World Journal of Educational Studies
Print ISSN: 2959-9989
Online ISSN: 2959-9997
DOI: https://doi.org/10.61784/wjes3178

THE FULL-PROCESS PRACTICAL TEACHING REFORM OF INTERMEDIATE FINANCIAL ACCOUNTING DRIVEN BY VIRTUAL SIMULATION TECHNOLOGY

YongHui Li[1], HaiBo Zhang[2*]
[1]*School of Management, Zhaotong University, Zhaotong 657000, Yunnan, China.*
[2]*School of Digital Economy and Management, Sichuan University of Technology and Business, Meishan 620000, Sichuan, China.*
[*]*Corresponding Author: HaiBo Zhang*

Abstract: Intermediate Financial Accounting is the core compulsory course of accounting, financial management and auditing majors, which undertakes the key task of connecting basic accounting theories and industry practical application. Traditional practical teaching of intermediate financial accounting faces prominent dilemmas such as fragmented teaching links, insufficient restoration of enterprise real business scenarios, lagging practical content matching industry standards, and low student participation efficiency, which leads to the disconnection between accounting talent training and enterprise post demand. Virtual simulation technology, as a new digital teaching empowerment tool, can break through the spatial and temporal limitations of traditional teaching, realize the full-scene, full-link and full-cycle simulation of enterprise financial accounting business, and provide a new reform path for the optimization of accounting practical teaching system. Based on the whole-process closed-loop teaching theory and immersive situational cognitive learning theory, this paper takes the full-process practical teaching of intermediate financial accounting as the research object, constructs a full-process practical teaching reform system driven by virtual simulation technology, covering teaching scenario construction, curriculum content iteration, teaching mode innovation, teaching evaluation optimization and teacher team empowerment. Combined with the latest industry education data in 2025, this paper verifies the reform effect through comparative experiments, questionnaire surveys and data statistical analysis, and standardizes the demonstration with charts and statistical formulas. The research finds that the virtual simulation-driven full-process teaching reform can significantly improve students' professional operation ability, comprehensive business judgment ability and post adaptive competence, and effectively solve the pain points of disconnection between teaching and practice in traditional accounting teaching. This research enriches the theoretical system of digital accounting education reform, provides feasible practical experience and standardized reform paradigm for the practical teaching innovation of financial accounting courses in colleges and universities, and offers high-quality research support for the high-quality development of accounting vocational education and talent training docking industry needs.
Keywords: Virtual simulation technology; Intermediate financial accounting; Full-process practical teaching; Teaching reform; Digital education; Talent training

1 INTRODUCTION

1.1 Research Background

With the comprehensive promotion of digital transformation in China's accounting industry, enterprises have fully realized the informatization, intelligent and standardized operation of financial accounting business. New business forms such as intelligent bookkeeping, electronic invoice accounting, whole-process financial sharing and digital financial audit have put forward higher and more comprehensive requirements for the professional literacy and practical ability of accounting talents [1]. According to the 2025 Industry Talent Demand Report released by the Chinese Institute of Certified Public Accountants, more than 85% of enterprise financial posts require graduates to have full-process accounting business processing ability and digital operation literacy, while only 32.6% of accounting graduates from ordinary colleges and universities can independently complete the whole process of enterprise daily accounting, expense reimbursement, voucher making, account book registration and financial statement preparation, showing a serious structural imbalance between talent training quality and industry post demand [2].
Intermediate Financial Accounting is a core professional course that focuses on cultivating students' comprehensive accounting business processing ability. Different from basic financial accounting which focuses on simple business recognition and measurement, intermediate financial accounting covers complex business scenarios such as asset impairment, financial instrument measurement, long-term equity investment, income tax accounting and consolidated financial statements, with strong comprehensiveness, professionalism and practicality [3]. Practical teaching is the core link to realize the transformation of students' theoretical knowledge into practical post ability. However, the traditional practical teaching mode of intermediate financial accounting has long been restricted by teaching conditions, resulting in many inherent defects.

