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Research on the BOPPPS-Based Teaching Model for Accounting Majors under the Background of Digital Transformation in Talent Cultivation

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Abstract: The rapid advancement of the digital economy has driven profound transformations in the finance and accounting industry, shifting toward paperlessness, real-time processing, intelligence, and business-finance integration. Consequently, the market urgently demands interdisciplinary accounting talents with solid professional foundations, digital application skills, and comprehensive problem-solving capabilities. As social development accelerates the digital transformation of accounting and auditing, fostering the digital literacy of financial and accounting talent has become a critical task for the industry. However, traditional accounting instruction remains predominantly teacher-centered which means insufficient preparation, fragmented activities, and weak feedback, resulting in a mismatch between talent supply and industry demands. As a student-centered closed-loop model, BOPPPS which comprises Bridge-in, Objective, Pre-assessment, Participatory Learning, Post-assessment, and Summary, is well-suited for reforming accounting education. Against the backdrop of digital transformation, this paper analyzes current educational dilemmas using domestic industry statistics and explains the adaptive logic of the BOPPPS model. It constructs a tripartite teaching implementation framework for accounting majors: "pre-class online preparation, in-class blended implementation, and post-class extension and enhancement." Furthermore, the study improves a diversified evaluation system of process and outcome assessment, and proposes strategies to ensure effective delivery. The aim is to address instructional pain points, enhance students' digital literacy, practical skills, and innovative collaborative capabilities, ultimately achieving effective alignment between university-level accounting talent cultivation and digital industry demands.

Keywords: Digital Transformation; Accounting Major; BOPPPS Teaching Model; Talent Cultivation; Digital Literacy

1. Introduction

With the accelerated development of the digital economy, digital transformation drives comprehensive changes in production and governance methods. The widespread adoption of "big data, artificial intelligence, RPA financial robots, cloud computing, and other next-generation information technologies" has triggered a functional restructuring of the accounting industry. Traditional bookkeeping and accounting roles are gradually being replaced by intelligent tools, shifting the focus of financial work toward data analysis, risk control, business-finance integration, and strategic decision support. Consequently, enterprises' competency requirements for accounting professionals have evolved from pure accounting skills to a composite capability structure encompassing "finance + big data + practical application" [1]. Industry research indicates that by the end of 2025 the number of personnel holding junior accounting qualifications will exceed 9 million, intermediate qualifications will exceed 3 million, and senior qualifications will exceed 250,000. Simultaneously, it emphasizes the priority of cultivating a composite accounting talent pool proficient in accounting, business operations, and information technology [2]. While it also indicates that China's shortage of digital accounting professionals has surpassed 1.2 million, with annual demand growth rates for big data financial analysis and intelligent tax management roles reaching 28%. However, the alignment rate between the supply of university accounting graduates and corporate job requirements remains below 40%, highlighting

a pronounced structural contradiction in talent supply [3].

As the primary arena for cultivating accounting professionals, universities must implement teaching reforms in response to industry transformations. Based on years of frontline teaching observations in accounting programs, many universities continue to adhere to traditional teaching paradigms. Classroom instruction remains predominantly characterized by one-way knowledge transmission from instructors, emphasizing theoretical memorization over practical training, prioritizing in-class lectures while neglecting pre-class diagnostic preparation and post-class consolidation and extension. Teaching activities are often designed in a fragmented manner, lacking closed-loop feedback mechanisms. As a result, students passively receive knowledge, and their digital thinking, teamwork capabilities, and ability to solve real-world business problems are insufficiently exercised, leading to a clear mismatch between the quality of talent cultivation and the demands of digital enterprise positions. Existing survey data reveal that 85.51% of university accounting instructors identify insufficient digital technology competence among teaching staff as the primary obstacle to digital teaching reform, while 44.90% of institutions face challenges related to shortages of practical training platforms and digital teaching resources [3].

