

Original Paper

The Reform and Exploration of the Integration of Artificial Intelligence into the Teaching of Public Finance under the OBE Concept

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Abstract

With the deepening of the construction of new liberal arts and the accelerated development of the scientific and technological revolution, the economy and society have put forward new requirements for the training objectives of financial talents. In order to cope with the shortcomings of the teaching process of "Public Finance" under the new situation, this paper systematically draws on the concept of outcome-based education (OBE) in western developed countries, deeply integrates artificial intelligence technology, and based on the fundamental task of "Lide Shuren", explores and constructs a new teaching paradigm of "Public Finance + Artificial Intelligence" based on the concept of OBE. At the same time, a scientific teaching evaluation system and a dynamic feedback mechanism should be established to ensure the achievement of the goal of "Public Finance + science and technology" compound talents training. This paper not only provides a systematic solution for the innovation of the teaching mode of "Public Finance", but also provides a theoretical reference and practical path for the reform of financial and economic courses in colleges and universities. It is of great significance to deepen the cultivation of compound talents under the background of "New Liberal Arts".

Keywords

Public Finance, OBE concept, artificial intelligence, education reform

1. Introduction

On January 19, 2025, the "Outline of the Plan for the Construction of China into an Education Powerhouse (2024-2035)" was approved and issued by the Central Committee of the Communist Party

of China and the State Council (hereinafter referred to as the “Outline”), proposing to “deepen the comprehensive reform of education and stimulate the vitality of education development.” Finance is the foundation and core pillar of the national governance system and constitutes a key tool for the country to implement macroeconomic regulation and control. As the core course of economics, “Public Finance” is a subject that studies government revenue and expenditure activities with government units as the main research object. According to the National Bureau of Statistics and the Ministry of Finance, in 2024, the national GDP will reach 134.9 trillion yuan, of which the general public budget revenue will reach 21.9 trillion yuan, covering multiple sources such as tax and non-tax revenue. It also corresponds to the expenditure needs of education, science and technology, social security, infrastructure construction and other fields. Based on this, “Public Finance” education needs to cultivate students’ ability to analyze the effect of fiscal policy from a macroeconomic perspective and optimize fiscal programs from the perspective of national governance. However, at present, there are still a series of problems in the teaching of “Public Finance” in China, such as insufficient curriculum setting, lack of practical education and weak theoretical construction of teaching materials (Zhang & Zheng, 2014). Therefore, it is imperative to explore the new teaching mode of “Public Finance.”

The “Outline” points out that it is necessary to “promote artificial intelligence to help education reform.” Undergraduates and postgraduates from various disciplines in Hong Kong generally have a positive attitude towards the application of GenAI in teaching. Students are deeply aware of the potential for personalized learning support, writing and brainstorming assistance, and research and analysis capacity building. The effective implementation of GenAI tools and the development of fully informed guidelines and strategies will help to enhance the teaching and learning experience of higher education (Chan & Hu, 2023). AI is not only the upgrading of technical tools, but also provides more intelligent and accurate support for large-scale individualized and innovative teaching by deeply integrating into the whole process of teaching, reshaping the supply form, interactive mode and development ecology of education. Integrating AI into the education and teaching system of “Public Finance” is an inevitable choice to conform to the national policy and the digital transformation of education, and it is also a key measure to improve the quality of financial personnel training.

Outcome-Based Education (OBE) originated in the 1990 s and gradually became popular. In the book “Outcome-Based Education: Critical Issues and Answers”, American scholar Spady clearly pointed out that OBE refers to the clear integration and planning of learning activities in the education system around the important tasks that students can complete at the end of learning. “OBE” injects new ideas into the reform of the teaching mode of “Public Finance”, and integrates AI into teaching to create a new way. This deep integration of concept and technology injects the vitality of “goal orientation-technology empowerment-quality closed loop” into “Public Finance” education, which promotes the transformation of “Public Finance” teaching from “knowledge standard” to “ability standard”. This exploration of intelligent teaching mode points to the fundamental improvement of the quality of “Public Finance” education.