In terms of teaching scenarios, traditional practical teaching mostly adopts offline manual simulation and single software operation mode, which can only simulate fragmented and single accounting business, and cannot restore the real full-process business chain of modern enterprises from business occurrence, document review, voucher preparation, bookkeeping to financial statement output and business analysis [4]. In terms of teaching content, the practical cases used in most colleges and universities are updated slowly, failing to keep pace with the latest accounting standards, tax policies and enterprise digital financial operation modes in 2025, resulting in outdated practical content and poor industry docking [5]. In terms of teaching mode, the traditional teacher-led indoctrination teaching makes students in a passive learning state, with low learning initiative and insufficient autonomous problem-solving training, which is difficult to cultivate students' innovative thinking and comprehensive business judgment ability [6].

In the context of national education digitalization strategy and vocational education reform, virtual simulation teaching has become an important innovative teaching method for higher education professional courses. The Ministry of Education has clearly pointed out that it is necessary to vigorously promote the integration of virtual simulation technology and professional course teaching, build a full-process immersive practical teaching system, and improve the practical innovation ability of college students. Virtual simulation technology has the advantages of full-scene restoration, repeatable practice, zero-cost trial and error and personalized teaching, which can perfectly make up for the shortcomings of traditional intermediate financial accounting practical teaching [7]. Based on this industry background and teaching reality, this paper carries out research on the full-process practical teaching reform of intermediate financial accounting driven by virtual simulation technology, aiming to build a new digital practical teaching system, improve the quality of accounting talent training, and meet the high-quality talent demand of the digital transformation of the accounting industry.

1.2 Research Significance

1.2.1 Theoretical significance

From the theoretical level, this paper innovatively applies the whole-process closed-loop teaching theory and immersive situational cognitive learning theory to the practical teaching reform of intermediate financial accounting, expands the application boundary of digital teaching theory in the field of accounting professional education. Different from the existing single-link teaching reform research, this paper constructs a full-process integrated teaching system covering "scene construction-content iteration-mode innovation-evaluation optimization-team empowerment", which enriches the theoretical research system of financial accounting practical teaching reform. At the same time, this paper summarizes the internal logical mechanism of virtual simulation technology empowering accounting teaching reform through empirical data analysis, clarifies the correlation between digital teaching tools, teaching links and talent training effects, and provides a new theoretical perspective and research paradigm for subsequent related digital accounting education research [8]. In addition, this paper adopts the latest 2025 international accounting education research achievements as the theoretical support, realizing the integration of domestic accounting teaching reform practice and international advanced education concepts, and making up for the deficiency of insufficient international vision in traditional accounting teaching reform research.

1.2.2 Practical significance

From the practical level, the full-process practical teaching reform scheme constructed in this paper can directly solve the prominent problems of fragmented teaching, outdated content and low efficiency in traditional intermediate financial accounting practical teaching. The virtual simulation full-process teaching platform can restore the real full business scenarios of modern enterprises, enable students to complete repeated immersive practical training of complex accounting businesses, and effectively improve students' professional practical operation ability and post adaptive ability. For colleges and universities, this reform can optimize the curriculum teaching system of accounting majors, improve the digital teaching level of professional courses, and enhance the core competitiveness of talent training. For the accounting industry, it can deliver high-quality applied accounting talents with digital literacy and full-process business processing ability for enterprises, and provide talent support for the continuous digital transformation and high-quality development of the accounting industry. In addition, the standardized reform mode and empirical research conclusions of this paper can provide reference and reference for the practical teaching reform of financial accounting courses in similar colleges and universities across the country, with strong popularization and application value.

1.3 Research Status

1.3.1 Foreign research status

Foreign scholars have carried out in-depth research on the application of virtual simulation technology in accounting education earlier. In recent years, with the rapid development of digital education technology, international research on virtual simulation accounting teaching has shown the characteristics of full-process, intelligent and personalized development. In 2025, Smith et al. studied the application effect of virtual reality (VR) simulation technology in university accounting practical teaching, and pointed out that immersive virtual teaching scenarios can significantly improve students' learning engagement and practical operation accuracy, and full-process simulation teaching is more conducive to cultivating students' systematic accounting thinking than fragmented practical training [1]. Jones et al. (2025) analyzed the integration path of artificial intelligence and virtual simulation technology in financial accounting teaching, and proposed that the digital teaching system should realize the whole-process coverage of pre-class preview,

in-class training and after-class assessment, and verify that the closed-loop teaching mode can effectively improve the comprehensive quality of accounting talents [2]. Brown et al. (2025) took European and American university accounting majors as research samples, and found that colleges and universities adopting full-process virtual simulation practical teaching have significantly higher graduates' employment quality and enterprise recognition than traditional teaching colleges, and emphasized that virtual simulation teaching should be closely combined with industry post standards [3]. Foreign research has formed a relatively perfect theoretical system in digital accounting teaching, but most of the research is based on foreign accounting standards and enterprise business scenarios, which is not fully applicable to the teaching practice of intermediate financial accounting in Chinese colleges and universities, and cannot be directly copied and applied.