The BOPPPS teaching model, originating from the University of British Columbia in Canada, is a goal-oriented instructional design framework that emphasizes student classroom participation and continuous closed-loop improvement. It decomposes teaching into six stages: Bridge-in, Objectives, Pre-assessment, Participatory Learning, Post-assessment, and Summary. Relevant international educational research has similarly confirmed that participatory closed-loop instructional designs represented by BOPPPS can significantly enhance business students' classroom engagement and comprehensive professional competencies, thereby bridging the gap between institutional teaching and workplace skill requirements [4]. Integrating the BOPPPS model into accounting education, combined with digital teaching tools such as Xuexitong, Rain Classroom, and financial shared service training platforms, enables the reconstruction of the entire pre-class, in-class, and post-class instructional design process. This approach can address the pain points of traditional accounting instruction, shift the teaching paradigm from "instructor-centered" to "student-centered," and cultivate students' professional capabilities, digital literacy, and innovative collaboration skills. Drawing upon teaching practice observations, publicly available industry statistics, and existing educational reform research findings, this paper investigates the adaptation pathways, implementation procedures, evaluation systems, and safeguard strategies for applying the BOPPPS model in accounting courses, aiming to provide practical references for the digital transformation of accounting education.

2. Related Concepts and Theoretical Foundations

2.1 The Connotation of Digital Transformation in Talent Cultivation

The digital transformation of talent cultivation is not merely about introducing multimedia and online platform tools into the classroom. Rather, it represents a systematic [1] reshaping of talent cultivation objectives, curriculum systems, teaching methods, practical training, faculty development, and assessment and evaluation mechanisms, all oriented toward the demands of industrial positions in the digital economy era [5].

In the field of accounting, the digital transformation of talent cultivation encompasses three layers of meaning. First, the digitalization of cultivation objectives: talent development shifts from producing bookkeeping-oriented accountants to cultivating composite professionals who possess accounting expertise, proficiency in digital tools, business-finance integration thinking, and data mining and analysis capabilities. This transformation emphasizes the cultivation of students' digital literacy, requiring them to skillfully utilize advanced Excel functions, Python, financial shared service systems, RPA robots, and other tools to handle financial operations. Second, the digitalization of the teaching process: leveraging online teaching platforms and virtual simulation training systems to connect the entire chain of pre-class preparation, in-class interaction, and post-class extension. This enables blended online-offline instruction and enriches digital teaching

resources such as case studies, micro-lectures, and virtual simulation projects. Third, the digitalization of the evaluation system: moving beyond the traditional outcome-based assessment that determines final grades solely through end-of-term examinations. By collecting learning behavior data through platforms, process-based evaluations are implemented to multidimensionally measure students' comprehensive development in professional knowledge, practical skills, teamwork, and innovative thinking. In the context of digital transformation, accounting professionals require not only solid foundations in accounting standards and tax laws but also data thinking, lifelong learning awareness, and data security ethics to adapt to the continuous iteration of job requirements. As noted in the research by Toumeh et al., the degree of integration of digital accounting tools in teaching directly affects the job readiness of accounting graduates. Merely increasing software instruction hours without reconstructing a complete instructional closed loop is unlikely to genuinely enhance students' digital competencies [4].

2.2 Core Connotation of the BOPPPS Teaching Model

The BOPPPS instructional model, proposed by scholar Douglas Kerr, has been widely adopted in North American universities. This model divides a single teaching unit into six logically progressive modules, forming a complete closed-loop instructional chain [6]. The names and contents of the six modules are shown in Table 1.

Table 1. Names and Contents of the Six Modules

Names	Contents
Bridge-in (B)	Using materials such as industry cases, current news highlights, practical stories, and paradoxical questions to capture students' attention, establish connections between prior and new knowledge, stimulate students' interest and desire for learning, and clarify the practical value of the chapter's content.
Objectives (O)	Clearly informing students of the knowledge, competency, and quality objectives to be achieved in the lesson. Objective descriptions follow the principles of observability and measurability, enabling students to understand "what to learn and what they will be able to do after learning," thereby establishing clear learning expectations.
Pre-assessment (P)	Before formal instruction begins, diagnosing students' existing knowledge reserves through objective exercises, topic discussions, questionnaires, and other methods. This allows instructors to grasp the learning situation and dynamically adjust the key and difficult points of classroom instruction as well as the teaching pace, while students can also self-assess the effectiveness of preview.
Participatory Learning (P)	This is the core component of the BOPPPS model. Moving away from one-way instructor lecturing, it comprehensively employs group discussions, sandbox simulations, case inquiries, project-based practical operations, flipped classrooms, and other formats to guide students in active participation and collaborative inquiry. Through interactive practice, students internalize knowledge and develop their ability to solve real-world problems.
Post-assessment (P)	After classroom instruction concludes, evaluating students' in-class learning outcomes through exercises, practical training tasks, case analysis reports, and other methods. By comparing results against preset teaching objectives, instructors can determine the extent of objective achievement and identify students' knowledge gaps.
Summary (S)	The instructor reviews the key and difficult points of the lesson, while students engage in self-reflection and review. Simultaneously, based on feedback from pre-assessment and post-assessment, extended learning tasks are assigned to connect with the next class session, thereby forming an instructional closed loop.

