

Research on Optimizing Teaching Strategies for Financial and Accounting Talents Based on Big Data Analysis

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Abstract: With the widespread application of big data technology, the demand for financial and accounting talents presents characteristics of digitalization and specialization. Based on big data analysis, this article explores the optimization of intelligent teaching strategies for financial and accounting talents, analyzes the problems of existing teaching strategies, and proposes targeted optimization suggestions. The research results indicate that optimizing curriculum design, strengthening school enterprise cooperation, deepening practical teaching reform, innovating teaching methods and evaluation systems, and utilizing big data to achieve personalized training are conducive to improving the quality of financial and accounting talent cultivation. Through the implementation of these strategies, the quality of financial and accounting professional teaching can be effectively improved, and digital talents that can meet the needs of future financial and accounting work can be cultivated.

1. Introduction

With the rapid development of technologies such as big data and artificial intelligence, the traditional training model for financial and accounting talents can no longer meet the demand for high-quality financial and accounting talents in modern society. The demand for financial and accounting talents in enterprises is increasing, requiring not only solid professional knowledge but also the ability to analyze data and apply intelligence. Digitized teaching can improve the quality of training financial and accounting talents, make the teaching content more practical, and cultivate students' practical operation ability and innovative thinking ability. Therefore, promoting the digital teaching reform of financial and accounting talents in universities is a trend and an inevitable choice to improve the quality of talent cultivation.

2. The Problems in Cultivating Financial and Accounting Talents in Universities

(1) Unreasonable curriculum design and insufficient information technology support in schools

At present, many universities still focus on traditional financial accounting knowledge in their courses of finance and accounting, lacking courses related to digital technologies such as big data and artificial intelligence, such as data analysis and data mining [1]. This results in insufficient abilities of students in data-driven decision-making, making it difficult to adapt to the demand for

finance and accounting talents in modern enterprises. In addition, many universities have insufficient investment in big data teaching resources and lack sufficient big data analysis tools and platforms, making it difficult for students to gain practical operational experience and fully understand and master the application of data analysis in the field of finance and accounting.

(2) Weak practical links and lack of educational mechanisms for school enterprise cooperation

Practical teaching is an important link in cultivating students' application abilities, and enterprises are an important place for the application of digital technology in finance and accounting majors [2]. Although many universities include practical teaching in their curriculum, there is relatively little practical teaching content related to digitalization, and cooperation with enterprises is not close enough, resulting in students having difficulty accessing the latest digitalization financial technology and practical experience, and lacking ability to solve practical problems.

(3) Lagging teaching methods and insufficient teaching staff

The traditional lecture based teaching method still dominates, lacking flexible and diverse teaching methods such as flipped classroom and project-based learning, lacking teacher-student interaction and case analysis, which is not conducive to students' understanding and application of mathematical financial knowledge, stimulating their learning interest and initiative, and improving teaching effectiveness [3-4].

In addition, although most teachers majoring in finance and accounting in universities have a background in financial accounting, there are fewer teachers familiar with big data and digital technology, and most teachers are not proficient in using data analysis techniques and tools. This makes it difficult to integrate digital technology into accounting teaching during the teaching process, which affects the quality of teaching.

(4) Incomplete evaluation system and lack of personalized teaching

The current assessment and evaluation system in most universities places too much emphasis on the assessment of theoretical knowledge, neglecting the evaluation of data analysis ability and practical skills, and cannot fully reflect the learning effectiveness of students in overall teaching. In addition, the teaching of finance and accounting majors in universities often adopts a "one size fits all" teaching model, ignoring individual differences among students and failing to provide personalized learning paths and guidance based on their interests and abilities.

3. The Necessity of Integrating Big Data Analysis into the Training of Financial and Accounting Talents

(1) Adapt to the needs of the big data era

The rise of big data and digital economy has provided new impetus for the sustained growth of China's economy, while also leading various industries to transform towards digitalization and intelligence [5]. In this context, as an important battlefield for cultivating high-quality talents, universities shoulder the key mission of achieving a strong talent country and revitalizing the country through science and education, as shown in Figure 1.

College educators should recognize that with the widespread application of big data technology, the training of financial and accounting professionals is also facing new challenges and opportunities [6-8]. The traditional financial and accounting education model can no longer meet the demand for professional talents in the digital economy era. Therefore, it is necessary to keep up with the pace of the times and accelerate the digital transformation of financial and accounting talent cultivation to better adapt to the demand for professional talents in the digital economy era. This not only helps to cultivate more high-quality financial and accounting talents, but also provides strong support for the sustained growth of China's economy.

