World Journal of Educational Research
ISSN 2375-9771 (Print) ISSN 2333-5998 (Online)
Vol. 11, No. 1, 2024
www.scholink.org/ojs/index.php/wjer

Original Paper

Research on the Improvement Path of Mixed Teaching Effect of Investment Banking based on System Dynamics

Fang Hu[1], Leixin Wang[1], Zidong Jiang[1*] & Min Hu[1]

[1] School of Economics, Guangxi University, Nanning, China

[*] Zidong Jiang, E-mail: 1149476752@qq.com

Received: October 29, 2023 Accepted: January 02, 2024 Online Published: January 29, 2024

doi:10.22158/wjer.v11n1p37 URL: http://dx.doi.org/10.22158/wjer.v11n1p37

Abstract

Taking "Investment Banking", one of the core courses of college finance majors, as an example, this paper explores the way to improve the mixed teaching effect. By constructing a system dynamic model of the mixed teaching effect of Investment Banking, this paper finds that teaching organization and management ability have the greatest impact on the mixed teaching effect, and students' perceived ease of use for mixed teaching has the greatest impact on the mixed teaching effect. The degree of accuracy of background teaching data monitoring of online learning platform, the degree of frontier of platform resources and the degree of richness of platform learning resources have significant and similar influence on the mixed teaching effect. From the three aspects of teachers' teaching organization and management ability, students' perceived ease of mixed teaching, and the quality of online learning platform, the mixed teaching effect of Investment Banking course can be effectively improved. Based on this, suggestions are put forward to provide references for promoting the construction of first-class undergraduate courses for finance majors.

Keywords

investment banking, finance major, system dynamics, mixed teaching mode, path

1. Introduction

In October 2019, the Ministry of Education issued the "Implementation Opinions on the Construction of First-class Undergraduate Courses", which mentioned "strengthening the in-depth integration of modern information technology and education and teaching, solving the problem of innovation in the mode of teaching and learning, and putting an end to the simplification and formalization of the application of information technology" and "constructing first-class undergraduate courses to meet the needs of innovative, complex and application-oriented talent cultivation". In March 2023, the 2023

Working Points of the Department of Higher Education of the Ministry of Education mentioned, "accelerating the digital transformation of higher education and creating a new form of higher education teaching". The above policy documents fully indicate that combining modern information technology with higher education is not only a need to build first-class undergraduate programs but also a need for the future development of higher education. In the field of higher education, the hybrid teaching mode using modern information technology has been developed to a certain extent (Deng & Tian, 2020), but hybrid teaching is affected by many factors, and it may be difficult to achieve the desired effect in the actual operation process, so how to improve the effect of hybrid teaching is very important.

At present, the research on mixed teaching of financial professional courses mostly focuses on monetary finance (Tao & Zeng, 2022), corporate finance (Gao & Zhou, 2023), and international finance (Cui, 2020), while the research on Investment Banking is less. The research on Investment Banking mainly focuses on the two aspects of teaching reform exploration research (Niu et al., 2022) and the evaluation of the effectiveness of teaching mode (Wang, 2020). The existing literature has laid the foundation for this study, but there are some shortcomings, especially regarding the course mixed teaching effect to improve the path of research traditionally uses qualitative analysis, few studies use the quantitative method of system dynamics on the mixed teaching effect of Investment Banking. The teaching classroom is a complex and dynamic system, and system dynamics can be simulated dynamically by computer. Therefore, using system dynamics, this paper constructs a system dynamics model of the mixed teaching effect of Investment Banking course, explores the specific path to improve the mixed teaching effect of Investment Banking, and puts forward relevant suggestions accordingly.

