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Research on the reform of " Accounting plus International Rules " compound talent training mode from the perspective of STEM

Xiaoman Wu[1.a], Hongzhang Wei[2.b] and Zekai Fang[2.c.*]
[1]School of Management, Foshan University, Foshan 528000, Guangdong Province, China
[2]School of Economics, Foshan University, Foshan 528000, Guangdong Province, China
Email: [a]158496806@qq.com. [b]a1073994220@163.com. [c]13265908796@163.com

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Abstract

The deep integration of economic globalization and digital economy puts forward new requirements for the ability structure of accounting talents. The traditional training path with local standards as the core is gradually misaligned with the actual needs of multinational enterprises and international accounting firms. STEM education emphasizes interdisciplinary integration and problem orientation, which provides a feasible way for accounting education reform. Based on the four-dimensional connotation of STEM, this paper analyzes the fragmentation of international rule teaching, the lag of digital technology integration, the lack of practical scenarios and the lack of quantitative analysis ability in the current "Accounting plus International Rule" talent training, and constructs the "four-dimensional integration" training framework. The implementation path is proposed from four aspects : curriculum system, teaching method, practice platform and evaluation system, which provides reference for the training of accounting international talents in colleges and universities.

Keywords

Stem; Accounting Plus International Rules; Training Mode Reform

1. Introduction

With the deep integration of economic globalization and digital economy, the business boundaries and capacity requirements of the accounting industry have changed. With the increase of foreign-related economic activities such as cross-border investment and financing, cross-border mergers and acquisitions, the ability demand of accounting talents has shifted from single accounting treatment to compound knowledge structure. However, the traditional training path focuses on local standards and theoretical indoctrination, which has a large deviation from the actual requirements. At the same time, in 2023, the " adjustment and optimization

reform plan for discipline and specialty setting of general higher education " issued by the Ministry of Education of China and other five departments clearly requires that " we should break the barriers of discipline and specialty, deepen the cross-integration of disciplines, innovate the organization mode of disciplines, and reform the talent training mode. " STEM concept takes the interdisciplinary integration of science, technology, engineering and mathematics as the core, emphasizes problem orientation, practice drive and innovation ability training, and provides a new theoretical perspective and practical path for solving the problems of homogenization, insufficient internationalization and digital lag of current accounting education.

Based on this, from the perspective of STEM, this paper systematically analyzes the practical bottleneck of the cultivation of " Accounting plus International Rules " compound talents, constructs a " four-dimensional integration " talent training framework and puts forward specific reform paths, in order to promote the transformation of accounting education to interdisciplinary, international and practical innovation.

2. Theoretical Basis

STEM education originated in the United States. It is an interdisciplinary integrated education model that integrates four core disciplines of science (S), technology (T), engineering (E), and mathematics (M). It emphasizes the cultivation of students ' logical thinking, technology application, engineering practice and innovation ability through ' learning by doing ' guided by real problems. Specifically, the four dimensions of STEM education concept have different emphases and support each other : the scientific dimension emphasizes the interdisciplinary knowledge system, including the scientific ability accomplishment of fact judgment, concept and so on, and guides students to master the essential law of the discipline ; the technical dimension emphasizes the knowledge of software programs and specific technical tools, and cultivates students ' ability to solve practical problems with technology ; the engineering dimension takes the project as the carrier, cultivates students ' engineering thinking and systematic thinking, and pays attention to the practical application of scientific knowledge and specific technology. Based on the mathematical dimension, it focuses on the use of logical reasoning and quantitative analysis in solving complex problems.

In recent years, the concept of STEM has gradually extended from science and engineering to the field of humanities and social sciences, and has become an important theoretical tool to promote the reform of business education. Specifically, in the field of ' Accounting plus International Rules ' compound talents training, the traditional accounting education is mainly based on written knowledge, and the discipline barrier is strict. The teaching of international rules is seriously out of touch with digital technology and practical application. The interdisciplinary

integration, problem orientation and practice driven advocated by STEM can effectively make up for the shortcomings of traditional accounting education, promote the organic integration of accounting specialty, international rules, digital technology and innovation ability, and provide a solid theoretical support for the cultivation of international high-quality compound accounting talents.

