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Research on the Path and Strategies for Empowering Professional Development of Accounting Teachers in Higher Vocational Colleges through Digital Transformation

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Abstract: In the context of the rapid development of the digital economy, digital transformation has become an inevitable trend for the development of all industries, and higher vocational accounting education is also facing unprecedented changes. As the core force of higher vocational accounting education, the professional development level of accounting teachers directly affects the quality of talent cultivation. This paper, from the perspective of digital transformation, first analyzes the impact and requirements of digital transformation on the professional development of higher vocational accounting teachers, then deeply explores the current situation and existing problems of the professional development of higher vocational accounting teachers, and then constructs the path of digital transformation empowering the professional development of higher vocational accounting teachers. Finally, it puts forward corresponding guarantee strategies, aiming to provide theoretical reference and practical guidance for promoting higher vocational accounting teachers to adapt to the needs of the digital age and achieve sustainable professional development.

1. Introduction

With the rapid development of digital technologies such as big data, artificial intelligence and cloud computing, the world has entered the era of digital economy. As an important part of economic activities, the finance and accounting industry is undergoing a profound transformation from traditional accounting to digitalization and intelligence. New business models such as financial shared service centers, intelligent financial systems, and big data auditing are constantly emerging, which put forward higher requirements for the digital literacy and professional capabilities of finance and accounting practitioners. Higher vocational education is an important position for cultivating high-quality technical and technical talents, and its finance and accounting major undertakes the mission of providing applied finance and accounting talents with practical ability and innovative spirit for the society. Under the wave of digital transformation, teachers of finance and accounting in higher vocational colleges not only need to have a solid foundation in traditional finance and accounting professional knowledge, but also master the application ability of

digital technology in the field of finance and accounting, be able to integrate digital thinking and technology into the teaching process, and cultivate students who can adapt to digital financial and accounting talents needed for economic development. Therefore, it is of great practical significance to study the paths and strategies for digital transformation to empower the professional development of finance and accounting teachers in higher vocational colleges.

2. The Impact and Requirements of Digital Transformation on the Professional Development of Finance and Accounting Teachers in Higher Vocational Colleges

The application of digital technology has continuously updated the knowledge system of finance and accounting. The traditional teaching content mainly focused on accounting can no longer meet the demands of the industry. Teachers need to integrate new knowledge such as big data analysis, the application of artificial intelligence in finance, and financial shared services into the teaching content. Meanwhile, the emergence of digital teaching tools such as online learning platforms and virtual simulation experiment systems requires teachers to change the traditional "blackboard + chalk" teaching method and adopt new teaching methods such as blended teaching and project-based teaching. The object of teachers' work is students. Promoting students' development is the value embodiment of teachers' work. Centering on "learning" is the value stipulation of the role transformation of teachers in the intelligent era [1].In the digital age, teachers are no longer the sole disseminators of knowledge, but rather guides, organizers and collaborators in students' learning. They need to guide students to obtain and process information by using digital technology, and cultivate students' autonomous learning ability and innovative thinking. In addition, teachers also need to participate in the development of course resources, the construction of digital teaching platforms and other work, and their roles have become more diversified.

In the era of digital education, the focus of teachers' work has shifted from "teaching" to "learning", and teachers need to possess the ability of human-machine collaboration and moral education, etc [2].Digital transformation requires higher vocational finance and accounting teachers to master certain digital technology application capabilities, such as data processing and analysis capabilities, information system operation capabilities, and digital teaching resource development capabilities, etc. It is also necessary to possess interdisciplinary knowledge and abilities, and be capable of organically integrating digital technology with professional knowledge of finance and accounting. Teachers' digital literacy has become a new demand for teachers' professional development in the digital intelligence era [3]. Teachers should be able to apply computational thinking to solve problems in teaching and practice, be proficient in the usage methods of various digital tools and platforms, and possess the ability of digital teaching. This requires designing and developing digital teaching resources, and conducting teaching activities through digital teaching platforms. This requires the use of data analysis techniques to adjust teaching strategies and improve teaching effectiveness; To integrate real cases of enterprises and digital application experience into teaching, it is also necessary to possess an innovative spirit and practical innovation ability, and actively explore digital teaching models and methods.