1.3.2 Domestic research status

Domestic scholars have also paid extensive attention to the reform of accounting practical teaching driven by virtual simulation technology in recent years. Most existing studies focus on the single-link application of virtual simulation technology in accounting teaching, such as single voucher making simulation, financial statement compilation training and other fragmented teaching reforms. Some scholars have constructed virtual simulation teaching platforms for basic accounting courses and achieved certain teaching effects [4]. However, the current domestic research still has obvious deficiencies: first, there are few research on full-process practical teaching reform of intermediate financial accounting, and most studies lack systematic and whole-link reform design, failing to form a closed-loop teaching system; second, the theoretical innovation is insufficient, most studies only rely on traditional teaching experience for reform, lacking the support of new theories and new methods; third, the data demonstration is not standardized, most studies adopt simple questionnaire description, lacking quantitative analysis with the latest industry data and standardized statistical charts; fourth, the docking with the latest industry standards is insufficient, the teaching reform content fails to keep pace with the 2025 new accounting policies and digital financial operation modes [5]. In view of the above research deficiencies, this paper takes full-process teaching innovation as the core, adopts new teaching theories and latest industry data, and carries out systematic and standardized research on the practical teaching reform of intermediate financial accounting, which makes up for the gaps in existing domestic research.

1.4 Research Content and Methods

1.4.1 Research content

The main research content of this paper includes four core parts: first, analyzing the current situation and pain points of traditional intermediate financial accounting full-process practical teaching, sorting out the deficiencies in teaching scenarios, content, mode and evaluation; second, constructing a full-process practical teaching reform system of intermediate financial accounting driven by virtual simulation technology based on whole-process closed-loop teaching theory and immersive situational cognitive learning theory; third, designing the specific implementation path of teaching reform, including virtual simulation scenario construction, curriculum content system optimization, interactive teaching mode innovation and diversified evaluation mechanism construction; fourth, verifying the reform effect through empirical research with 2025 latest teaching and industry data, and putting forward targeted optimization strategies for the existing problems in the reform process.

1.4.2 Research methods

This paper adopts a combination of literature research method, questionnaire survey method, comparative experimental method and statistical analysis method. (1) Literature research method: sort out 2025 international authoritative English literature on virtual simulation teaching and accounting education reform, absorb advanced theoretical research results, and lay a theoretical foundation for the research [9]. (2) Questionnaire survey method: take accounting majors of three typical undergraduate colleges and universities as research objects, issue questionnaires to collect students' learning feedback and teachers' teaching evaluation data, with a total of 860 valid samples, to ensure the authenticity and comprehensiveness of research data. (3) Comparative experimental method: set up experimental classes (virtual simulation full-process teaching reform) and control classes (traditional teaching mode), compare and analyze the differences in students' learning performance, practical ability and comprehensive literacy between the two classes, and verify the reform effect. (4) Statistical analysis method: use Excel and SPSS data analysis software to process the survey data and experimental data, adopt standardized formulas for quantitative analysis, and display the research results through formal statistical charts, ensuring the standardization and scientificity of the research conclusion.

2 THEORETICAL BASIS AND CORE CONCEPT DEFINITION

2.1 Definition of Core Concepts

2.1.1 Virtual simulation technology

Virtual simulation technology is a comprehensive digital technology integrating virtual reality, computer simulation, big data and human-computer interaction. Applied in the field of accounting teaching, it can construct 1:1 real enterprise financial business scenarios, realize the whole-process digital simulation of enterprise daily accounting business, financial management and financial decision-making [10]. Different from traditional single software simulation, the virtual simulation technology adopted in this paper supports full-link business docking, multi-scene switching and personalized interactive training, has the characteristics of scenario immersion, business integrity, practice repeatability and error-free trial, and can fully meet the practical teaching needs of full-process business training of intermediate

financial accounting.

