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Exploration of Teaching Reform in Practical Training Courses for Finance Majors in Higher Vocational Education under the New Business Education Background: Based on the "PBL + Multi-Role Interactive" Model

Yun Jiang*
School of Economics and Management, Shanghai Zhongqiao Vocational and Technical University, Shanghai 200000, China

****Author to whom correspondence should be addressed.***

Abstract: Against the backdrop of new business education construction, practical training courses for finance majors in higher vocational colleges face higher demands for teaching practice and value-oriented education. This paper takes the practical training course "Fundamentals of Finance" for higher vocational finance majors as a case study. It deeply integrates the PBL (Problem-Based Learning) teaching method with the multi-role interactive teaching model. Relying on the "Zhisheng Economic Operation Digital Intelligence Sandbox Simulation Decision System," a practical training teaching system characterized by "problem-driven, role assignment, and collaborative practice" is constructed. This system enables students to complete economic decision-making and cycle simulations through multi-role interactions involving government departments, central banks, financial institutions, industrial and commercial enterprises, and individual residents. The author conducted a teaching experiment with 102 finance major students at Shanghai Zhongqiao Vocational and Technical University and used paired-sample t-tests for effect analysis. The results show that the "PBL + Multi-Role Interactive" model can significantly enhance students' analytical decision-making, autonomous learning, and collaborative problem-solving abilities, with statistically significant differences in teaching effectiveness ($P < 0.001$). The study also identified shortcomings in the design of competition mechanisms, the integration of ideological and political elements, and the fairness of intra-group peer evaluation. Accordingly, improvement strategies such as optimizing system functions, deepening the integration of ideological and political education, and refining evaluation mechanisms are proposed, providing references for the teaching reform of practical training courses for finance majors in higher vocational colleges.

Keywords: PBL; Multi-role interaction; Finance major; Practical training courses; Teaching reform

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1. Introduction

Since 2018, the Ministry of Education has been promoting the construction of "New Liberal Arts." As a crucial component,

new business education has been formally incorporated into the national framework for higher education reform. Unlike traditional business education, which primarily focuses on cultivating specialized vocational skills, new business education requires a foundation in digital literacy, along with capabilities in business decision-making, technology application, industry insight, and cross-domain integration. The role of teachers is also transitioning from knowledge transmitters to designers and facilitators of learning. The teaching model under the new business education background will move away from the traditional "lecture-reception" paradigm, utilizing digital intelligence technologies to create highly simulated, interactive practice environments. This supports students in internalizing theoretical knowledge into transferable practical abilities while solving real, complex problems. The latest 2025 edition of the "Vocational Education Professional Teaching Standards" has comprehensively elevated the requirements for practical teaching, stipulating that practical teaching should constitute no less than 50% of total instructional hours for higher vocational college programs and no less than 60% for vocational undergraduate programs. The finance major in higher vocational education is characterized by strong applicability and emphasis on practical skills, making practical training courses occupy a pivotal position in finance education [1]. Particularly in the teaching process of practical training courses, teachers need to emphasize enhancing students' problem-solving and comprehensive analytical abilities to meet the demands of the times. This paper explores the application of the Problem-Based Learning (PBL) teaching method and the multi-role interactive teaching model in the practical training of higher vocational finance majors. Relying on the "Zhisheng Economic Operation Digital Intelligence Sandbox Simulation Decision System," it designs practical training courses that embody the concept of "problem and project-driven, student-centered" learning. Students were asked to compare the differences between the "PBL + Multi-Role Interactive" practical training course and traditional practical training courses and complete a questionnaire. The author then used SPSS statistical software to analyze the questionnaire results to determine the positive effects of the new teaching model on improving teaching effectiveness and achieving teaching objectives. Finally, the author summarized the problems identified during the practical training process and proposed suggestions and improvement measures.

