

Research on the Training Mode of Digital Finance Talents in Vocational Colleges under the Background of Digital Economy

Haowen Fang^{1*}, Xiao Wu², Nana Chen¹

¹Shenzhen Polytechnic University, School of Economics, Shenzhen 518000, Guangdong, China

²Guangdong Baiyun University, School of Business Administration, Guangzhou 510550, Guangdong, China

**Author to whom correspondence should be addressed.*

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Abstract: Digital economy has become a new driving force for China's economic growth, continuously boosting economic development and rapidly integrating into various fields of China's economy and society. The advent of the digital economy era has reshaped the development pattern of the financial industry. The rapid development of financial technology has promoted the transformation of financial formats and put forward higher requirements for financial talent training in the new era. Digital finance is not only a key part of the transformation and upgrading of China's financial industry but also an integral component of China's modern financial ecosystem. Against the backdrop of the digital economy, cultivating digital finance talents in vocational colleges is of great significance to China's economic development. This paper analyzes the predicaments faced in digital finance talent training, explores in depth the reform of digital finance talent training modes, and proposes policy suggestions for the digital finance talent training system based on the development characteristics of digital finance.

Keywords: Digital economy; Digital finance; Talent training; Mode

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1. Introduction

Digital economy is an economic revolution driven by continuous innovation in digital technologies^[1]. It refers to an economic system where digital technologies are widely applied in various sectors and links, bringing fundamental changes to the overall economic environment and economic activities. As a new driver of global economic growth, digital economy is also hailed as “the key to unlocking the fourth industrial revolution, which is crucial to national rejuvenation”^[2].

According to data from the Digital China Development Report (2024), China has built the world's largest and technologically advanced network infrastructure^[3]. In 2024, the construction of Digital China took solid

new steps, showing a steady and high-quality development trend. The Digital China Development Index has maintained a steady growth of over 10% in the past three years. Digital technology innovation has reached a new level: among the 45,000 newly published generative artificial intelligence patents worldwide, China accounts for 61.5%. In 2024, data output reached 41.06 zettabytes (ZB), a year-on-year increase of 25%, with high-quality datasets improving in both quantity and quality. Digital infrastructure has achieved a new leap forward: the total computing power has reached 280 EFLOPS, 4.251 million 5G base stations have been built, the number of IoT terminal users has reached 2.656 billion, and the newly added computing power in the eight hub node regions accounts for over 60% of the country's total new computing power. The added value of the core industries of the digital economy accounts for approximately 10% of China's GDP.

The core function of vocational education is to serve industrial development and provide a talent echelon for the country's industrial transformation in advance. The digital transformation of vocational education, on one hand, serves vocational education itself; on the other hand, it serves society. Only when vocational education achieves digital transformation and innovation can it cultivate talents with digital thinking and capabilities that meet social needs.

Digital economy has become a new driving force for China's economic growth, continuously promoting economic growth and rapidly integrating into various fields of China's economy and society. The development of digital economy has exerted a significant impact on the education industry, especially vocational education, which is closely related to economic and social development. The digital economy, with digital technologies and data elements at its core, has penetrated into all aspects of vocational education development, which is conducive to promoting the high-quality development of vocational education. It is of great significance for vocational education to adapt to digital changes ^[4]. The arrival of the digital economy era has subverted the development pattern of the financial industry. The rapid development of financial technology has promoted the transformation of financial formats and put forward higher requirements for financial talent training in the new era.

2. Significance of cultivating digital finance talents in vocational colleges under the background of digital economy

2.1. Digital finance talents are the key to the development of fintech

The digital economy is the main economic form following the agricultural economy and industrial economy. The digital transformation is profoundly changing the modes of production, life, and governance, and exerting a profound impact on the world's economy, politics, and science and technology ^[5]. To promote the digital transformation of the financial industry and drive high-quality financial development, digital finance talents have become the core competitiveness of such transformation.

Up to now, the development of fintech and digital finance “echo each other from afar” and resonate with mutual superposition. Fintech empowers the digital transformation of the financial industry through cutting-edge technologies, mainly reflected in giving play to the role of scenario-based finance and emphasizing user experience; while digital finance drives the digital transformation of the financial industry relying on digital technologies, with digital process reengineering more embodying the internal driving force. Both need to abide by the logic of financial development and hold the bottom line of financial risks.