2. Analysis of the Motivation of the Reform of the Teaching Mode of “Public Finance”

2.1 *In the Era of Science and Technology Empowerment, the Training of Financial Talents Needs to Transform to the Direction of Compound and Digital Intelligence*

The “Outline” requires “exploring a new model for cultivating national top-notch innovative talents”. In 2023, the Ministry of Education issued the “Reform Plan for the Adjustment and Optimization of Discipline and Specialty Settings in General Higher Education”, which listed “accelerating the construction of new liberal arts” as an important task. Traditional business takes the industrial economy as the background, and “new business” is its innovative form driven by the digital economy. The core is to integrate new technologies into the curriculum system, build a comprehensive interdisciplinary education, and cultivate interdisciplinary talents. The “China Digital Economy Development Research Report (2024)” shows that the penetration rate of the digital economy to the real economy is increasing year by year. In 2023, the penetration rate of the first, second and third industries has reached 10.78 %, 25.03 % and 45.63 %. The interaction of various disciplines is significant, and the gap of financial compound science and technology talents is increasing, which restricts the development of financial science.

2.2 *There Are Shortcomings in the Traditional Teaching Mode of “Public Finance”*

The “Outline” requires to promote the construction of smart campus, explore effective ways of digital empowerment, individualized teaching and innovative teaching, and adapt to the change of learning methods. This requirement points to the core proposition of education modernization, responds to the needs of talent training, and points out the direction for education reform and digital transformation. At present, the traditional “Public Finance” course is mainly taught by teachers and PPT presentation. The teaching method is single, the knowledge update is slow, the theory is light, and the social practice teaching is neglected, which leads to the lack of students’ perceptual knowledge and low teaching efficiency. It is difficult to cultivate applied comprehensive talents and restrict the development of disciplines. It is urgent to solve the new teaching mode.

2.3 *China Needs to Create a New “Public Finance” Teaching Model Based on Its Own National Conditions*

Since the 1990s, China has introduced the financial theory represented by Harvey Rosen, Masgrave and David Heyman, replacing the “national distribution theory” as the mainstream “Public Finance” theoretical system, marking China’s financial theory into the Anglo-American stage. Since then, China’s “Public Finance” teaching model, theoretical framework and practical application have drawn lessons from Western capitalist countries. Li Junsheng pointed out that the Anglo-Saxon school of modern Anglo-American mainstream public finance theory has serious deficiencies in explanatory power and predictive power, and Western experience does not necessarily apply to socialist China (Li, 2017). Therefore, building a fiscal knowledge system with Chinese autonomy is an important way to answer its own financial development, global financial challenges and people’s financial concerns. It is also an inevitable requirement to highlight the uniqueness of the fiscal path, the effectiveness of

governance and the advanced nature of the theory.

3. The Design of Intelligent Teaching Mode of “Public Finance” under the Concept of OBE

In order to integrate the OBE concept into the intelligent teaching mode of “Public Finance”, we should first set the curriculum objectives that meet the requirements in combination with the curriculum and the talent requirements of “Public Finance”. Then, according to this teaching goal, with the help of AI teaching system (Zhu & Wei, 2018), the teaching methods, contents, management and assessment requirements are gradually designed. Finally, based on the teaching purpose, with the help of AI evaluation and feedback system, the teaching methods are improved and optimized, as shown in Figure 1.