3. The Predicaments and Difficulties in Empowering the Professional Development of Finance and Accounting Teachers in Higher Vocational Colleges through Digital Transformation

3.1 The "fault line crisis" of capability reconstruction: The imbalance between technological iteration and teaching demands

The pace of teachers' ability upgrade lags behind the digital transformation of the industry, creating a structural contradiction of "disconnection between learning and application". Teachers'

digital technology capabilities show a "stepwise discontinuity", and their data thinking remains at the "superficial application" level. A considerable number of teachers are confronted with the "integration barrier" of cross-disciplinary knowledge.

3.2 The "Scenario Dilemma" in Teaching Practice: The Gap between virtual simulation and Real Demands

The application of digital teaching tools has failed to fully achieve the goal of "recreating real job scenarios", exposing deep-seated contradictions. Many virtual simulation platforms in higher vocational colleges have fallen into the "homogenization trap", blended teaching tends to be "formalistic", and teachers generally face the "differentiation problem" of students' digital foundation.

3.3 The "Data Barrier" of School-Enterprise Collaboration: The Game of Resource Sharing and Security Risk Control

The connection between enterprise digitalization practice and teaching is difficult to be deeply integrated due to data security issues, resulting in a predicament where it is "visible but intangible". The core data of digital systems is often "desensitized or distorted", and the cooperation between schools and enterprises tends to be "short-term". Teachers' practical experience in enterprises is limited to "shallow participation", which leads to the fact that teachers still cannot transform their digital experience in enterprises into teaching content after returning from such practice.

3.4 The "mismatch contradiction" of resource supply: The disconnection between training content and teaching demands

The sharp increase in the quantity of digital teacher development resources contrasts sharply with their insufficient quality. Teachers' digital technology training emphasizes technology over teaching. The utilization rate of the national-level digital resource library for finance and accounting majors is low, and the "coverage" of personalized support for teachers' digital capabilities is insufficient.

3.5 The "capability gap" of role transformation: The disparity between ecological construction and existing skills

When teachers transform from "knowledge transmitters" to "digital ecosystem builders", they encounter multiple capability shortcomings: insufficient cross-subject coordination ability, the "sustainability crisis" of lifelong learning, and the lack of digital ecosystem design capabilities, etc.

3.6 The "Cognitive Blind Spot" of Digital Ethics: Omissions in Compliance Application and Risk Prevention and Control

The "compliance ignorance" of teachers in data usage and the "teaching absence" in algorithmic ethics have exposed the institutional gap in the "compliance management of digital teaching data" in educational institutions.

The essence of these predicaments lies in the "time lag" between the speed of digital transformation and the adaptation speed of the higher vocational education system (teachers' capabilities, institutional mechanisms, and school-enterprise ecosystems). To break through the difficulties, it is necessary to shift from "individual empowerment" to "system reconstruction" - not

only should teachers' digital capabilities be enhanced through "targeted training", but also a dynamic adjustment system (such as flexible evaluation mechanisms and norms for data sharing between schools and enterprises) should be established, enabling teachers to change from "passive adaptation" to "active leadership" in the process of digital transformation.

4. The "Four-In-One" Path Selection for Empowering the Professional Development of Finance and Accounting Teachers in Higher Vocational Colleges through Digital Transformation

The path selection for the "four-in-one" professional development of finance and accounting teachers in higher vocational colleges empowered by digital transformation is as shown in Figure 1.

4.1 The Digital Transformation of Concepts

The digital transformation of concepts represents a "fundamental logic change" in the professional development of finance and accounting teachers in higher vocational colleges. This conceptual transformation has broken through the shackles of traditional educational thinking, fundamentally reshaping the goals, paths and evaluation dimensions of teachers' professional development.

4.1.1 The transformation of the goal concept from "knowledge imparting as the core" to "digital capability construction as the orientation"

Under the digital transformation, the goal concept has shifted to "cultivating students' core abilities to adapt to the digital demands of industries". Teachers need to complete the transformation from "knowledge carriers" to "ability forgers", and guide students from "skill imitation" to "innovative application".

