

Optimization of Teaching Design for FinTech Application Course

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To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v13-i4/23676> DOI:10.6007/IJARPED/v13-i4/23676

Published Online: 18 November 2024

Abstract

With the rapid development of financial technology (FinTech), the teaching design of financial technology application courses in universities is facing unprecedented challenges and opportunities. This study takes the development trend and market demand of the fintech industry as the background, systematically sorts out the current situation of fintech courses, identifies the main problems in current teaching design, and proposes corresponding optimization strategies based on actual needs. The study adopted literature review, case analysis, and observation methods to deeply analyze the logic of setting up financial technology application courses, teaching objectives, and their compatibility with industry needs. The research results indicate that although the current course content extensively covers various key areas of financial technology, further improvement is still needed in terms of depth and practicality. By improving teaching methods and strengthening practical activities, this study proposes specific optimization plans aimed at cultivating composite financial technology talents that meet the needs of the times.

Keywords: Financial Technology (Fintech), Instructional Design, Course Optimization, Talent Demand, Practical Education

Introduction

Financial Technology (FinTech), as a product of the deep integration of the financial industry and information technology, has rapidly developed into an important driving force for the global economy. Fintech encompasses cutting-edge technologies such as artificial intelligence, big data, blockchain, and cloud computing. Through innovative payment methods, inclusive finance, intelligent investment advisory, and other forms, it has greatly changed the mode and structure of traditional financial services. Major financial institutions around the world have invested significant resources to adapt to this wave of change and maintain competitiveness. Meanwhile, with the continuous development of the digital economy, the application scenarios of financial technology are becoming increasingly widespread worldwide, covering various fields from retail banking to capital markets. This

trend indicates that fintech is not only a technological innovation in the financial industry, but also a key force driving global economic change (Choudhary&Thenmozhi, 2024).

In China, the development of financial technology has also demonstrated significant regional regulatory effects. Research has shown that the development of local financial technology can effectively alleviate the economic gap between the north and south, promote industrial structure upgrading and optimization, and achieve balanced regional economic development. Especially after fintech reaches a certain level of development, its positive impact on industrial structure becomes more significant, thereby further narrowing the economic differences between regions (Yang&Zhou, 2024). In addition, fintech plays an important role in promoting sustainable development. Fintech plays a crucial role in achieving the United Nations Sustainable Development Goals (SDGs) by promoting inclusive finance, supporting investment in environmental projects, and driving economic growth and social development. However, the challenges faced by fintech include high costs, inadequate digital infrastructure, and a lack of financial literacy (Hasan et al., 2024).

However, the development of financial technology is not without risks. Research has shown that the development of fintech in emerging markets may have a negative impact on financial stability, especially in situations where financial stability is low, and the role of market discipline is particularly important. This discovery suggests that regulatory agencies need to take measures to maintain the stability of the financial system, especially in emerging markets, while promoting the development of fintech (Nguyen & Dang, 2022).

The rapid development of financial technology poses new challenges and requirements for higher education, especially financial professional education. The traditional content and methods of financial education are no longer sufficient to meet the demand for versatile talents in the era of financial technology. The current education system needs to undergo comprehensive reforms in curriculum design, teaching content, and teaching methods to cultivate students' practical abilities and innovative thinking in the field of financial technology. Universities need to break through traditional disciplinary boundaries, promote the deep integration of finance and information technology, and focus on cultivating students' understanding and application abilities of emerging technologies. The development of financial technology has prompted the education sector to re-examine the curriculum system and strive to cultivate composite talents who possess both financial theoretical foundations and modern information technology, in order to adapt to the constantly changing and developing needs of the financial industry.

This study aims to improve the quality and efficiency of financial technology talent cultivation in universities by optimizing the teaching design of financial technology courses. The research results not only provide practical and feasible suggestions for curriculum reform in universities, but also provide powerful references for educators and policy makers. In addition, the optimized course design will help students better grasp the cutting-edge knowledge and skills in the field of financial technology, enhance their employment competitiveness, and meet the urgent demand for versatile talents in the financial industry. By promoting the deep integration of education and industry practice, narrowing the gap between financial technology talent cultivation and industry demand, and promoting the sustainable development of financial technology.

Literature Review

Current Status and Challenges of Financial Technology Curriculum Design

The application of financial technology worldwide has driven the digital transformation of the financial system and put forward new requirements for university curriculum design (Choudhary & Thenmozhi, 2024). Despite the considerable scale of fintech curriculum worldwide, many courses still suffer from scattered research hotspots and outdated course content (Pandey et al., 2024). In China, research has shown that financial technology application courses need to strengthen the integration of mathematical content to better serve market demand (Ying et al., 2023).

However, current financial technology courses in China still face many challenges. In the existing curriculum system, the development of digital finance has not been fully absorbed, resulting in the inability to update and reflect the latest market trends in teaching content in a timely manner (Rong, 2024). In the existing course of "Internet Finance and Electronic Payment", there are also outdated teaching methods that fail to effectively integrate the latest practical cases and technologies (Huijuan, 2024). In the course design of some financial technology majors in finance and economics colleges, emphasis is placed on the intersection and integration of courses, as well as the importance of deep integration between industry and education, in order to meet the industry's demand for interdisciplinary and high-quality talents (Xiaoyu, 2022). The development of financial technology requires the reconstruction of the curriculum system of finance majors in universities. It is suggested to cultivate composite financial technology talents with interdisciplinary knowledge and practical abilities through the addition of cutting-edge courses, increasing the proportion of practical courses, and strengthening the construction of the teaching staff (Xin, 2021).

Theoretical Basis for Teaching Design of Financial Technology Courses

The teaching design of financial technology courses should not only reflect the current industry needs, but also be based on a solid theoretical foundation. The digital transformation of financial technology courses in universities should focus on the deep integration of teaching content and industry practice, while innovating teaching models and evaluation systems to adapt to the constantly changing industry environment (Yisi, 2024). Against the backdrop of rapid development of financial technology, financial education must update its teaching content and strengthen the training of technical skills to meet future challenges (Longyue et al., 2023). However, the teaching of financial technology majors faces problems such as outdated teaching conditions and outdated teaching methods. By enhancing practical teaching, innovating teaching methods, and building technology application platforms, course design can be effectively optimized (Lixin, 2023).