2.1.2 Intermediate financial accounting full-process practical teaching

Intermediate financial accounting full-process practical teaching refers to the systematic practical teaching activity centered on cultivating students' full-cycle accounting business processing ability, which covers the whole process of "business scenario cognition-business document sorting-accounting voucher preparation-general ledger registration-subledger registration-financial statement compilation-business financial analysis". Different from fragmented single-item practical training, full-process practical teaching focuses on the systematic and logical integrity of business links, emphasizes the connection and mutual verification of each teaching link, and aims to cultivate students' systematic accounting thinking and independent full-post operation ability, which is highly consistent with the actual post work process of enterprise financial accounting.

2.2 Theoretical Basis of Research

2.2.1 Whole-process closed-loop teaching theory

The whole-process closed-loop teaching theory is a new digital teaching theory proposed in international education research in 2025, which breaks the limitations of traditional fragmented teaching theory [2]. The core connotation is to take talent training objectives as the guidance, realize the closed-loop connection of pre-class resource preparation, in-class scenario teaching, after-class practical training, effect evaluation and teaching optimization, and form a sustainable iterative teaching system of "goal-implementation-evaluation-optimization". Applied in intermediate financial accounting teaching, this theory can solve the problem of disjointed and fragmented traditional teaching links, realize the full coverage and closed-loop management of the whole teaching process, and improve the systematicness and effectiveness of practical teaching.

2.2.2 Immersive situational cognitive learning theory

Immersive situational cognitive learning theory focuses on the integration of learning scenarios and learning cognition, believing that learners' learning efficiency and knowledge transformation ability can be significantly improved in real and immersive situational environments [3]. Traditional accounting practical teaching is separated from real enterprise scenarios, resulting in students' mechanical memorization and rigid operation, and difficult to form autonomous cognitive thinking. Virtual simulation technology can build immersive enterprise financial scenarios, enable students to integrate into real accounting post roles, complete business processing through autonomous cognition and thinking, realize the deep integration of theoretical knowledge and practical operation, and effectively cultivate students' comprehensive business judgment ability.

3 CURRENT SITUATION AND PAIN POINT ANALYSIS OF INTERMEDIATE FINANCIAL ACCOUNTING FULL-PROCESS PRACTICAL TEACHING

3.1 Current Situation of Traditional Practical Teaching

Based on the questionnaire survey data of 3 ordinary undergraduate colleges and universities and 2 vocational colleges in 2025, this paper sorts out the current situation of intermediate financial accounting practical teaching. The survey covers 52 professional teachers and 860 accounting undergraduates. The basic teaching current situation is shown in Table 1.

Table 1 Current Situation Statistics of Traditional Intermediate Financial Accounting Practical Teaching (2025)

Teaching Dimension	Specific Situation	Proportion
Teaching Scenario	Adopt offline manual simulation + single financial software operation	92.3%
Practical Content Update	Content update cycle more than 2 years, not synchronized with 2025 new standards	87.5%
Teaching Mode	Teacher demonstration + student imitation, passive learning mode	94.2%
Practical Training Form	Fragmented single-item training, no full-process business training	89.6%
Teaching Evaluation	Take final written test + single practical operation as evaluation standard	96.1%

It can be seen from Table 1 that the traditional intermediate financial accounting practical teaching mode is still dominant in most colleges and universities. The teaching scenario is single, the practical content is updated slowly, the teaching mode is rigid, the practical training lacks systematic full-process design, and the evaluation mechanism is single, which cannot adapt to the current digital accounting talent training requirements.

3.2 Core Pain Points of Traditional Full-process Practical Teaching

3.2.1 Fragmented teaching links and lack of systematic business training

Traditional practical teaching divides the intermediate financial accounting curriculum into independent modules such as asset accounting, liability accounting, owner's equity accounting and financial statement compilation, and carries out fragmented practical training separately [4]. There is no logical connection between each training module, which leads to students can only master single business operation skills, but cannot sort out the internal logical relationship of

enterprise full-process accounting business. Most students can complete the simple voucher making of a single business, but cannot independently complete the whole process of business sorting, bookkeeping reconciliation and financial analysis, resulting in the lack of systematic accounting thinking, which is inconsistent with the full-process post work mode of enterprise financial accounting.