4.1.2 The role concept transformation from a "single teaching subject" to a "digital ecosystem collaborator"

Digital transformation drives the concept of teachers to shift towards "teachers as the hub of the digital ecosystem", emphasizing their connecting value in the three-dimensional collaboration of "education - industry - technology". Teachers need to complete from "teaching executors" to "participants in digital rule-making". This role shift from "executor to formulator" is a significant sign of the transformation of ideas.

4.1.3 The transformation of the development concept from "experience-driven improvement" to "data-driven decision-making"

Digital transformation drives the concept to shift towards "precise improvement based on full-chain data", making teacher development more scientific and targeted. Teachers need to learn to transform from "fuzzy perception" to "data profiling". At the institutional level, teachers need to shift from providing "unified training" to "precise empowerment".

4.1.4 The transformation of the capability concept from "application of technical tools" to "reshaping of digital thinking"

Under the digital transformation, the concept has been upgraded to "reconstructing the underlying logic of accounting teaching with digital thinking", and technical tools are merely the means to implement this thinking. The transformation of concepts requires a shift from "tool

dependence" to "thinking dominance", and professional teachers also need to change from "technical fragmentation" to "integration and infiltration", enabling students to perceive the value of digital thinking in every class. The path selection of "Four-in-One" is shown in Figure 1.

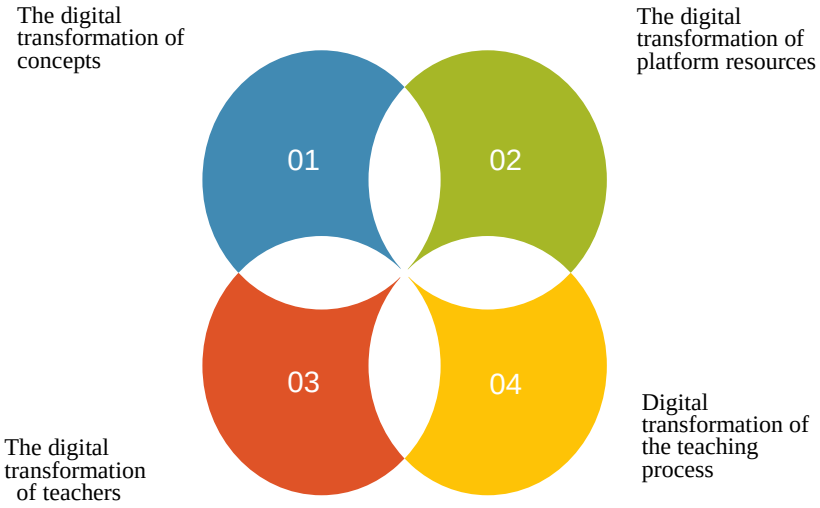

Figure 1: The path selection of "Four-in-One"

In conclusion, the digital transformation of concepts represents a "soul-stirring change" in the professional development of finance and accounting teachers in higher vocational colleges. It requires teachers to break away from the superficial understanding of "technology application" and reconstruct their understanding of accounting education from the fundamental levels of "why to teach", "what to teach" and "how to teach". This transformation centers on students' adaptation to future industry demands and is linked by digital thinking, enabling teachers' professional development to truly serve the ultimate goal of "cultivating high-quality accounting talents capable of riding the digital wave".

4.2 Digital Transformation of Platforms and Resources

The digital transformation of platforms and resources serves as the "hardware support" and "content cornerstone" for the professional development of finance and accounting teachers in higher vocational colleges. Its core lies in reconstructing the "resource supply mode, platform interaction logic, and school-enterprise collaboration path" through technology, breaking through the time and space limitations, resource barriers, and efficiency bottlenecks in the traditional model, this provides an ecological support of "ubiquitous and precise collaboration" for the professional development of teachers.