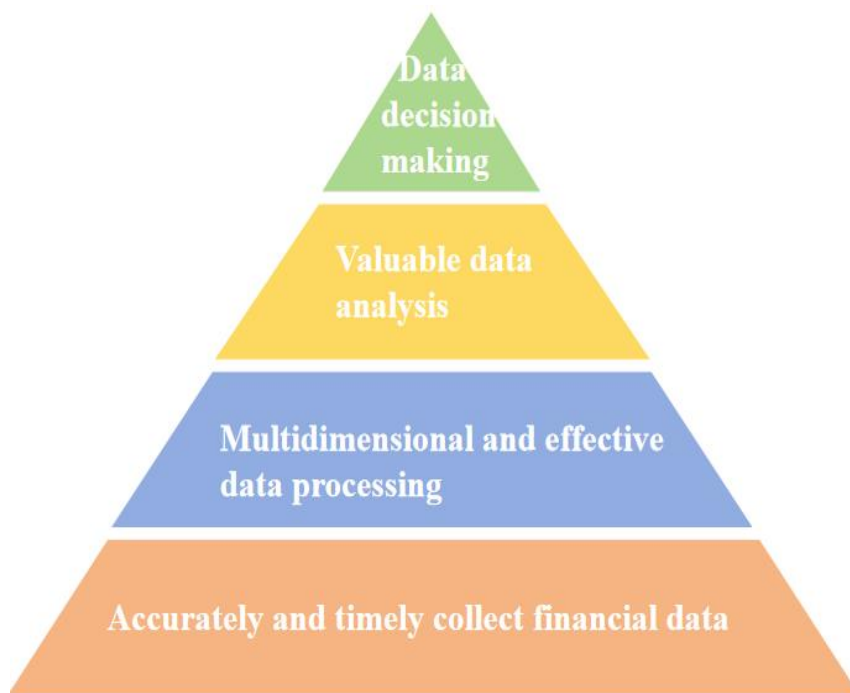


Figure 1: The demand for financial and accounting talents in the era of big data

(2) Enhancing the practical ability of financial and accounting talents

Traditional accounting teaching is often too theoretical and disconnected from practical work needs. The knowledge and skills learned by students in the classroom are often difficult to directly apply to real-life financial problem-solving. Integrating big data analysis into the teaching of finance and accounting can closely integrate accounting theory with practice, enabling students to fully understand and master accounting knowledge during the learning process [9]. By analyzing real financial data, such as stock market data, financial statements, tax records, etc., students can be exposed to information synchronized with the industry, gain a deeper understanding of the actual operation of financial management, and master the methods and skills of data analysis. Meanwhile, through in-depth research on case studies, students can learn how to apply financial and accounting knowledge to solve practical problems and improve decision-making abilities.

(3) Promoting Teaching Reform in Finance and Accounting Majors

By introducing big data analysis technology and information technology, traditional and outdated teaching models can be effectively changed. Traditional teaching methods often rely on the experience and intuition of teachers, making it difficult to meet the personalized learning needs of every student. Big data analysis technology can help teachers comprehensively and deeply understand the learning situation of students, thereby better adjusting teaching strategies and achieving personalized teaching. In addition, big data analysis can help teachers identify weak links in teaching. By accurately grasping the learning progress and understanding level of students, teachers can provide targeted guidance in a timely manner, ensuring that each student can keep up with the course progress, thereby improving the overall teaching effect.

4. The Application of Big Data Analysis in Mathematical and Intelligent Teaching of Finance and Accounting Majors

Table 1 shows the application methods and implementation methods of big data analysis technology in the digitalization teaching of finance and accounting majors.