2. Pain points in traditional teaching methods for finance practical training courses

2.1. Traditional finance practical training models commonly suffer from overly specialized scenarios, singular business contexts, and excessively strong job orientation

The simulated content often focuses on standardized operations within professional financial institutions like banks, securities, and insurance companies, which are disconnected from the diverse employment fields and actual career needs of higher vocational students. On one hand, such training skills are only applicable to a few specialized financial positions. For most students who cannot enter professional financial institutions, the learning content lacks practicality and a sense of achievement, easily leading to a negative perception of "learning what cannot be used." On the other hand, traditional training primarily involves single, repetitive operational exercises, overemphasizing process imitation while ignoring the cultivation of students' comprehensive professional abilities. It lacks effective training and enhancement for key competencies essential for the future workplace, such as communication, teamwork, coordination, autonomous decision-making, and problem-solving, making it difficult to meet the cultivation requirements for high-quality technical and skilled talents.

2.2. Lack of development for higher-order thinking skills

Higher-order thinking skills refer to high-level cognitive abilities involving processing, analyzing, judging, reasoning, and creating complex information, as opposed to lower-order cognition like memorization and simple understanding. These skills are often characterized by depth, flexibility, criticality, and originality. Only with higher-order thinking skills can students transfer knowledge to solve real-world problems and achieve sustainable development [1]. However, China's traditional education system has long been examination-oriented, and current university course assessments predominantly rely on written exams. Students can often pass exams through last-minute cramming, making it difficult to form habits of

deep thinking and independent inquiry. Learning behaviors often manifest as passively completing assignments and coping with tasks. This exam-focused assessment method is ineffective in cultivating students' higher-order thinking skills.

2.3. "One-Size-Fits-All" teaching arrangements ignore student differences

In traditional practical training for finance majors in higher vocational education, all students receive identical skill training, with highly uniform training content, operational procedures, and task requirements. Teachers also advance teaching uniformly according to a single pace and standard. This "one-size-fits-all" model fails to fully consider the differences among students in terms of knowledge base, learning ability, pace of acceptance, interest preferences, and future career development aspirations. It neither provides necessary guidance and tailored training for students with weak foundations nor meets the needs of high-achieving students to advance to higher-level capabilities. This leads to a serious disconnect between teaching content and the actual learning needs of different students, severely undermining the targeted, precise, and adaptable nature of teaching, making it difficult to achieve individualized and personalized cultivation.

3. The "PBL + multi-role interactive" teaching model

Problem-Based Learning (PBL) is a student-centered teaching model first proposed by McMaster University in Canada in the late 1960s. This method uses authentic, complex real-world problems as the starting point for learning, guiding students to construct knowledge and ultimately develop feasible solutions through independent inquiry, teamwork, and practical application [2]. Unlike the traditional model of teacher instruction and student reception, PBL no longer places students in a passive position. Instead, it emphasizes that students, in authentic or simulated project contexts, seek solutions to project problems through independent inquiry and teamwork, enabling them to actively acquire knowledge and develop skills in the process of problem-solving. In terms of evaluation, PBL also differs from the traditional teaching method that relies solely on exam scores. It places greater emphasis on the innovativeness and feasibility of solutions, as well as students' teamwork, communication, and comprehensive practical abilities, effectively stimulating students' learning initiative and enhancing their ability to adapt to social development and solve practical problems.

The multi-role interactive teaching model is supported by important theories such as constructivist learning theory, situated learning theory, experiential learning theory, and role-playing theory. It emphasizes the active construction and internalization of knowledge through student division of labor in playing different role-based positions, interactive collaboration, and business deduction within simulated business scenarios. This aligns highly with the PBL problem-driven learning philosophy. Both abandon the teacher-centered lecture model in traditional teaching, shifting towards a student-centered approach that highlights problem orientation, practice-driven learning, and cooperative inquiry. Furthermore, in the implementation of the multi-role interactive teaching model, teachers, based on course task characteristics and authentic job scenarios, set up differentiated and hierarchical role positions. Students can independently choose roles that match their own ability levels to participate in task collaboration [3], effectively exercising and improving teamwork and problem-solving abilities through clear division of labor, mutual cooperation, communication, and negotiation. This process achieves the teaching goal of matching roles to abilities, promoting learning through roles, and achieving shared growth through collaboration.