2.2. Cultivating digital finance talents helps high-quality economic development

The cultivation and training of digital finance talents not only require “classified policies” but also multiple breakthroughs based on different job categories; they also need “integrated development” to strengthen the

cultivation of compound talents through more systematic, diversified, and innovative ways^[6].

The gap in digital finance talents is mainly reflected in the structural shortage of talents. With the expansion of banking business boundaries, the advancement of digital transformation, and the new opportunities brought by the new internet finance, banks have a continuous and long-term demand for digital finance talents. Such demand is embodied in compound talents who understand both technology and business, as well as talents with an open mind, innovative vision, and a willingness to keep learning^[7].

Digital finance talents need to have three characteristics: professionalism, innovation, and integration. The first is professionalism. Digital finance is based on finance, and its core and foundation lie in the comprehensiveness and depth of understanding of the nature of digital finance. The second is innovation. With the vigorous development of the digital economy, the external business environment of the banking industry has undergone profound changes. It is necessary to comprehensively promote digital transformation from a strategic perspective, innovate concepts, processes, and business models to better serve customers. The third is integration. In the process of digital transformation of banks, it is necessary to promote the integration of customer service systems, including better integration of online and offline services, better integration of corporate finance and retail finance, and better integration of financial and non-financial businesses. Therefore, digital finance talents must have a cross-border vision, take customers as the center, and better promote integrated development^[8].

From the perspective of internet technology companies, there are three structural differences in the cultivation of digital finance talents compared with traditional financial institutions. Firstly, in terms of talent cognition, internet technology enterprises have a relatively unified and comprehensive understanding of digital talent cultivation. They have accumulated echelon-style digital talents in various aspects of technology research and development and business lines, and continuously carry out talent training and output. Secondly, in terms of talent structure, internet technology enterprises invest heavily in technology research and development and product innovation. Thirdly, in terms of capacity release, the decision-making systems and organizational structures of internet technology enterprises are very flat. Many business innovations and product developments are initiated independently from the bottom up, which can better release employees' innovative motivation and ability. The essence of digital finance is the transformation of financial technology, and digital finance must rely on efficient financial technology for operation^[8]. Digital finance uses modern information technology to provide an efficient business model for the development of the financial industry, thereby improving the service capacity of the financial industry and ultimately promoting the development of the real economy^[9].

3. Difficulties in cultivating digital finance talents in vocational colleges

Against the backdrop of cloud computing, the Internet of Things, mobile Internet, big data, and artificial intelligence, talents specializing in big data processing and research and development play an important role in the development of digital finance. In the era of digital finance, financial vocational education in vocational colleges must adapt to the market and improve their own talent training system^[10]. The development of the financial industry will gradually shift from traditional to modern, from front-end services to back-end development, from large-scale finance to industrial finance, and from decentralization to information integration.

In this process, talent demand also presents the characteristics of diversification and multi-level. To meet the needs of the development of various financial businesses, the structure of financial talents can be divided

into three categories: high-end, middle-level, and grass-roots^[11]. The goal of financial vocational education is to cultivate grass-roots professionals. Grass-roots financial talents mainly refer to application-oriented talents who are active in the front line of various financial institutions, master basic knowledge of finance and related majors, have good language and written expression skills, strong practical ability, and can be competent for specific financial service positions. Emerging financial institutions represented by financial service centers, Internet finance, and blockchain financial enterprises, as well as emerging financial formats such as financial technology, will have greater development space. The development of these emerging financial formats requires a large number of grass-roots financial service personnel with customer development capabilities, familiarity with financial product types, and basic operational skills to carry out expansion and maintenance work.

How to cultivate financial major students into digital finance talents needed in the era of digital economy? Traditional training methods are difficult to meet the requirements of the new era. Therefore, colleges and universities are required to actively reform teaching contents and plan teaching directions to face the impact brought by the digital economy.

First, the digital finance talent training system has not yet been formed. At present, most of the financial technology courses offered by colleges and universities are simply a superposition of finance and computer disciplines, without in-depth integration. The design of digital finance courses should reflect the internal logic of digital technology reshaping financial development.

Second, there is not only a shortage of digital finance talents in quantity but also an imbalance in talent structure. Nowadays, most financial technology talents are deployed in the marketing and risk control fields of retail banks. In fact, there is a talent shortage in many financial scenarios at present, such as digital operation and supply chain finance.

