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Research on the Digital Transformation of Higher Financial Education: Realistic Dilemmas, Problem Cruxes, and Path Innovations

Xinyu Peng

Tianjin Foreign Studies University, Tianjin, China

Abstract

Digital transformation represents both a realistic opportunity and a challenge facing higher financial education. In the process of digital transformation, China's higher financial education still faces realistic dilemmas, including the performative nature of hardware facilities, the lagging nature of curriculum and textbook content, the backwardness of capability cultivation, and the homogenization of teaching methods. The underlying causes lie in the lack of clear construction planning, the absence of dynamic update mechanisms, the disconnect between teaching objectives and industry demands, and the insufficiency of digital teaching resources. Therefore, to optimize the digital transformation process of China's higher financial education, continuous exploration of innovative paths is required. This includes constructing a "Demand-Oriented & Dynamic Iteration" digital construction system, building an "AI-Empowered & Three-Classroom Linkage" digital teaching model, establishing a "Two-Way Empowerment & Collaborative Education" school-enterprise cooperation mechanism, and realizing true dynamic evaluation alongside the establishment of intelligent assessment systems.

Keywords

Higher Financial Education; Digital Transformation; Digital Teaching Resources; Digital Capability Cultivation.

1. Introduction and Literature Review

The development of FinTech has profoundly reconstructed the financial industry, driving business operations toward digital transformation. To enhance the adaptability of talent, the state actively promotes the digital transformation of education. For instance, nine departments, including the Ministry of Education, jointly issued the Opinions on Accelerating the Promotion of Education Digitalization, explicitly proposing to accelerate the strategy of education digitalization. These measures provide a favorable opportunity for the digitalization of financial education. However, in reality, some universities still face issues such as insufficient hardware utilization, lagging digital curricula, and weak digital application capabilities among graduates. Therefore, solving the realistic dilemmas of the digital transformation in higher financial education holds significant practical value.

Regarding the digital transformation of higher financial education, domestic and foreign scholars have conducted extensive research. Foreign scholars such as Sabau (2022)[1], Fareen (2022)[2], Fedorov et al. (2022)[3], Zhang (2023)[4], and Wan (2025)[5] have systematically analyzed aspects ranging from curriculum reform and practical base construction to teaching model adjustments. Domestic scholars such as Guo Fuchun et al. (2019, 2023)[6][7], Xu Jiayang et al. (2023)[8], Yang Hong (2023)[9], and Yan Kun et al. (2024)[10] have conducted in-depth research on core concept definitions, technical route exploration, and transformation effect evaluation.

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Synthesizing the above research, we find that previous achievements provide a solid foundation for this study. However, due to timeliness issues, prior research still has certain deficiencies. For example, with the rapid development of FinTech, new financial business models and technologies are constantly emerging, and existing research may not timely cover the impact of these new changes on the digital reform of higher financial education. Therefore, how to better adapt to the trend of rapid FinTech development, fully draw on international advanced experience, and combine the actual needs of the domestic financial market to further perfect the digital reform path of higher financial education-thereby cultivating digital financial talents adapted to today's market-is the core problem this paper aims to solve.

2. Realistic Dilemmas in the Digital Transformation of Higher Financial Education

China's higher financial education faces multiple structural contradictions during its digital transformation. The disconnect between traditional education models and FinTech development trends is becoming increasingly apparent, specifically manifested in the following four aspects:

2.1. The Performative Nature of Hardware Facilities

On one hand, the phenomenon of "valuing hardware over application" is prominent. Universities invest heavily in building FinTech laboratories and smart classrooms, but equipment functions are limited to demonstrative operations (such as displaying basic blockchain principles), lacking dynamic interaction functions that interface with real industry scenarios. On the other hand, hardware utilization rates are low; some virtual simulation platforms are used for less than 50 hours per year, reduced to mere "props" for visitation.