Under the background of new business education construction, the author integrates the two, using the PBL concept as the core and multi-role simulation to construct complex situations, forming a teaching model of "problem-driven + role assignment + collaborative practice." This restores real business processes and workplace ecology, strengthening students' practical operational skills, communication and coordination skills, risk assessment and judgment skills, and comprehensive decision-making abilities. This attempt aligns with the goal of new business education to cultivate interdisciplinary, innovative, and application-oriented high-quality talents. It is an effective path to improve the quality of practical training, teaching and promote practice-based education [4].

4. Teaching reform practice of practical training courses based on the "PBL + multi-role interactive" model

This study takes the compulsory course "Fundamentals of Finance" for first-year higher vocational finance majors as an example to design practical training teaching based on the "PBL + Multi-Role Interactive" teaching method. As an introductory core course for the finance major, "Fundamentals of Finance" features strong macroeconomic content, abstract theoretical concepts, and a rigorous knowledge system, covering financial markets, monetary policy, economic operation, etc. This content is distant from students' daily lives and has a high barrier to understanding. First-year higher vocational students have not yet established financial thinking, lack economic common sense, possess weaker abstract comprehension abilities, and often exhibit characteristics such as insufficient learning initiative, dislike for theoretical memorization, weak written analytical skills, and resistance to repetitive mechanical operations. This leads to students generally finding the subject difficult, dull, and impractical, resulting in low interest and difficulty in improving knowledge application skills.

Therefore, this paper adopts the PBL task-driven and role-interactive group practical training model, relying on the Zhisheng Economic Operation Digital Intelligence Sandbox for teaching. Role-playing replaces theoretical explanations, and team division of labor and collaboration replace individual independent completion. Students take on roles such as government departments, the central bank, financial institutions, industrial and commercial enterprises, and individual residents. Through role assignment and cooperation, they complete economic decision-making tasks, transforming abstract financial theories into operational, experiential, perceptible, and competitive practical tasks. This design fully aligns with the characteristics of higher vocational students, such as strong hands-on ability, willingness to participate in team activities, and preference for contextualized experiences. It effectively reduces the difficulty of theoretical learning, enhances learning engagement, and significantly improves students' communication and collaboration, teamwork coordination, scientific decision-making, and problem-solving abilities, truly achieving the higher vocational teaching goal of "learning by doing, playing, and competing."

4.1. Pre-class preparation

Before the practical training, the teacher logs into the teacher management terminal of the Zhisheng Economic Operation Digital Intelligence Sandbox to complete the teaching configuration. In the system management module, the teacher creates classes and student accounts. In the parameter environment module, the teacher configures four types of economic cycle scenarios: recession, depression, recovery, and prosperity; generates initial data such as macro indicators and business fee rates; sets triggering events; and constructs a simulated economic operating environment. The teacher also completes the setup of the practical training plan, four-phase tasks, and scoring rules in the task center, configuring scoring standards like the Economic Climate Index (ECI), boom-bust line, and keyword decisions. The teacher then activates the tasks and publishes a training announcement, clarifying task requirements, role assignments, and assessment methods.

Students need to log into the student terminal to complete personal information, study the operation guide, and autonomously form teams according to the team formation rules set by the teacher. Each group consists of 5 or 6 students, electing a team leader responsible for task initiation, submission, and report upload. Within the team, based on professional foundation, interests, and ability strengths, students negotiate and assign the five major roles: government department, central bank, financial institution, industrial and commercial enterprise, and individual resident. They clarify the responsibilities and operational content of each entity, familiarize themselves in advance with core functions such as decision-making processes, indicator viewing, and token usage, complete a preparatory study, and ensure the orderly conduct of in-class practical training.