Third, the ability to solve practical problems relying solely on financial technology is insufficient. Some financial technology engineers trained by institutions or universities have little experience in solving practical problems because they lack financial experience.

Fourth, digital finance talents lack a policy guarantee mechanism. The government can introduce reward policies for financial technology talents and give rewards to those who have obtained qualification certificates.

4. Reform of the training model for digital finance talents in vocational colleges

The teaching model of vocational education is a relatively broad concept, mainly referring to talent training objectives, teaching models, curriculum models, teacher training, and school-running forms, involving the micro-level of higher vocational education. Some scholars have distinguished the higher vocational and technical education models in developed countries and analyzed each model^[12].

Foreign countries have conducted extensive research on vocational and technical education talent training models. For example, the “cooperative education” in the United States; Germany’s “dual system” (originating from the “apprenticeship system,” which involves both school education and enterprise practice, emphasizing the educational philosophy of “learning by doing”); the United Kingdom’s “sandwich” model (a school-running model of working while learning, also known as “work-study alternation”); and Japan’s “integration of industry and education” (emphasizing the role of enterprise production practice in cultivating students and incorporating research on technical issues in actual production into the school’s scientific research work). In addition, there is the former Soviet Union’s “basic enterprise model” (i.e., establishing practical learning bases for professional theoretical research and creating real production sites for students’ practical learning). The International Labor

Organization, through the analysis and comparison of these models, proposed the “MES” school-running model, which takes the public as the main body, highlights characteristics, and emphasizes practicality^[12].

4.1. Talent training models of traditional vocational education

“School-enterprise cooperation and work-study integration” are the essential requirements of higher vocational education. Vocational education institutions at home and abroad have actively explored and practiced talent training and school-enterprise cooperation in running schools, forming unique talent training models and achieving remarkable results. Representative research on talent training models includes the “order-based” talent training model, the “work-study alternation” talent training model, and the “employment-oriented” talent training model^[13].

4.1.1. “Order-based” talent training model

The “order-based” talent training model is one of the most popular models in current higher vocational education talent training. Through active exploration and practice by various vocational colleges, it has formed a unique model. The so-called “order” means that when students enroll, the school and enterprises sign an entrustment agreement, and they jointly conduct interviews, assessments, and screenings of students, combined with their entrance scores for selection.

4.1.2. “Work-study alternation” training model

Simply put, the “work-study alternation” model means that students alternate between study and work, and their training process is carried out in stages, with alternating study and work in enterprises. In this case, students have two identities: one as a student at school and the other as an employee in an enterprise. The training process adopts segmented teaching. In the first academic year, students mainly study cultural courses and professional theoretical courses at school to cultivate their basic moral cultivation and cultural quality, and master basic theoretical knowledge. In the following second and third semesters, the school will seek cooperation with companies suitable for students’ professional internships, arrange students to work in positions suitable for their majors, or take turns working, so that they can learn practical knowledge in a real working environment. Then they return to school to continue their studies of theoretical knowledge, and then go to work again, alternating between the two. This truly applies theory to practice and then tests theory through practice, thus realizing a “theory-practice-theory” talent training model, which is a cyclic model of learning and working.

4.1.3. “Employment-oriented” talent training model

Finding a good job is the ultimate goal of students attending school. In recent years, the difficulty of college students’ employment has attracted great attention from the country and society. Surveys show that the employment situation of vocational college graduates is extremely severe, and they face great employment pressure. This is because there is a certain gap between the professional settings of vocational colleges and the actual social demand for talent quality; moreover, college students generally have high employment expectations, but their own work ability and entrepreneurial ability are relatively low. In response to the above problems, the “employment-oriented talent training model” has become an inevitable choice for various vocational colleges. This model not only meets the market’s requirements for talent quality but also can improve the quality of graduates. To meet the market’s requirements for talent quality, schools will try their best to help students find good jobs after graduation.

4.2. “Integration of theory and practice” model for cultivating digital finance talents in vocational colleges

4.2.1. Repositioning of talent demand in the context of digital economy

The traditional vocational education model is formulated based on the development status of traditional industries. In the process of China’s manufacturing industry moving towards high-end manufacturing, a number of new concepts have emerged continuously, such as “German Industry 4.0”, “Internet Plus”, “Made in China 2025”, “big data”, “cloud computing”, “artificial intelligence”, “Internet of Things”, and “industrial Internet”. The future will be dominated by big data, artificial intelligence, and digital economy.