2. Research Method

2.1 Construction of System Dynamics Model

The method used in this paper is system dynamics, which was founded in the 1860s, is a discipline at the crossroads of system science and management science, and is a dynamic and comprehensive analysis of empirical methods, which can be applied to the effect of flipped classroom implementation (Wan & Hao, 2019) and other aspects. The research process of system dynamics in this paper has six stages: (1) Determine the purpose of the study, take Investment Banking, one of the core courses of finance majors in colleges and universities, as an example, and explore the ways that can enhance the effectiveness of mixed teaching, so as to provide a reference for the promotion of first-class undergraduate course construction in finance majors. (2) Determine the system boundary of the mixed teaching effect of the Investment Banking course, eliminate irrelevant factors, screen out the influencing factors in the implementation process of mixed teaching by reading relevant literature, and close the system. (3) Construct the causality diagram of the mixed teaching effect of the Investment Banking course, which has an important influence on whether the equation design of the variables is reasonable or not. (4) Draw a map according to the causality diagram. (4) Drawing the stock flow

diagram of the mixed teaching effect model of the Investment Banking course according to the causality diagram, using the entropy weight method to process the questionnaire data to design the equations of each variable. (5) Simulation of the model, adjusting a number of variables to explore the degree of their impact on the system. (6) Proposing corresponding recommendations based on the findings of the study.

2.2 Determination of System Boundary

This paper refers to Wan and Hao (2019)'s research ideas, through the search engine in the China Knowledge Network to search for relevant literature containing the keywords "mixed teaching + influencing factors" (Huang & Liao, 2023; Li & Han, 2021), screened out the influencing factors that appeared more frequently, and then further classified these factors and included them in the factors of lecturing teachers, students, online learning platforms, and thus established the system boundaries of the effects of mixed teaching in the course of Investment Banking. These factors are further classified and incorporated into lecturer factors, student factors, and online learning platform factors, so as to establish the system boundaries of the mixed teaching effect of the Investment Banking course, and the interrelationships between the various subsystems are shown in Figure 1.

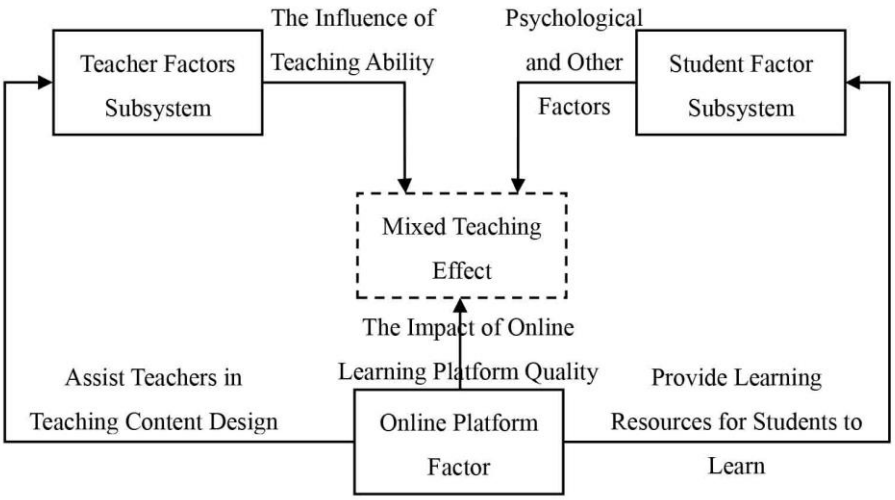

Figure 1. Interrelationships between Subsystems of Mixed Teaching Effectiveness in the Investment Banking Course

2.3 Construction of Causal Diagram

After determining the system boundary, through the analysis of the interrelationship of each factor, this paper uses Vensim software to draw a causal loop diagram of the mixed teaching effect of the Investment Banking course, as shown in Figure 2.