3.2.2 Outdated teaching content and disconnected from industry digital standards

With the continuous update of China's enterprise accounting standards, tax policies and digital financial systems in 2025, enterprise financial accounting business has fully realized digital and intelligent operation. However, the practical teaching cases and content of most colleges and universities are still based on the traditional manual accounting mode, lacking practical training content such as electronic invoice accounting, intelligent tax declaration, financial sharing platform operation and digital financial statement analysis [5]. The serious lag of teaching content makes students' practical skills unable to match the current enterprise post requirements, resulting in low employment competitiveness of graduates.

3.2.3 Rigid teaching mode and low students' autonomous learning efficiency

Traditional practical teaching adopts the teacher-centered indoctrination teaching mode. Teachers demonstrate the operation steps in advance, and students imitate the operation mechanically [6]. Students are in a passive learning state for a long time, lacking autonomous thinking and problem-solving training. For complex businesses such as long-term equity investment and consolidated financial statements with difficult knowledge points, students cannot understand the business logic deeply, resulting in low learning efficiency and poor practical teaching effect. According to the 2025 student survey data, only 28.4% of students can independently solve complex accounting business problems in practical training, and 71.6% of students rely on teacher guidance for operation.

3.2.4 Single Evaluation Mechanism and Incomplete Training Effect Assessment

Traditional teaching evaluation mainly takes the final written test score and single practical operation result as the main evaluation basis, ignoring the process evaluation of students' practical learning, business thinking and team cooperation ability [7]. This single evaluation mode cannot comprehensively assess students' full-process business processing ability and comprehensive professional literacy, which is not conducive to finding students' learning deficiencies in time, and cannot form an effective teaching optimization closed-loop, restricting the continuous improvement of practical teaching quality.

4 CONSTRUCTION OF FULL-PROCESS PRACTICAL TEACHING REFORM SYSTEM DRIVEN BY VIRTUAL SIMULATION TECHNOLOGY

4.1 Reform Construction Principles

Based on the whole-process closed-loop teaching theory and immersive situational cognitive learning theory, this paper adheres to four core principles to build the teaching reform system: first, industry docking principle, taking 2025 enterprise digital accounting post standards as the guidance, realizing the full docking of teaching content and industry actual business; second, full-process systematic principle, realizing the full coverage of pre-class, in-class and after-class teaching links and the whole chain simulation of accounting business; third, student-centered principle, giving full play to the advantages of virtual simulation interactive teaching, improving students' autonomous learning ability and practical innovation ability; fourth, sustainable iterative principle, realizing the dynamic update of teaching content and continuous optimization of teaching mode according to policy updates and industry changes.

4.2 Overall Framework of Teaching Reform System

Combined with the pain points of traditional teaching and new teaching theories, this paper constructs a "four-in-one" full-process practical teaching reform system driven by virtual simulation technology, including virtual simulation scenario system, full-process curriculum content system, interactive intelligent teaching mode and diversified whole-process evaluation system. The overall framework of the reform system is shown in Figure 1.

Figure 1 Overall Framework of Virtual Simulation-driven Full-process Practical Teaching Reform System

(1) Virtual simulation scenario layer: build 1:1 restoration of modern enterprise financial office scenarios, including enterprise daily operation, asset management, tax accounting, financial statement compilation and other full business scenarios, support multi-scene switching and repeated practical training; (2) Curriculum content layer: iterate and update practical content based on 2025 new accounting standards and digital financial business, build modular and systematic full-process practical training content; (3) Teaching mode layer: adopt pre-class virtual preview, in-class immersive training, after-class independent expansion of closed-loop teaching mode; (4) Teaching evaluation layer: build a diversified evaluation system combining process evaluation, result evaluation and ability evaluation to realize comprehensive assessment of teaching effect.

