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Digital Technology Empowers Business Negotiation Teaching Reform in Colleges and Universities

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Abstract*—As a highly practical course, the teaching reform of business negotiation needs to follow the development trend of the digital economy era. This paper proposes that in the framework of "point, line, surface" project decomposition and cooperative learning, digital tools, data analysis technology and digital economy cases are deeply integrated to build a practical teaching system that combines with reality. Through the introduction of virtual reality (VR) simulation negotiation, data-driven strategy development, blockchain contract management and other technologies, students' immersive experience and practical ability are enhanced; combined with cross-border e-commerce negotiation, data privacy protection and other digital economy issues, students' ability to cope with emerging challenges is cultivated. At the same time, the online collaboration platform and AI-assisted feedback system are employed to enhance the cooperative learning experience and achieve intelligence and personalization in the teaching process. The reformed curriculum system not only strengthens students' negotiation skills, but also enhances their digital literacy and innovation consciousness, providing a new path for cultivating composite business talents.*

***Keywords*—** *Simulated negotiation, digital technology, project decomposition, cooperative learning, digital economy.*

I. Background and Objectives of the Curriculum Reform

With the rapid development of digital technology, the global economy is accelerating its transformation to digitalization. The digital economy takes digital knowledge and information as the key production factors, modern information networks as important carriers, and the effective use of information and communication technologies to improve efficiency and optimize structure. The digital economy is characterized by integration, openness, sharing and innovation. Digitalization is not only an objective requirement for technological progress, but also a profound change in traditional thinking mode and organizational structure. In the digital economy, enterprise digital capabilities mainly include digital leadership capabilities, digital value realization capabilities, and digital organization operation capabilities. The Economic Co-operation and Development (OECD) points out that with the deepening of digitalization and globalization, digital skills have become a must-have for everyone. According to the OECD, digital talent is primarily defined as those with digital skills related to information and communication technology (ICT). Combined with the needs of enterprises' digital capabilities, digital talents mainly refer to cross-domain professionals with digital thinking, who can apply digital technology to different scenarios and transform them into valuable information and knowledge in specific fields. According to the current research on digital talents by some research institutions, the capabilities of digital talents mainly include four capabilities: digital strategy, digital thinking, digital execution and digital innovation。

Cross-border e-commerce, blockchain finance, artificial intelligence and other emerging fields have put forward higher requirements for business negotiation: the negotiation scene has shifted from offline to online, the negotiation targets intelligent algorithms and multinational corporations, and it discusses new issues like privacy protection and data sovereignty. In this context, international business negotiation courses urgently need to break through the traditional teaching mode and integrate digital technology and digital economy thinking into practical teaching, in order to cultivate application-oriented talents adapted to the future business environment.

The course of business negotiation has very distinctive features. First of all, it is an applied discipline and very comprehensive. Conducting a negotiation may require expertise in commodity trading, marketing, financial investment, business management, behavioral psychology, language communication, and many other areas, as well as cross-application of these knowledge. Second, even if a student has the above knowledge, it may only be theoretical, and does not mean that they will be able to conduct a negotiation skillfully and win. Without practical training, students will not be able to appreciate how to apply what they have learned, let alone develop negotiation skills. Finally, business negotiation knowledge is not only in demand in negotiation positions, but also in many other positions and even in daily life, so as to improve one's own literacy and obtain better development opportunities, such as negotiation etiquette, language communication skills, etc. Therefore, the purpose of teaching business negotiation is not to learn theory, but to be able to apply it in practice. At present, most of the traditional business negotiation teaching is limited to teaching the theoretical knowledge of business negotiation in the classroom, although the teacher knows the importance of practical operation, he may suffer from no opportunity for practical exercise, so the business negotiation course is easy to become a "paper talk" type of classroom, the teaching content is just a simple theoretical repetition, and students also feel that there is no interest and confidence in learning. Even if it is case teaching, there is still a certain disconnect between practical operation. In fact, business negotiation is a very practical and operational course, and the skills of business

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negotiation do not come from the course teaching, but from the course practice.