4.2.1 Digital Transformation of Teaching and Training Platforms: From "Simulated Operation" to "Immersive Scenarios Integrating Virtual and Real"

After digital transformation, the platform has been upgraded to an ecosystem of "full-process digital scene restoration + real-time data interaction", becoming the core carrier for teachers to enhance their digital teaching capabilities.

4.2.2 Digital Transformation of Teacher Development Platforms: From "Information Release" to "Data-Driven Personalized Growth Hub"

After the digital transformation, the platform has been upgraded to a personalized service system

featuring "digital ability portraits of teachers + intelligent development plans", becoming an "intelligent navigator" for teachers' professional development.

4.2.3 The Digital Transformation of Resource Libraries: From "Static Storage" to "Dynamically Generated Intelligent Content Ecosystem"

After digital transformation, the resource library has been upgraded to a content hub featuring "dynamic updates, intelligent push, and multi-dimensional associations", providing teachers with digital materials that can be "accessed as needed and used immediately after modification".

4.2.4 The Digital Transformation of the School-Enterprise Collaboration Platform: From "Information Connection" to "Deep Collaborative Ecosystem of Data Interconnection"

After the digital transformation, the platform has been upgraded to a "data interconnection hub between schools and enterprises", achieving the full online process of "demand matching - resource sharing - technology transfer", providing a seamless channel for teachers to participate in industry practices and obtain real resources.

In conclusion, the essence of the digital transformation of platforms and resources is to "reconstruct the 'supply side' of teachers' professional development with technology" - by breaking down resource barriers, optimizing service efficiency, and deepening school-enterprise collaboration, enabling teachers to "access the resources they need anytime and anywhere, precisely match industry demands, and enhance their capabilities through the integration of virtual and real". This transformation requires higher vocational colleges to establish an open and connected research and training environment and enhance the diversity of teachers' roles. Blended training, on the other hand, creates an equal and open space for information co-construction and sharing, enabling producers and recipients of knowledge to be mutually reinforcing [5]. However, the ultimate goal of this transformation is not "the more advanced the technology, the better", but to achieve a harmonious resonance between "enhancing teachers' digital capabilities" and "cultivating students' digital job competence".

4.3 The Digital Transformation of Teachers

The digital transformation of teachers is the "core driving force" for the professional development of finance and accounting teachers in higher vocational colleges. It is not merely the "use of technical tools", but rather a systematic reconstruction of teachers' own ability systems, teaching paradigms, and professional cognition in the digital age. It represents an essential leap from "traditional finance and accounting educators" to "digital finance and accounting talent cultivators". This transformation runs through the entire process of teachers' daily teaching, industry practice and self-improvement.

4.3.1 "Digital Reconstruction" of the Competency System: From "Single Skill Mastery" to "Composite Competency Ecosystem"

The ability structure of teachers forms a three-dimensional ability ecosystem with "digital literacy as the foundation, cross-border integration as the core, and innovative application as the goal". It encompasses the "stepwise advancement" of digital tool operation skills, the "deep integration" of data thinking and accounting business, as well as the "integration and output" of interdisciplinary knowledge.

4.3.2 The "Digital Innovation" of Teaching Paradigms: From "Knowledge Indoctrination" to "Digital Scene Construction"

Teachers' teaching practice has shifted from "textbooks at the center and the classroom as the boundary" to "scenarios at the core and the integration of virtual and real", forming a new teaching paradigm characterized by "digital project-driven". This new teaching paradigm encompasses the "dynamic production" of teaching content, the "immersive construction" of teaching methods, and the "intelligent upgrade" of teaching interaction.

4.3.3 The "Digital Leap" of Professional Roles: From "Knowledge Transmitter" to "Digital Ecosystem Hub"

The role of teachers transcends the scope of classroom teaching, becoming a multi-dimensional hub connecting "institutional teaching, industry practice, and technological development", and undertaking multiple functions in the digital ecosystem. At this point, teachers are the "forgers" of students' digital capabilities, the "catalysts" of digital collaboration between schools and enterprises, and the "interpreters and disseminators" of digital trends in industries. Under this role, teachers' learning is no longer a one-off event but a personalized and continuous lifelong learning process. The training path will shift from a "stepwise" to a "spiral" [4].