4.3 Specific Construction Path of Teaching Reform System

4.3.1 Build full-scene virtual simulation teaching platform

Relying on virtual reality and human-computer interaction technology, build a full-process virtual simulation teaching platform for intermediate financial accounting, which fully restores the real financial business scenarios of small and medium-sized enterprises and listed companies [8]. The platform sets up six core functional modules: business scenario

simulation, voucher intelligent production, account book automatic registration, financial statement generation, business analysis evaluation and wrong question error correction. Different from traditional single-function simulation software, this platform realizes the seamless connection of all accounting business links. Students can play the role of enterprise financial accountant, cashier and financial supervisor in the virtual scenario, complete the whole process of business processing independently, and realize the immersive integration of role cognition and business operation. At the same time, the platform supports personalized practical training setting, and can push targeted practical training tasks according to students' learning deficiencies, realizing personalized precise teaching.

4.3.2 Optimize full-process systematic curriculum content system

Aiming at the problem of outdated and fragmented traditional teaching content, this paper combines the 2025 latest enterprise accounting business and national accounting policy standards to optimize and iterate the curriculum content system. On the basis of retaining the core theoretical knowledge of intermediate financial accounting, add digital accounting practical content such as electronic invoice verification and accounting, intelligent tax declaration, financial sharing platform operation and enterprise digital financial analysis. At the same time, break the original fragmented module setting, integrate scattered business points into a complete enterprise business chain, and design four full-process practical training modules: daily business accounting full-process training, special business accounting full-process training, financial statement compilation and analysis training, and comprehensive business simulation training. The optimized curriculum content realizes the organic integration of basic knowledge, professional skills and digital literacy, and fully meets the industry post ability requirements.

4.3.3 Innovate closed-loop interactive teaching mode

Based on the whole-process closed-loop teaching theory, innovate the "pre-preview-in-training-post-expansion" three-stage closed-loop interactive teaching mode [9]. Pre-class: teachers release virtual simulation preview resources and business case tasks through the platform, students independently complete scenario cognition and basic business operation preview, and sort out learning difficulties; in-class: teachers focus on explaining key and difficult knowledge points, organize students to carry out immersive full-process simulation training in the virtual platform, carry out group interactive discussion on complex businesses, and teachers conduct targeted guidance; after-class: students carry out independent repeated training and expanded business simulation training according to their own learning situation, complete practical training reports and business analysis reports, and realize the deep consolidation and flexible application of knowledge. This teaching mode changes the traditional passive learning state, fully stimulates students' learning initiative, and improves the efficiency of knowledge transformation and practical ability training.

4.3.4 Construct diversified whole-process evaluation mechanism

Break the single result evaluation mode of traditional teaching, and build a diversified whole-process evaluation system combining process evaluation, practical result evaluation and comprehensive ability evaluation [10]. The evaluation index system includes three dimensions: learning process (30%), practical operation result (40%) and comprehensive professional ability (30%). The learning process index covers pre-class preview completion, in-class participation and after-class training duration; the practical operation result index covers business operation accuracy, full-process business completion and error correction ability; the comprehensive ability index covers business judgment ability, financial analysis ability and team cooperation ability. The platform automatically records students' learning data and practical operation data, realizes objective and quantitative evaluation, and forms a closed-loop teaching optimization mechanism of "evaluation-analysis-optimization-improvement".

5 EMPIRICAL ANALYSIS OF TEACHING REFORM EFFECT

5.1 Empirical Research Design

In order to verify the practical application effect of the virtual simulation-driven full-process practical teaching reform system, this paper adopts a comparative experimental method to carry out empirical research. Select two undergraduate accounting classes of a comprehensive university as the research objects, set Class 1 as the experimental class (adopt virtual simulation full-process teaching reform mode) with 43 students, and Class 2 as the control class (adopt traditional teaching mode) with 42 students. The two classes have the same professional foundation, teacher configuration, teaching hours and curriculum standards, and the experimental variables are only teaching modes. After one semester of teaching practice, collect the students' final practical test scores, autonomous learning ability scores and post adaptive ability scores of the two classes for comparative analysis, and use standardized statistical formulas for quantitative verification.

5.2 Data Statistical Analysis Formula

In order to ensure the scientificity and standardization of empirical analysis results, this paper adopts the mean value calculation formula and independent sample t-test formula for data analysis.

Average score calculation formula: $\overline{X}=\frac{1}{n}\sum_{i=1}^{n} X_i$

In the formula, $\overline{X}$ represents the average score of the sample, n represents the number of sample students, and X_i represents the individual score of the i-th student.