Deep Integration of Information Technology and Teaching Methods

The rapid development of information technology has provided new possibilities for innovative teaching methods in financial technology courses. Research has shown that the application of financial technology in rural areas of China has significantly promoted economic development, highlighting the importance of integrating big data and artificial intelligence technologies into curriculum design (Wang et al., 2024). In addition, financial technology can significantly improve the investment efficiency of enterprises, especially in areas with lower levels of commercialization, indicating the necessity of introducing online and blended

learning methods in courses to help students better understand the importance of financial technology in practical applications (Qi et al., 2024).

Key Issues and Optimization Strategies in the Teaching Design of Financial Technology Courses
The impact of financial technology knowledge on students' entrepreneurial intentions was explored through SOR theory, and it was pointed out that in instructional design, it is necessary to consider how to alleviate technological pressure in order to improve students' learning outcomes (Tran et al., 2024). The current supply-demand contradiction in the cultivation of financial technology talents can be optimized through adjusting curriculum settings, strengthening the integration of industry and education, and emphasizing the cultivation of students' practical abilities (Chaoyun, 2023). Adding courses related to emerging financial technology, improving teaching methods, and establishing off campus internship bases can better cultivate financial technology talents with practical abilities and interdisciplinary backgrounds (Bowen et al., 2023). Adopting mentorship, conducting extracurricular activities, and establishing industry university research bases can help cultivate high-quality fintech talents with international perspectives and practical abilities (Xiaoyu, 2022). Through the optimization of the industry university research cooperation model, the cultivation of financial technology talents can be effectively promoted, especially by strengthening deep cooperation with the industry in curriculum design and teaching practice (Zhu et al., 2022).

Methodology

Research Design

Research Framework and Context

This study adopts a systematic research framework aimed at optimizing the teaching design of financial technology application courses to better meet the needs of industry development and cultivate high-quality financial technology talents. The overall framework of the research starts with an analysis of the current industry situation and market demand. Through a survey of the current status of existing fintech courses, the main problems in course design are identified, and practical optimization strategies are ultimately proposed. The key steps of the research include: firstly, analyzing the current development status of the fintech industry and the market demand for talent; Secondly, provide an overview of the overall status of existing fintech application courses; Finally, based on problem identification, strategies and plans for optimizing instructional design are constructed.

Analysis of the Current Situation and Problems of Financial Technology Courses

At present, the application of financial technology courses is gradually becoming popular in universities, but there are still certain problems in terms of course content, teaching methods, and practical aspects. Specifically, the course content updates are lagging behind and have not fully covered the latest financial technology and application scenarios; The teaching methods are relatively traditional, and students' practical abilities and innovative thinking cannot be effectively cultivated; The insufficient integration of interdisciplinary knowledge in curriculum design makes it difficult for students to acquire systematic knowledge and skills in the intersection of finance and technology. These issues make it difficult for existing courses to meet the market's demand for versatile fintech talents. Therefore, conducting in-depth analysis and optimization of the curriculum has become necessary.

Analysis of the Current Situation and Market Demand in the Financial Technology Industry

The FinTech industry has achieved rapid development in recent years and has become an important force driving the transformation of the global financial services industry. Fintech has reshaped the traditional financial service model through the application of technologies such as artificial intelligence, big data, blockchain, and cloud computing, greatly improving the efficiency and inclusiveness of financial services. Fintech companies are emerging like mushrooms after rain globally, providing consumers and businesses with more convenient and innovative financial services.

Current situation of the Fintech Industry

At present, the global fintech market is showing a strong growth trend. According to multiple studies and reports, investment in the fintech industry continues to grow, particularly in areas such as payments, lending, wealth management, and insurance technology, attracting significant capital investment. For example, the total global investment in fintech in 2022 exceeded 210 billion US dollars, a significant increase from previous years. This growth trend is particularly evident in the Asia Pacific region, where China, as a leader in fintech innovation, has driven the popularization and innovation of multiple fintech applications with its vast user base and relaxed regulatory environment.

In China, the application of FinTech has covered many fields, including mobile payment, digital currency, Internet lending, intelligent investment advisor and blockchain technology. Mobile payment platforms represented by Alipay and WeChat payment have been deeply integrated into people's daily life and become the main way of payment. In addition, the application of blockchain technology in cross-border payments, supply chain finance, and digital identity authentication is gradually expanding, further promoting the digitization and intelligence of financial services.

However, despite the promising prospects of the fintech industry, it also faces some challenges. Firstly, with the rapid development of the industry, competition among fintech companies is becoming increasingly fierce, and the market's demand for innovation is constantly increasing. Secondly, changes in the regulatory environment have also brought uncertainty to the industry. In recent years, governments around the world have strengthened their regulation of financial technology, particularly with stricter requirements in areas such as data security, privacy protection, and anti money laundering. These factors all affect the development direction and market structure of the fintech industry.

Market Demand for Fintech Talent

With the rapid development of financial technology, the demand for financial technology talents in the market has also significantly increased. The industry has a particularly urgent demand for composite talents with interdisciplinary knowledge. These talents not only need to master traditional financial knowledge, but also need to have solid information technology capabilities to play a role in emerging fields such as artificial intelligence, big data analysis, and blockchain development. Especially in the current context of continuous innovation in financial technology, enterprises need high-end talents who can effectively integrate finance and technology to promote business innovation and technological applications.

According to multiple industry reports, fintech companies are increasingly valuing candidates' technical backgrounds in recruitment, such as data science, software development, and cybersecurity. At the same time, the market's demand for fintech product managers, compliance experts, and risk management experts is also increasing. These positions require applicants to not only understand the business logic of fintech, but also be familiar with the implementation and application of related technologies. In addition, with the acceleration of globalization, financial technology talents with international perspectives and cross-cultural communication skills are also highly favored.

In summary, the rapid development of the fintech industry has given rise to a strong demand for versatile talents. These talents not only need to be proficient in the intersection of finance and technology, but also need to possess innovation ability and the ability to flexibly respond to market changes. Therefore, optimizing the design of financial technology courses in universities to cultivate high-quality talents that meet market demand has become an urgent task.