The core characteristics of the BOPPPS model are its student-centered orientation, goal-driven approach, emphasis on learning situation diagnosis, focus on interactive participation, and commitment to continuous closed-loop iteration. It is not confined to the 45-minute classroom period but can be extended to pre-class online preparation and post-class consolidation phases, making it highly compatible with blended online-offline instruction. It is well-suited for various course scenarios, including accounting theory courses, financial shared service training, accounting information systems, and practical Excel operations for accounting. Although applying the BOPPPS model to business education can

significantly enhance student classroom engagement and improve knowledge internalization [7], teaching practice reveals that mechanically applying the six-step template without localized adaptation to course characteristics will result in reform outcomes far below expectations.

2.3 The Adaptive Logic of Applying the BOPPPS Model to Accounting Education

In the context of digital transformation, accounting courses are characterized by both theoretical depth and strong practical orientation. Based on pilot educational reforms in financial shared service training and financial management courses, the BOPPPS teaching model demonstrates a high degree of compatibility with the teaching reform needs of accounting programs [8].

2.3.1 Alignment with compound accounting talent training objectives

Digital-era accounting talent requires students not merely to memorize theoretical provisions but also to possess practical, analytical, and collaborative capabilities. BOPPPS emphasizes participatory learning, integrating abstract accounting theories with real enterprise business scenarios through group projects, sandbox training, and case discussions. This approach achieves multidimensional cultivation objectives encompassing knowledge, competencies, and qualities, while incorporating curriculum ideology and politics to shape students' professional ethics and social responsibility.

2.3.2 Adaptation to features of accounting courses

Accounting course content is fragmented, with much of the material requiring comprehension within business contexts. The Bridge-in phase can cite real enterprise financial digitalization cases to stimulate interest; Pre-assessment can diagnose students' mastery of foundational accounting and financial principles; the Participatory Learning phase can conduct practical operations and business process reengineering exercises; and Post-assessment can verify mastery of both practical skills and theoretical knowledge, thereby comprehensively covering the entire teaching and learning process of accounting courses.

2.3.3 Conformity to hybrid digital teaching reform trend

The six components of BOPPPS can be distributed across online and offline settings. Pre-class bridge-in activities, micro-lecture previews, and pre-class quizzes can be completed via platforms such as Xuexitong and training systems; offline classroom time can focus on discussions and practical training; and online platforms can handle post-class assignments, Q&A, and summaries, thereby addressing the shortcomings of traditional instruction in pre-class and post-class phases.

2.3.4 Satisfaction with closed-loop teaching evaluation reform needs

BOPPPS pre-assessments, post-assessments, and classroom participation outputs provide quantifiable data materials for process-based assessment, facilitating the construction of a diversified "process-based + outcome-based" evaluation system and changing the current situation in accounting courses where excessive weight is placed on end-of-term written examinations while routine competency assessment is neglected.

3. Current Problems in Accounting Education under the Background of Digital Transformation

Based on existing research findings on accounting education reform, the ACCA University Accounting Education Survey Report, and classroom observations as a frontline accounting instructor, universities currently face numerous practical dilemmas in teaching objectives, instructional processes, practical training, assessment and evaluation, and faculty development when responding to the demand for digital talent transformation in accounting programs [9].