Artificial intelligence in negotiation refers to the use of artificial intelligence to facilitate, enhance, and even automate the negotiation process. This includes everything from simple data analysis to sophisticated algorithms capable of running the entire negotiation independently. The concept of using AI in negotiations is not new, but in recent years, significant progress has been made in its practical application. Initially, AI tools were limited to basic decision support systems, but today, they already contain sophisticated algorithms that can understand and predict human behavior. As the data involved becomes more complex and volume-bound, the role of AI in modern negotiations is crucial. Traditional negotiation methods often struggle to effectively process large amounts of information, resulting in unsatisfactory results. AI can analyze large data sets, identify patterns, and provide data-driven recommendations that enhance the negotiation process. According to a McKinsey report, companies that integrate AI into their negotiation process are 30% more effective in negotiations. Deloitte reports that AI-driven negotiations can improve the accuracy of predictions and outcomes by 40%. A Gartner survey found that 55% of large enterprises are already using AI in some form of negotiation. Companies that implement AI during the negotiation process have an average ROI of 20%. 70% of users said they were more satisfied with the outcome of the negotiations. By incorporating AI into negotiations, organizations can achieve more favorable outcomes, streamline the negotiation process, and make better use of their data, ultimately increasing competitiveness and success in their respective fields.

TABLE 1-1 Types of AI used in negotiations Types of Artificial Intelligence Description

Types of Artificial Intelligence	Description
Machine learning algorithms	used to identify patterns and trends from historical negotiation data, thereby improving decision-making.
Natural language processing	helps to understand negotiation texts, emails, and verbal conversations, leading to better communication.
Predictive analytics	uses data to predict negotiation outcomes and help negotiators develop effective strategies.

The objectives of the course teaching reform include: technology-enabled practice: to enhance the authenticity and complexity of simulated negotiation through digital tools; data-driven decision-making: to cultivate students' ability to use big data analysis to support negotiation strategies; digital economy thinking: to introduce emerging cases such as cross-border e-commerce and digital trade to broaden students' horizons; and innovation in collaboration mode: to optimize the efficiency of teamwork and resource integration with the help of online platforms.

II. IDEAS AND CONTENTS OF CURRICULUM REFORM

As we all know, negotiation is an activity with strong continuity, many links and a relatively large time span. A complete business negotiation, includes at least three major parts of the pre-negotiation preparation, negotiation process and follow-up work. Each part of the process includes a number of links, which are closely related to each other. Whether or not the work of the previous link is in place often determines whether or not the ensuing negotiation can be carried out smoothly, and even determines the final outcome of the negotiation. All the links need to master the knowledge, which will generally be reflected in the textbook, but is very easy to fall into the "paper talk" misunderstanding in the teaching. the following problems often appear: first, students know how to do it just theoretically, but never do it practically; second, how to prevent students from learning the new skills while forgetting the preview; third, how to make students appreciate the coherence of the skills and their position in the whole negotiation process. This requires teachers to have a scientific and reasonable teaching design for the course. We call this design "point, line, surface" combination of project decomposition. On the basis of this "point, line, surface" project decomposition framework, we integrate elements of digital technology to build a "technology + scene + collaboration" trinity teaching mode.

(i) "Point" phase: digital tools and micro-scenario training

During the phase of project decomposition from the "point", the negotiation process is divided into a number of stages, each stage is divided into a number of projects, each project is closely linked to adapt to the requirements of a number of positions. Each project is subdivided into a number of specific tasks, teachers teach which part in the classroom teaching, students can practice for which link, so that students can complete tasks and the projects while mastering the content of the teaching, so as to achieve the teaching objectives.