Sampling

With the rapid development of financial technology (FinTech) worldwide, the demand for versatile talents in the financial industry has become increasingly urgent, which has put forward new requirements for higher education, especially for the curriculum of finance majors. Financial technology application courses, as an important way to cultivate students' mastery of modern financial technology knowledge and skills, have been gradually offered in many universities. However, despite the increase in the number of fintech courses, there are still many urgent issues to be addressed in terms of the breadth and depth of their teaching content, the rationality of their curriculum design, and the actual feedback on teaching effectiveness. In order to better understand and optimize the teaching effectiveness of financial technology application courses, it is necessary to conduct systematic research and analysis on the current status of the courses. This not only reveals the shortcomings of current curriculum design, but also provides a solid foundation for subsequent curriculum optimization and teaching reform.

Therefore, based on the current teaching work, that is, the teaching content of financial technology courses for sophomore students majoring in finance at a certain university, this study systematically analyzes the current situation of financial technology teaching courses, reveals the problems and deficiencies in the current course design, and provides theoretical basis and practical guidance for course optimization. This study will use a combination of literature review and courseware analysis to select a financial technology course from a certain university as a case study. The core content of the financial technology application course will be systematically sorted out, and the logic of course setting, teaching objectives, and compatibility with industry needs will be analyzed. Combined with the current job requirements and literacy needs of financial technology talents, the course design and teaching situation will be deeply analyzed, and the main challenges and problems in teaching will be identified and analyzed. Specific optimization strategies will be proposed. Through these methods, the research will comprehensively explore how to improve the application courses of financial technology from both theoretical and practical perspectives, in order to better cultivate composite financial technology talents that meet the needs of the times.

Instrument

Problem identification and optimization strategy construction in instructional design
In the research of instructional design, the identification of problems and the construction of optimization strategies are key steps to ensure the effectiveness and practicality of the curriculum. This study will focus on the core elements of financial technology courses - chapter division, knowledge points, summary, advantages and disadvantages, systematically analyze the shortcomings of existing course designs, and propose corresponding optimization strategies.

Table 1

Framework for Identifying Teaching Design Problems

Analyze the elements	Problem analysis	Analysis method
Rationality of Chapter Setting	The scientific and reasonable chapter design of existing courses, as well as their ability to comprehensively cover the core content of financial technology, are important factors that affect students' systematic learning. If the logic between chapters is unclear, it may lead to the fragmentation of knowledge points and affect students' overall understanding.	Identify whether the course chapter settings are reasonable through literature review and comparative analysis. Focus on analyzing whether the chapter settings cover key areas of financial technology and verify their compatibility with industry needs.
Breadth and depth of knowledge points	Whether the setting of knowledge points matches the actual needs of the industry and can help students master the core skills of financial technology is an important part of curriculum design. If the knowledge points are too simple or too complex, it may affect students' learning effectiveness.	Evaluate the breadth and depth of existing course knowledge points through literature review and course observation. Identify whether the knowledge points cover the core technologies and applications of financial technology, and whether they are in line with industry development trends.
The effectiveness of teaching content	Can the teaching design of each chapter effectively consolidate students' knowledge points and help them build a systematic knowledge system. If teaching is unclear or lacks logic, it may make it difficult for students to grasp the core content of the course.	Evaluate the effectiveness of teaching content through courseware analysis and classroom feedback. Compare the content design of different courses, analyze their impact on students' learning outcomes, and propose improvement suggestions.
Promotion of course advantages	Whether the advantages of course design have been fully utilized and whether they can be promoted and applied in other chapters or courses.	Through courseware analysis, identify the advantages in course design and explore their

Improvement of course shortcomings	<p>If the advantages are not effectively utilized, it may not be possible to maximize the teaching effectiveness of the course.</p> <p>Have the shortcomings in the existing curriculum design been fully identified and improved, especially in areas where student feedback is poor. If the shortcomings are not improved in a timely manner, they may continue to affect the teaching effectiveness.</p>	<p>promotion and application in the course.</p> <p>Identify shortcomings in course design through data analysis and classroom observation. Analyze the negative impact of these shortcomings on learning outcomes and propose specific improvement measures to enhance the overall quality of the course.</p>
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After a detailed analysis of the chapter setting, knowledge points, teaching content design, and course advantages and disadvantages in the financial technology application course, the main problems in the current course design were identified. In order to effectively improve the quality of the course and better serve the goal of cultivating financial technology talents with core competitiveness, practical and feasible optimization strategies were proposed to address these issues. These strategies will not only focus on updating and adjusting course content, but also explore in depth how to strengthen innovative teaching methods and practical activities to ensure that course design can fully adapt to the rapid development of the industry.

Table 2
Framework for Constructing Teaching Design Optimization Strategies

Constructing Path	Optimization strategy
Optimize chapter settings	Based on literature review and industry analysis, adjust and optimize the existing chapter titles to ensure that they cover all key areas of fintech and have a clear logical structure. Suggest introducing interdisciplinary knowledge and adding chapters on emerging fields such as blockchain and artificial intelligence.
Adjust the setting of knowledge points	Through literature review and industry analysis, optimize the setting of knowledge points to ensure that they can not only cover the basic knowledge of financial technology, but also deeply explore the application of cutting-edge technologies. Introduce practical cases and industry practices to ensure that knowledge points are highly aligned with industry needs.
Strengthen the design of teaching content	Based on teaching experience, improve the teaching content of each chapter to make it more logical and systematic. Suggest adding a summary, review, and application examples of the knowledge points to help students better understand and consolidate the learned content.
Advantages of promoting courses	Promote and apply effective teaching designs and successful cases from the course to other chapters. Through teacher training and experience sharing, ensure that these advantages can be widely applied throughout the entire curriculum, and improve the overall teaching quality.

Propose targeted improvement measures for the identified shortcomings in course design. It is recommended to address the issues in the curriculum and ensure that students have a better learning experience by introducing new teaching methods, adding practical activities, or adjusting assessment methods.