3.1 Misalignment between Talent Cultivation Objectives and Digital Job Requirements

The talent cultivation plans of some accounting majors are lagging in updates, with talent positioning still biased toward traditional bookkeeping-oriented accounting, and insufficient emphasis on digital literacy and business-finance integration capabilities. In terms of curriculum design, traditional bookkeeping courses such as Basic Accounting and Intermediate Financial Accounting account for a relatively high proportion, while digital courses such as Financial Shared Services, Big Data Financial Analysis, Python Financial Applications, and RPA Financial Robots are inadequately offered. Accounting professional

courses and information technology courses remain fragmented, lacking interdisciplinary and integrated course modules. According to survey statistics, only 48% of universities nationwide have offered Big Data Financial Analysis courses, with digital-related instructional hours accounting for an average of only 18%; while over 85% of large-scale enterprises have deployed RPA financial robots, fewer than 28% of universities have incorporated corresponding teaching content [3]. Students master traditional skills such as journal entry preparation and financial statement compilation, but when facing enterprise financial shared service business processes and financial data analysis tasks, they lack digital thinking and struggle to integrate professional knowledge with digital tools. This creates a gap between their capabilities and the competency requirements for positions such as intelligent financial analysts and business-finance integration specialists that enterprises demand.

3.2 Fragmented Traditional Classroom Instructional Processes Lacking Closed-Loop Instructional Design

Traditional accounting instruction primarily focuses on in-class instructor lecturing, neglecting pre-class preparation and post-class extension, resulting in a broken instructional chain. Before class, there is a lack of systematic preview tasks, and instructors do not conduct learning situation diagnostics. In many cases, instructors proceed directly to new content delivery without being able to assess students' mastery of prerequisite knowledge, leading to inaccurate identification of key and difficult teaching points. Without prior familiarity with concepts, the efficiency of group practical training and case discussion activities is significantly reduced. Classroom activities originally planned for 10 minutes often consume 15 to 20 minutes merely for students to become familiar with basic concepts, substantially diminishing the effectiveness of practical training and discussions.

At the classroom level, although many courses have introduced case-based teaching and group discussions, activity design remains fragmented and largely serves as embellishments to instructor lectures. Participatory tasks are not systematically designed around clear learning objectives, and the classroom continues to be instructor-dominated, with students passively listening. Some practical training courses merely require students to complete software operations step by step, lacking open-ended inquiry tasks. Students mechanically complete operations without receiving training in problem analysis and business process reengineering. In the post-class phase, the absence of a unified online teaching platform support results in Q&A being scattered across WeChat, QQ, Xuexitong, and other channels, leading to repetitive instructor responses and inefficient feedback. Post-class assignments are predominantly simple exercises, lacking project-based and inquiry-based tasks. There is an absence of review and summary of classroom content, failing to extend classroom learning beyond class hours and making it difficult to achieve knowledge internalization and consolidation. The entire instructional process fails to form a closed- loop mechanism of "preview – diagnosis – learning – assessment – review and improvement," which is a practical pain point I frequently encounter in daily teaching [6].

3.3 Lagging Practical Training Scenarios and Insufficient Digital Literacy Cultivation

Practical training is crucial for cultivating students' operational capabilities in accounting majors, but current practical training exhibits significant shortcomings. On-campus training platforms are outdated, with some institutions still relying primarily on traditional computerized accounting software. There is insufficient development of financial shared service sandboxes, intelligent audit systems, and big data financial analysis simulation platforms, leaving students without immersive digital business scenario training. Regarding off-campus internships, university-enterprise cooperation often remains at the level of framework agreements. Approximately 90% of university-enterprise collaborations are limited to graduation internships, where students primarily engage in basic tasks such as document organization and voucher entry. They rarely have access to core digital businesses such as financial shared service construction and data governance, meaning practical training fails to achieve the cultivation objectives for composite talent[3]. Teaching cases are updated slowly, predominantly relying on traditional manufacturing industry accounting cases, and

lacking authentic business-finance integration cases from enterprises undergoing digital transformation. Consequently, students find it difficult to develop digital financial thinking.

3.4 Monotonous Assessment and Evaluation Methods, Unable to Measure Comprehensive Competencies

Many accounting course assessments continue to prioritize end-of-term written examinations as the core, with low weighting for routine performance and simplistic evaluation dimensions, largely relying on attendance records and paper-based assignments for judgment. The ACCA survey shows that 71.42% of university accounting courses still use final examinations as the primary assessment method, while the weighting for virtual simulation training and group collaborative presentation assessments is generally low. This outcome-oriented assessment emphasizes theoretical memorization and struggles to evaluate students' practical proficiency with digital tools, group collaboration capabilities, business analysis, and innovative thinking. Process-based data is not fully utilized; student learning outputs such as pre-class preparation, classroom discussions, practical training projects, and online discussions cannot be incorporated into a comprehensive evaluation system. This makes it difficult to achieve the goals of promoting teaching through assessment and promoting learning through assessment, and fails to comprehensively measure the degree of achievement of digital talent cultivation objectives.