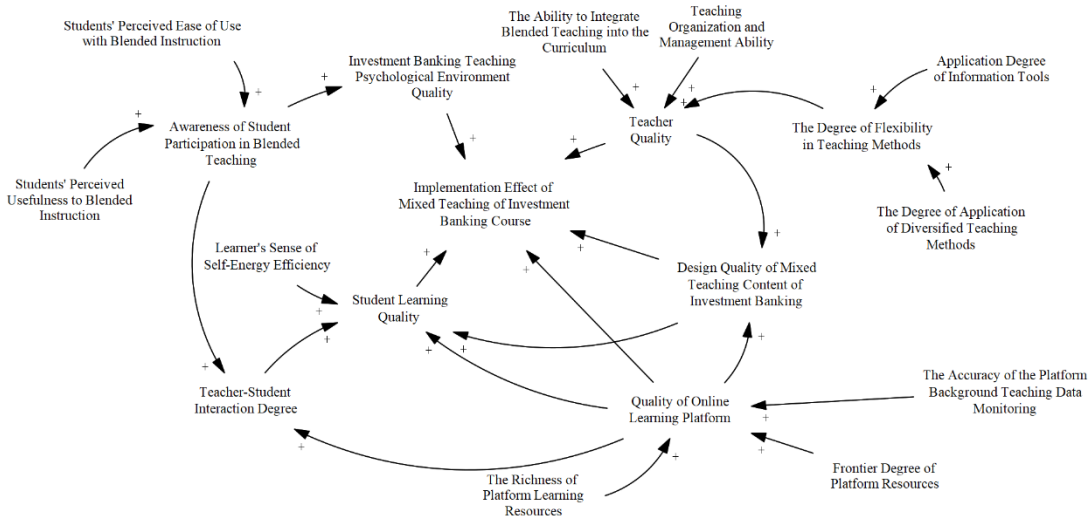

Figure 2. Causality Diagram of the Effectiveness of Mixed Teaching in the Investment Banking Course

2.4 Construction of Stock Flow Diagram

Based on the causality diagram of the mixed teaching effect of the Investment Banking course, this paper draws a stock-flow diagram of the mixed teaching effect of the Investment Banking course, which contains nineteen variables, including one stock, eight auxiliary variables, and ten constants, as shown in Figure 3.

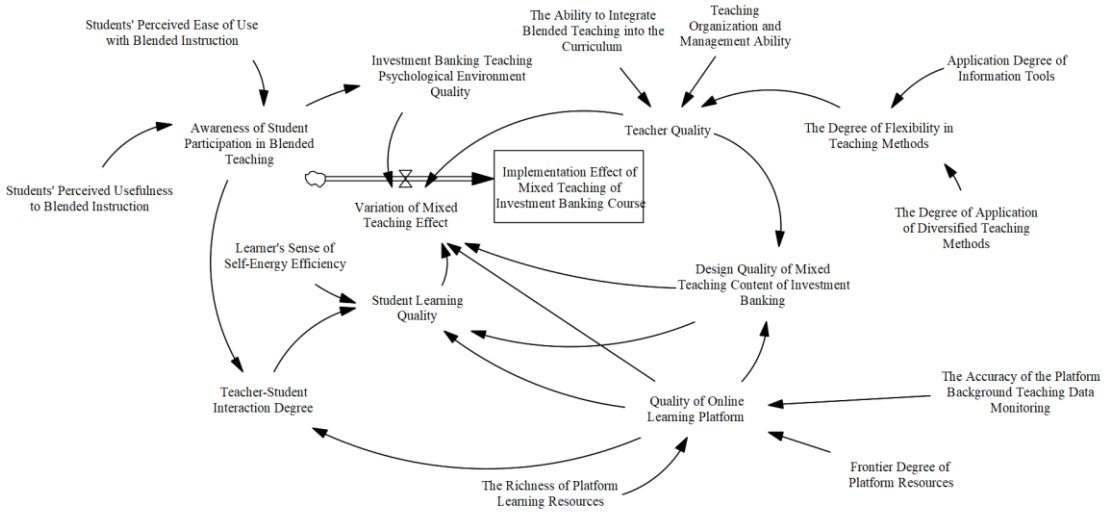

Figure 3. Stock Flow Diagram of the Effectiveness of Hybrid Teaching and Learning in Investment Banking

In this paper, 98 questionnaires were released online through Tencent questionnaires, using a 1 to

5-point scoring system, the survey object is for college finance majors and students who have participated in the mixed teaching mode of Investment Banking, excluding 9 questionnaires that were not answered seriously in the survey object, 89 valid questionnaires, and the actual validity rate is 90.82%. In reliability analysis through SPSS software, Cronbach's alpha coefficient reached 0.86, indicating that the questionnaire has good reliability.

The design of variable equations in the stock flow diagram of the mixed teaching effect of the Investment Banking course is a key step of the model, so this paper uses the entropy weighting method to process the data of the questionnaire to calculate the weights of some variables, and the rest of the variables take the average score of the survey results as the initial value, and the equations of the main variables are shown in Table 1.