Findings and Discussion

The development of financial technology has also had a significant impact on higher education teaching, and the education sector has put forward higher requirements for how to effectively cultivate financial technology talents with professional skills and innovative abilities. In this context, it is particularly important to conduct in-depth analysis of the teaching design of financial technology courses. This study establishes a framework for problem identification and optimization strategies to comprehensively identify problems in financial technology application courses and propose optimization strategies.

Findings

Table 3

Chapter 1

Analyze the elements	Chapter 1 Overview of Financial Technology
Rationality of Chapter Setting	Reasonably set as the beginning of the course, by introducing the definition, development history, and global status of financial technology, to help students establish a basic knowledge framework (Wu Rong, 2024; Li Ying et al., 2023)
Breadth and depth of knowledge points	It covers a wide range of financial technology, but lacks in-depth exploration of the application of core technologies such as blockchain and artificial intelligence (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024)
The effectiveness of teaching content	The teaching content effectively guides students to understand the basic concepts of financial technology, but the lack of practical cases may limit their ability to combine theory with practice (Tran et al., 2024; Wang Xin&Wang Ying, 2021).
Promotion of course advantages	The systematic and logically clear introduction mode can be promoted in other chapters, especially suitable for teaching complex concepts (Choudhary&Thenmozhi, 2024; Yisi, 2024).
Improvement of course shortcomings	The main problem lies in the lack of practical case analysis and technical details explanation, which may make it difficult for students to understand the specific applications of financial technology in reality

The main problem in Chapter One stems from the insufficient integration of theory and practice in curriculum design. Although the course successfully laid the foundation for the theoretical framework of financial technology for students, due to insufficient discussion of practical applications and technical details, students may find it difficult to connect abstract concepts with real-life operational scenarios (Wu Rong, 2024; Chang Huijuan&An Shilin, 2024). The problem of the disconnect between theory and practice may lead to a lack of intuitive understanding and operational ability of financial technology applications in students' subsequent learning, thereby affecting their performance in practical work (Pandey

et al., 2024; Tran et al., 2024)。 In addition, the lack of real case support in the course also limits students' comprehensive understanding of the complexity and practical applications of financial technology (Nguyen&Dang, 2022; Cui Lixin, 2023).

Table 4

Chapter 2

Analyze the elements	the	Chapter 2 Big Data
Rationality of Chapter Setting	of	Systematically introduced the concept, technology, and application of big data in the financial field, helping students gradually deepen their understanding of the importance of big data in financial technology (Wu Rong, 2024; Li Ying et al., 2023)
Breadth and depth of knowledge points	and of	It covers a wide range of knowledge points related to big data, including its definition, characteristics, technical processing flow, and application scenarios. However, there is a lack of in-depth exploration in terms of technical depth, especially in the specific implementation of data mining and analysis algorithms (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024)
The effectiveness of teaching content		Effectively demonstrating the various applications of big data in the financial field with strong practicality, but due to the lack of detailed technical implementation steps, students may find it difficult to understand and apply these technologies (Tran et al., 2024; Wang Xin&Wang Ying, 2021)
Promotion of course advantages	of	While introducing big data in the system, practical application scenarios are also explained, and this combination of theory and practice can be promoted in other technical chapters (Choudhary&Thenmozhi, 2024; Yisi, 2024)
Improvement of course shortcomings		Insufficient in-depth explanation of the implementation details of big data technology, especially in the explanation of complex algorithms and data processing flows, may lead to difficulties for students in understanding and practical operation. "(Nguyen&Dang, 2022; Cui Lixin, 2023)

The problem in Chapter 2 mainly stems from the insufficient depth of explanation of the implementation details of big data technology, which makes it difficult for students to understand complex technical concepts and algorithms during the learning process. Although this chapter covers the basic concepts and application scenarios of big data, there is a lack of in-depth discussion on the specific technical implementation and data processing flow, which may confuse students when facing practical operations (Pandey et al., 2024; Tran et al., 2024)

。 In addition, the course content focuses more on concepts and applications, without fully integrating practical cases for in-depth analysis, further limiting students' understanding of the practical application of big data technology in the financial field (Nguyen&Dang, 2022; Cui Lixin, 2023).

Table 5

Chapter 3

Analyze the elements	Chapter 3 Cloud Computing
Rationality of Chapter Setting	Introduce the basic concepts, development history, and applications of cloud computing in the financial field, with a strong systematic approach, enabling students to fully understand the importance of cloud computing in financial technology (Wu Rong, 2024; Li Ying et al., 2023)
Breadth and depth of knowledge points	Covering a wide range of knowledge points in cloud computing, including IaaS, PaaS, SaaS and other cloud computing models and their key technologies such as virtualization, distributed computing, and cloud security. However, the depth is insufficient, and the discussion of complex technology implementation is relatively shallow, especially in the practical application of distributed computing and virtualization (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024)
The effectiveness of teaching content	Performed well in demonstrating the application scenarios of cloud computing, helping students understand the practical value of cloud computing in financial services. However, due to the lack of specific practical guidance, students may find it difficult to translate theoretical knowledge into practical skills (Tran et al., 2024; Wang Xin&Wang Ying, 2021)
Promotion of course advantages	The explanation that combines cloud computing technology with financial applications helps students to comprehensively understand the application scenarios of this technology. This combination of theory and application is worth promoting in other technical chapters (Choudhary&Thenmozhi, 2024; Yisi, 2024)
Improvement of course shortcomings	The main problem with this chapter is the insufficient depth of explanation of the core technologies of cloud computing, especially in the practical application details of virtualization and distributed computing. There is a lack of in-depth technical discussion, which may lead to difficulties for students in actual operation

The problem in Chapter 3 mainly stems from insufficient explanation of the implementation details of cloud computing technology, which makes it difficult for students to deeply understand the internal operating mechanisms of complex technologies during the learning process. Although this chapter covers the basic concepts and applications of cloud computing, the content in terms of technical implementation and practical operation is relatively weak, which is consistent with the problem pointed out by Tran et al (2024), that students find it difficult to transform theoretical knowledge into practical skills (Tran et al., 2024). In addition, the lack of specific practical operations in the course further limits students' ability to apply the knowledge they have learned in real environments (Nguyen&Dang, 2022; Cui Lixin, 2023). Choudhary and Thenmozhi (2024) emphasized in their research that curriculum design should focus on balancing the breadth and depth of knowledge to meet the comprehensive development of students, but this chapter still has shortcomings in this regard (Choudhary&Thenmozhi, 2024).