3.5 Instructors' Digital Teaching Competencies Require Enhancement

In the context of digital transformation, accounting instructors need to possess both solid accounting professional foundations and digital technology application capabilities, while also mastering modern instructional design methods. However, some current accounting instructors enter teaching directly after graduating from universities, lacking practical experience in enterprise financial digitalization projects. Surveys indicate that fewer than 30% of domestic accounting instructors are "dual-qualified" professionals possessing both accounting backgrounds and digital practical experience, with many instructors having limited understanding of financial shared services, RPA, and big data financial analysis practices [3]. Insufficient digital teaching training results in superficial understanding of innovative teaching models such as BOPPPS, making it difficult to integrate digital technologies and authentic enterprise business cases into course design, thereby constraining the implementation of digital teaching reforms.

4. Construction of the BOPPPS-Based Teaching Model for Accounting Majors

Addressing the practical pain points in accounting education and aligning with the requirements of digital talent cultivation, this paper draws on the author's pilot course experience to expand the six components of BOPPPS into three major phases: pre-class online preparation, in-class blended online-offline implementation, and post-class extension and sublimation. Leveraging digital tools such as Xuexitong, financial shared service training platforms, and Rain Classroom, a complete implementation framework for accounting education is constructed, accompanied by a diversified teaching evaluation system [8]. The overall implementation logic is shown in Table 2.

Table 2. Names and Contents of the Overall Implementation Logic

Names	Contents
Pre-class (Online)	Bridge-in (B), Objectives (O), Pre-assessment (P)
In-class (Blended Online-Offline)	Participatory Learning (P), Post-assessment (P), In-class Summary (S_1)
Post-class (Combined Online-Offline)	Post-class Summary and Extension (S_2), Assignment Consolidation, Feedback Iteration

4.1 Pre-Class Online Preparation Phase: Bridge-in (B), Objectives (O), Pre-Assessment (P)

The pre-class phase is primarily conducted through online teaching platforms to address the pain points of traditional instruction – namely, the lack of preview activities and unclear learning situations – thereby laying the groundwork for in-class teaching. As the course instructor, in the teaching pilot, all pre-class activities were implemented via Xuexitong, shifting certain teaching tasks online to release

offline classroom time for inquiry-based learning and practical operations.

4.1.1 Bridge-in (B): stimulating learning motivation through digital materials

Instructors can upload industry digitalization highlights, authentic enterprise cases, industry news, and short video micro-lectures as bridge-in materials to the online platform. For example, in a Financial Shared Services training course, news regarding domestic enterprises' financial shared service construction or clips from the "Top Ten Information Technologies Affecting Chinese Accounting Practitioners" launch event can be selected as bridge-in content. In Financial Management courses, contrasting operational cases from enterprises within the same industry can be presented with heuristic questions to guide student reflection, stimulate professional interest, and simultaneously integrate curriculum ideology and politics to cultivate national confidence and professional responsibility in accounting. Beyond case materials, instructors may also organize group competitions, guiding students to deconstruct key and difficult chapter concepts into micro-lecture videos. Preview task lists are assigned to encourage students to independently watch micro-lectures and read case materials, thereby completing pre-class preparation while fostering autonomous learning interest.

4.1.2 Objectives (O): multidimensional clarification of teaching objectives

Based on an analysis of competency gaps in digital accounting talent, instructors define unit learning objectives across four dimensions: knowledge, competency, quality, and ideological-political goals, with clearly measurable descriptions. Knowledge objectives focus on theoretical concept comprehension; competency objectives emphasize digital practical operations, business analysis, and process reengineering capabilities; quality objectives concern teamwork and autonomous learning; and ideological-political objectives embed accounting professional ethics, data compliance awareness, and social responsibility. For instance, unit objectives for a Financial Shared Services training course might include: Knowledge objective – understand the principles of expense sharing business processes; Competency objective – complete expense sharing sandbox simulations and configure/test business processes on the training platform; Quality objective – enhance group collaboration, communication, and business-finance integration analysis capabilities; Ideological-political objective – establish integrity and compliance awareness in financial work. Instructors publish learning objectives online, enabling students to receive them, establish personal learning expectations, and lay the foundation for subsequent learning.