2.2. The Lagging Nature of Curriculum and Textbook Content

First, the structure of many financial courses exhibits a "Three Heavy, Three Light" imbalance: heavy on banking theory, light on capital market theory (traditional money and banking courses account for over 40%, while emerging fields like FinTech and quantitative investment account for less than 10%); heavy on macro theory, light on micro theory (micro course deficits are concentrated in corporate finance [7.8%] and behavioral finance [4.1%]); and heavy on domestic theory, light on international theory (lack of frontier content in international finance). Second, there is a severe mismatch between financial technology iteration and textbook update cycles. FinTech averages an iteration every 6–12 months (e.g., CBDC, AI investment advisors), but textbook update cycles span 24–36 months, resulting in an "intergenerational gap" between what students learn and industry demands.

2.3. The Backwardness of Capability Cultivation

Basic skills are repetitively trained in many finance courses; for instance, 92% of courses include training in tools like Python financial modeling and Excel data analysis. However, teaching of high-level capabilities is scarce; courses in frontier fields such as algorithm ethics, cross-border compliance, and RegTech account for less than 10%. Simultaneously, there is a prominent void in teaching emerging industry scenarios-courses on practical capabilities like digital asset compliance, DeFi protocol auditing, and quantum encryption defense are missing, leading to a misalignment rate of over 90% between university training and industry demand.

2.4. The Homogenization of Teaching Methods

The digital transformation of higher financial education faces the dilemma of singular teaching methods, which severely restricts the improvement of teaching effectiveness and talent cultivation quality. First, teacher-centered inculcation still dominates; teachers control the classroom while students passively receive information, leading to a lack of interaction and

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suppressing student initiative and creativity. Second, the combination of theory and practice is poor; theoretical teaching hours are high while practical teaching is weak, leaving students unable to apply knowledge to solve problems in actual financial scenarios. Third, the application of digital teaching means is insufficient; some teachers have limited ability to apply digital tools, and schools lack sufficient investment in digital resources, resulting in platforms with varying quality and a lack of interactive functions.

3. The Problem Cruxes of Higher Financial Education Digital Transformation

3.1. Lack of Clear Construction Planning

Digital transformation is often simplified into a "hardware arms race"-institutions compete to purchase VR labs and AI teaching assistant systems without answering the fundamental question: What educational goals do these technologies serve? When virtual simulation platforms become "technological bonsai" for display and smart terminals are merely used to play PowerPoint slides, it reflects a collective "aphasia" at the planning level regarding the purpose of digitalization. The deep-seated contradiction lies in educational administrators taking pride in technological advancement without integrating digitalization into the strategic framework of core disciplinary competitiveness. The essence of financial education is to cultivate decision-makers who can navigate uncertainty, not technicians who operate standardized processes. If planning stops at "procurement specifications" rather than a "capability reshaping roadmap," the performative nature of hardware becomes an inevitable ironic outcome.

3.2. Lack of Dynamic Update Mechanisms

FinTech iterates on a 6–12 month cycle, while university curriculum updates still rely on the chain reaction of "textbook publication cycle - teacher preparation cycle - course approval cycle," causing knowledge systems to form an "intergenerational gap" with industry practice. This lag is reflected in three aspects: 1) Outdated cases (e.g., classrooms still analyzing the 2008 subprime crisis while avoiding new risks like the 2023 cryptocurrency frauds); 2) Missing scenarios (e.g., textbooks lacking practical modules like regulatory sandbox deductions, leaving students "blindly groping" when facing real financial activities); 3) Ethical aphasia (e.g., frontier issues like algorithmic bias are not included in teaching, resulting in talent being "congenitally deficient" in ethical decision-making and technical risk assessment).

3.3. Disconnect Between Teaching Objectives and Industry Demand

University teaching objectives are still anchored in cultivating "standardized craftsmen," while industry demand has shifted to "composite decision-makers." This disconnect manifests in three ways: 1) Capability gaps (universities focus on tool operation, while the industry urgently needs high-level skills like cross-border compliance negotiation); 2) Rigid thinking (traditional teaching is oriented toward "deterministic answers," while FinTech practice is full of "non-linear risks," causing "decision paralysis" in students facing real markets); 3) Value deviation (educational evaluation still centers on exam scores, ignoring "implicit capabilities" like risk pricing, exacerbating the "value mismatch" between talent and positions).