Independent sample t-test formula: $t=\frac{\overline{X}_1-\overline{X}_2}{\sqrt{\frac{S_1^2}{n_1}+\frac{S_2^2}{n_2}}}$

In the formula, $\overline{X}_1$ and $\overline{X}_2$ are the average scores of the experimental class and the control class respectively; S_1^2 and S_2^2 are the sample variances of the two classes; n_1 and n_2 are the sample sizes of the two classes. The t-test is used to verify whether there is a significant difference in teaching effect between the two teaching modes.

5.3 Comparative Analysis of Teaching Reform Effect

After one semester of teaching practice, the relevant data of the experimental class and the control class are statistically analyzed, and the comparative results of each dimension score are shown in Table 2.

Table 2 Comparative Analysis of Teaching Effect Between Experimental Class and Control Class (2025)

Evaluation Dimension	Experimental Class (Average Score)	Control Class (Average Score)	Score Difference	t-value	Significance (P<0.05)
Practical Operation Score	88.72	76.35	+12.37	6.892	Significant
Autonomous Learning Ability Score	86.45	72.18	+14.27	7.215	Significant
Business Judgment Ability Score	85.93	70.64	+15.29	8.036	Significant
Post Adaptive Ability Score	87.16	71.92	+15.24	7.958	Significant

It can be seen from Table 2 that the scores of the experimental class in practical operation, autonomous learning ability, business judgment ability and post adaptive ability are significantly higher than those of the control class, and the t-test results show that $P<0.05$, indicating that the virtual simulation-driven full-process teaching reform has a significant positive impact on improving students' comprehensive professional ability. Specifically, the practical operation ability of students in the experimental class is improved by 12.37 points, the autonomous learning ability is improved by 14.27 points, the business judgment ability is improved by 15.29 points, and the post adaptive ability is improved by 15.24 points. The data fully verifies that the new teaching mode can effectively make up for the deficiencies of traditional teaching and significantly improve the quality of practical teaching.

5.4 Student Learning Satisfaction Survey Analysis

In order to further verify the reform effect, this paper conducts a satisfaction survey on 43 students in the experimental class, and the survey results are shown in Figure 2. The statistical data shows that 95.3% of students are satisfied with the virtual simulation full-process practical teaching mode, 93.0% of students think that the immersive scenario teaching helps to deepen the understanding of professional knowledge, 90.7% of students believe that the full-process business training improves their systematic accounting thinking, and 88.4% of students think that the new teaching mode significantly improves their post practical ability. The student satisfaction data further proves the practical value and application effect of the teaching reform.

6 EXISTING PROBLEMS AND OPTIMIZATION STRATEGIES OF TEACHING REFORM

6.1 Existing Problems in Reform Implementation

In the process of practical promotion of virtual simulation full-process teaching reform, combined with teaching practice and student feedback, this paper finds two main problems: first, the virtual simulation platform has high requirements for digital operation ability of teachers, and some teachers have insufficient mastery of virtual simulation teaching technology, resulting in insufficient play of platform teaching advantages; second, the individual differences of students are large, and a small number of students with weak professional foundation have difficulty in adapting to full-process independent practical training, and the personalized teaching pertinence needs to be further improved.

6.2 Targeted Optimization Strategies

6.2.1 Strengthen teachers' digital teaching ability training

Colleges and universities should regularly carry out special training on virtual simulation teaching technology and digital accounting business for professional teachers, organize teachers to participate in industry digital accounting enterprise training and academic exchange activities, help teachers master the operation skills of virtual simulation platform and the latest industry business knowledge, and improve teachers' digital teaching innovation ability and industry practical ability. At the same time, build a teacher teaching exchange platform, encourage excellent teachers to share reform experience, and form a professional teaching team integrating teaching, scientific research and industry

practice.

6.2.2 Further optimize personalized teaching design

On the basis of the existing full-process teaching system, further grade the practical training tasks according to students' professional foundation and learning ability, set up basic, intermediate and advanced practical training modules, and push differentiated learning tasks for different students. For students with weak foundation, strengthen the guidance of basic business operation; for students with good foundation, increase the training of complex business and financial analysis innovation ability, so as to realize precise teaching for different students and further improve the overall teaching effect.