4.3.4 "Digital Empowerment" for Career Development: From "Passive Training" to "Autonomous Evolution"

The professional development path of teachers has shifted from "unified planning and passive acceptance" to "data-driven and active evolution", forming a sustainable digital growth mechanism. The content of this issue includes the "ubiquity and precision" of learning models, the "datafication and visualization" of growth trajectories, and the "diversification and extension" of career values.

4.4 Digital Transformation of the Teaching Process

The digital transformation of the teaching process is the "main battlefield of practice" for the professional development of finance and accounting teachers in higher vocational colleges. This transformation runs through the entire process before, during and after class, serving as both a "practical field" for teachers' digital capabilities and a "testing field" for their professional development.

4.4.1 Pre-class Preparation: From "Experiential Lesson Preparation" to "Data-driven Precise Design"

After digital transformation, pre-class preparation has become "precise teaching design based on data insights", and the role of teachers has changed from "content transporters" to "digital resource integrators and scene designers". Digitalized pre-class preparation can achieve digital analysis of students' learning conditions, dynamic integration of teaching resources, and scenario-based design of task sheets.

4.4.2 In-class implementation: From "one-way Instruction" to "Interactive Co-creation of Virtual and Real Integration"

Classroom teaching builds "immersive, interactive and co-creation" learning scenarios through digital tools, which can achieve immersive teaching in virtual simulation scenarios, intelligent empowerment through real-time interaction, and project-based learning through cross-time and

space collaboration.

4.4.3 After-class Extension: From "Single Homework" to "Closed-loop Practice of Virtual and Real Integration

After digital transformation, after-school classes have been extended to become a "practical closed loop connecting the classroom and the industry", and the role of teachers has changed from "homework graders" to "digital practice mentors and technology transfer facilitators".

5. The "Three-Pronged" Implementation Strategy for Empowering the Professional Development of Finance and Accounting Teachers in Higher Vocational Colleges through Digital Transformation

5.1 Promote and Empower Teachers' Development by Using a Variety of Technologies and Strategies

In the process of empowering the professional development of finance and accounting teachers in higher vocational colleges through digital transformation, the application of multiple technologies and strategies is the core approach to breaking through the chain of "technology empowerment - ability enhancement - teaching transformation", as shown in Figure 2 below.

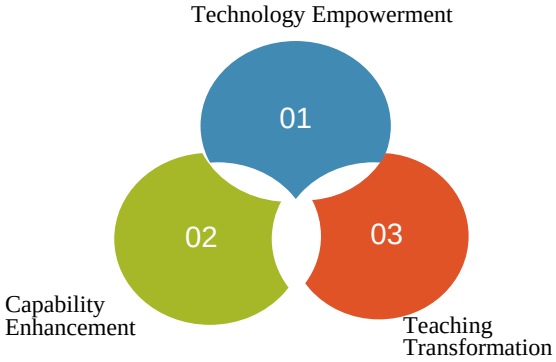

Figure 2: Technology Empowerment Chain

In response to the gap in teachers' digital capabilities, a technological empowerment path is designed in a hierarchical manner of "basic tools - advanced tools - innovative tools" to ensure that teachers of different foundations can all find suitable improvement fulcrms and achieve the "stepwise penetration" of technological tools. This should establish an open and interconnected training environment to enhance the diversity of teacher roles; Blended training creates an equal and open space for information co construction and sharing, enabling knowledge producers and receivers to support each other [5]. By adopting a hybrid strategy of "integration of online and offline, combination of theory and practice, and mutual support within communities", and implementing continuous empowerment through "virtual communities and resource co-creation", the training has shifted from one-way indoctrination to two-way interaction, enhancing the pertinence and sustainability of the training.