Table 1: Application of Big Data Analysis in Mathematical Teaching of Finance and Accounting Majors

Application area	Application method	Implementation methods in digital teaching
DA	Automated Collection	Automatically collect financial data on the internet through web scraping technology, such as stock prices, financial reports, etc.
	API Joggle	Many data providers and financial institutions provide API interfaces that can be directly integrated into teaching systems to achieve real-time data acquisition.
	Cloud Services	Things like Alibaba Cloud and Tencent Cloud can easily access and store large amounts of data.
Data Cleaning	Using Professional Software	Tools such as Excel, Python, MySQL, etc. can effectively help identify and handle abnormal data.
	Establish Data Cleaning Rules	Based on professional knowledge in finance and accounting, establish a series of cleaning rules, such as conducting rationality checks on the numbers in financial statements.
Data Mining	Association rule analysis	Analyze the correlation between different financial data, such as the correlation between sales data and cost data.
	Cluster Analysis	Classify enterprises, such as dividing them into different categories such as health, early warning, risk, etc. based on their operating conditions.
	Time Series Analysis	Predicting financial trends, such as using historical financial data to predict future income and expenses.
Data Visualization	Using Charts and Graphics	Display the changes and structure of financial data in bar charts, line charts, pie charts, etc.
	Interactive Data Analysis Tools	For example, Tableau, Power BI, etc., allow students to explore data through interactive interfaces.

5. Optimization Strategy for Digitalization Teaching of Financial and Accounting Talents Based on Big Data Analysis

(1) Optimize course offerings and integrate teaching resources across disciplines

First of all, universities introduce courses related to data analysis and information technology to build new course modules such as data science foundation, big data analysis, financial information system and intelligent decision support system [10]. Secondly, universities encourage interdisciplinary research and curriculum development, such as combining disciplines such as computer science, statistics, and business administration, and integrating technologies such as big data processing, cloud computing, and artificial intelligence into traditional courses such as accounting principles, financial management, and auditing, so as to cultivate students' data mining and interpretation abilities. Third, colleges and universities use cloud computing technology to develop online teaching platforms to achieve sharing and remote access to teaching resources and improve the utilization efficiency of teaching resources. Universities encourage teachers and

students to participate in the development of teaching resources, and constantly optimize and update teaching content through crowdsourcing [11]. Table 2 provides a reference for optimizing the curriculum of accounting, auditing, and financial management majors.

Table 2: Optimization of Financial and Accounting Courses

Course Offerings	Accounting	Auditing	Financial Management
Basic Course	Financial Accounting, Cost accounting, Financial Management, Management Accounting, Auditing, Statistics	Financial Accounting, Financial Management, Auditing, Statistics, Internal Auditing, Social Auditing, Government Auditing	Financial Accounting, Cost accounting, Financial Management, Management Accounting, Statistics, Financial Report Analysis
Advanced Course	Fundamentals of Big Data Analysis, RPA Financial Robot Application, Financial Shared Service Experiment, Financial Big Data Analysis	Fundamentals of Big Data Analysis, RPA Financial Robot Application, Financial Shared Service Experiment, Big Data Audit	Fundamentals of Big Data Analysis, RPA Financial Robot Application, Financial Shared Service Experiment, Big Data Audit Big Data Analysis Fundamentals, RPA Financial Robot Application, Financial Shared Service Experiment, Financial Big Data Analysis
Training Course	Accounting Informatization, Comprehensive Simulation of Business, Finance, Practical Training in Financial Accounting, ERP Supply Chain Management, Practical Training in Enterprise Tax Declaration	Accounting informatization, Comprehensive Simulation of Business and Finance, Financial Accounting Training, Audit Training, IT Auditing, ERP Supply Chain Management	Accounting informatization, Comprehensive Simulation of Business and Finance, Financial Management Training, Financial Accounting Training, ERP Supply Chain Management, Enterprise Tax Declaration Training

Strengthening school enterprise cooperation and promoting the integration of industry, academia, and research

School-enterprise cooperation introduces practical problems of enterprises into the classroom, carries out practical project case teaching, improves students' practical ability and problem-solving ability, and enables students to better understand the application of theoretical knowledge in practical work. Colleges and universities have established professional databases and case databases of finance and accounting to collect and sort out various financial data and practical cases, providing rich practical materials for teaching [12]. Thirdly, through joint construction of internship bases and joint research and development projects between schools and enterprises, students have the opportunity to be exposed to cutting-edge big data financial applications in the industry, improving their professional competence and adaptability. Figure 2 shows the actual application

process of project case teaching.

