

Original Paper

Discussion on the Application of AI Enabled Engineering Economics and Project Management Course

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Abstract

Artificial intelligence has triggered profound reforms in higher education, effectively addressing prominent issues in traditional teaching such as insufficient personalization and disconnection from practical application. As a course of “Engineering Economy and Project Management” with both theoretical and application characteristics, there are some pain points in traditional teaching, such as dull classroom atmosphere and lagging teaching feedback. After AI empowerment, it can stimulate students’ learning motivation, help build a “data-driven, real-time response” smart classroom, help students establish engineering economic analysis thinking and project management capabilities, and help colleges and universities cultivate high-quality engineering management professionals that meet the needs of the digital era. At the same time, it provides reference and reference for the intelligent reform of similar engineering courses.

Keywords

AI Empowerment, Engineering Economics and Project Management, Curriculum Teaching Reform

1. Introduction

In April 2025, the Ministry of Education and other nine departments issued the “Opinions on Accelerating the Digitalization of Education,” clearly putting forward that education digitization should be an important breakthrough, opening up a new track for education development and shaping new advantages for development. In August 2025, the State Council issued “opinions on the in-depth implementation of” artificial intelligence + “action”, which also clearly stated that artificial intelligence should be integrated into the whole elements and process of education and teaching.

In the era of comprehensive promotion of new engineering and the digital transformation of national higher education, artificial intelligence is reshaping education. The deep integration of AI technology and college teaching courses will break the teaching pain points and innovate the teaching mode. AI

tools can not only be used as search tools to collect content, help teachers generate PPT, beautify PPT, but also help teachers understand students' psychology, put forward new ideas for boring teaching content, and enable all-round courses.

2. Summarization of Domestic Research Status

In recent years, many scholars have carried out research on AI-enabled courses, including the digital intelligence transformation of AI-enabled courses, the teaching reform of AI-enabled courses, the personalized teaching mode of AI-enabled courses, the teaching evaluation research of AI-enabled courses, and the digital resource development of AI-enabled courses.

Kou Weibin's team (2026) and Wang Qi's team (2026) studied the mathematical intelligence transformation of AI-enabled courses such as "Airport Information and System" and "Tourism Planning and Development" respectively, and discussed the role of AI in the construction of diversified evaluation system.

Liu Shi (2026) analyzed the pain points of traditional teaching mode, discussed the four-dimensional reconstruction of AI-enabled teaching system, and strived to build a new ecology of intelligent education supported by Internet platform.

Ding Yu (2026) analyzed the three major pain points in the intelligent transformation of curriculum teaching: lagging teaching content, deviating from the needs of the industry, and insufficient intelligent construction. He proposed to reconstruct the curriculum teaching content, the mixed teaching mode of human-machine collaboration, and the intelligent upgrading of the evaluation system. The path of curriculum teaching reform proposes the establishment of a guarantee mechanism for upholding ethics, strengthening collaboration, and improvement of literacy.

3. Analysis of Teaching Pain Points

The course of "Engineering Economy and Project Management" is a course that combines theory with practice and has a very strong practical applicability. The teaching of pure theory cannot arouse students' interest, and the complex calculation will make students elusive. Under the traditional teaching mode, there are some problems in the teaching process: students' interest in listening to the class is low, the phenomenon of playing mobile phones in class is common, the participation in the class is not high, and the error rate of calculation questions is high. Based on the above, the teaching pain points are mainly reflected in the following aspects:

(1) Dull "spoon-feeding" classroom, unable to arouse students' interest

The traditional teaching mode has a single teaching method, and the lack of interactive teaching makes students feel that the classroom has nothing to do with themselves. The teaching content is obscure and difficult to understand, which makes students feel that they cannot learn. Teachers' questions are usually self-questioning and self-answering. The classroom atmosphere is dull, which cannot arouse

students' interest, and it is difficult to stimulate students' learning motivation. Students' non-participation makes classroom teaching like a teacher's one-man show.

(2) Lack of effective feedback mechanism, failed to detect students' knowledge blind spots

In the traditional teaching mode, it is difficult for teachers to capture students' cognitive state in a timely and accurate manner. Some students listened very carefully in class, but there were many mistakes in the periodic test. Some students nodded frequently in class, seemingly completely understood, but they did not at all pass in the final exam. Lagging learning feedback will lead to students' knowledge blind spots not being discovered in time, which will also weaken students' motivation to learn following content.

(3) Lack of the ability to analyze and solve problems, failed to allow students to form their own problem-solving ideas

The traditional teaching mode of computing problems: first teaching and then practicing, students lack the formation process of independent problem solving ideas. In the process of teaching, teachers often follow the path of "teacher demonstration-student imitation." After the teacher shows the standard solution, the students only need to substitute the formula and imitate the steps to complete the homework. The students' homework seems to be 100 points, but the essence is only to learn the skills of drawing according to the teacher's examples. Once the subject conditions change subtly, the error rate of the students increases sharply, and the students do not really have the ability to analyze and solve problems, thus leading to the common dilemma of "understanding easily in lectures but failing miserably in practice".

4. Discussion on the Curriculum Reform of AI-Enabled Engineering Economy and Project Management

4.1 AI-assisted Teaching Content-Guided By "Naive Task"

At the beginning of the lesson, a teacher can use AI tools and give it a command, such as "around the time value of money, help me generate a small story that can be discussed". An AI tool generates a small story of "old carpenter and three apprentices". The content is: "old carpenter gives three apprentices 100 silver taels each, and agrees to come back to see who has the most silver taels one year later". Give this task to the students, let the students discuss, and after the students fully discuss, then the teacher can continue to tell the story. At the expiration of one year, the first apprentice locked 100 silver taels of silver in the wooden box, nothing changed, a complete 100 silver taels there; the second apprentice lent the silver taels to the grain merchants in the village, and asked the grain merchants to return 105 silver taels after one year; the third apprentice bought wood and tools with the 100 silver taels, and built a beautiful set of furniture in half a year, selling 130 silver taels'. This little story reveals the interest and profit of the engineering economy. This teaching method can successfully attract students' attention and fully mobilize the classroom atmosphere.