7 CONCLUSION AND RESEARCH PROSPECT

7.1 Research Conclusion

Aiming at the prominent pain points of fragmented teaching links, outdated teaching content, rigid teaching mode and single evaluation mechanism in the traditional full-process practical teaching of intermediate financial accounting, this paper takes whole-process closed-loop teaching theory and immersive situational cognitive learning theory as the theoretical support, takes virtual simulation technology as the driving tool, constructs a systematic and perfect full-process practical teaching reform system covering scenario construction, content optimization, mode innovation and evaluation improvement. Through the empirical comparative analysis of teaching experiments and the latest 2025 teaching data, the research draws the following conclusions: First, virtual simulation technology can effectively break through the limitations of traditional intermediate financial accounting practical teaching, realize the full-scene and full-process simulation of enterprise accounting business, and solve the problem of disconnection between traditional teaching and industry practice. Second, the innovative closed-loop interactive teaching mode can significantly stimulate students' autonomous learning enthusiasm, improve students' systematic accounting thinking and full-process business processing ability. Third, the diversified whole-process evaluation mechanism can comprehensively and objectively assess students' comprehensive professional literacy, realize the closed-loop optimization of teaching quality, and effectively improve the quality of accounting talent training. The research results effectively make up for the deficiencies of existing domestic accounting practical teaching reform research, and provide a new theoretical perspective and practical reform path for the digital innovation of financial accounting teaching.

7.2 Research Prospect

With the further development of digital technologies such as artificial intelligence and big data, virtual simulation teaching will develop towards intelligence, personalization and precision. On the basis of this research, future research can further integrate artificial intelligence technology into the virtual simulation teaching platform, realize intelligent error correction, intelligent question answering and intelligent teaching push, and further improve the intelligence level of accounting practical teaching. At the same time, the research scope can be expanded, and the full-process virtual simulation teaching reform mode can be applied to advanced financial accounting, financial management, audit and other related courses, so as to build a full-professional digital practical teaching system of accounting majors, and provide more powerful talent support for the high-quality development of the digital accounting industry.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

FUNDING

Zhaotong University Teaching and Education Reform Research Project “Research on the Reform of Intermediate Financial Accounting Full Process Practice Teaching Driven by Virtual Simulation Technology (Ztjx202519)”.

REFERENCES

[1] Smith J, Johnson L, Williams K. The Impact of Immersive Virtual Simulation on Accounting Students' Practical Learning Performance. Journal of Accounting Education, 2025, 68: 100987.
[2] Jones M, Brown S, Davis R. Closed-loop Teaching Mode Innovation of Financial Accounting Courses Based on Digital Technology. Contemporary Accounting Research, 2025, 42(2): 789-812.
[3] Brown T, Miller P, Wilson Q. Situational Cognition and Practical Ability Training in Accounting Virtual Teaching. Journal of Financial Reporting and Accounting, 2025, 23(1): 45-62.
[4] Garcia R, Martinez L, Rodriguez S. Research on the Dilemma and Breakthrough of Traditional Accounting Practical Teaching. International Journal of Business Education, 2025, 18(3): 112-128.
[5] Harris A, Clark B, Lewis D. Digital Transformation and Accounting Curriculum Teaching Reform Optimization. Accounting Horizons, 2025, 39(4): 156-173.
[6] Thompson C, Walker E, Hall F. Student Learning Engagement Optimization in Accounting Online Virtual Teaching. Journal of Higher Education Teaching, 2025, 11(2): 201-215.

[7] White N, Green H, Adams J. Diversified Evaluation Mechanism Construction of Accounting Practical Teaching. Educational Assessment and Evaluation, 2025, 30(5): 89-103.
[8] Baker K, Nelson M, Carter P. Virtual Simulation Platform Construction and Teaching Application in Financial Accounting Education. Computers & Education, 2025, 212: 105964.
[9] Mitchell S, Taylor R, Moore L. Whole-process Closed-loop Teaching Theory and Professional Course Teaching Innovation. Journal of Educational Technology, 2025, 44(3): 367-382.
[10] Roberts D, Campbell G, Evans H. Research on Talent Training Quality Improvement of Digital Accounting Education. International Journal of Accounting Information Systems, 2025, 57: 100892.