Therefore, it is necessary to reform the existing vocational education model to adapt to the development of the digital era. As the main positions for outputting technical and skilled talents, higher vocational colleges should strengthen their key school-running capabilities, improve the ability to cultivate digital talents, build an industry-education integration community, enhance the adaptability of digital talent cultivation, construct a scientific education evaluation system, and consolidate the achievements of digital talent cultivation, so as to cultivate more high-quality digital talents who can adapt to China’s technological progress, industrial upgrading, and economic and social development ^[5].

4.2.2. Reconstruction of training objectives and curriculum system for digital finance talents

The cultivation of digital finance talents is faced with the reconstruction of training objectives and curriculum system. Different from traditional higher education, the “school-enterprise cooperation, integration of work and study” talent training model is currently the most scientific talent training model for higher vocational education in China. Vocational education is competence-oriented and career-based; traditional higher education is knowledge-oriented and discipline-based ^[14].

In the context of digital economy, how higher vocational education cultivates applied talents with new skills and technologies needed by the front line of society is a new challenge faced by higher vocational education in the new era. In this context, we list the training model and curriculum system for digital finance talents, as shown in **Figure 1**.

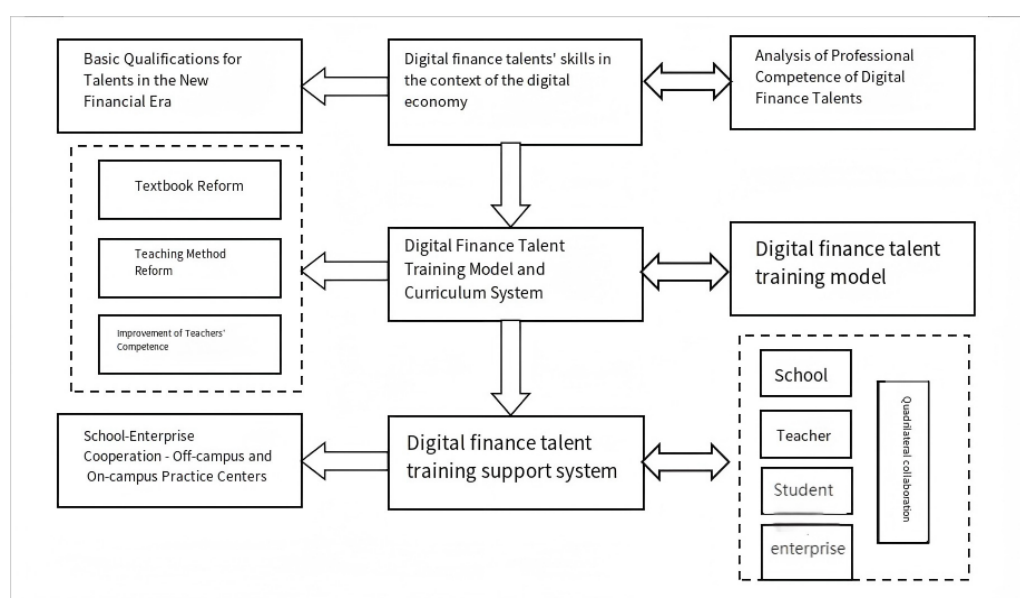


Figure 1. Financial talent training model and curriculum system.

The cultivation of digital finance talents in vocational colleges should comply with the market demand of the digital economy era, establish the training objectives and curriculum system for digital finance talents and carry out curriculum reconstruction and teaching material reform based on professional training objectives. In terms of teaching methods, we should actively reform, use information-based means for classroom teaching, construct a scientific and reasonable practical teaching model, establish a comprehensive financial laboratory, improve the level of on-campus practical training teaching, strengthen school-enterprise cooperation, and attach importance to the construction of off-campus internship bases.

4.2.3. Consolidating the professional literacy of digital finance talents

We should cultivate compound, innovative, high-quality, and high-skilled talents who can adapt to the development of the fintech ecosystem ^[15]. Such talents should have all-round development of morality, intelligence, physical fitness, and aesthetics, and possess good comprehensive qualities; master the basic principles of economics and finance, and be familiar with common financial transaction rules, trading practices, and policies and regulations; have the computer technology foundation of fintech and the basic knowledge of big data mathematical statistics and analysis; and possess basic business skills and marketing operation capabilities in fintech.