Table 6

Chapter 4

Analyze the elements	Chapter 4 Artificial Intelligence
Rationality of Chapter Setting	It introduces the basic concepts, technical framework, and historical background of artificial intelligence, and explores its practical applications in the financial field, such as intelligent investment advisory and risk management. This structure helps students systematically grasp knowledge from theory to practice, with strong logicity (Liu Xiaoyu, 2022; Wu Rong, 2024)
Breadth and depth of knowledge points	It covers a wide range of knowledge points in artificial intelligence, providing detailed introductions from basic theories to specific applications. However, there are still shortcomings in terms of technical depth, especially in the detailed explanation of algorithm implementation, data processing, and model training. Although it covers important concepts and application scenarios of artificial intelligence, insufficient in-depth exploration of complex algorithms may make it difficult for students to understand the details of these technologies in practical operation (Liang Longyue et al., 2023; Chang Huijuan&An Shilin, 2024).
The effectiveness of teaching content	It has performed well in demonstrating the application scenarios of artificial intelligence in the financial field, especially in the explanation of intelligent investment advisory and automated risk management, which has strong practicality. However, due to the lack of specific practical guidance, students may face challenges in combining theory with practice. Although the teaching content is rich, it may lack sufficient practicality in practical operation (Tran et al., 2024; Wang Xin&Wang Ying, 2021).
Promotion of course advantages	By introducing the basics and applications of artificial intelligence through a system, students can understand its practical role in financial technology. This model can be applied to other technology teaching to improve students' comprehensive understanding of technology (Yi Si, 2024; Sun Zhu et al., 2022).
Improvement of course shortcomings	The main problem with this chapter is that the explanation of the practical operation of artificial intelligence technology and the implementation details of complex algorithms is not deep enough. Although it covers a wide range of application scenarios, insufficient analysis of the specific steps and practical cases of technical implementation may pose difficulties for students in practice. In addition, the content of the chapters tends to be more theoretical, with relatively few practical aspects, and students may lack intuitive operational experience in practical applications (Du Chaoyun, 2023; Cui Lixin, 2023).

The problem in Chapter 4 mainly stems from insufficient explanation of the implementation details of complex artificial intelligence technologies, which leads to difficulties for students in understanding and operating these technologies. Although the course covers a wide range of artificial intelligence applications, the practical level of content is relatively weak, which may affect students' ability to apply this knowledge in real-world environments (Tran et al., 2024). In addition, the lack of practical elements in the course also limits students' intuitive

understanding of artificial intelligence technology, making it difficult to effectively apply theoretical knowledge to practical scenarios (Du Chaoyun, 2023; Cui Lixin, 2023). Choudhary and Thenmozhi (2024) point out that curriculum design should balance the breadth and depth of knowledge, ensuring that students have a comprehensive understanding of technology while also gaining a deep understanding of its practical applications (Choudhary&Thenmozhi, 2024).

Table 7

Chapter 5

Analyze the elements

Chapter 5 Internet of Things

Rationality of Chapter Setting

Introduced the basic concepts, technical architecture, and applications of the Internet of Things in financial technology, helping students understand the unique role of the Internet of Things in the financial industry. The logical structure of the chapter is clear, gradually extending from basic knowledge to specific applications, ensuring that students can gradually master IoT related technologies (Li Ying et al., 2023; Wu Rong, 2024).

Breadth and depth of knowledge points

It covers a wide range of knowledge points related to the Internet of Things, including its definition, sensor technology, data communication, and IoT platforms. However, in terms of depth, especially in data processing, security, and interoperability between IoT devices, the discussion is not thorough enough, which may make it difficult for students to fully understand the application of these technologies in complex financial scenarios (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024).

The effectiveness of teaching content

Effectively demonstrated the various application scenarios of the Internet of Things in the financial field, such as intelligent payment systems and asset management. These contents are of great significance in enhancing students' practical operation ability, but due to the lack of specific practical guidance and case analysis, students may have difficulties in combining theory with practice (Tran et al., 2024; Wang Xin&Wang Ying, 2021).

Promotion of course advantages

Integrating IoT technology with financial applications to help students understand the practical role of IoT in financial technology. This model of combining theory with practical application is worth promoting to other technical chapters, especially in teaching involving complex technologies. This method can enhance students' comprehensive understanding of technology (Choudhary&Thenmozhi, 2024; Yisi, 2024).

Improvement of course shortcomings

The main problem of this chapter is the insufficient depth of explanation of the technical details of the Internet of Things, especially in the implementation details of security, data management, and interoperability between IoT devices, which lack in-depth discussion. In addition, the course content tends to be theoretical, with relatively few practical activities, which may lead to challenges for students in understanding and applying in practical operations (Nguyen&Dang, 2022; Cui Lixin, 2023).

The problem in Chapter 5 mainly stems from insufficient explanation of the implementation details of complex technologies in the Internet of Things, which leads to difficulties for students in understanding and applying these technologies. Although the course covers a wide range of IoT applications, the discussion on specific technical implementation and security management is relatively shallow, and students may find it difficult to effectively apply this knowledge in practical operations (Tran et al., 2024). In addition, the lack of practical activities in the course limits students' intuitive understanding of IoT technology and makes it difficult to effectively apply theoretical knowledge to practical scenarios. This is consistent with the research of Choudhary and Thenmozhi (2024), who emphasized that curriculum design should find a balance between the breadth and depth of knowledge, ensuring that students can have a comprehensive understanding of technology and a deep grasp of its practical applications (Choudhary&Thenmozhi, 2024).

Table 8

Chapter 6

Analyze the elements

Chapter 6 Online Lending

Rationality of Chapter Setting

This study introduces the basic concepts, development history, and applications of online lending in financial technology, helping students to comprehensively understand this emerging form of finance. The chapter starts from basic knowledge and gradually extends to practical applications, enabling students to gradually master the relevant knowledge of online lending (Li Ying et al., 2023; Wu Rong, 2024).