Table1. Main Variables and Equation Design

Serial number	Variable	equation
1	Awareness of Student Participation in Blended Teaching	"Awareness of Student Participation in Blended Teaching" = "Students' Perceived Usefulness to Blended Instruction" *0.265+ "Students' Perceived Ease of Use with Blended Instruction" *0.735
2	Student Learning Quality	"Student Learning Quality" = ("Design Quality of Mixed Teaching Content of Investment Banking" *0.243+" Teacher-Student Interaction Degree "*0.264+"Quality of Online Learning Platform" *0.235+ "Learner's Sense of Self-Energy Efficiency" *0.258)
4	Variation of Mixed Teaching Effect	"Variation of Mixed Teaching Effect" = "Investment Banking Teaching Psychological Environment Quality" *0.241+ "Design Quality of Mixed Teaching Content of Investment Banking" *0.155+ "Student Learning Quality" *0.082+ "Teacher quality" *0.372+ "Quality of online learning platform" *0.15
5	Teacher Quality	"Teacher Quality" = "Teaching Organization and Management Ability" *0.621+ "the Degree of Flexibility in Teaching Methods" *0.194+ "the Ability to Integrate Blended Teaching into the Curriculum" *0.185
6	Quality of Online Learning Platform	"Quality of Online Learning Platform" = "the Accuracy of the Platform Background Teaching Data Monitoring" *0.348+ "Frontier Degree of Platform Resources" *0.393+

		"the Richness of Platform Learning Resources" *0.259
7	Design Quality of Mixed Teaching Content of Investment Banking	"Design Quality of Mixed Teaching Content of Investment Banking" = "Teacher Quality" *0.712+ "Quality of Online Learning Platform" *0.288

3. Result

In this paper, the simulation time is one semester, i.e., 18 weeks, by using Vensim software to simulate the effect of implementing one semester of teaching and learning in the hybrid teaching model of the course "Investment Banking" in the finance major of the university. Firstly, without adjusting any parameters of the model as a control group. Secondly, by adjusting the variables in the factors of lecturers, students, and online learning platform, the initial values of the adjusted variables are set to twice the original ones for simulation and comparison, to explore the influence of each variable on the effect of Mixed teaching, and the specific simulation results are shown in Figures 4, 5 and 6.

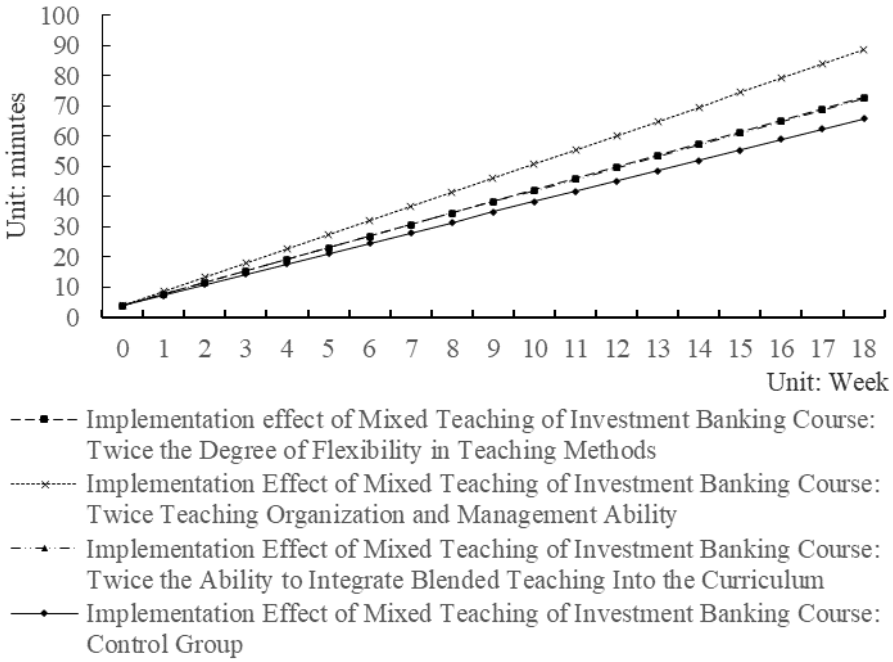

Figure 4. The Influence of Teacher Factor Change on Mixed Teaching Effect of Investment Banking Course

