

Research on the Teaching Reform of Accounting Major under the Integration of Curriculum Civics and STEM Education Concepts

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Abstract

With the rapid development of economic globalization and digital technology, the accounting profession is facing unprecedented changes: the popularization of intelligent financial systems, the iteration of international accounting standards, and the upgrading of the requirements of corporate social responsibility, and these trends put forward higher requirements for the ability structure of accounting talents - not only the need to have solid professional skills and interdisciplinary integration. These trends have put higher demands on the ability structure of accounting talents - not only do they need to have solid professional skills and interdisciplinary integration ability, but they also need to abide by professional ethics and have a sense of nationalism. Against this background, the reform of higher education continues to deepen, and the synergistic innovation of curriculum ideology and STEM education concepts has become an important breakthrough for the transformation of the teaching and learning of accounting majors. Curriculum Civics and Politics emphasizes the fundamental task of "cultivating moral integrity" and requires the integration of socialist core values into the whole process of professional education; STEM education (Science, Technology, Engineering and Mathematics Interdisciplinary Education) advocates the cultivation of complex problem-solving composite talents through project-based learning and practical innovation. The integration of the two can not only solve the chronic problem of "focusing on skills but not on values" and "focusing on theory but not on practice" in traditional accounting teaching, but also build a "knowledge-capability-value" trinity. The integration of the two can not only break the chronic problem of "skill over value" and "theory over practice" in traditional accounting teaching, but also build a new model of "knowledge-competence-value", which can respond to the urgent demand for high-quality accounting talents in the new era.

Keywords

Curriculum thinking; STEM education; Teaching reforms

1. Introduction

The education reform of the accounting profession has achieved certain results, but there are still two major bottlenecks. First, the way of integrating Civics in the curriculum is superficial. Some teachers simply adopt the form of “case + sermon”, and the combination of Civic and political elements and professional knowledge lacks systematicity and logic, which is difficult to trigger the value resonance of students[1]. For example, in the accounting information system course, data ethics education is often simplified to a list of legal provisions, failing to analyze the deep impact of technology application on national economic security and social governance. Second, the localized practice of STEM education concepts in the accounting field is not yet sufficient. Existing research mostly focuses on the field of science and engineering, while STEM teaching in accounting majors is often limited to the operation of tools and software, neglecting the cultivation of core literacy such as engineering thinking and evidence-based decision-making[2]. This fragmentation leads to the fact that although students master technical tools, it is difficult to realize the creative integration of interdisciplinary knowledge in real business scenarios. To address the above problems, this paper takes “Accounting Information System” and “Management Accounting Practice” two courses as the carrier to explore the deep integration path of curriculum ideology and STEM education concept[3].

2. The logic of integration of curriculum thinking and STEM education concepts

Exploring the path of in-depth integration of curriculum thinking and STEM education concepts requires careful rationalization of the pivot of the relationship between the components and searching for key points that can be integrated in order to better enable the two to better integrate and move forward in a sustainable manner.

2.1. The nature and objectives of curriculum Civics

Civic politics in the curriculum emphasizes the realization of value leadership through the teaching of professional courses, the core of which lies in the subtle integration of the moral norms, political concepts and social responsibility advocated by the state into the transmission of knowledge[4]. For example, in accounting courses, professional ethics, integrity and “national stance” should be emphasized, such as the background of accounting standards and socialist core values.

2.2. Core features of the STEM education philosophy

STEM education is rooted in the interdisciplinary integration of Science, Technology, Engineering and Mathematics, emphasizing the development of students' ability to solve complex problems through practice and innovation in real situations. Its core features are reflected in three aspects: first, interdisciplinary integration, breaking

the traditional disciplinary barriers and advocating the organic reconstruction of the knowledge system. For example, in the teaching of accounting information systems, computer technology (database design), mathematical modeling (financial forecasting algorithms) and engineering thinking (system optimization logic), so that students understand the synergistic logic of technical tools and professional scenarios. Secondly, evidence-based practicability, focusing on the cultivation of decision-making ability based on data and evidence. By analyzing real cases of enterprises (e.g., supply chain cost fluctuation data), students are guided to distill key indicators from massive information to form the basis of scientific decision-making and avoid empiricist tendency[5]. Third, active inquisitiveness, with project-based learning (PBL) as the carrier, to promote students from passive acceptance to active construction.

2.3 Need and feasibility of integration

The fusion of curriculum Civics and STEM education concepts is not only the inevitable choice of education reform in the new era, but also has a solid practical foundation. From the necessity point of view, traditional accounting teaching has long been facing the double dilemma of "weak value leadership" and "insufficient practical innovation": on the one hand, the Civic and Political Education is easily formalized, and fails to be deeply bound with the accounting career scenario[6]; on the other hand, the application of STEM teaching in the field of liberal arts mostly stays at the level of tool operation, and lacks the ability to solve complex problems. On the other hand, the application of STEM teaching in the field of liberal arts mostly stays at the level of tool operation and lacks the systematic cultivation of complex problem solving ability. The complementary nature of the two provides a possibility to solve this contradiction - the curriculum of Civic-Politics gives ethical significance to the application of technology through "value anchoring", while STEM education provides "project-driven" elements for Civic-Politics. STEM education is "project-driven" to provide a practical vehicle for the elements of Civic Politics[7]. In terms of feasibility, the technological dividend and policy support in the era of digital economy provide realistic conditions for integration. For one, the digital transformation of accounting practice provides rich materials for interdisciplinary project design. Secondly, the resources for curriculum reform in universities are becoming more and more perfect, and tools such as virtual simulation platforms and enterprise case libraries can support the creation of the context of "technical practice + value experience".