3. Problems in the cultivation of " Accounting plus International Rules " compound talents from the perspective of STEM

3.1. Scientific dimension: fragmentation of international rule teaching and insufficient understanding of underlying logic

At present, the international accounting curriculum in colleges and universities is relatively fragmented, mostly based on traditional accounting contents such as " international accounting standards " and " international financial management, " and lacks systematic curriculum system design. The teaching content focuses on the interpretation and comparison of the provisions of international accounting standards, and pays insufficient attention to the theoretical basis and institutional background behind them. Students often can only mechanically remember their differences, and it is difficult to understand the internal logic of international rules, and it is more difficult to make professional judgments in complex cross-border business. At the same time, the teaching of international rules and domestic accounting courses are separated from each other, and there is no progressive relationship from local foundation to international expansion, and the knowledge framework of students is difficult to connect.

3.2. Technical dimension : the integration of digital technology and international accounting is lagging behind, and the ability of technology application is weak

From the perspective of STEM, the integration of digital technology and international accounting is the proper meaning, but at present, there is still a disconnection in the teaching and training of most colleges and universities. Computer, database and other courses are out of touch with the teaching of accounting major, and lack of teaching design combined with international business scenarios. Although students have learned relevant basic technical knowledge, it is difficult for them to migrate to real situations such as cross-border financial data processing and international audit. In addition, the training resources are mainly domestic financial software, and lack of international general ERP system, audit software and other platforms, resulting in a large gap between students ' digital technology application ability and the demand for talents in the international market.

3.3. Engineering dimension : practical teaching is separated from the real international scene, and engineering thinking is missing

STEM education emphasizes the cultivation of engineering practice ability, but there are obvious shortcomings in the practical teaching of ' Accounting plus International Rules ' talent training. The on-campus training is mainly based on simulated accounting treatment, with single content and simple scene, lacking real cross-border business process and complex international economic environment simulation. At the same time, most of the off-campus practice bases are domestic enterprises, and students have limited opportunities to contact international accounting business such as cross-border investment and financing, international tax planning. In addition, the practice teaching is mainly based on personal operation, and lacks the training of team cooperation and project management. It is difficult to effectively cultivate students ' engineering thinking and systematic problem-solving ability.

3.4. Mathematical dimension : insufficient training of quantitative analysis ability and weak data thinking

Mathematics is the foundation of accounting discipline. However, the current teaching content is mainly based on general courses such as higher mathematics and linear algebra, which is not highly integrated with the major. There is a lack of applied mathematics training in the fields of international financial analysis and risk management. Students ' quantitative analysis ability and data modeling ability are generally weak. In the international accounting classroom, qualitative analysis is dominant, and financial data mining and quantitative modeling training are insufficient. It is difficult for students to use mathematical methods to deal with complex cross-border accounting problems, and there is a certain gap with the requirements of multinational enterprises for data-driven talents.

4. Construction of " Accounting plus International Rules " compound talent training mode from the perspective of STEM

4.1. The construction of ' four-dimensional integration ' talent training framework

Based on the four-dimensional connotation of STEM perspective and the ability requirements of " Accounting plus International Rules " compound talents, this paper constructs a " four-dimensional integration " talent training framework of " scientific foundation, technical empowerment, engineering practice and mathematical support. " The framework aims to cultivate compound talents with solid professional foundation, proficient international rules, skilled digital skills and outstanding innovation ability, and runs the STEM concept through the whole process of talent training. Among them, the scientific dimension is the theoretical basis of talent training, focusing on cultivating students ' cognitive ability of international rules and scientific thinking ability; the technical dimension is the core driving force of talent training, focusing on cultivating students ' digital technology

application ability and intelligent accounting operation ability; the engineering dimension is the practical carrier of talent training, which corresponds to the cultivation of students ' project practice ability and team cooperation ability ; the mathematical dimension is the tool support for talent training, which corresponds to the cultivation of students ' quantitative analysis ability and data modeling ability.