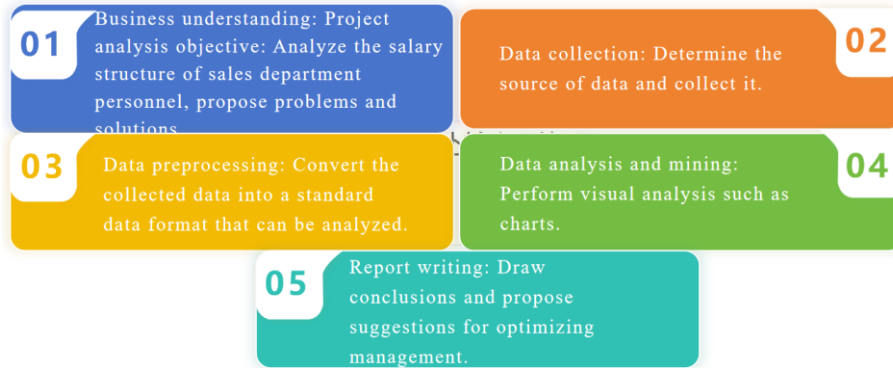


Figure 2: Example of Practical Case Teaching

Reform teaching mode, cultivate and update teaching staff

Firstly, explore the reform of new teaching models such as hybrid and flipped classrooms that combine big data technology. Blended learning can combine online and offline teaching resources to improve teaching efficiency and student learning experience [13]. Flipped classroom combines classroom teaching with self-directed learning, encouraging students to independently learn theoretical knowledge through online learning platforms before class, and engaging in more discussions, case analysis, and practical operations in the classroom.

Secondly, colleges and universities regularly organize relevant training and seminars to help teachers master the latest data analysis tools and methods. At the same time, colleges and universities encourage teachers to participate in the development of teaching resources and the innovation of teaching models in order to improve teachers' professional ability and teaching level. Colleges and universities should establish a communication and cooperation mechanism among teachers to share teaching experience and resources and jointly improve teaching quality [14].

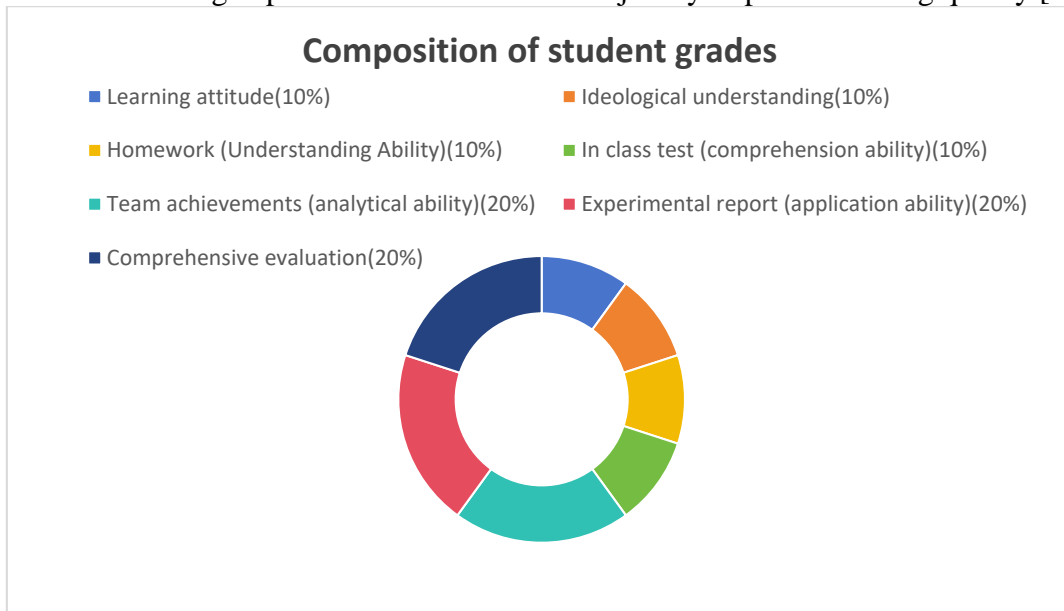


Figure 3: Student Performance Evaluation System

Innovative evaluation system to achieve personalized teaching

Colleges and universities should innovate the teaching evaluation system, and design multi-dimensional evaluation indexes such as understanding, analysis and application according to

knowledge points, skill requirements and students' ability development. Through big data analysis of students' learning behavior, homework completion, online interaction, etc., a comprehensive evaluation of their learning process is conducted, as shown in Figure 3. Universities use big data analysis tools to track students' learning progress and results in real time, and adjust teaching strategies and evaluation standards in a timely manner.