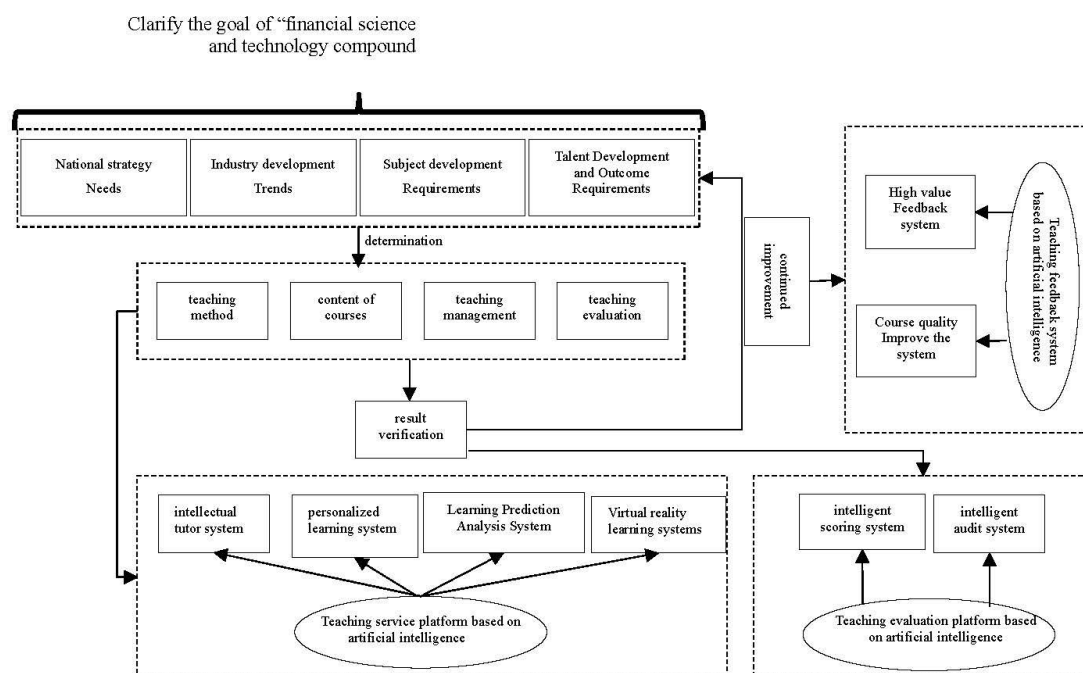


Figure 1. The Teaching Mode of “Public Finance + Artificial Intelligence” Based on OBE Concept

3.1 The Goal Setting Process of “Public Finance” Smart Teaching Based on OBE Concept

The formulation of the teaching mode goal of “Public Finance” should start from the following four points to help students complete the teaching goal.

3.1.1 China’s strategic needs

There is still a gap between China's public finance and developed countries. In the future, China needs to explore a financial education and implementation system in line with national conditions, strengthen national conditions education and awareness of the rule of law, and cultivate public spirit and the concept of a community with a shared future for mankind (Fan, 2020). In theory, on the basis of the teaching of the basic theory of “Public Finance,” this paper introduces the current situation of China's public finance, discusses the history of financial development and the financial knowledge in economic

law, analyzes the deficiencies, understands international finance, and builds a sense of community; in practice, we should make rational use of teaching links such as social practice, probation and internship, improve students' perceptual knowledge, and realize the unity of knowledge and practice.

3.1.2 Industry development trend

"Public Finance", as a highly practical subject, is to carry out macro-control to make up for market failure and meet public needs. Therefore, the training goal of "Public Finance" is to transport talents to the social public sphere. In order to meet the needs of the industry, financial talents can not be separated from the integration of production and learning and the integration of production and education. This requires universities and enterprises to carry out in-depth cooperation, accurately grasp the needs of the industry through in-depth enterprise research, so as to cultivate "Public Finance + science and technology" compound talents that meet the requirements of the industry.

3.1.3 The Development Requirements of the Discipline

Learning "Public Finance" well is an important bridge to build the knowledge system of the economy and finance. It and finance essentially study the problem of capital movement (Bai, 2023). In order to meet the requirements of the "Public Finance" course, students should have two abilities: one is to flexibly use the basic principles of "Public Finance" and play its "leading role" in other economic disciplines; the second is to open up the bridge between "Public Finance" and other economic disciplines, such as integrating cross-curriculum knowledge such as finance and econometrics in teaching, opening up the internal links of various economic courses, and helping students build a systematic economic knowledge framework.

3.1.4 Talent Development and Achievement Requirements

The teaching results of "Public Finance" can be summarized into two dimensions. One is student education results: while teaching students the basic knowledge of "Public Finance" and understanding the economic meaning, it is also necessary to guide students to discuss and reflect on the humanistic value behind it in depth, and set corresponding achievement assessment indicators according to different training directions. The second is the achievements of teachers' curriculum construction: while teachers are deeply engaged in scientific research, they also need to focus on improving the quality of textbook compilation and interdisciplinary teaching ability to support the realization of multi-dimensional talent training objectives.

