

Teaching Reform and Exploration of "Financial Metrology" Course in the New Financial Era

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Abstract: At the present stage, financial measurement based on big data needs to decompose financial problems into a series of variables and parameters, take data as the base, combined with quantitative model and algorithm, intelligently and real-time perception of financial problems through data, to achieve the goal of quantitative analysis, quantitative control and quantitative operation. Based on this, this paper puts forward the overall goal of "four characteristics, eight forces and four feelings" financial metrology course construction, which aims to coordinate the development of professional ability, comprehensive literacy ability and value ability. It aims to build a course reform and innovation system that takes value power as the starting point, promotes the construction of "intelligent analysis platform" of financial metrology, promotes scientific research through educational reform, and finally realizes the matching of supply and demand. Form a closed-loop innovation system in which innovation promotes curriculum reform, talent reform, and talent reform promotes innovation.

Keywords: Financial Measurement; Dynamic Assessment; Co-Construction and Sharing Resource Platform; Financial Technology

1. Introduction

In the new financial era based on digital, financial professional higher education is facing a new stage of coping with the world's new technological revolution and the formation of emerging industries, which will improve the comprehensive quality of talents and change the connotation demand. In the five major articles "Digital finance, scientific and technological finance, inclusive finance, old-age finance and green finance" proposed at the end of 2023, the teaching of financial metrology courses needs to update traditional metrology theories and

methods, require a more comprehensive practice environment, need to cultivate innovative talents with innovative thinking and innovation ability, and need to implement differentiated teaching models. Promote teaching reform to meet the connotation demand for financial talents in the new development stage, and ensure talent guarantee for the high-quality development of finance and the service of the whole society [1-3].

2. The Necessity of Curriculum Teaching Reform

2.1 The Development of Financial Quantification in the New Era Needs to Update Traditional Measurement Theories and Methods

Traditional financial measurement takes statistical analysis as a means to predict and identify the causal relationship of major financial variables as a goal, and provides theoretical basis and methodological tools for empirical research and quantitative analysis of financial management. At present, with the development of science and technology and the profound changes of finance brought by science and technology, finance is undergoing a technological revolution based on numbers, and it is confronted with a huge volume of data and a wide variety of data, including structured, semi-structured and unstructured data. In the era of "Internet and Internet of Things" where everything is connected, massive real-time data generation has become the main channel of data generation. The traditional measurement theory based on sampling theory is no longer applicable. Big data and machine learning based on big data analysis will have a profound impact on the financial metrology discipline [4,5].

2.2 The Construction of Financial Talents in the New Era Requires a More Comprehensive Practice Environment

In the new stage of rapid development of the digital economy, the digital transformation of the

financial industry has unleashed innovation vitality and application potential, and major changes have taken place in the model of financial services. The financial industry is in urgent need of interdisciplinary talents with both financial thinking and data literacy. The core competitiveness of financial talents in the future largely depends on the ability of data acquisition, analysis, mining and application conversion, and needs "four-element integration" talents who are compatible with financial theoretical knowledge, data analysis and mining ability, computer language programming ability and strong data conversion ability. Simple theoretical teaching environment combined with experimental teaching environment can not cultivate compound talents with "four-element integration" ability. It is necessary to combine specific problems and scenarios, integrate multiple resources, and form a more comprehensive practice environment [6].

2.3 Financial Innovation in the New Era Needs to Cultivate Innovative Talents with Innovative Ideas and Innovative Ability

In the new era, talents with innovative ideas and innovative ability are needed to drive high-quality financial development, and innovation vitality needs to be stimulated in the classroom. In course teaching, while cultivating professional ability and improving professional quality, students' innovative thinking is cultivated and students' creative ability is tapped.

2.4 Diversified Student Development Requires the Implementation of Differentiated Teaching Models

To cultivate college students in the new era, it is necessary to set up customized training programs according to students' career development planning and specialty preferences. The course construction content is divided into public course construction content and selective course construction content [7]. Accordingly, the public course assessment content and selective course assessment content are set in students' assessment, so as to fully master the core course content and take into account students' differentiated learning willingness.