4.1.3 Pre-assessment (P): conducting learning situation diagnostic analysis

Instructors set up pre-class assessments on the online platform, primarily consisting of objective questions (multiple-choice and true/false), supplemented by topic discussions. Assessment content covers prerequisite accounting knowledge and foundational concepts required for the new unit. For example, before studying expense sharing, students are tested on foundational expense accounting knowledge points. Simultaneously, discussion topics such as "What types of enterprises are suitable for establishing expense sharing centers?" are posted. Upon completion of tests and discussions, the platform automatically grades submissions and generates learning situation analysis reports. Instructors use these reports to identify students' knowledge gaps and dynamically adjust in-class teaching priorities and practical task difficulty. Students can also identify their own knowledge deficiencies through pre-assessment, entering the classroom with targeted questions. At the conclusion of the pre-class phase, instructors complete learning situation evaluations, providing a solid basis for the effectiveness of in-class instructional design.

4.2 In-Class Blended Implementation Phase: Participatory Learning (P), Post-Assessment (P), In-Class Summary (S_1)

The in-class phase represents the core implementation stage of the BOPPPS model, adopting a blended online-offline approach that integrates theoretical lectures, group discussions, sandbox simulations, platform-based practical operations, and outcome presentations. Classroom practice has gradually revealed that participatory learning should not pursue superficial engagement but rather closely align with preset teaching objectives, maximizing the stimulation of students' autonomous learning interest and self-discipline.

4.2.1 Participatory learning (P): conducting inquiry-based practical teaching through diverse

formats

Participatory learning is the most critical component of the BOPPPS model. Instructors design classroom activities based on pre-class learning situation analysis, moving away from one-way knowledge transmission. Different accounting course types warrant differentiated activity formats. For practical training courses such as Financial Shared Services and Accounting Information Systems, group projects, sandbox simulations, rotational practical operations, and outcome presentations are employed. Taking the expense sharing chapter as an example, after completing foundational theoretical explanations, the instructor implements a flipped classroom. Students are divided into groups to conduct sandbox simulations of expense sharing process reengineering proposals, complete process configuration and travel expense business testing on the financial shared service training platform, and create PPT presentations to showcase their proposals. The instructor provides commentary, thereby training students' teamwork, process design, and digital practical operation capabilities. For theory-oriented courses such as Financial Statement Analysis and Financial Management, case inquiry tasks can be set, providing authentic enterprise financial data for groups to complete profitability and solvency analyses, produce analysis reports, and conduct classroom debates and presentations. For practical Excel courses in accounting, instructors deliver focused instruction on key function operations, assign practical tasks for student practice, invite students to demonstrate operations at the front of the class, and jointly review common errors with students while sharing efficient methods for processing financial data. Throughout the participatory learning process, the instructor's role shifts to that of a facilitator, circulating to answer questions and guide active thinking rather than directly providing standard answers, with an emphasis on training students' ability to analyze and solve practical accounting problems.

4.2.2 Second, post-assessment (P): in-class verification of learning effectiveness

Following participatory learning activities, an in-class post-assessment is conducted to verify the achievement of classroom objectives. Different testing methods are selected according to course attributes: theory courses employ 3–5 objective questions and brief case analysis questions, while practical training courses assign short practical tasks. After completing the assessment, students self-check their learning effectiveness against the pre-set learning objectives. Instructors quickly identify common knowledge gaps among students based on post-assessment results, enabling timely remediation. Post-assessment results also serve as a component of process-based evaluation.

4.2.3 In-class summary (S_1): classroom review and teaching feedback

The final 5–10 minutes of class are reserved for in-class summary. Instructors use mind maps to outline the knowledge framework of the session and distill key and difficult teaching points. Students are guided to independently review the classroom learning process, reflect on problems encountered during practical training and case inquiries, and adjust their learning approaches. Simultaneously, online questionnaire tools are used to collect student feedback on instructional design and classroom activities, gathering suggestions to provide a basis for optimizing the next class session's instructional design [1].