3.2 The Teaching Idea Design of "Public Finance + Artificial Intelligence"

The rapid development of intelligent technology and tools is profoundly promoting the continuous innovation and change of teaching mode. AI has begun to penetrate into all walks of life, especially the education industry. The widespread use of AI tools has transformed the "teacher-student" dual structure into a "teacher-machine-student" ternary structure (Yang et al., 2023), redefining the roles of teachers and students.

3.2.1 Pre-class Knowledge Preview

"Public Finance" has many knowledge points, and the theory is closely related to practice. The study

found that it is useful to use artificial intelligence applications to support metacognitive, cognitive and behavioral regulation in the process of self-learning (Jin et al., 2023). Moreover, AI relies on the Internet to surpass human beings in content creation and knowledge extraction. Applying it to pre-class learning of “Public Finance” can give full play to the synergistic advantages of human beings and AI. First of all, students use AI to obtain “Public Finance” teaching resources, so that learning materials are not limited by methods, space and time, and can integrate fragmented time to achieve pre-class ubiquitous learning; secondly, relying on AI, students can customize personalized learning paths; finally, AI is used to objectively and comprehensively evaluate the effectiveness of pre-class learning, generate diagnostic reports and feedback them to teachers in real time to complete the closed-loop management of pre-class learning.

3.2.2 In-class Ability Teaching

AI is applied to teaching scenarios, which will greatly improve the efficiency of teachers “teaching and students” learning. First, AI supports cloud classroom teaching; second, AI can analyze the interactive data of the learning process and record the classroom knowledge points efficiently. For example, ChatGPT can identify learning situations, combine subject knowledge in the classroom, and provide students with instant subject knowledge questions and answers, dynamic teaching scaffolds, and feedback in the current situation (Lu et al., 2023).

3.2.3 After-school Quality Training

relying on AI, it can transform the traditional fixed after-school teaching evaluation into open teaching evaluation, use AI tools to track students’ learning process, analyze students’ learning process performance, and help students solve learning content and after-school problems. In addition, AI can make a comprehensive assessment of students’ learning process from the aspects of behavior, emotional attitude and learning results. Teachers can also analyze the problems faced by students and the shortcomings of this teaching through the feedback of AI on students’ learning, and improve the teaching process.

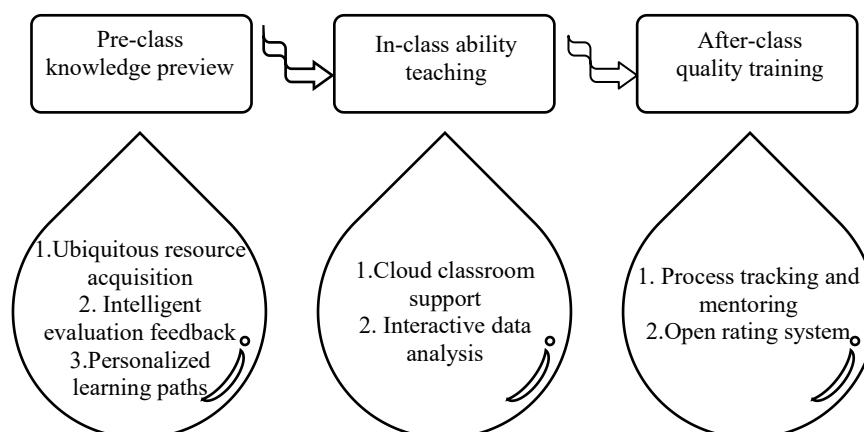


Figure 2. “Public Finance + Artificial Intelligence” Teaching Process Design

3.3 The Formulation of “Public Finance” Teaching Evaluation System

3.3.1 The Evaluation Basis of “Public Finance” Teaching Mode under the OBE Concept

Based on the OBE concept, the training of financial science and technology compound talents has depth, breadth and complexity. It requires the teaching evaluation system to be based on multiple dimensions and run through the whole process, and adopt a diversified method to implement a comprehensive evaluation of the teaching of “Public Finance” to enhance its dynamic adaptability to the economic and social environment. In order to improve the scientific nature of teaching evaluation, referring to the teaching evaluation system of Ye Lan and Wu Yaping (Ye, 2003), taking the internal basis and external basis as the clue, and composed of the whole process of overall evaluation, the teaching evaluation basis of “Public Finance” under the concept of OBE is formulated, as shown in Figure 3.