4.2. In-class execution

The teacher begins with a contextual introduction centered on real-world macroeconomic issues, such as "How can fiscal

and monetary policy be coordinated across different economic cycles to achieve stable economic growth? How can the five major market entities make collaborative decisions to optimize the Economic Climate Index?" Meanwhile, the teacher emphasizes teamwork and rational decision-making.

After the practical training begins, each team, led by the team leader, initiates tasks in the order of recession → depression → recovery → prosperity. Team members, according to their role assignments, complete decision-making operations for fiscal policy, monetary policy, wealth management services, business operations, personal consumption, and investment, rationally consuming digital tokens. Students track changes in core indicators such as GDP growth rate, inflation rate, and unemployment rate in real-time through modules like economic monitoring, indicator analysis, and "My Monitoring." They dynamically adjust decisions based on simulation requirements to make the Economic Climate Index as close as possible to the target value. During the process, teams need to jointly respond to system-randomly triggered events and economic fluctuations, communicating and adjusting strategies promptly. The teacher provides guidance throughout, monitoring each team's progress, scores, and token usage in real-time through the backend, using guiding questions to inspire students' independent analysis without giving direct answers. After the team leader submits the tasks for each phase, the system automatically calculates scores and rankings, allowing progression to the next stage, ensuring efficient and rhythmic advancement of the practical training.

4.3. Post-class review

After the practical training, each team conducts a comprehensive review based on system simulation records, indicator data, phase scores, and the ECI curve. They analyze the decision-making logic across economic cycles, the basis for policy adjustments and their implementation effects, and reflect on issues, such as decision deviations and unreasonable token usage. Within the group, process-oriented peer evaluation is conducted based on role assignments, providing objective assessment from dimensions, such as participation, decision-making contribution, data analysis, communication and collaboration. The team leader uploads an analysis report containing cycle analysis, decision comparison, effect evaluation, problem reflection, and improvement plans as required via the student terminal. The teacher completes the simulation score and report evaluation in the evaluation center, synthesizes the total score according to weights, exports score data for visual analysis, and provides personalized guidance targeting each team's shortcomings. Students can view individual and team scores, feedback reports, and operational records to consolidate their understanding of macroeconomic theory and policy operational skills. The teacher summarizes the class's overall scores, token consumption, and task completion in the data center, and optimizes parameter settings, task design, and evaluation systems based on training results to continuously improve the effectiveness of practical training teaching.

5. Analysis of Practical Effects

To verify the effectiveness of this practical training teaching reform, the study designed a questionnaire on the application effect of the "PBL + Multi-Role Interactive" teaching model for 102 first-year finance major students across 3 classes in 2025. The entire questionnaire consisted of three parts: the first part pertained to students' analytical decision-making ability, the second to autonomous learning ability, and the third to collaborative problem-solving ability. Before implementing the teaching reform, the author administered a questionnaire survey to the students. After implementing the teaching reform for one semester, a second survey was conducted. The response rate for both questionnaires was 100%. The author set all questions as multiple-choice. For statistical analysis, option A for each question was assigned 3 points, option B2 points, and option C1 point. Excel was then used to statistically analyze the questionnaire results, calculating the average scores for the three abilities among the participating students. "Pre-test" indicates the survey before the teaching reform, and "Post-test" indicates the survey at the end of the semester. Finally, SPSS software was used, applying the paired-sample t-test method to obtain the following three tables [5].