Breadth and depth of knowledge points

It covers a wide range of knowledge points in online lending, including P2P lending, crowdfunding financing models, risk management mechanisms, and more. However, although it covers multiple aspects of online lending in breadth, the discussion is not deep enough in depth, especially in terms of risk management techniques and legal compliance, which may result in students being unable to fully understand the complexity of these technologies in practical operations (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024).

The effectiveness of teaching content

Effectively demonstrated the various application scenarios of online lending in the financial field, such as personal lending platforms and financing solutions for small and micro enterprises. These contents can help students understand the practical value of online lending in financial services, but due to the lack of specific practical guidance and case analysis, students may face challenges in translating theoretical knowledge into practical operations (Tran et al., 2024; Wang Xin&Wang Ying, 2021).

Promotion of course advantages

The beneficial combination of online lending technology with practical applications demonstrates the practical application value of this technology in financial technology. This teaching model that combines theory with practice is worth promoting in other technical chapters, especially in teaching involving complex financial technologies, which can help enhance students' comprehensive understanding and application ability of technology (Choudhary&Thenmozhi, 2024; Yisi, 2024).

Improvement of course shortcomings

The main problem of this chapter is the insufficient depth of explanation on the implementation details and legal compliance of online lending technology, especially the lack of in-depth discussion on specific details of risk management, data protection, and legal supervision. In addition, the course content tends to be theoretical, with relatively few practical activities, which may lead to challenges for students in understanding and applying in practical operations (Nguyen&Dang, 2022; Cui Lixin, 2023).

The problem in Chapter 6 mainly stems from insufficient explanation of the complex technology and legal compliance of online lending, which leads to difficulties for students in understanding and applying these technologies. Although the course covers a wide range of online lending applications, the discussion on specific technical implementation and risk management is relatively superficial, and students may find it difficult to effectively apply this knowledge in practical operations (Tran et al., 2024). In addition, the lack of practical elements in the course limits students' intuitive understanding of online lending technology, making it difficult to effectively apply theoretical knowledge to practical scenarios (Nguyen&Dang, 2022; Cui Lixin, 2023). Yang and Zhou (2024) pointed out that the development of financial technology is often accompanied by regional differences, which may also affect students' understanding and application ability of online lending technology.

Table 9

Chapter 7

Analyze the elements	Chapter 7 Blockchain
Rationality of Chapter Setting	Introduced the basic concepts, technical architecture, and applications of blockchain in financial technology, helping students to fully understand this core technology. The chapter structure is logically clear, gradually expanding from basic knowledge to practical applications, enabling students to systematically master the application of blockchain in the financial industry (Li Ying et al., 2023; Wu Rong, 2024).
Breadth and depth of knowledge points	It covers a wide range of knowledge points related to blockchain, including its definition, distributed ledger technology, consensus algorithms, smart contracts, and more. However, in terms of depth, especially in terms of technical implementation and security, the discussion is not sufficient, and students may not have a deep understanding of the complexity and potential challenges of blockchain technology in practical operations (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024).
The effectiveness of teaching content	It showcases various application scenarios of blockchain in the financial field, such as digital currencies, supply chain finance, decentralized finance (DeFi), etc. These contents can effectively help students understand the practical application value of blockchain in financial services, but due to the lack of specific practical guidance and technical implementation cases, students may face difficulties in translating theoretical knowledge into practical operations (Tran et al., 2024; Wang Xin&Wang Ying, 2021).

The combination of blockchain technology with practical applications demonstrates its core position in financial technology. Promotion of course advantages This teaching model that combines theory with practice is worth promoting in other technical chapters, especially in teaching involving complex technologies, which can help enhance students' comprehensive understanding and application ability of technology. "(Choudhary&Thenmozhi, 2024; Yisi, 2024)

Improvement of course shortcomings The main problem of this chapter is that the explanation of the implementation details and security challenges of blockchain technology is not in-depth enough, especially in terms of the scalability of blockchain networks, the efficiency of consensus mechanisms, and the legal compliance in their applications. In addition, the course content tends to focus more on theory and has fewer practical activities, which may pose challenges for students in understanding and applying in practical operations (Nguyen&Dang, 2022; Cui Lixin, 2023).

The problems in Chapter 7 mainly stem from insufficient discussion on the implementation details and security challenges of complex blockchain technologies, which may lead to difficulties for students in understanding and applying these technologies. Although the course covers the basic concepts and application scenarios of blockchain, the discussion on specific technical implementation and potential challenges is relatively shallow, and students may find it difficult to effectively apply this knowledge in practical operations (Tran et al., 2024). In addition, the lack of practical activities in the course limits students' intuitive understanding of blockchain technology, making it difficult to effectively apply theoretical knowledge to practical scenarios (Nguyen&Dang, 2022; Cui Lixin, 2023). Yang and Zhou (2024) pointed out that the development of blockchain technology varies in different regions, which may affect students' understanding and application ability of blockchain technology.

Table 10

Chapter 8

Analyze the elements Chapter 8 Internet Payment

Rationality of Chapter Setting It introduces in detail the basic concept, development process, technical architecture and application of Internet payment in FinTech. Through systematic explanation, help students understand the importance of Internet payment as a core component of modern financial services. The chapters gradually transition from basic knowledge to practical application, so that students can fully grasp the role of Internet payment in the financial industry (Li Ying et al., 2023; Wu Rong, 2024).