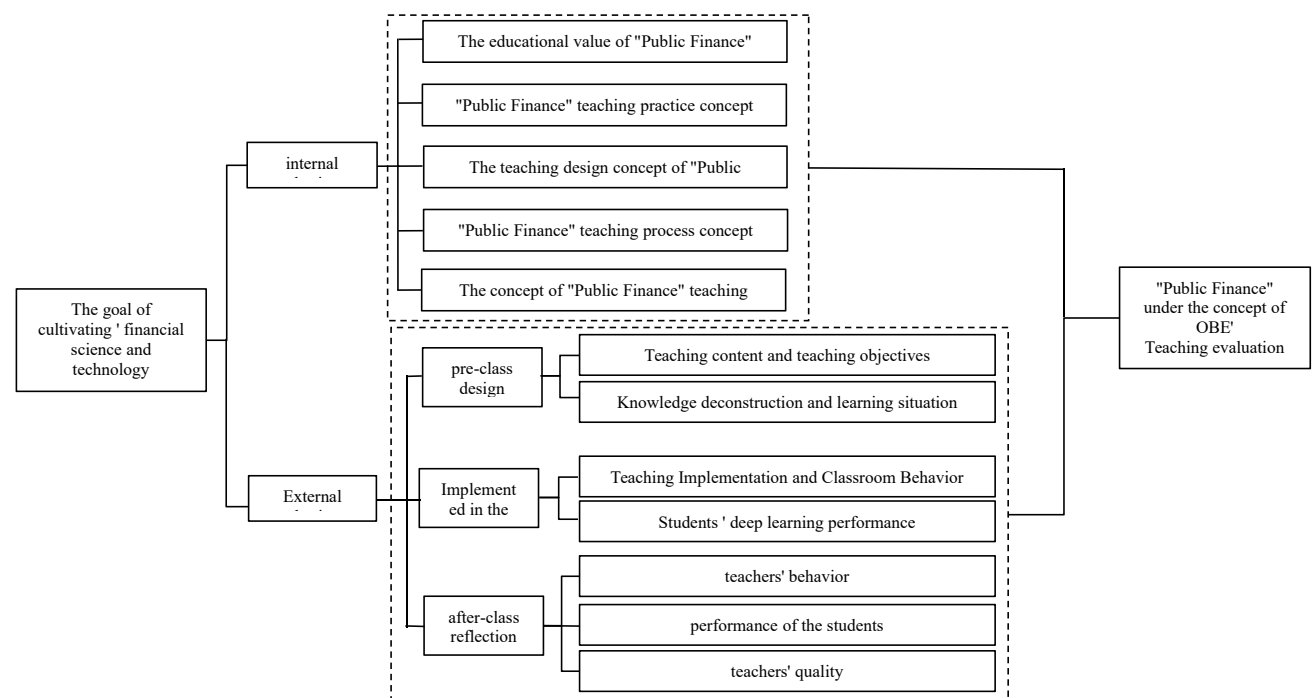


Figure 3. “Public Finance” Teaching Evaluation System

3.3.2 The Establishment of Intelligent Teaching Evaluation Index of “Public Finance” under the Concept of OBE

Teaching evaluation is a systematic description and judgment of the teaching process and its results. Under the concept of OBE, the establishment of the teaching evaluation index of “Public Finance” should focus on the core goal of students’ “moral education,” which can be considered from the following dimensions: first, knowledge mastery, that is, students’ mastery of the basic concepts, principles and policies of “Public Finance”; the second is the application of skills, which refers to the ability of students to solve practical problems in practical activities such as case analysis. The third is the innovation ability, which is reflected in the students’ exploration of the frontier issues of public

finance and the innovation of new ideas and schemes. Fourth, comprehensive quality, such as teamwork, communication and expression, professional ethics and social responsibility. These indicators constitute the cornerstone of the “Public Finance” teaching evaluation system under the OBE concept, which helps to comprehensively and objectively reflect the teaching effect and improve the teaching quality. The “Public Finance” teaching evaluation form is shown in Table 1.