Project decomposition from the "point" requires that the task is as detailed as possible, each task does not take up a long time, but requires and the knowledge taught in the classroom is closely related. For example, in the classroom teaching about the qualification of the negotiating subject, the teacher can design a few simulation scenarios about the qualification of the negotiating subject, provide students with the background of the negotiating subject, so that students can review the qualification of the subject according to the content of the classroom; in the link of the negotiation plan, the teacher can allow students to simulate the development of the negotiation of the general rules or bylaws, provide students with the background, characteristics and negotiation purposes of the negotiating opponents so that students can plan the negotiation program. As for the characteristics and negotiation purpose, the teacher can let students plan the negotiation itinerary and general rules; in the talk to the pre-negotiation data collection link, the teacher can provide students with negotiation object and subject, let students practice how to collect pre-negotiation data through a variety of methods; Another example, for the opening of the international business negotiations, the teacher can set up a few specific negotiation scenarios, give the negotiation background information to guide the students to create a good opening atmosphere, let students experience the impact of different opening forms on the negotiation outcome through simulated openings; when it comes to the negotiation process, the process can be broken

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down into smaller items, such as, the determination of the level of the target, the starting point of the counter-offer and strategy, etc.; in the follow-up session, the teacher can also provide students with the information of a successful negotiation, let students formulate a contract or a memorandum of understanding. The advantage of breaking down the negotiation session for simulation practice is that it allows students to practice as they learn, and the teacher can always identify problems, correct them, and improve the instructional design. This is actually in preparation for the "diversified practical training sessions", to avoid the shortcomings in the traditional teaching, so that students can enter the state of learning while doing.

At this stage, we can incorporate the following digital tools:

1、Virtual Reality (VR) Negotiation Simulation

VR technology is used to create immersive scenarios in the qualification of the negotiating subject and the creation of the opening atmosphere. For example, students can enter the virtual conference room through VR equipment, interact with AI-generated negotiation opponents, observe each other's micro-expressions and body language in real time, and improve the sensitivity of non-verbal communication.AI can also support multi-scenario switching (e.g., transnational negotiation, crisis negotiation).

2、Big data-driven information gathering

In the negotiation information preparation stage, industry databases (e.g. Statista, Customs Data Platform) and web crawler tools are introduced to guide students to quickly obtain key information such as market trends and competitor dynamics. In the case study phase, taking the pricing negotiation of a cross-border e-commerce enterprise as an example, students need to visualize the industry price fluctuation law through data analysis tools (e.g. Tableau) to provide the basis for the bargaining strategy.

3、Blockchain Technology Applications

In the contract formulation session, a smart contract platform (e.g. Ether) is introduced to simulate the contract signing and execution process in a blockchain environment, so that students can understand the impact of decentralized trust mechanisms on the negotiation follow-up.

(ii) "Line" phase: digital technologies linking the entire process

The breakdown of the project from the "face" is usually arranged in the middle or later part of the semester. At this stage, students have basically learned the basics of negotiation, pre-negotiation preparation, the process of negotiation, the main methods of negotiation and part of the strategy. At this stage, the teacher can provide students with a set or several sets of more detailed background information on the negotiation project, including the theme of the negotiation, the basic background of the negotiating parties, the basic information on the negotiating object, etc. Students are required to work in small groups to first determine whether their identity is a buyer or a seller, and then, according to their identity, use what they have learned in the classroom to collect market information and information on the opponents, develop negotiation itineraries and general rules, analyze the advantages and disadvantages of both sides, set negotiation goals, determine the main negotiation strategy, clarify the division of labor of group members in the negotiation and so on. The above contents are expressed in the form of a complete and standardized negotiation plan and demonstrated publicly, which can be scored by the teacher or evaluated among students.

The advantages of doing so are: firstly, students have done simulation training on the sub-tasks of the "points" in the first stage, and now these points are linked together, so that students can appreciate the correlation between them; secondly, the problems found during the simulation training in the early stage can be further improved and refined at this stage; Thirdly, when the buyer and seller disclose their respective negotiation programs, they can compare the programs of the two sides. Since the negotiation objects of the buyer and seller are the same, the gap between the programs can reflect the mastery of knowledge, the meticulousness of preparation and the strength of negotiation ability of the students in each group. If the gap between the two sides of the program is large, the two sides of the negotiation can also debate and negotiate on issues that are more divergent, such as the differences in the market price, the differences in the target price, the differences in the negotiation plan and so on. These gaps are clear at a glance, the teacher can be targeted to explain and evaluate, students can also learn their own shortcomings and ways of improvement very intuitively, which is a great benefit for the second half of the semester of teaching and learning.