4.3 Post-Class Extension and Sublimation Phase: Post-Class Summary and Extension (S_2)

The post-class phase conducts S_2 post-class summary and extension to close the instructional loop, achieving knowledge internalization and capability extension. Instructors assign differentiated post-class tasks via online teaching platforms according to course type. Theory courses are assigned case analysis reports and short papers, while practical training courses are assigned comprehensive practical training projects. For commonly encountered difficulties in assignments, explanatory micro-lectures are recorded and uploaded to the platform for students to review repeatedly. Students complete assignment tasks after class, consult extended materials, consolidate classroom knowledge, and broaden their extracurricular perspectives. Online platforms open discussion areas where students can post questions, and instructors provide centralized responses, addressing the drawbacks of fragmented Q&A via social messaging apps [6].

Instructors synthesize all information – including pre-class pre-assessment results, in-class participation performance, in-class post-

assessment results, post-class assignments, and student questionnaire feedback – to conduct teaching reflection. This enables the adjustment of bridge-in materials, learning objectives, and classroom task difficulty for the next teaching unit, achieving continuous iterative optimization of instructional design. The BOPPPS model is not a rigid template; instructors dynamically adjust the time allocation for each phase based on learning situations. In practice, theory courses generally emphasize case discussions, while practical training courses emphasize practical projects.

4.4 Construction of a Diversified "Process-based + Outcome-based" Teaching Evaluation System

To ensure the effective implementation of the BOPPPS model, accounting course assessments must be reconstructed, abandoning sole reliance on end-of-term written examinations in favor of a multidimensional evaluation model combining "process-based evaluation + outcome-based evaluation." This approach balances knowledge mastery, practical skills, digital literacy, teamwork, and innovative capabilities while introducing multi-stakeholder evaluation. Based on teaching practice, the weight of transforming the previous assessment pattern process-based evaluation is set at 50%–65%, and outcome-based evaluation at 35%–50%, dominated by final examination papers, relevant contents are shown in Table 3.

Table 3. Names and Contents of all Evaluations

Names	Contents
Process-based Evaluation (50%–65% of total grade)	Evaluation dimensions include: 1) Learning Attitude Dimension: Online platform micro-lecture viewing duration, discussion forum posts and replies. 2) Knowledge Mastery Dimension: Pre-class pre-assessment scores, in-class post-assessment scores. 3) Competency Output Dimension: Quality of group project completion, sandbox training reports, classroom presentation performance, and post-class assignment completion. Most process-based evaluation data can be automatically collected by online teaching platforms, reducing instructors' statistical burden.
Outcome-based Evaluation (35%–50% of total grade)	Comprehensive end-of-term assessment, not limited to paper-based examinations, flexibly configured according to course attributes. Theory courses may adopt a combination of written examinations and case analysis reports; practical training courses may employ comprehensive practical training projects, PPT presentations, and complete business proposal reports, focusing on assessing students' ability to comprehensively apply accounting and digital tools to solve business problems.
Diversification of Evaluation Stakeholders	Evaluation stake-holders include instructor evaluation, student self-assessment, and peer assessment within groups. For university-enterprise collaborative courses, enterprise mentor evaluation of student practical training project outcomes can be introduced. Student self-assessment evaluates personal gains against learning objectives; peer assessment evaluates individual contributions to team collaboration; instructors provide professional competency scores; and enterprise mentors offer evaluation perspectives from practical job positions.

This diversified evaluation system can comprehensively verify the achievement of accounting course teaching objectives in the digital context. Evaluation results drive the continuous optimization of teaching phases in reverse, truly realizing the goals of "promoting learning through assessment, promoting teaching through assessment, and promoting reform through assessment."

5. Safeguard Strategies for the Implementation of the BOPPPS Model in Accounting Education

The BOPPPS teaching model reconstructs the entire instructional process. To achieve the desired reform outcomes, it is essential to provide supporting safeguards at the levels of faculty development, course resource construction, industry-education integration, and teaching management systems. These constitute the practical external conditions that instructors must address when undertaking curriculum reform [9].

