

Practice and Reflection on Insurance Teaching under the Background of Artificial Intelligence

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Abstract: With the increasing development of artificial intelligence (AI), the application of AI technology in the field of education is becoming more and more important. This paper takes insurance as the research object and analyses how to use AI technology to improve the teaching effectiveness of this course.

Keywords: Insurance; Artificial intelligence; Education

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1. Introduction

Artificial intelligence (AI) is the core driving force for the digital transformation of higher education. It has changed the limitations of traditional classes, achieved differentiated instruction, and increased efficiency in teaching and research. In terms of teaching, AI intelligent teaching assistants can answer questions at any time, automatically grade homework, develop personalized learning methods, enhance class interaction, and so on.

The core of Insurance is risk management. In the teaching process, insurance integrates economics, law, and mathematics, and mainly covers risk identification, risk measurement, insurance pricing, insurance operation, insurance regulation, and the insurance market. However, Insurance education has mainly focused on theoretical lectures, case analysis, and basic practice. So there are obvious limitations in simulating real business scenarios, training complex risk assessments, connecting with the latest industry technologies, and so on.

In recent years, China's insurance industry has entered a stage of comprehensive digital transformation, and artificial intelligence has become a key technology changing the traditional industry. Including front-end sales, mid-range underwriting, back-end claims, and risk control. AI technology achieves full process participation.

In summary, insurance institutions no longer only need practitioners who have expertise in traditional business. In addition to insurance expertise, they urgently need composite talents with data analysis, intelligent models, and digital insurance business. Therefore, the change in the job structure of the industry has new requirements for education in universities.

2. Theoretical basis and practical value

2.1. Constructionist learning theory

The theory suggests that learning is not only transferred by teachers, but learners actively complete the process of knowledge construction through interactive tools and learning situations. Traditional insurance classes mainly rely on lectures or case studies. But in fact, the more important part of this course is the real insurance business process. AI technology can build virtual simulation training scenarios, create diverse customer profiles, insurance fraud cases, risk disputes, and other situations. Encourage students to do risk assessment, insurance design, and dispute resolution by themselves, improving their ability to think independently.

2.2. Personalized learning theory

Personalized learning theory suggests breaking the standardized teaching model and following the different abilities and foundations of students. Insurance includes law, economics, mathematics, and marketing. Students have distinct abilities in mathematical modeling, interpretation of insurance terms, and business communication.

However, with the help of an artificial intelligence learning analysis system, students' learning status can be continuously tracked, and gaps in learning, such as intelligent risk control, premium calculation, and insurance law, can be identified. Based on this theory, it can effectively solve the problems of traditional classrooms and enhance the effectiveness of professional teaching.

2.3. Integration of industry and education theory

The theory of integration of industry and education is the core theory for the cultivation of applied disciplinary talents, suggesting that talent training connects the demand of industrial development and bridges the gap between campus teaching and industry practice.

Universities need to keep up with the technological changes in the industry, integrate digital insurance business and intelligent analysis tools into the curriculum system, rely on AI training platforms to replicate the digital business scenarios of insurance institutions, and achieve matching between talent training standards and industry job requirements. The university will integrate digital insurance business and intelligent analysis tools into the curriculum system, rely on AI platforms to replicate the digital business scenarios of insurance institutions, and achieve a match between education and job requirements.

3. Application in insurance teaching

3.1. Establishing an AI knowledge graph

According to the learning requirements and features of Insurance, establish an AI knowledge graph to organize different knowledge points as shown in **Figure 1**. The purpose of the knowledge graph is to help students organize the knowledge framework. As shown in the figure below, the insurance knowledge graph outlines five core domains: fundamentals, contracts, operations, regulation, and AI applications. Then, based on the knowledge graph, establish a problem graph. Enhance students' interest in learning and their ability to solve problems. In addition, the knowledge graph can support intelligent case teaching and scenario deduction. AI can automatically combine different risk scenarios, customer profiles, and accident types, and solve the problem of single teaching scenarios in traditional insurance teaching cases.