3. Practical Path of Integration of Curriculum Civics and STEM Education Concepts

This chapter explores specific ways to better integrate curricular Civics with STEM education.

3.1 Interdisciplinary Reconstruction of Teaching Content

The interdisciplinary reconstruction of the teaching content of accounting majors is based on the STEM education concept as a framework, and through the integration of technological tools, engineering thinking and professional knowledge, a three-in-one teaching system of "technological practice, vocational competence, and value leadership" is constructed[8]. In the accounting information system course, the blockchain technology, SQL database management and Python automation script are taken as the core to design the simulation project of "Data Governance in Financial Sharing Center", which combines the application of distributed ledger with the interpretation of the Data Security Law, guides the students to analyze the ethical risks of the technology, and at the same time, the students are guided to analyze the ethical risks of the technology through the "Data Security Law". At the same time, through the development task of "Intelligent Reimbursement System", students are guided to analyze technical ethical risks, and to embed elements of ideology and politics such as expense compliance audit in the optimization of technical processes through the development task of "Intelligent Reimbursement System", so as to strengthen the awareness of law and social responsibility. In the management accounting practice course, we draw on the systematic thinking in the field of engineering, with "intelligent cost control" as the main line, integrating IoT data collection, machine learning algorithm modeling and iterative optimization of lean management in stages, and requiring students to assess economic and social benefits from the dynamic cost model simultaneously. Emission reduction on brand value, and to write an ethical proposal by balancing the analysis of labor cost and employee welfare with the Labor Law and CSR report[9]. This reconstruction mode not only breaks the disciplinary barriers, but also naturally penetrates the elements of ideology and politics in the technical practice, so that the students, while mastering the interdisciplinary skills, form the value self-awareness of "data to the good" and "business to the good", and realize the synergistic enhancement of knowledge, ability and values. Enhancement of Knowledge, Ability and Values.

3.2 Innovative design of teaching methods

Taking project-based learning (PBL) as the core, through the creation of real situations, virtual simulation platforms and the application of digital tools, we promote students' shift from passive acceptance to active inquiry. Combining role-playing, ethical conflicts and evidence-based decision-making assessment, we integrate the elements of Civics and Politics into technical practice, so as to achieve the simultaneous deepening of "internalization of knowledge, enhancement of ability, and recognition of value". The synchronized deepening of "knowledge internalization-competence enhancement-value recognition" can be achieved[10].

3.3 Systematic Integration of Civics Elements in the Curriculum

The integration of course politics needs to take into account both explicit guidance and implicit penetration, and build a systematic path of "two lines in parallel". At the explicit level, the value cognition is strengthened through the direct entry of historical cases and policies and regulations, such as embedding the topic of "Red Accounting History" in the teaching of accounting standards to analyze the national sentiment behind the evolution of the system[11]; or combining the Data Security Law and the Guidelines for Corporate Social Responsibility to analyze the bottom line of compliance in the application of technology. . At the implicit level, "technical practice + ethical discernment" is used as a carrier to realize the internalization of values: in the accounting information system course, a virtual simulation platform simulates an enterprise data leakage event, guiding students to extend from technical vulnerability investigation to professional ethical reflection; in the case study of managerial accounting, the setting of the "cost optimization vs. In the management accounting case study, contradictory situations such as "cost optimization vs. employee rights and interests" and "short-term profit vs. ecological sustainability" are set up to promote students to naturally form a sense of social responsibility in data modeling and program argumentation. In addition, relying on diversified assessment and integration of teaching resources, we ensure that the elements of Civics and Politics run through the whole process of teaching, avoiding fragmentation and superficial tendency, and ultimately realizing the nurturing goal of "value temperature in the transmission of knowledge, and ethical thickness in technical training".

4. Recommendations for implementation

The integration of curriculum Civics and STEM education concepts is not only an innovative practice of education and teaching, but also an inevitable requirement for cultivating talents with international vision and social responsibility. In the context of globalization, financial accounting management courses should deeply explore the elements of Civics and Politics, guide students to deeply understand the overall situation of national development and the global economic pattern, and cultivate their patriotic sentiment and international vision. In addition, it should also strengthen the organic integration of course politics and discipline specialization, and continuously improve students' professional knowledge while enhancing their ideological, moral and humanistic qualities. In conclusion, the integration of curriculum ideology and politics into financial accounting management can help cultivate high-quality talents with global competitiveness and contribute to the strength of the motherland.

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Public Disclaimer

The authors declare no conflict of interest.

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