5.1 Building a Digitally Competent, Composite Accounting Faculty

Instructors are the key to the successful implementation of teaching reform. First, optimize faculty recruitment by attracting talent with interdisciplinary backgrounds in both accounting and information technology. Flexibly appoint enterprise financial

digitalization experts and financial shared service center practitioners as adjunct instructors to participate in course delivery, bringing authentic frontline enterprise cases and business scenarios into the classroom. Second, establish routine faculty training programs, organizing accounting instructors to attend specialized training sessions on the BOPPPS teaching model, blended instructional design, big data finance, and financial robotics. Encourage instructors to undertake temporary positions in enterprise finance departments and participate in corporate financial digital transformation projects to accumulate practical case materials, thereby converting enterprise business practices into classroom teaching resources. Third, form course teaching teams by fostering collaborative lesson planning between accounting instructors and computer data analysis instructors, jointly developing integrated courses to enhance instructors' interdisciplinary instructional design capabilities.

5.2 Developing Courses and Teaching Resources Aligned with Digital Transformation

First, optimize the accounting curriculum system by aligning it with the competency requirements of digital positions. On the foundation of traditional accounting courses, add courses such as Financial Shared Services Training, Financial Big Data Analysis, Python Financial Applications, and Intelligent Auditing. Construct a curriculum matrix comprising "Accounting Core Modules + Digital Technology Tool Modules + Comprehensive Practical Modules" to break down the fragmentation between accounting courses and information technology courses[5]. Second, enrich digital teaching resources by organizing instructors to record micro-lectures and collect authentic enterprise digital transformation cases to build a case resource library. Upgrade on-campus practical training facilities by improving financial shared service simulation platforms and big data financial analysis laboratories, providing sandbox simulations and virtual business scenarios to offer hardware support for the participatory learning components of the BOPPPS model.

5.3 Deepening Industry-Education Integration to Facilitate University-Enterprise Collaborative Talent Cultivation

Industry-education integration can address the issues of teaching cases being detached from practice and the insufficiency of practical training scenarios. Schools should co-establish practical training bases with digital finance enterprises, with enterprises providing authentic business cases related to financial shared services and business-finance integration. Universities and enterprises should jointly develop courses and compile textbooks, integrating job competency requirements into each teaching phase of the BOPPPS model. Implement a dual-mentor system, whereby enterprise mentors participate in guiding classroom projects and transform authentic enterprise business tasks into classroom group assignments. Encourage students to participate in practical training involving real enterprise projects to bridge the gap between on-campus simulated training and actual professional work, ensuring that the participatory learning within the BOPPPS model aligns with genuine job requirements [10].

5.4 Improving Teaching Management Systems to Support Teaching Model Reform

At the institutional level, teaching management systems must provide policy support for BOPPPS teaching reform. First, adjust the calculation methods for course workload. The BOPPPS model requires instructors to invest significant time in producing micro-lectures, designing pre-class tasks, and organizing classroom project discussions. It is necessary to recognize the workload associated with pre-class and post-class instructional design to motivate instructors' enthusiasm for reform. Second, reform course assessment management systems by allowing accounting practical and applied courses to increase the weighting of process-based assessments and support diverse forms of end-of-term assessments, rather than being limited to closed-book written examinations. Third, establish a curriculum reform feedback mechanism by conducting teaching supervision. Provide guidance through classroom observations of BOPPPS implementation, organize teaching research exchanges among instructors to share experiences in applying the BOPPPS model to accounting courses, and continuously optimize instructional design.

6. Conclusion

In the era of the digital economy, the accounting industry is undergoing functional reshaping. Traditional one-way indoctrination teaching models can no longer meet the demands for cultivating composite accounting talent, making the digital transformation of accounting talent cultivation in higher education institutions imperative. This paper constructs a BOPPPS-based teaching implementation framework for accounting majors. Relying on online teaching and practical training platforms, the framework completes bridge-ins, objective clarification, and pre-assessment before class; focuses on participatory inquiry-based learning, in-class effectiveness testing, and timely review during class; and extends and consolidates knowledge after class, forming a complete closed-loop teaching process. Simultaneously, it is accompanied by a diversified "process-based + outcome-based" evaluation system, along with implementation safeguard strategies concerning faculty, teaching resources, industry-education integration, and management systems. This approach effectively mobilizes students' subjective initiative, enhances their professional knowledge, digital practical capabilities, business-finance integration thinking, teamwork, and innovative abilities, thereby promoting effective alignment between talent cultivation and digital job requirements. However, BOPPPS should not be mechanically copied as a rigid template. Given the varying nature of different accounting courses, time allocation and activity formats for each phase should be flexibly adjusted for theoretical versus practical training courses.

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