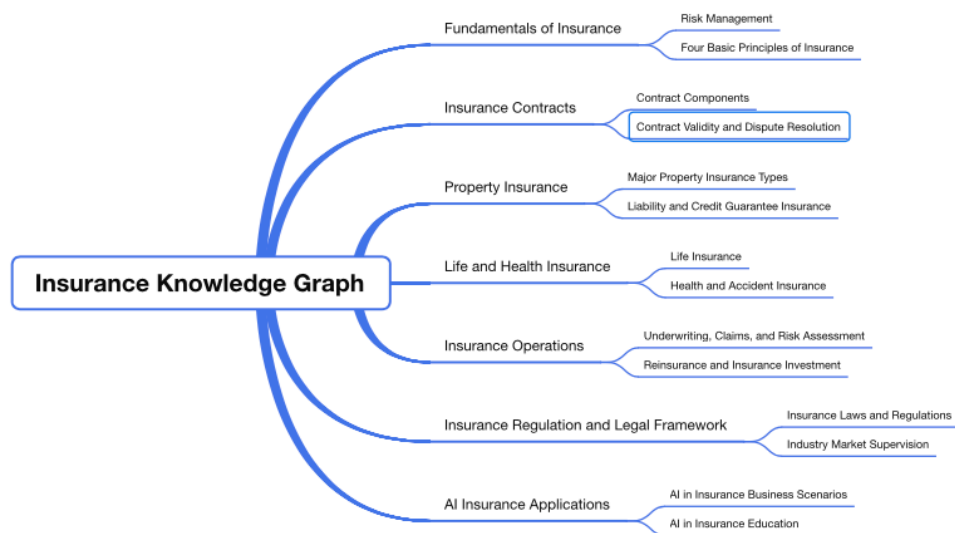


Figure 1. Insurance knowledge graph

3.2. Developing AI teaching assistant function

AI assistant is an important application carrier for the implementation of artificial intelligence in insurance professional teaching, which can share the repetitive teaching work and solve the problem of separation between on-campus and off-campus ^[1].

Firstly, AI assistants send information and case studies to students based on the knowledge graph before class. Then, they collect questions raised by students during the preview stage, summarize them into a list of questions, and provide feedback to the teachers. Secondly, during class teaching, AI assistants can provide real-time answers. Enable teachers to devote more time to case studies, risk analysis, and group discussions. Lastly, after the class session, it can complete homework correction and problem analysis. At the same time, it supports 24-hour Q&A to solve any students' problems after class, making up for the shortcomings of communication after class between teachers and students ^[2].

3.3. Establishing an AI instruction library

Set grouping instructions that include interdisciplinary, academic Frontier knowledge, before-class challenges, after-class sharing, and many other classification instructions. This classification instruction setting helps to enhance students' interest in learning or expand the scope of knowledge. According to **Table 1**, insurance is not an isolated discipline; it rests on the theoretical pillars of finance, economics, and law. Simultaneously, it deeply integrates applied fields like computer science, medicine, statistics, and sociology to fuse intelligent risk modeling, health assessment, actuarial pricing, and social security coverage.

Table 1. Insurance disciplines

Discipline category	Related disciplines	Main intersection contents
Basic disciplines	Finance	Insurance fund operation and investment
	Economic	Risk utility theory, insurance supply-demand analysis
	Law	Insurance contract, regulatory compliance

Interdisciplinary applied disciplines	Computer and AI	Risk modeling, intelligent underwriting, AI claim settlement
	Medicine	Life insurance underwriting, health insurance business
	Statistics and Actuarial Science	Premium pricing, loss estimation, reserve calculation
	Sociology	Social security, catastrophe risk, inclusive insurance

3.4. AI evaluation system

The evaluation system of traditional insurance classes included participation, group assignments, and a final exam, which focused on students' outcomes. But this approach ignores the process of students' thinking in class; it is difficult to adapt to the goals of insurance in the AI era ^[3].

However, the AI evaluation system can be completed through multi-dimensional data. Firstly, record students' preview data, such as reference reading and downloads, and completion status of exercises ^[3]. Secondly, group meeting data during class. In addition, statistical assessment of product design and simulation training assignments. AI can score students' performance in each part. The important thing is that AI only plays an assisting role in evaluation; teachers have the final evaluation right ^[4].

4. Case study

This part takes application and underwriting of life insurance as an example, which is shown in **Table 2** below.

Table 2. Three parts of life insurance teaching

	Core objective	Implementation steps	AI integration	Teaching resources
Part 1	Basic knowledge points of life insurance; Design standardization cases	Step 1: Disassemble business processes; (qualification review of policyholder/health declaration/premium calculation/underwriting decision) Step 2: Building AI platform; (open students' accounts/filter cases)	AI online Q&A / Automatic group students	Unit plan/ Job Description of insurance company/AI platform instructions for use
Part 2	AI-assisted case analysis; Understanding the entire process of application and underwriting	Step 1: targeted explanation based on the result of Part 1 Step 2: quick import of the application and underwriting process after AI cases Step 3: AI simulation training	Student grouping operation/ Double guidance from teachers and AI	AI report analysis/ group work record
Part 3	AI evaluation system and innovative thinking	Step 1: AI calculates process assessment (preview data/class participation/group work) Step 2: AI randomly generates a quiz on life insurance	AI quantitative statistics + teacher correction	Question bank

Based on **Table 2**, the teacher provides relevant theories on life insurance in advance; students complete previews before class, including basic knowledge points of life insurance. Students learn independently through resources on an AI platform, such as qualification review of policyholders, health declaration, premium calculation, and underwriting decisions. During this process, AI plays the role of a teaching assistant who is available 24 hours a day. Second of all, AI provides case analysis; students are grouped to play as insurance salespeople and policyholders, and complete the entire process from contract signing to settlement of claims. In

addition, AI records students' performances automatically during the teaching process.

5. Conclusion

As the core course in the major of Finance, applying AI technology to develop teaching is not only for this single course, but also to support digital development. The enthusiasm of students for learning will be improved through AI teaching assistants ^[5]. On the other hand, it also enhances the teaching efficiency of teachers. In the specific process, it will need more comparison with traditional teaching classes and observation of students' learning outcomes through different data. Finally, it achieves improvement and large-scale promotion.

Disclosure statement

The author declares no conflict of interest.

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