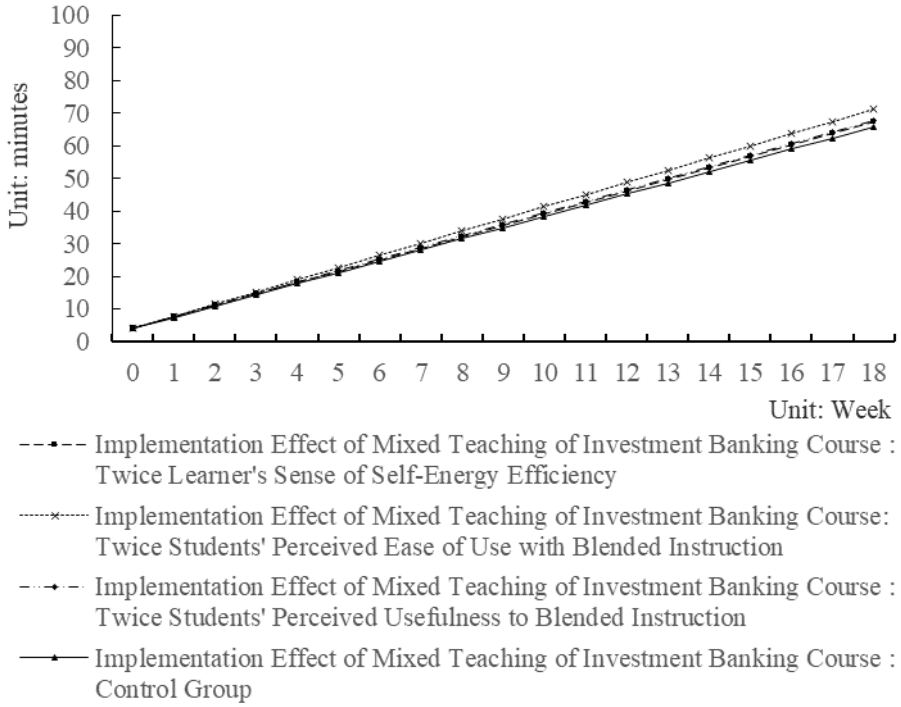

Figure 5. The Influence of Student Factor Change on the Mixed Teaching Effect of Investment Banking Course

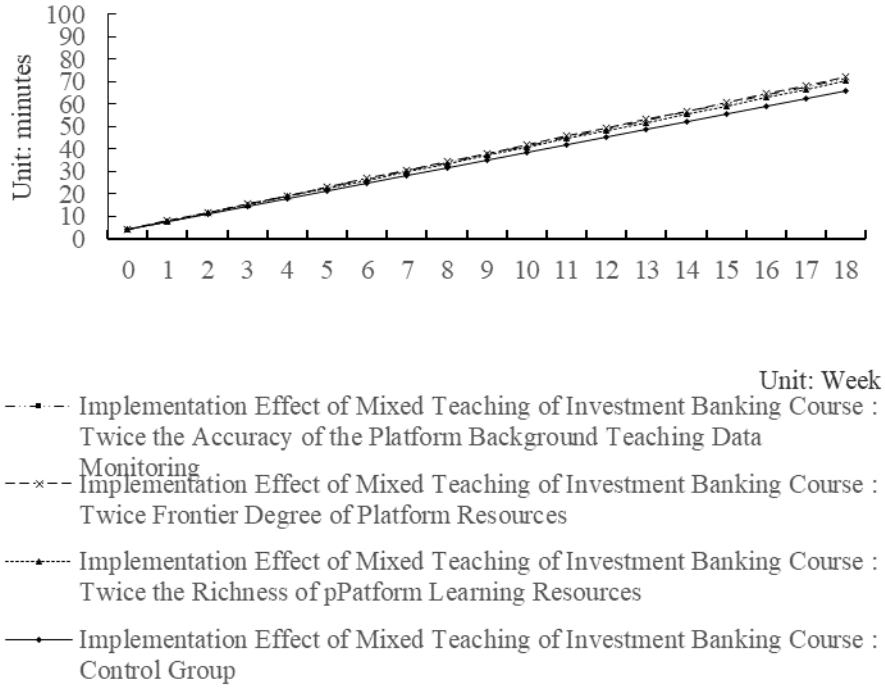

Figure 6. The Influence of Online Learning Platform Factor Change on the Mixed Teaching Effect of Investment Banking Course