Table 1. Paired samples statistics

Pair	Item	Mean	N	Std. Deviation	Std. Error Mean
1	Analytical Decision-Making Ability (Pre-test)	1.7255	102	0.744	0.0737
	Analytical Decision-Making Ability (Post-test)	2.0000	102	0.7118	0.0705
2	Autonomous Learning Ability (Pre-test)	1.7745	102	0.74	0.0733
	Autonomous Learning Ability (Post-test)	2.049	102	0.7235	0.0717
3	Collaborative Problem-Solving Ability (Pre-test)	1.7549	102	0.7425	0.0735
	Collaborative Problem-Solving Ability (Post-test)	2.0294	102	0.7892	0.0781

Table 2. Paired samples correlations

Pair	Items	N	Correlation	Sig. (*p*-value)
1	Analytical Decision-Making (Pre & Post)	102	0.7076	0
2	Autonomous Learning (Pre & Post)	102	0.712	0
3	Collaborative Problem-Solving (Pre & Post)	102	0.703	0

Table 3. Paired samples test

Pair	Item	Mean Difference	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference Lower	99% Confidence Interval of the Difference Upper	t	df	Sig. (2-tailed) (*p*-value)
1	Analytical Decision-Making (Post - Pre)	0.2549	0.618	0.0612	0.0942	0.4156	4.165	101	0
2	Autonomous Learning (Post - Pre)	0.2745	0.6302	0.0624	0.1107	0.4384	4.399	101	0
3	Collaborative Problem-Solving (Post - Pre)	0.2745	0.6297	0.0624	0.1108	0.4382	4.403	101	0

According to the results in **Table 1**, the post-test mean scores for all ability dimensions are higher than the pre-test scores. This intuitively shows that after one semester of applying the "PBL + Multi-Role Interactive" teaching model, students have made significant progress in analytical decision-making, autonomous learning, and collaborative problem-solving.

Table 2 shows that the significance test results (*p*-values) for all three ability indicators are less than 0.01, indicating a significant difference between the pre-test and post-test at the 0.01 significance level. This further proves that this teaching model significantly promotes the achievement of course teaching objectives.

The mean differences in **Table 3** can more clearly show the degree of improvement between pre- and post-tests; the t-values are all negative, indicating that the post-test levels for the three abilities are significantly higher than the pre-test levels; the degrees of freedom (df) are the sample size minus one; the *p*-values for all three indicators are close to 0, rejecting the null hypothesis that there is no difference between pre- and post-tests. This fully demonstrates that the "PBL + Multi-Role Interactive" teaching model can significantly improve teaching effectiveness.

6. Existing problems and countermeasures

Although this sandbox practical training teaching reform has achieved good results, shortcomings still exist in three aspects: (1) competition mechanism design, (2) integration of ideological and political elements, and (3) fairness of intra-group peer evaluation, which need further optimization and improvement.

6.1. Insufficient competition mechanism design in the training system

The Zhisheng Economic Operation Digital Intelligence Sandbox Simulation Decision System used in this training is primarily oriented towards intra-team collaboration. However, the design of mechanisms for inter-team competition, market competition, and policy gaming is weak. The system lacks confrontational elements such as inter-team competition rankings, resource contention, market share capture, and policy spillover effects. Decision-making by each team is relatively independent, lacking direct gaming and mutual influence, making it difficult to simulate the competitive and constraining relationships between different entities and markets in a real macroeconomy. Simultaneously, the system lacks competitive task objectives, dynamic ranking incentives, and game event triggers. Students are mostly task-oriented, and their competitive awareness, gaming thinking, and confrontational decision-making abilities are not fully exercised. This reduces the realism and challenge of the training and is not conducive to cultivating students' economic judgment and strategic response abilities in complex environments. Solving this problem requires communication with the system developer, Zhisheng Company, to add team competition, market competition, and policy gaming modules, introduce dynamic rankings and incentive mechanisms, enrich random events and market shock scenarios, strengthen interactive gaming between teams, and enhance the competitiveness and realism of the training, thereby improving students' market thinking and comprehensive decision-making abilities.