Secondly, design personalized teaching modes. Universities utilize big data technology to analyze students' learning habits, ability level and interest, and customize a personalized learning path for each student [15]. According to the results of big data analysis, students are divided into different study groups for targeted teaching and mutual learning. Universities integrate the latest financial news and cases into teaching to ensure the timeliness and practicability of teaching content.

Finally, introduce intelligent analysis tools. Universities use artificial intelligence to provide 24/7 online tutoring to solve students' immediate problems; Use machine learning and artificial intelligence tools to analyze student assignments and test scores to provide personalized feedback and recommendations.

6. Conclusion

This article delves into the important role of big data analysis in financial and accounting teaching, and proposes an optimization plan for digital teaching strategies. By optimizing course offerings, strengthening school enterprise cooperation, reforming teaching models, and innovating evaluation systems, a series of optimization measures can promote the cultivation of financial and accounting talents with data collection, processing, and analytical thinking in universities. In the future, universities should continue to deepen the integration of big data technology and finance and accounting education, promote personalized and intelligent learning, meet the demand for finance and accounting professionals in the digital era, and adapt to and lead the development trend of the finance and accounting industry in the digital economy environment.

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References

- [1] Tsebrienko V T, Alekseeva T T, Babkina V N, et al. *The Path Selection of Accounting Teaching Reform in the Context of Big Data*. *Indian Journal of Public Health Research Development*, 2017,3(3):15-19.
- [2] Li X, An J. *Reflections on the Teaching of Management Accounting on the Background of Big Data*. *Natural and Social Science Studies*, 2018, 2(1):130-134.
- [3] Zeng Y, Zhao Z. *Exploration and Practice of The Teaching Reform of Big Data + Accounting Major in Higher Vocational Colleges in The AI Era*. *Economics Management Review*, 2023,4(1):80-83.
- [4] Gao C. *Exploring the Teaching Model of Financial Accounting for Vocational Undergraduate Students under the Background of Big Data*. *International Journal of Mathematics and Systems Science*, 2023, 6(3):126-129.
- [5] Ruan Q. *Research on Teaching Reform of Financial Big Data Analysis Course Based on OBE Concept*. *Advances in Educational Technology and Psychology*, 2022, 6(7):35-38.
- [6] Yuhuan H, Desheng S. *Research on the Innovation of the New Model for the Cultivation of Government Accounting Professionals under the "Accrual Basis of Big Data Analysis of Government Comprehensive Financial Report*. *Journal of Physics: Conference Series*, 2021,1744(4):042098.
- [7] Kaya I, Akbulut H D. *Big Data Analytics In Financial Reporting And Accounting*. *Press Academia Procedia*, 2018, (1):256-259.
- [8] Longyan T, Feng D. *Integrating Entrepreneurship and Innovation Education into Higher Vocational Education*

- Teaching Methods Based on Big Data Analysis. Wireless Communications and Mobile Computing, 2022, 6(7):204-208.*
- [9] Xue L, Liang X. *Teaching Optimization and Practical Research of Financial Big Data Analysis under the Background of Blockchain Technology- -Take Zhanjiang University of Science and Technology as an Example. Financial Engineering and Risk Management, 2022, 5(2):226-229.*
- [10] Liang Q, Zhao H. *Research on Teaching Reform of Finance and Accounting Major in Applied University under the Background of New Business: Take LNSF College for Example. Curriculum and Teaching Methodology, 2022, 5(7):101-105.*
- [11] Jingjie M, Yuan C, Yan L. *The Cultivation of Algebraic and Intelligent Financial and Accounting Talents in the Era of Big Data. Journal of Shanxi University of Finance and Economics, 2023, 45(S2):237-239.*
- [12] Fei L, Xiaochen Z. *Research on the Teaching and Implementation Path of Financial Accounting Course under the Background of Big Data. Money China, 2023(35): 150-152.*
- [13] Xiaoli H, Jingwen Y, Yonggang X. *Exploration of Cultivating Applied Financial and Accounting Talents under the Background of Digital Intelligence Transformation. Accounting Learning, 2023, (33): 145-147.*
- [14] Fenghuan L, Youyuan P, Yanhua L. *A Study on the Cultivation of "Digitized" Financial Management Talents in the Context of Big Data: A Case Study of Z University. Chinese Agricultural Accounting, 2024, 34(02): 109-111.*
- [15] Hongqin L, Qin S. *Research on the Teaching Reform of Accounting Informatization Series Courses in the Digital Intelligence Era. Qilu Forum, 2023, (06): 60-64.*