5.2 Promote the Transformation of the Teacher Development Model by Applying Intelligent Technologies

Applying intelligent technologies to promote the transformation of teachers' development models is the core breakthrough point of the "three-pronged" strategy for the professional development of

finance and accounting teachers in higher vocational colleges. This transformation is to reconstruct the entire chain of teacher development, including "path design, process support, and effect evaluation", through intelligent technologies such as AI, big data, and machine learning. The core of it is to "liberate teachers from repetitive labor with intelligent technology and focus on the core value of ability improvement. “By replacing experience based judgment with data-driven methods, the accuracy of development can be improved. The harmonious resonance between the digitalization of teacher development models and the digitalization of talent cultivation has been achieved by breaking down resource barriers and expanding growth possibilities through collaborative ecosystems”.

5.3 The System Design Operation Mechanism Forms a Coordinated Development

From the perspective of promoting regional economic development through vocational education, the operation mechanism should be designed to provide teachers with a broader space for development. Systematically designing the operation mechanism to form a coordinated development is a key link. The operation mechanism includes establishing a target coordination mechanism, building a resource integration mechanism, improving the responsibility division mechanism, perfecting the evaluation and incentive mechanism, and forming a dynamic feedback mechanism. This mechanism needs to break down the barriers among various links and entities, and achieve effective integration and coordination of resources, information and strength. This achieves close interaction between schools, departments, teachers, and external resources, providing a solid guarantee for the professional growth of accounting teachers in higher vocational colleges.

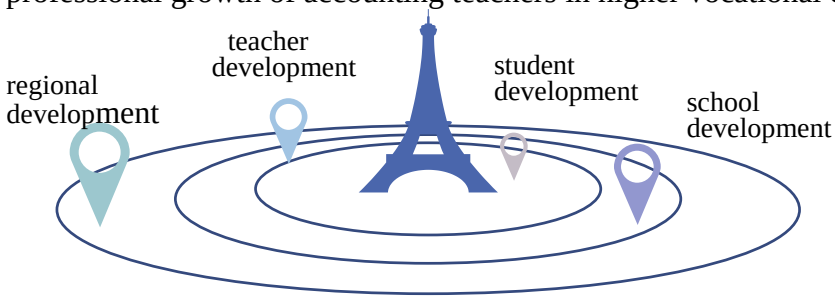

Figure 3: An ecological closed loop with four-level linkage

From the perspective of integrated and interactive development of "student development - teacher development - school development - regional development", the development goals of finance and accounting teachers in higher vocational colleges are planned, and a four-level interactive ecological closed loop is constructed, as shown in Figure 3. Taking regional development as the ultimate goal, guide the development goals of teachers to match the demands of regional industrial development, and form a coordinated development pattern of "teachers serving the region - the region feeding back to the school - teachers' development being more in line with reality". Form a continuously iterative and collaborative ecosystem to drive the professional development of finance and accounting teachers in higher vocational colleges to new heights, providing a solid guarantee for cultivating high-quality finance and accounting talents that meet the demands of the digital age.

6. Conclusions and Prospects

6.1 Research Conclusion

This article, through the research on how digital transformation empowers the professional

development of finance and accounting teachers in higher vocational colleges, draws the following conclusions: Digital transformation has put forward new requirements for the professional development of finance and accounting teachers in higher vocational colleges; At present, the professional development of finance and accounting teachers in higher vocational colleges is confronted with six major predicaments and difficulties; However, digital transformation can empower the professional development of finance and accounting teachers in higher vocational colleges with a "four-in-one" path to choose from. There are also guarantee strategies at the individual, school and social levels for reference.

6.2 Research Prospects

With the continuous development of digital technology and the in-depth advancement of higher vocational education reform, the professional development of finance and accounting teachers in higher vocational colleges will face new opportunities and challenges. Future research can further delve into the differences in the professional development of finance and accounting teachers in different regions and types of higher vocational colleges. It is also possible to combine the application of emerging technologies such as blockchain and the metaverse in the field of finance and accounting to explore their impact on teachers' professional development and corresponding strategies. In conclusion, digital transformation has provided new impetus and direction for the professional development of finance and accounting teachers in higher vocational colleges. By establishing a scientific development path and offering effective guarantee strategies, it can promote finance and accounting teachers in higher vocational colleges to continuously enhance their professional qualities and make greater contributions to cultivating high-quality digital finance and accounting talents.

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