4.2. Specific training path

4.2.1. Reconstruct the modular curriculum system of interdisciplinary integration

Curriculum system reform is the core of talent training mode reform. Based on the concept of STEM education, break the barriers of traditional disciplines and build a modular curriculum system of " Accounting Core plus International Rules plus STEM Technology plus Comprehensive Practice. " The accounting core module consolidates the local accounting foundation; the international rules module is based on ' foundation-core-expansion ', and systematically teaches international accounting standards, international auditing standards, international tax law and so on. STEM technology module offers Python financial data analysis, financial robot, blockchain accounting and other courses; the comprehensive practice module strengthens students ' practical application ability. At the same time, the ' step-by-step ' teaching mode is implemented. The lower grades focus on basic courses, the higher grades focus on international rules and digital technology, and the proportion of practical credits is not less than 30 %. At the same time, the ideological and political education of the course is organically integrated into the teaching of each module, and the achievements of the international convergence of Chinese accounting standards are integrated into the teaching of international rules, so as to enhance students ' cultural self-confidence.

4.2.2. Establish a teaching mode based on project-based teaching method

Project-based learning (PBL) is a teaching method that is very consistent with the concept of STEM education. It takes real problems as the starting point, takes students as the center, and solves problems through group collaborative inquiry. Integrating PBL teaching method into the whole process of " Accounting plus International Rules " talent training can effectively realize the deep integration of theoretical teaching and practical application. Construct a ' basic-advanced-comprehensive ' three-level progressive PBL project system : basic-level projects are embedded in sophomore core courses, such as ' analysis of inventory accounting differences under different national accounting standards ', and basic application ability training is driven by small problems in the course ; relying on the third-year school-enterprise cooperation project, the class project drives the improvement of professional practical ability with the real business problems of the enterprise ; the comprehensive level project is oriented to the

fourth grade, such as " Research on the Impact of International Accounting Standards Convergence on Chinese Enterprises ' Overseas Investment, " and cultivates innovation ability and systematic thinking with industry frontier issues.

4.2.3. Build an immersive international practice teaching platform

Build a " Campus Virtual Simulation plus Off-campus Practice Base plus Discipline Competition plus International Exchange " four-in-one practice platform. Build an international accounting virtual simulation laboratory, develop a ' Belt and Road ' cross-border accounting virtual simulation project, and simulate real business scenarios such as investment mergers and acquisitions and tax planning ; introduction of international common ERP system, audit software and data analysis platform. Deepen school-enterprise cooperation, build off-campus practice bases with multinational enterprises and international accounting firms, and explore order-based training models; encourage students to participate in ACCA Employability Competition, Deloitte Tax Elite Challenge and other competitions, and carry out joint training with overseas universities to broaden their international horizons.

4.2.4. Establish a diversified process evaluation system

Reform the traditional single evaluation method and establish a diversified process evaluation system covering knowledge, ability and quality. The evaluation content includes not only professional knowledge, but also technology application, practical ability, teamwork and innovation ability. The evaluation method adopts the combination of process evaluation and summative evaluation. The process evaluation accounts for not less than 50 %, including classroom performance, daily homework, group project report, training results, etc. ; the final evaluation adopts the forms of open-book examination, case analysis, project defense and so on. Introduce a third-party evaluation mechanism, invite off-campus tutors and enterprise experts to participate in student evaluation, and establish student growth files to record students ' learning outcomes and ability development. The scores of international vocational qualification examinations such as ACCA and CMA are included in the evaluation, and credits are given to students who pass the corresponding subjects to enhance the social adaptability of the evaluation.

5. Conclusions

Under the background of economic globalization and digital economy, it is an inevitable trend of accounting education reform to cultivate compound talents of " Accounting plus International Rules. " Based on the perspective of STEM, this paper proposes a reform path from four aspects : curriculum system, project-based teaching method, practice platform and evaluation system by constructing a " four-dimensional integration " training framework of " scientific foundation,

technical empowerment, engineering practice and mathematical support, " in order to alleviate the structural contradictions in the current training of accounting talents. There are still some limitations in the research of this paper. In the future, we can further explore the application differences of STEM education concept in accounting majors at different levels of colleges and universities, as well as the effect evaluation mechanism of talent training mode reform, so as to provide more comprehensive theoretical support and practical reference for accounting education reform.

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Public Disclaimer

The authors declare no conflict of interest.

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