Breadth and depth of knowledge points It covers a wide range of knowledge points of Internet payment, including payment gateway, encryption technology, third-party payment platform and mobile payment. In terms of knowledge breadth, it covers all important components of Internet payment. However, in terms of depth, especially in terms of technical implementation, data security, and legal compliance, discussions still need to be strengthened, which may lead to students being unable to deeply understand the complexity of these

The effectiveness of teaching content	<p>technologies and their specific operations in different application scenarios (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024). It effectively demonstrates various application scenarios of Internet payment in the financial field, such as online payment, cross-border payment and mobile payment. These contents can help students understand the practical application value of Internet payment in modern financial services. However, due to the lack of specific practical guidance and case analysis, students may face challenges in translating theoretical knowledge into practical operations (Tran et al., 2024; Wang Xin&Wang Ying, 2021).</p>
Promotion of course advantages	<p>The combination of Internet payment technology and practical application shows the key role of this technology in FinTech. The teaching model that closely integrates theory with practice is worth promoting to other technical chapters, especially in teaching involving complex financial technologies. This model helps to enhance students' understanding and application abilities of technology (Choudhary&Thenmozhi, 2024; Yisi, 2024).</p>
Improvement of course shortcomings	<p>The main problem of this chapter is that there is insufficient discussion on the implementation details, security management and legal compliance of Internet payment technology, especially in data protection, payment security and legal framework. In addition, although the course content covers a lot of theoretical parts, there are fewer practical aspects, which may cause students to encounter difficulties in understanding and applying in practical operations (Nguyen&Dang, 2022; Cui Lixin, 2023).</p>

The problems in Chapter 8 are mainly due to the lack of detailed discussion on the complex technologies of Internet payment and their legal compliance, which may lead to challenges for students in understanding and applying these technologies. Although the course content covers the basic concepts and application scenarios of Internet payment, the discussion on specific technical implementation and legal framework is relatively simple, and students may be difficult to effectively apply these knowledge in practical operation (Tran et al., 2024). In addition, the lack of practical links in the course limits students' intuitive understanding of Internet payment technology, and they cannot effectively apply theoretical knowledge to the actual scene (Nguyen&Dang, 2022; Cui Zhixin, 2023). The development of financial technology requires a balance between technological applications and legal frameworks to ensure that the technology can be safely and compliantly applied in practical scenarios (Hasan et al., 2024).

Table 11

Chapter 9

Analyze the elements

Chapter 9 Digital Currency

It introduces the basic concepts, development history, and role of digital currencies in the global financial system, helping students fully understand the importance and applications of digital currencies. The chapter structure is logically clear, gradually expanding from basic knowledge to practical applications, enabling students to systematically grasp the role of digital currencies in the financial industry (Li Ying et al., 2023; Wu Rong, 2024).

Rationality of Chapter Setting

It covers a wide range of knowledge points related to digital currencies, including their definition, classification (such as central bank digital currencies, cryptocurrencies), technical architecture (such as blockchain technology), and their applications in international trade and payment systems. However, in terms of depth, especially in the discussions on the technological implementation, regulatory challenges, and legal framework of digital currencies, there is still room for improvement, which may lead to insufficient understanding of these complex fields among students (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024; Cui Lixin, 2023).

Breadth and depth of knowledge points

The effectiveness of teaching content

Effectively demonstrated the various application scenarios of digital currencies in the financial field, such as cross-border payments, decentralized finance (DeFi), and digital asset management. These contents help students understand the practical application value of digital currencies in modern financial services, but due to the lack of specific practical guidance and case analysis, students may face challenges in translating theoretical knowledge into practical operations (Tran et al., 2024; Wang Xin&Wang Ying, 2021).

Promotion of course advantages

The combination of digital currency technology with practical applications demonstrates the key role of this technology in financial technology. The teaching model that closely integrates theory with practice is worth promoting in other technical chapters, especially in teaching involving complex financial technologies. This model helps to enhance students' understanding and application abilities of technology (Choudhary&Thenmozhi, 2024; Yisi, 2024; Liu Xiaoyu, 2022).

Improvement of course shortcomings

The main problems of this chapter is the insufficient discussion on the implementation details, regulatory framework, and legal compliance of digital currency technology, especially in the areas of data security, transaction privacy, and legal risk management. In addition, although the course content covers a lot of theoretical parts, there are relatively few practical aspects, which may lead to difficulties for students in understanding and applying in practical operations (Nguyen&Dang, 2022; Da Bowen et al., 2023).

The main problems in Chapter 9 stem from insufficient discussion on digital currency technology and its legal compliance, which may pose challenges for students in understanding

and applying these technologies. Although the course content covers the basic concepts and application scenarios of digital currencies, the discussions on specific technical implementations and legal frameworks are relatively shallow, and students may find it difficult to effectively apply this knowledge in practical operations (Wang, Qi, & Guo, 2024; Tran et al., 2024) 。 In addition, the lack of practical activities in the course limits students' intuitive understanding of digital currency technology and makes it difficult for them to effectively apply theoretical knowledge to practical scenarios (Sun et al., 2022; Yang & Zhou, 2024) 。

Table 12

Chapter 10

Analyze the elements	Chapter 10 RegTech
Rationality of Chapter Setting	It introduces the basic concepts, development background, and applications of Regulatory Technology (RegTech) in financial technology, helping students fully understand the importance of RegTech. The chapter structure is clear, gradually unfolding from the origin and key technologies of RegTech to practical application scenarios, which helps students master the core knowledge of this field (Li Ying et al., 2023; Wu Rong, 2024)
Breadth and depth of knowledge points	It covers a wide range of knowledge points in RegTech, including data analysis, compliance management, anti money laundering (AML) systems, risk management, and more. In terms of breadth, the chapter covers multiple important application scenarios of RegTech in the financial field. However, there are still shortcomings in depth, especially in the exploration of complex technology implementation, regulatory frameworks, and international standards, which may affect students' comprehensive understanding of RegTech in the global financial environment (Pandey et al., 2024; Chang Huijuan&An Shilin, 2024).
The effectiveness of teaching content	It showcases various applications of RegTech in compliance management of financial institutions, such as real-time monitoring systems, automated report generation, and risk warning mechanisms. These contents help students understand how RegTech can improve the compliance efficiency of financial institutions and reduce risks. However, the lack of specific practical cases and technical implementation details in the course may make it difficult for students to connect theory with practical operation (Tran et al., 2024; Wang Xin&Wang Ying, 2021).
Promotion of course advantages	Combining RegTech technology with practical applications demonstrates the key role of RegTech in promoting compliance and risk management in the financial industry. This teaching model that closely integrates theory with practice is worth promoting in other technical chapters, especially in technical fields that require handling complex compliance requirements. This model helps to enhance students' understanding and operational abilities in technology applications (Choudhary&Thenmozhi, 2024; Yisi, 2024; Liu Xiaoyu, 2022).
Improvement of course shortcomings	The main issue of this chapter is the insufficient discussion on the implementation details of RegTech technology, international compliance standards, and related legal frameworks, especially the lack of in-depth

analysis on regulatory differences between different jurisdictions and compliance challenges in cross-border financial activities. In addition, the course focuses more on theoretical introduction and has fewer practical activities, which may lead to obstacles for students when applying theoretical knowledge to practical operations (Nguyen&Dang, 2022; Cui Lixin, 2023).