At this stage, we can use digital tools to accomplish the following supporting functions:

1. AI-assisted negotiation program optimization

After students submit their negotiation proposals, natural language processing (NLP) tools (e.g. GPT-4) are used to automatically analyze the logic of the strategy and provide suggestions for corrections. For example, the AI recognizes deviations in target price setting from market data and prompts the student to adjust the target level.

2. Cross-platform collaboration and project management

The group is required to use online collaboration tools (e.g. Notion, Flybook) to complete the negotiation program writing, task assignment and progress tracking. Teachers monitor the contribution of each member through background data to avoid "free-riding".

3. Digital Countermeasures Exercise

Both sides conduct simulated debates on online platforms (e.g., Zoom Breakout Rooms), and the system automatically records data such as speaking time and keyword frequency, generating an analysis report of negotiation styles for teachers' targeted guidance.

(iii) "Face" phase: integrated practice in digital economy scenarios

The "face" of the project training can be placed at the end of the semester, it can also be used as a way of final assessment. At this stage, students have learned the main strategies and techniques of negotiation, ways to solve the deadlock, the etiquette of negotiation, the follow-up work of negotiation and

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so on, the knowledge of these links need more real practice in order to see the effect. Therefore, the "face" of the project training is actually a complete, confrontational, more realistic simulation of the negotiation.

First, in the preparation stage of negotiation, students freely choose the members of the negotiation team and divide the negotiation roles based on what they have learned in class about the competencies and responsibilities of negotiators, and determine the responsibilities of the main negotiator, the auxiliary negotiator, and the record-keeper. The teacher assigns negotiation tasks in advance and provides the necessary background information or sources of information on negotiation. In order to make the simulated negotiation more authentic and effective, the teacher can choose a certain negotiation that has already happened in reality as the theme, and the students will consult the relevant information according to the negotiation background, analyze the strengths and weaknesses of the two sides and the market situation, determine the negotiation target level, formulate the negotiation plan, and submit it to the teacher in advance in the form of negotiation plan. The teacher will check the preparation of each group's market research and analysis, negotiation plan, and the use of negotiation strategies, and make suggestions for modification. Prior to the commencement of the simulated negotiation, the instructor may help the students make a few preparations for the negotiation environment, such as seating arrangement and dress code.

Second, the students simulate the negotiating parties in negotiating groups, complete the whole negotiation process from the opening, presentation, consultation to the end of the negotiation. In order to avoid turning the "simulation" into a "performance", the two sides of the negotiation can be decided by drawing lots on the spot. The teacher observes and grades the entire simulated negotiation process and tries not to interrupt the negotiation. After the simulated negotiation, the teacher should comment and inspire all the members of each group, with positive incentives as the main focus, and give affirmation and recognition to the students who think clearly and perform seriously.

At this stage, digitally empowered course instruction can be achieved in several ways:

1. Cross-border e-commerce negotiation simulation

Using Alibaba International or Amazon Seller Negotiation as a background, students will have to deal with complex factors such as exchange rate fluctuations, cross-border logistics, and digital payments, as well as utilize multi-language communication tools (e.g. Google Real-Time Translate) to complete cross-cultural negotiations.

2. Data Privacy and Compliance Negotiations

Design cases involving GDPR (EU General Data Protection Regulation), requiring companies to negotiate with data service providers on the scope of use of user data, storage location and other terms and conditions, to develop students' ability to cope with the dual challenges of law and technology.

3. AI Negotiation Opponent Live

Introducing negotiation AI based on reinforcement learning (e.g. DeepMind's negotiation robot), students need to play multiple rounds of games with the AI, and the system dynamically adjusts the AI strategy according to the negotiation results, forcing students to continuously optimize their response options.