3. The Overall Design of Curriculum Reform and Construction

This course construction takes innovation as the theme, and pays attention to the theoretical and

ideological height of the course. Based on the curriculum construction, the training goal of "four qualities, eight strengths and four feelings" is proposed, which is to coordinate the development of professional ability, comprehensive quality ability and value ability. Curriculum construction takes value as the driving force, platform as the carrier, demand as the target, education reform to promote science and innovation, and systematization to promote curriculum reform. Construct the value driving force as the starting point, promote the construction of financial metrology "wisdom analysis platform", form a research system to promote scientific research by education reform, and finally achieve the supply and demand matching curriculum reform and innovation system, form a closed-loop innovation system that promotes curriculum reform, talent reform, and talent reform promotes innovation. The overall construction framework includes curriculum construction objectives, professional ability training objectives, the four dimensions of comprehensive literacy training goals and value literacy training goals, and finally achieve the total training goals. The training objectives of curriculum construction adhere to the principles of curriculum prospectivity, curriculum advancing with The Times, curriculum science and curriculum applicability. The training objectives of professional ability are constructed according to the four dimensions of quantitative thinking ability, data analysis ability, model construction and analysis ability, and digital base construction ability. The comprehensive literacy ability mainly cultivates adaptability, execution ability, pressure resistance ability and learning ability; the value target mainly includes the feelings of family and country, the sense of mission, the discipline spirit and the scientific feelings [8].

In course construction, we uphold the principles of forward-looking, scientific, advancing with The Times and applicability, and comprehensively cultivate students' quantitative thinking ability, data analysis ability, model building ability and digital base building ability. While focusing on professional ability, we also pay attention to improving comprehensive literacy and value objectives, teaching process scenario model design, course assessment and other ways. Finally, the country for the development of new disciplines in the new era, the demand for financial talents as the overall

goal, to achieve personal comprehensive development as the fundamental goal of the overall cultivation goal. To realize the curriculum resources, data resources, scientific research resources, personnel exchange resources, school-enterprise liaison resources sharing and co-construction platform; to form a virtuous cycle system in which teaching promotes scientific research and scientific research promotes teaching. Driven by the realization of the comprehensive value appeal of "profession, industry, country and self", curriculum innovation will be promoted, and a new high point of value appeal will be further formed in the process of curriculum innovation promotion^[9,10].

4. Curriculum Reform Path

4.1 Build a Shared "Wisdom Analysis" Resource Platform

Focusing on financial quantitative analysis, it will form a co-construction and sharing platform based on teachers, researchers, students and enterprises, including data resources, case resources, teaching resources, scientific research resources and human resources, so that teaching and research are not affected by space and region, and gradually promote the content construction of the platform and enhance the influence of the platform. Specifically, the "wisdom analysis" platform can be constructed in the following ways. First, teachers and students can build and share. Fully mobilize the enthusiasm of students, through competitions, projects, experiments, case analysis and other ways, according to the specific construction goals of the course, teachers and students jointly obtain data through various channels such as web crawlers and literature research, combine traditional measurement methods with machine learning, build financial measurement models, and use programming languages to realize data cleaning and data preprocessing. Analyze and mine data to obtain quantitative research conclusions, and scenario-based simulation of the financial metrology analysis process based on big data. Second, online resource co-construction. Make use of a large number of online financial measurement resources and data resources to increase the richness and vividness of course resources.

According to the development needs of the course, we will invite experts from outside the

school to share the content and views of the course online. Invite practitioners from financial enterprises to share their quantitative financial management experience in real time, experience the application scenarios of quantitative finance, understand the pain points and bottlenecks in the quantitative analysis of financial enterprises, and accumulate materials for classroom teaching and scientific research^[11]. Invite employees from big data companies to share their experience in building big data bases, data cleaning, data processing and data analysis in real time. Third, co-construction and sharing of teaching and research. Form a resource platform based on measurement of teaching personnel, design a mode of co-construction and sharing of teaching and research resources, so that teaching and research personnel can enjoy resources on the platform, and are willing to share resources for the platform, form a sustainable resource construction mode and mechanism of "self-interest when altruistic, altruistic when egoistic", and form a fulcrum with curriculum construction. Gradually promote the discipline development and personnel training of the overall development of the construction goal.

4.2 Form "Teaching +" Model Innovation to Enhance Students' Core Competitiveness

Take teaching as the center, form a "teaching +" model innovation, stimulate students' potential in multiple modes, and cultivate students' ability in multiple dimensions. To stimulate their learning potential through competitions, students are organized to actively participate in various competitions such as "College Student Innovation and Entrepreneurship" competition, "College Student Mathematical Modeling" competition, so as to stimulate students' learning potential, tap students' innovative spirit, and exercise their executive ability and anti-pressure. Improve their critical thinking ability through debate, set up the theme, set up a debate group, through competition and debate, train students to use critical thinking to view the development of financial metrology science, improve their professional critical thinking ability. Enhance the application ability through the project, go to financial enterprises to investigate the current situation of corporate financial quantitative analysis, understand the main problems and pain points in quantitative processing, and form theory + practice. The theme of the project exercises students' integration ability and

comprehensive application ability. Through the "question and answer" mode, the innovation ability is improved. The teaching is carried out according to the logic of problem raising, problem thinking, solution, scheme testing and conclusion formation. After forming a new conclusion each time, the next problem is triggered and solved according to conditions, scenarios and drawbacks. Students' ability to raise questions and solve problems is trained from different dimensions by asking themselves and answering themselves, asking themselves and answering others, and answering others.