As can be seen from Figure 4, among the factors of teachers, teachers' ability of teaching organization and management has a great influence on the mixed teaching effect of Investment Banking. In the mixed teaching, teachers' ability of teaching organization and management is shown as how to make good use of the online teaching platform to create learning atmosphere and how to solve the technical problems of students' online learning. It can be seen that the level of teachers' ability of teaching organization and management has a very important impact on the mixed teaching effect of Investment Banking. The flexibility of teaching methods and the ability of teachers to integrate mixed teaching into the curriculum can also improve the mixed teaching effect, but they are far inferior to the teaching organization and management ability of teachers, and the gap between them is not large.

As can be seen from Figure 5, among student factors, students' perceived ease of use for mixed teaching has the greatest impact on the effect of mixed teaching. Perceived ease of use refers to students' perception of the difficulty of mixed teaching. When students' perceived ease of use of mixed teaching is stronger, that is, when the learning difficulty of mixed teaching is appropriate, students will show a stronger sense of participation and take the initiative to communicate with teachers or classmates. It can not only create a good psychological environment for mixed teaching, but also indirectly enhance the learning quality of students, thus improving the mixed teaching effect. Perceived usefulness refers to students' perception of the usefulness of mixed teaching. Self-energy efficiency refers to students' confidence in whether they can complete the learning task of mixed teaching. However, compared with the control group, perceived usefulness and self-energy efficiency have a small and similar impact on the effect of mixed teaching, which indicating that even if students feel that mixed teaching is very useful or have strong confidence in learning, but it is still very limited to improve the effect of mixed teaching.

As can be seen from Figure 6, among the factors of online learning platform, improving the accuracy of backstage teaching data monitoring of online learning platform, the cutting-edge of online learning platform resources and the richness of platform learning resources can significantly improve the mixed teaching effect of Investment Banking. In the three factors, the cutting-edge of online learning platform resources has a slightly higher impact than the other two. However, the influence of the three factors on the mixed teaching effect of Investment Banking is similar, which indicates that the three factors are almost equally important for the mixed teaching, and the three factors jointly determine the quality of the online learning platform, which will directly affect the effect of the mixed teaching.

4. Discussion

4.1 Teachers Shall Give Full Play to Their Ability of Teaching Organization and Management

First, as one of the subjects in the teaching process, teachers should play a leading role in making online teaching and offline teaching complement each other. Such as relying on the online learning platform and improving teaching methods to make "class alive", using the lottery function of the online learning platform to call students to answer questions. They can enhance the interaction frequency

between teachers and students, stimulate the enthusiasm of students to participate in mixed teaching, so as to enhance their learning initiative. Second, ensure the consistency between online and offline teaching of Investment Banking. For example, teachers can solve online students' learning problems offline, or monitor students' learning by supervising their learning records on online learning platforms, so as to ensure that students have sufficient learning input. If it is found that students have insufficient learning input, teachers should ask them offline to understand the situation, analyze the causes of the problem and solve it. Third, after the implementation of teaching for a certain period of time, teachers can use Internet tools to issue questionnaires to students, investigate the interaction frequency between teachers and students during class, class activity, students' after-class questions, teachers' guidance and other aspects. The collecting teaching feedback data is for analysis and then can be the basis of optimizing the mixed teaching content. Fourth, teachers should conduct teaching evaluation in different stages, diagnose and summarize the teaching effect, analyze the problems in different stages and solve them.