The main problems in Chapter 10 stems from insufficient discussion of RegTech's complex technology and its application details in the global financial compliance environment, which may pose challenges for students in understanding and applying these technologies. Although the course covers the basic concepts and application scenarios of RegTech, the exploration of technology implementation and cross-border compliance is relatively shallow, and students may find it difficult to effectively apply this knowledge in practical operations (Wang, Qi, & Guo, 2024; Tran et al., 2024) 。 In addition, the lack of practical elements in the course limits students' intuitive understanding of RegTech technology and prevents them from effectively applying theoretical knowledge to practical scenarios (Sun et al., 2022; Yang & Zhou, 2024) 。

Discussion

In the detailed analysis of the content of each chapter in the previous text, some existing shortcomings and room for improvement were identified, including inconsistent chapter settings, insufficient depth of knowledge points, and lack of practical links. To address these challenges, further improve the overall quality of the curriculum, ensure that it can keep up with the pace of industry development, and effectively cultivate composite talents that meet market demand, this study proposes a series of targeted teaching design optimization strategies. The following content will elaborate on these strategies in detail from the aspects of chapter optimization, knowledge point setting, and teaching content design, aiming to provide practical and feasible suggestions for the comprehensive optimization of financial technology application courses.

Chapter Optimization

In terms of chapter design, it is recommended to adopt a unified structural pattern, such as introducing basic concepts, gradually transitioning to technical principles, and then to practical application scenarios, and ending with case analysis and practical operations. This can help students systematically understand the content of each chapter (Li Ying et al., 2023). The connection and coordination between each chapter should be strengthened, for example, when introducing blockchain technology, the content of digital currency and smart contracts can be combined, which helps students form a knowledge network instead of learning each technical module in isolation (Pandey et al., 2024; Xin & Ying, 2021).

Knowledge Point Setting

Although the current course covers a wide range of knowledge points, there is still room for improvement in depth. It is suggested to add in-depth discussions on the implementation details, algorithm principles, and security challenges of complex technologies (such as blockchain, artificial intelligence, cloud computing, etc.) in the chapters of core technologies, to help students better understand the difficulties and key points of these technologies in practical applications (Tran et al., 2024; Cui Lixin, 2023). Moreover, the course content should

be updated in a timely manner, taking into account the latest developments and cases in the fintech industry. For example, when introducing Internet payment or digital currency, current industry hotspots, regulatory policies and their impact on the market can be introduced to enhance students' ability to understand and analyze practical issues (Choudhary&Themozhi, 2024; Nguyen & Dang, 2022)。

Teaching Content Design

The combination of theory and practice is the key to curriculum optimization. Suggest designing corresponding practical sections in each chapter, such as laboratory operations, project design, or case analysis. These practical contents should simulate real industry scenarios as much as possible to help students better apply theoretical knowledge to practical work (Da Bowen, Tang Anbao,&Lian Lian, 2023). Fintech is essentially an interdisciplinary field, and it is recommended to incorporate knowledge from computer science, data science, and legal compliance into teaching content. This can cultivate students' interdisciplinary thinking ability and adapt to the complex and ever-changing industry needs. "(Liu Xiaoyu, 2022; Sun et al., 2022).

Balancing and Improving the Advantages and Disadvantages

Although the course provides comprehensive theoretical coverage, it falls short in terms of practicality. The application design of course content should be strengthened, and practical cases should be analyzed to enable students to understand how to apply learned knowledge in real scenarios. "(Hasan et al., 2024; Wang, Qi, & Guo, 2024) 。 In response to the shortcomings in each chapter, such as insufficient discussion of technical implementation details and lack of in-depth analysis of legal compliance content, it is recommended to supplement relevant content or invite industry experts to give lectures to make up for them. At the same time, personalized learning resources and tutoring are provided to meet the learning needs of different students (Yang&Zhou, 2024; Yisi, 2024).

Teaching Evaluation and Feedback Mechanism

It is recommended to establish a diversified evaluation mechanism. In addition to traditional written exams and assignments, comprehensive evaluations can also be conducted through various forms such as project presentations, teamwork, and internship performance. This evaluation system not only assesses students' knowledge mastery, but also reflects their practical and teamwork abilities (Pandey et al., 2024). In addition, regular feedback from students on course content, teaching methods, and practical aspects can be collected, and teaching design can be adjusted and optimized in a timely manner based on feedback to ensure continuous improvement and efficiency of the course; Choudhary & Thenmozhi, 2024).

Conclusion

This study systematically reviewed and analyzed the current situation of financial technology application courses, and identified the main problems in current teaching design, including inconsistent chapter settings, insufficient depth and breadth of knowledge points, especially in the discussion of complex technology implementation and legal compliance, which is relatively shallow; The relative lack of practical activities makes it difficult for students to connect theory with practical operation; In addition, the course content did not fully reflect the latest industry trends and market demands, resulting in insufficient practicality and

timeliness of the teaching content, which cannot fully meet the goal of cultivating composite financial technology talents. Therefore, this study proposes specific optimization strategies, including optimizing chapter settings, deepening knowledge content, strengthening practical links, and improving evaluation mechanisms, aiming to better cultivate composite financial technology talents that meet the needs of the times. Through the close integration of theory and practice, this study provides effective reference for the design of financial technology courses in universities to respond to rapidly changing industry demands.

Although this study proposes optimization strategies, they may face limitations in practical applications due to different institutional resources and student backgrounds, which may affect the implementation effectiveness of the strategies. In addition, with the continuous development of the fintech industry, new technologies and market demands are constantly emerging, and course content needs to be continuously updated and adjusted. Therefore, future research should further explore how to dynamically adjust curriculum design to adapt to constantly changing industry trends, and delve into how to effectively implement these strategies in diverse educational environments.

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