4.2 AI-assisted Teaching Method-Course Content Is Integrated Through A Task-Driven Engine

In the process of teaching, teachers can call AI tools to help teachers generate a small game and give it instructions. For example, “help me generate a visual game, the theme is engineering economy and project management”. AI tools will automatically write code and generate a web version of the game interface. Students can complete the answers to various questions in the form of breakthrough. The game interface can also count students’ breakthrough points. As a result of students’ classroom performance, this score can not only mobilize students’ enthusiasm, but also teach students knowledge points, fully reflecting the “student-centered” teaching concept.

4.3 AI-assisted Feedback Mechanism-Build A “Data-Driven, Real-Time Response” Smart Classroom

In the process of teaching, teachers can use online interactive tools to build a set of “whole process, visualization, point-based” instant feedback system. The specific operation is as follows:

(1) Multiple interactive design, activate classroom participation

In the process of preparing lessons, teachers can preset activities in advance in PPT, set questions according to the difficulty of the questions, preset classroom activities such as random selection, answering, and topic discussion in advance, assign points to each activity, and finally calculate the cumulative course points as an important indicator of process assessment. Such online activities, on one hand, can stimulate students’ initiative to hunt points, on the other hand, through this “mini-test”, teachers can grasp the learning situation at any time. Because of the existence of AI tools, students are no longer afraid to answer teachers’ questions, and the enthusiasm of participating in classroom activities is significantly improved. When students call AI tools to solve problems, it is also a process of collecting data and learning, effectively expanding students’ knowledge.

(2) Real-time feedback closed-loop to eliminate knowledge blind spots

With the help of online interactive tools, a learning mechanism of response-feedback-modification-enhancement can be constructed. Such online activity tools can timely count the accuracy of students’ answers. If the accuracy of a certain question is low, teachers can give students feedback in time, so that students can find ways to modify their ideas, and ultimately improve their ability to analyze and solve problems, accurately locate knowledge blind spots and clear them in time. After the students submit the answers, the online interactive tool will timely count the accuracy of the students, and the students can see whether their answers are correct. Through the teacher’s explanation, the students get timely feedback.

5. Rational Review of AI Empowerment: Seeking a Balance between Data-Driven and Teaching Wisdom

AI calculation is not 100 % accurate every time. Such technical tools will also have calculation errors due to inadequate analysis of problems. Teachers should teach students to “distinguish authenticity” and have correction skills in the teaching process. Only in this way can AI better enable teaching. For instance, taking the course of “Engineering Economy and Project Management” as an example, input the following questions and ask AI to answer them.

A company has two schemes A and B, both of which can meet the same needs. The construction period is one year, and the initial investment is invested at the beginning of the construction period. However, the investment, operating years and annual operating cost of each scheme are different. The cash flow is shown in Table 1, and the net annual value method is used to select the optimal scheme (benchmark yield $i_c = 10\%$).

Table 1. Cash Flow Statement (Unit: Ten Thousand Yuan)

Scheme	Initial investment	Annual income	Annual cost	Final residual value	Years of operation
A	200	150	50	0	4
B	300	150	50	50	5

An AI tool gives the final answer: $NAVA = 47.24$ ten thousand yuan. $NAVB = 37.6$ ten thousand yuan.

Conclusion: $NAVA = 47.24 > NAVB = 37.60$, scheme A is the optimal scheme.

As far as this result is concerned, the calculation result of AI tool is wrong. The reason for the error is that it is not noted that the income of the operation period cannot be directly used as the annual value of the calculation period. The annual value of the operation period should be converted into the present value of the calculation period, and then the annual value of the calculation period should be calculated. Directives are issued to AI: the annual net income of 1 million yuan in the title only occurs in the operation period, and does not occur at the end of the construction period, and cannot be directly used as the annual value. It is necessary to calculate the annual net income of 1 million yuan in the operation period of 4 years of A scheme to the beginning of the construction period, and then calculate the present value to the calculation period of 5 years; similarly, the annual value of the B scheme is converted, and the answer is corrected after the condition is improved. An AI tool gives the final answer: $NAVA = 232.6$ thousand yuan. $NAVB = 167.3$ thousand yuan. Conclusion: $NAVA = 23.26 > NAVB = 16.73$ (unit: ten thousand yuan), scheme A is the optimal scheme. The final answer of AI is basically the same as the manual answer.

6. Conclusion and Research Prospects

AI is deeply integrated into teaching to help teachers integrate curriculum resources, improve the efficiency of teachers' lesson preparation, enrich teaching content, and improve the quality of courseware. Various online activities break the dull atmosphere of the classroom, enhance classroom activity, and effectively promote the transformation of traditional teaching to intelligence. Looking forward to the future, AI has great potential in the field of education. In the future, it will play a greater role in the analysis of learning situation and the accurate positioning of students' knowledge blind spots, and continue to help the modernization of education. As a teacher, we should also be soberly aware that AI is only a tool to help teaching, can not substitute teachers' teaching, can not completely replace teachers' ideas, and can not directly use the PPT generated by AI as the teaching content. Teachers should correct the content generated by AI in time, stick to the original intention of education and the bottom line of specialty, keep the education temperature and teaching quality while improving the teaching efficiency, and promote the steady development of education and teaching in the direction of higher quality and intelligence.

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