Table 1. Based on the OBE Concept, the “Public Finance” Wisdom Teaching Evaluation Table Is Based on the OBE Concept

evaluation dimension	evaluation content standards	order of evaluation				
		A	B	C	D	E
teaching theory	The teaching design of “public finance” embodies the idea of “cultivating people by virtue”, meets the needs of the industry, takes the result-oriented concept, and points to the cultivation of students’ core literacy.					
content of courses	1. To carry out in-depth study of the basic principles of “public finance,” grasp the research direction, research content and social significance of the discipline, and tap the value of discipline education. 2. Based on the analysis of learning situation, deeply integrate learners’ cognitive level and personality development needs, implement scientific reconstruction and creative integration of teaching materials, and realize the accurate adaptation and efficiency maximization of AI resources.					
student learning	Based on the diagnosis of individual learning situation, this paper systematically analyzes students’ cognitive characteristics, ability structure and learning style, and accurately locates the cognitive obstacles in knowledge base and experience reserve.					
instructional objectives	The design of teaching objectives strictly follows the OBE output-oriented principle, and the unit objectives and the overall objectives of the curriculum form a vertical connection system. The target expression reflects the characteristics of precision, hierarchy and enforceability, which meets the needs of scientific cognition and teaching practice.					

teaching activities	4. Integration of curriculum objectives and national conditions: design life-oriented teaching situations, organize individual thinking or collaborative inquiry activities, guide students to call knowledge reserves and experience accumulation, independently explain subject views and form value judgments, and deepen cognitive construction and meaning generation. 5. Construct a gradient operation system: hierarchically set up three types of tasks: basic consolidation, practical application and in-depth exploration, forming a spiraling ability training path. 6. Refinement of pre-class guidance design: relying on AI to generate immersive preview situations, establish new and old knowledge connection channels, and activate learning internal drive. The key content needs to clarify the task orientation and the cognitive connection node.
teaching evaluation	The teaching evaluation is closely centered on the teaching objectives and activities, and runs through the whole classroom. Its design has both accuracy and diversity, which is in line with the psychological characteristics of college students' evaluation, and can effectively promote teachers' teaching reflection and improvement.

3.4 "Public Finance" Smart Teaching Feedback Mechanism Setting

Under the concept of OBE, the feedback mechanism of "Public Finance" wisdom teaching (as shown in Figure 4) should form a closed loop of clear objectives, plans, objective evaluation, continuous feedback and continuous improvement. Each link can be continuously optimized and dynamically corrected according to the feedback of AI teaching evaluation. On the one hand, relying on the AI platform, teachers use ChatGPT and other systems to feedback students' teaching activities, explore advantages and disadvantages, and provide optimization ideas. On the other hand, students give feedback to teachers according to their own learning feelings and AI evaluation, so as to improve the applicability and practicability of the teaching mode. This two-way feedback mechanism helps to build a student-centered and teacher-led teaching model to ensure that teaching is carried out around students' needs and effects. In addition, the use of AI real-time data analysis function can find students' learning difficulties and bottlenecks in time, provide teachers with accurate intervention strategies, and provide students with personalized learning guidance. In this way, it can not only improve the teaching quality of "Public Finance", but also stimulate students' interest and enthusiasm in learning and promote their all-round development.