6.2. Insufficient integration of ideological and political elements

This practical training teaching reform focuses on economic operation simulation, decision-making and team collaborative practice, but is deficient in the integration of ideological and political education and value guidance. During the teaching process, elements such as patriotism, compliance with laws and regulations, financial ethics, social responsibility, and a correct view of success and failure were not organically embedded into the training sessions. There was a lack of systematic guidance on macro-policy orientation, market fairness concepts, risk bottom-line awareness, and professional conduct. The design of training tasks, situational events, and evaluation systems is all centered on indicator completion, decision scores, and team rankings, without setting ideological and politically related tasks and assessment points such as ethical choices, compliance constraints, and social responsibility. During the training, students paid more attention to digital token consumption, Economic Climate Index optimization, and simulation rankings, emphasizing skill operation over value shaping. It was difficult to achieve the organic unity of knowledge impartation, ability cultivation, and moral education, somewhat weakening the educational function of the practical training course and hindering the cultivation of financial talents with both professional ability and professional ethics. The author needs to further explore the ideological and political elements in the training process, naturally integrate financial ethics, compliant operation, integrity awareness, and patriotism throughout the entire teaching process, and add ideological and political-related assessments to the evaluation, promoting the alignment of professional education and value guidance.

6.3. Inadequate intra-group peer evaluation mechanism

The process of mutual evaluation among group members is susceptible to interpersonal factors. Team members tend to give each other high scores out of face-saving considerations, resulting in evaluation outcomes that cannot truly reflect individual contributions, participation levels, and sense of responsibility. This undermines the motivating and constraining role of peer evaluation and affects the fairness and effectiveness of the training assessment. To address this issue, evaluation indicators can be refined, anonymous peer evaluation can be implemented, and process data combined with teacher review can be used for comprehensive calibration. Additionally, objectivity, fairness, honesty, and trustworthiness should be incorporated into financial professional ethics education to guide students in conducting evaluations based on facts, thereby improving the authenticity and credibility of peer evaluation results.

7. Conclusion

Applying the PBL + Multi-role Interactive teaching model to practical training courses for finance majors in higher vocational education effectively addresses the pain points of traditional training, such as singular scenarios, emphasizing operation over thinking, and "one-size-fits-all" teaching. Through simulated economic environments and multi-party collaborative division of labor, it significantly enhances students' comprehensive practical abilities and higher-order thinking levels, aligning to cultivate high-quality technical and skilled talents under the new business education framework. Teaching practice relying on the Zhisheng Economic Operation Digital Intelligence Sandbox proves that the combination of PBL and multi-role interaction can transform abstract financial theories into experiential, operational, and competitive practical tasks, enhancing students' learning initiative and sense of achievement. However, this reform still has shortcomings, such as weak inter-team competition and gaming mechanisms in the training system, insufficient integration of ideological and political education with practical teaching, and susceptibility of intra-group peer evaluation to interpersonal factors. In the future, optimization should focus on three aspects: strengthening team competition and market competition modules; embedding ideological and political elements such as financial ethics, compliance awareness, and patriotism throughout the process; and constructing an anonymous, process-oriented, and diversified evaluation system. This will promote the integration of "knowledge impartation, ability cultivation, and value shaping," comprehensively enhancing the teaching quality and educational effectiveness of practical training for finance majors in higher vocational education.

Disclosure statement

The author declares no conflict of interest.

References

[1] Li Z, 2023, Research on the Application of PBL Teaching Method in Finance Major Courses in Universities. Journal of Heilongjiang Institute of Teacher Development, 42(8): 96–98.

[2] Ma X, 2026, Exploration on the Application of PBL Teaching Mode in the Teaching Process of Professional Courses. Office Informatization, (1): 123.

[3] Li C, 2024, Practical Exploration of Problem-Based Learning (PBL) in Practical Training Courses. Vocational Education (Mid-ten-day Journal), (2): 45–48.

[4] Li Z, 2024, Teaching Reform Practice of the "Commercial Bank Operation and Management" Course in Application-Oriented Universities under the Background of Digital Intelligence. Science & Technology Vision, (14): 163–165.

[5] Liu Y, Mo N, 2022, Analysis of the Application Effect of SPOC Blended Teaching Mode in the Accounting Major of Higher Vocational Education: Taking the Accounting Position-based Practical Training Course as an Example. China Management Informatization, (8): 204–205.