4.3 Focus on the Development of Financial Technology to form the Characteristics of the Course

The reform that financial quantitative analysis must face is to move from classical financial measurement based on structured data to big data measurement based on unstructured and dynamic real-time data. In financial metrology analysis, on the basis of inheriting classical knowledge, this course focuses on financial big data metrology thinking training, financial big data analysis ability training, digital base construction ability training, data + financial problems + scene application integration ability training, presenting the fintech characteristics of the course.

5. Curriculum Assessment and Evaluation Reform

In the student achievement assessment system, we uphold the principle of objectivity and fairness, implement the combination of "node assessment + dynamic assessment" and "teacher main assessment + auxiliary assessment", integrate all aspects of the teaching process, combine subjective assessment and objective assessment, combine teacher main assessment, refer to student mutual assessment and third-party evaluation, and comprehensively assess students' abilities in multiple dimensions, including: Learning ability, summing up ability, innovation ability, practical ability, academic research ability, etc.

6. Curriculum Innovation Achievements and Promotion

The reform of financial metrology course with big data as the base and real-time financial analysis as the goal is not only reflected in the reform of teaching methods and teaching means,

but also a comprehensive reform involving teaching thinking, teaching content, teaching scene, teaching means, teaching goal and teaching effect. Whether the adaptability of the reform, the reform path and effect can be extended or not, it is necessary to reflect the quality of curriculum construction from three aspects: the growth effect of students, the construction effect of team and the brand influence of the course.

6.1 Overall Improvement of Teaching Effect

The effectiveness of curriculum reform should mainly be reflected in the growth of students, to understand the adaptability of teaching reform from the perspective of students, to analyze the effect of reform from the perspective of teaching results, and to evaluate whether the reform has finally reached the goal from the dimension of students' comprehensive ability. To investigate the adaptability of students to the teaching reform, the questionnaire was designed to comprehensively understand the adaptability of students to the innovation and reform of curriculum content from multiple dimensions such as learning difficulty, learning acceptance, learning willingness, comparison and feelings before and after the reform. The multi-dimensional achievement assessment system involves subjective and objective assessment, teacher, student and third-party assessment, which is difficult to assess, and a sound indicator system is difficult to investigate the adaptability and satisfaction of students to the assessment before and after the reform. Analysis of student achievement and effect. Compare the scores before and after the reform, and feedback the changes of scores before and after the curriculum reform. The results of students' comprehensive ability training. Compare the comprehensive ability of students before and after the reform, and feedback the change of students' comprehensive ability before and after the curriculum reform.

6.2 Form a Series of Landmark Achievements

The curriculum reform upholds the construction concept of "teacher-oriented, teacher-student co-construction, and platform sharing", takes the curriculum construction teacher team as the core, integrates online and offline resources, integrates school enterprise resources, fully mobilizes students' own initiative, and forms a teaching and research research team with curriculum

reform and scientific research to help curriculum development under the guidance of the overall construction goal and overall structure. To form a series of research landmark achievements that can help the sustainable development of the curriculum, including student landmark achievements, teaching landmark achievements and scientific research landmark achievements.

6.3 Build a Distinctive Curriculum Brand

Form a free platform based on course construction, build a distinctive resource platform based on financial quantification, data platform, talent exchange platform, and school-enterprise joint platform, and jointly build the course resource platform, enjoy the course resource content and harvest the fruits of course construction. Gather strength to create the course IP effect, so that students of financial metrology courses can find resources on the platform, teachers of financial metrology courses can find resources on the platform, and researchers who do scientific research can find resources on the platform.

7. Conclusion

Through this study, taking the construction of the "Financial Econometrics" course as an example, the curriculum reform is promoted from all aspects such as course objectives, course design, course innovation, course content, course assessment, and course evaluation, forming a new curriculum plan suitable for the development of the times and providing reference for the curriculum reform in the new era.

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