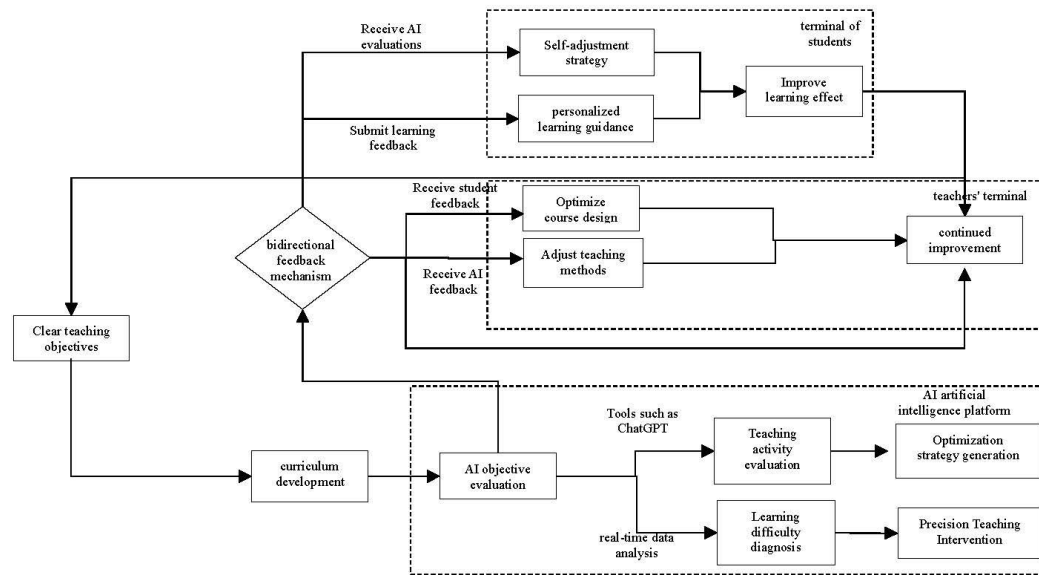


Figure 4. Feedback Mechanism of “Public Finance” Wisdom Teaching

4. Complimentary Close

As an economic subject to explore the revenue and expenditure of the public sector and macroeconomic regulation and control, the improvement of teaching quality and efficiency of “Public Finance” can not only deepen students’ mastery of financial theory and practice, but also promote the structural integration of the economic knowledge system. Based on this, this study analyzes the motivation of teaching reform based on the characteristics of the course, and constructs a new OBE-oriented teaching paradigm of “Public Finance + artificial intelligence.” This model practices the student-centered concept, relies on intelligent technology to realize the proliferation of teaching resources and the reconstruction of information ecology, dynamically adjusts the objectives, methods and contents through continuous teaching evaluation, drives the transformation of the exploratory learning paradigm, and finally achieves the triple goals of cultivating self-learning ability, comprehensive literacy advancement and training of financial science and technology compound talents, and serves the high-quality development strategy of the economy.

References

- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20(1), 43.
- J. H. Zhang, & C. R. Zheng. (2014). An Analysis Report on the Construction of Undergraduate Majors in Finance in China-Based on a Questionnaire Survey of 56 Majors. *Chinese University Teaching*, (07), 26-31.
- J. S. Li. (2017). New Market Finance: A New Paradigm for Enhancing the Explanatory Power of

- Finance. *Journal of Central University of Finance and Economics*, (05), 3-11.
- Jin, S., Im, K., Yoo, M., Roll, I., & Seo, K. (2023). Supporting students' self-regulated learning in online learning using artificial intelligence applications. *International Journal of Educational Technology in Higher Education*, 20(1), 21-37.
- L. M. Fan. (2020). Four key issues in the ideological and political construction of finance professional courses. *Research on Chinese higher education*, (09), 4-8.
- L. W. Y. P. Ye. (2003). The reform of classroom teaching and the reform of classroom teaching evaluation - - The third part of the theoretical and practical exploration of the classroom teaching reform of 'New Basic Education'. *Educational research*, (08), 42-49.
- Y. F. Bai. (2023). *Several basic problems that need to be dealt with in the construction of 'Chinese public finance' discipline*, (05), 36-45.
- Y. Lu, J. L. Yu, P. H. Chen, & M. Y. Li. (2023). The educational application and prospect of generative artificial intelligence-Taking ChatGPT system as an example. *Distance education in China*, 43(04), 24-31.
- Z. K. Yang, J. Wang, D. Wu, & X. Chen. (2023). The impact of ChatGPT / generative artificial intelligence on education and its coping strategies. *Journal of East China Normal University (Education Science Edition)*, 41(07), 26-35.
- Z. T. Zhu, & F. Wei. (2018). Education Informatization 2.0: Intelligent Education Starts, Smart Education Leads. *Electrified Education Research*, 39(09), 5-16.

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