4.2 Ensure that Students Have Appropriate Perceived Ease of Use for Mixed Teaching

Different from traditional teaching, mixed teaching requires students master certain computer skills, and the novel teaching content also brings some learning difficulties. If students learn overly complex operations or complete difficult tasks for a long time during the implementation of Mixed teaching, they will have a low perception of ease of use, and thus show difficulty fear. It will discourage students from participating in mixed teaching and even lead to the situation of coping with learning tasks. Therefore, the design of the mixed teaching content of Investment Banking should be carried out step by step, in accordance with the three stages of "basic, advanced and strengthened", and ensure that the standard of each stage is "students can feel it when they jump", so that students can feel that they are challenged but can complete the task. In this way, not only can the emotional experience of students be gradually enhanced, but also the experience of students can be gradually enhanced. It can also reduce students' frustration in the learning process due to unfamiliarity and complex operation in the mixed teaching mode, so as to stimulate students' awareness of participating in the mixed teaching and let students take the initiative to learn.

4.3 Choose High-Quality Online Learning Platforms

Mixed teaching is not a simple combination of online learning and offline learning, so the online learning platform is not randomly selected to reflect "online", so the selection of online platforms should have the following three requirements. First, the online teaching platform should have the cutting-edge knowledge resources of Investment Banking, which can provide the latest knowledge concepts, trends and development trends in the field of investment banking, so that students can keep up with the real needs and understand the development direction and challenges of investment banking, so as to stimulate students' thinking about practical problems and make up for the static deficiencies of traditional teaching knowledge. Second, the online learning platform should have rich knowledge resources of Investment Banking, such as basic concepts, business processes, cases, supervision, laws

and other aspects of knowledge. The rich knowledge resources can meet the learning needs and interests of different students and provide strong support for teachers to design teaching content. Third, the online teaching platform should have accurate background teaching monitoring data, such as learning behavior, learning effect, learning satisfaction and other monitoring systems. Teaching monitoring data is an important reference for teachers to understand students' learning status and problems existing in the teaching process. Through comprehensive and multi-level collection of teaching feedback data, the platform can not only help teachers understand students' learning status, but also help teachers understand students' learning status. It can also understand whether the mixed teaching process has achieved the expected teaching quality, and diagnose the problems in the mixed teaching process and propose corresponding solutions, so as to ensure that the teaching is further improved and can be carried out steadily.

Acknowledgement

Thanks for the support of Level A project launched by the Guangxi Higher Education Undergraduate Teaching Reform Project (Project name: Investment Banking Course's "Online and Offline Hybrid + Virtual Simulation Experiment" Teaching Reform and Practice; Project number: 2023JGA116).

References

Cui, Z. Z. (2020). Teaching Reform and Exploration of "International Finance" based on mixed online and Offline teaching model. *Collegiate*, (33), 59-60.

Deng, Q. Z., & Tian, Y. C. (2020). The current situation, problems and countermeasures of MOOC development in China under the background of mixed teaching mode. *Chunagxin Yu Chuangye Jiaoyu*, *11*(6), 57-61.

Gao, L. L., & Zhou, H. D. (2023). Exploration and Practice of Mixed Teaching Model of Finance Courses Under the Background of New Liberal Arts: A Case Study of "Corporate Finance". *Finance Theory and Teaching*, (4), 90-93.

Huang, X. M., & Liao, H. J. (2023). Research on Influencing Factors and Promoting Strategies of vocational college students' Learning Engagement based on mixed teaching. *China Educational Technology Equipment*, (15), 11-15.

Li, M. C., & Han, B. C. (2021). Study on the Influencing factors of learners' willingness to continue learning under SPOC mixed teaching model. *Chinese Educational Informatization*, (6), 1-7.

Niu, J. M., Huang, L., & Liu, H. M. (2022). Research on teaching reform of investment banking under the background of financial technology. *China Management Informationization*, *25*(13), 222-227.

Tao, Y., & Zeng, H. Y. (2022). Research on the mixed teaching mode of "online + offline" of monetary finance course. *Technology Innovation Monthly*, *35*(4), 130-133.

Wang, C. C. (2020). Exploration on the Reform of Blended Teaching in Financial Courses-Taking the Course of Theory and Practice of Investment Banking as an Example. *Journal of Beijing City*

University, (2), 26-31.

Wan, J., & Hao, Z. S. (2019). Research on the influencing factors of flipped classroom implementation based on system dynamics, *Journal of Higher Education*, (25), 58-60.