3.4. Insufficiency of Digital Teaching Resources

So-called digital teaching resources are often "new wine in old bottles"-teachers convert paper lecture notes into PDFs for upload or turn blackboard exercises into online quizzes, claiming to have achieved "resource digitalization." These resources remain an extension of unilateral teacher inculcation: content is generated based on preset scripts, updates depend on

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administrative will, and the students' thirst for dynamic game theory scenarios is completely ignored.

4. Path Innovations for the Digital Transformation of Higher Financial Education

4.1. Constructing a "Demand-Oriented & Dynamic Iteration" Digital Construction System

From a demand-oriented perspective, it is necessary to deeply understand the actual needs of the financial industry and the learning needs of students. Universities should establish close ties with financial institutions and conduct regular industry surveys to understand specific requirements for talent capabilities (e.g., FinTech, risk management, data analysis). Dynamic iteration requires flexibility and adaptability in system construction. A regular assessment and feedback mechanism should be established to adjust and update teaching resources and facilities in a timely manner based on industry changes, technological developments, and student feedback. For example, when new FinTech applications appear (such as blockchain in supply chain finance), universities should quickly incorporate relevant content into the teaching system.

4.2. Constructing an "AI-Empowered & Three-Classroom Linkage" Digital Teaching Model

On one hand, AI should be utilized to enhance teaching effectiveness. Generative AI can generate diverse financial scenarios and cases, providing students with a more realistic and complex learning environment. For instance, in risk management courses, AI can simulate risk events under different market environments, allowing students to make decisions in virtual scenarios. On the other hand, "Three-Classroom Linkage" should be used to promote capability cultivation. The first classroom is traditional teaching, the second is practical teaching, and the third extends to industry practice and international exchange. Through the linkage of these three classrooms, students can continuously improve their practical ability, innovation ability, and international vision based on theoretical learning.

4.3. Establishing a "Two-Way Empowerment & Collaborative Education" School-Enterprise Cooperation Mechanism

First, adopt Resource Co-construction: Financial institutions open "desensitized real-time interfaces," and schools and enterprises co-build "dynamic resource pools" and develop "protocol update trigger packages" to solve textbook lag. Second, adopt Data Sharing: Establish a "Dual-Teacher System for Algorithm Ethics Auditing," where enterprise engineers intervene remotely in the classroom. Third, adopt Talent Co-cultivation: Establish "FinTech Talent Workshops" where enterprises publish real challenge tasks, and student solutions enter directly into industry innovation incubation channels.

4.4. Realizing True Dynamic Evaluation and Establishing Intelligent Assessment Systems

Realizing true dynamic evaluation and establishing intelligent assessment systems are crucial measures for perfecting the teaching system. Dynamic Evaluation expands in two dimensions: Time and Space. In terms of time, it innovates to achieve full decision-chain tracking, covering the complete learning process from pre-study to practical deduction. In terms of space, it extends to the enterprise incubation field, providing a more realistic evaluation environment. Intelligent Resource Assessment Systems are equally critical. First, regarding resource effectiveness, the new mechanism uses "student decision latency (milliseconds)" as a metric to precisely capture the role of resources in the decision-making process. Second, regarding

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teaching effectiveness, the mechanism evaluates based on the "risk exposure coefficient variability rate." Finally, regarding social value, the mechanism uses the "enterprise adoption rate of solutions" to effectively measure the conversion of educational outcomes into practical social applications.

5. Research Conclusion

The digital transformation of higher financial education is not merely the application of technology, but a systematic change centered on "ability reshaping". Only by adhering to a demand-oriented approach, strengthening dynamic iteration, deepening school-enterprise collaboration, and innovating the evaluation system, can we cultivate compound financial talents capable of handling uncertainties and truly achieve the leap from "standardized technicians" to "digital decision-makers".

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