4.2.4. Reforming the curriculum system

Realize the shift from the teaching of traditional finance professional courses to the curriculum setup oriented towards fintech. Replace traditional courses and practical training in bank wealth management and insurance with fintech courses and practical training.

4.2.5. Reconstructing course content

Traditional courses are not synchronized with the development of the financial industry. Teachers should update their financial knowledge system in a timely manner, integrate theoretical teaching with scientific research, and enable students to master the latest disciplinary trends through research and introduction of cutting-edge financial knowledge. Colleges and universities should actively cooperate with financial institutions, invite practitioners in the financial industry to teach about innovative businesses and new management concepts of financial institutions; cooperate with financial research institutions, and invite well-known experts, scholars, and industry experts to teach cutting-edge knowledge and trends in finance.

5. Strategic suggestions for cultivating digital finance talents in vocational colleges

5.1. Cultivating digital finance talents with big data processing capabilities

The traditional talent training model in vocational colleges has flaws, and priority should be given to cultivating digital finance talents with big data processing capabilities. Financial enterprises can use technologies such as big data and blockchain to conduct full-life-cycle performance evaluations of talents, optimizing talent management models and financial technology business models. At the same time, it is necessary to treat back-end technical support personnel and financial technology managers fairly and provide a transparent and equitable competition platform.

5.2. Establishing a composite training mechanism for digital finance talents

Vocational colleges should emphasize the composite ability of professional knowledge and encourage talents

to develop in-depth in the fields of finance and the Internet. Digital finance focuses on the financial system, and Internet technology is one of the reform approaches. Financial enterprises need to clarify the key points of training content for composite talents. Vocational colleges should implement the requirements of digital finance for composite talents, combine the background of Internet education, use Internet platforms to carry out digital finance talent training, optimize educational models, realize the integration of education and Internet resources, develop an online-offline dual talent training model, supplement and optimize talent training content, and achieve precise training.

5.3. Building a diversified practical simulation mechanism for digital finance talents

In talent training, vocational colleges should provide practical opportunities in stages and carry out flexible practical simulation activities to enhance students' understanding of financial markets and businesses. The essence of digital finance is the transformation of financial technology, which relies on efficient financial technology operations. Information technologies such as big data, cloud computing, and artificial intelligence improve the efficiency and intelligence level of financial services. Vocational colleges should also pay attention to practical ability and the level of financial technology innovation when cultivating talents.

In terms of talent sources, focus on the digital transformation of existing talents and the digital training of incremental talents; in terms of industrial development, promote the digitalization of financial business personnel and financial supervision; in the integration of majors and businesses, focus on the integration of digital technology talents and business digital talents, strengthen the exchange of rotating positions between technology and business, and cross-disciplinary talent exchanges.

Under the development trend of digital finance, the traditional human resource structure of financial enterprises cannot achieve development goals, and there is an urgent need for digital financial talents. Vocational colleges should establish a composite financial talent training mechanism, build a diversified digital financial talent training mechanism, and improve the quality of talent training to meet the demand for talents in the era of digital finance.

6. Conclusion

The vigorous development of the digital economy has profoundly reshaped the landscape of the financial industry, posing systematic reform requirements for the cultivation of digital financial talents in vocational colleges. As the core driving force for fintech development and an important support for high-quality economic development, the cultivation of digital financial talents must address dilemmas such as the unformed system, structural imbalance, insufficient practical ability, and lack of policy guarantees. Vocational colleges should base themselves on the "integration of theory and practice" model, take the market demand in the digital economy era as the orientation, reconstruct training objectives and curriculum systems, consolidate students' professional literacy, innovative ability and integrated vision.

By reforming curriculum content, strengthening school-enterprise cooperation and building practice platforms, they should strive to cultivate interdisciplinary talents with both in-depth financial expertise and digital technical capabilities. At the same time, it is necessary to focus on cultivating big data processing capabilities, establish a composite talent training mechanism and a diversified practical simulation system, and promote the in-depth integration of the education chain, talent chain, and industry chain. Only in this way can the problem of structural shortage of digital financial talents be effectively solved, providing a solid talent

guarantee for the digital transformation of China's financial industry and sustainable economic growth.

Disclosure statement

The authors declare no conflict of interest.

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