the systematicness and pertinence of interdisciplinary learning. For instance, during the process of big data auditing, teachers

can establish a learning map that encompasses knowledge in various aspects such as internal control, risk assessment, auditing procedures, and big data analysis methods, so as to enable students to better understand the logical connections among these subject contents. So as to better integrate accounting and auditing knowledge with data analysis methods [10].

5.2. Design of Interdisciplinary collaborative practice Projects Based on blockchain

Blockchain is an emerging technology that integrates multiple disciplines such as cryptography, consensus algorithms, and distributed networks. Its decentralization and immutability make it have broad application prospects in accounting. On this basis, we will organize multiple interdisciplinary research projects and students from various disciplines to jointly study blockchain technology in areas such as electronic invoices and supply chain finance. On the one hand, students majoring in finance and accounting can discover the application needs of enterprises, design business models, and evaluate their implementation effects. Meanwhile, the research results of this project will provide an important theoretical basis for the construction of blockchain networks, the development of smart contracts and the optimization of system performance. Through the cross-disciplinary cooperation between "liberal arts and business" and "science and engineering", the research results are more in line with the actual business needs, and at the same time, the comprehensive practical ability of students to conduct cooperative research is cultivated.

5.3. Research and development of intelligent financial decision simulation system based on reinforcement learning

Reinforcement learning is a current research hotspot in the field of artificial intelligence. It rewards and punishes the interaction between intelligent agents and the environment, endowing them with the ability to continuously learn and optimize decision-making. On this basis, through cooperation with enterprise experts, guide trainees to apply the enhanced learning algorithm to aspects such as financial investment decision-making and risk control, and develop an intelligent simulation system with independent intellectual property rights. On the one hand, the main task of finance is to design the simulation environment and business rules, and set quantitative risk appetite and return rate targets. In addition, in view of the characteristics of the agent, this project will conduct research on aspects such as theoretical modeling of the agent, parameter adjustment, design of strategic networks and value function networks, as well as the balance of detection and utilization of the agent. By combining "finance" and "wisdom", students can not only gain valuable experiences in the design and development of the system, but also better understand the smart financial decision-making process [11].

5.4. Development of an intelligent financial report analysis engine based on natural language processing

Natural language processing, as an important means of artificial intelligence, enables machines to understand and generate natural language. Through cooperation with fintech companies, guide students to develop intelligent analysis systems based on financial statements and industrial analysis. On the one hand, students majoring in finance and accounting need to establish the report corpus of listed companies, design the financial indicator system and analysis mode, and summarize the profit rules. Meanwhile, focusing on the research direction in the field of natural language processing, we study natural language models and knowledge bases for natural language processing, achieve syntactic and semantic parsing of financial report texts, and develop an intelligent question-answering system based on natural language processing. With the joint efforts of both sides, it is possible to automatically extract important information from a large amount of unstructured financial texts, explore the tendencies of financial public opinion, and respond to investors' natural language questions. Students can not only develop practical software, but also better understand and apply artificial intelligence technologies such as knowledge engineering and NLP.

6. Conclusion

In the age of artificial intelligence, the teaching of accounting in universities must keep pace with the times and accelerate its transformation towards digitalization, intelligence, and personalization. By designing interdisciplinary teaching content, innovating smart teaching models, developing new teaching resources, building practical teaching platforms, deepening industry-education collaboration, and promoting the deep integration of accounting and AI technology from multiple dimensions, we will undoubtedly cultivate a large number of high-quality, versatile accounting professionals with AI thinking and application skills, leading the future transformation and development of the accounting industry. Facing the intelligent era, accounting education has great potential and can make significant contributions. Let us join hands and work together to create a bright future for accounting education through innovative cross-disciplinary practices.

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