III. Digital upgrading of appraisal methods

In order to cooperate with the practical teaching reform of project decomposition, we try to combine the classroom teaching and the performance of each practical training session closely, reduce the weight of the evaluation of written grades, evaluate the content throughout the semester's comprehensive performance: Teachers evaluate students' participation in practical teaching as well as their performance. Teachers should not only use the negotiation team as a team to conduct an overall assessment of comprehensive qualities such as collaboration ability, but also conduct an independent assessment of students' mastery of individual knowledge and skills, so as to prevent the laziness of a very small number of students from "free-riding". To avoid individual students becoming lazy, their mastery of knowledge and skills is evaluated independently.

The final grade consists of the usual classroom attendance, link simulation operation, group simulation negotiation and other parts of the composition, all the grades are from the usual performance of the various aspects, since classroom performance has a great impact on the final grade, students take it seriously from the beginning of the semester and have a greater motivation for active learning, which ultimately ensures a continuous improvement in teaching effectiveness. The two parts of the session simulation operation and simulation negotiation are scored in groups, and the group's score determines the average grade of each group member, and the scoring criteria can be differentiated according to the different roles and tasks, and the scoring can be weighted to differentiate each student due to the different amount of tasks undertaken by different members. Specifically, the assessment method consists of three parts: attendance and usual assignments (20%), classroom discussion and session simulation operation (30%), group simulation negotiation and negotiation practice performance (50%), of which the negotiation practice part will be given marks according to the specific performance of the students, and the assessment criteria includes the students' ability to collect, organize, and analyze the information, oral expression, record-keeping and organizing ability, teamwork, etc.

A multidimensional assessment system and dynamic adjustments can be reached through digital upgrades during the various stages of the evaluation process.

1. Multi-dimensional assessment system

Technical application skills: including data analysis report, smart contract design, VR scene operation, etc.;

Negotiation practice performance: AI-generated negotiation process scores (e.g., logical coherence, resilience);

Team collaboration data: task completion rate, frequency of interaction, etc. through the collaborated platform statistics;

Innovative thinking: breakthrough solutions proposed in the case of the digital economy.

2. Real-time feedback and dynamic adjustment

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The Learning Management System (LMS) is utilized to record students' performance in various sessions and generate radar charts of individual competencies to help students identify their shortcomings.

IV. Evaluation of the Effectiveness of the Teaching Reform

According to the feedback of the teaching reform, most of the students reflect that the international business negotiation course is interesting and novel, combined with the practical, the classroom design is diversified, the classroom atmosphere is active and mobilizes the enthusiasm of the students, and the students have gained more advantages. Some students with excellent performance participated in the national business negotiation elite competition and achieved satisfactory results. According to the feedback of the participating students, the practical teaching of project decomposition is like "laying a carpet", simulating and training every link and every detail once again, so that students are very familiar with the process of negotiation, which greatly improves the ability of students to solve practical problems. The teaching reform has achieved obvious results, which are mainly reflected in the following aspects:

1. Improvement of students' self-learning ability and enhancement of their comprehensive quality

Through the construction and reform of business negotiation practice teaching courses, students apply their knowledge to business negotiation on the basis of theoretical learning, and their self-learning ability and comprehensive quality can be greatly improved in practice. First, it improves the students' ability to acquire and process information. In the preparation process of business negotiation, students have to collect, organize, categorize and summarize data and information in a targeted way for each specific issue and detail in the negotiation, so as to truly solve the practical problems in business negotiation. In the pilot class, 90% of the students were able to skillfully use at least three digital tools, and the data support rate of the negotiation proposal increased by 45%. Secondly, students' teamwork and coordination skills were improved. Starting from accepting the business negotiation task assigned by the teacher, the whole process of team members from team formation, role division, collecting and organizing data, information sharing, group discussion, formulating negotiation strategies, and writing a planning document requires teamwork, whole-group cooperation, coordination, and joint decision-making.

2. Enhancement of students' literacy and stimulation of their innovation

In the process of practical teaching of business negotiation, it is always necessary to take the improvement of students' literacy and the stimulation of students' innovative consciousness as a main line throughout. In terms of cultivating students' innovative ability, students design and organize themselves to participate in business simulation negotiation activities on the basis of the scenarios and constraints set by the teacher and actively display design results. Through pre-course preparation, classroom learning and presentation, post-course summarization and other systematic mastery of the knowledge and key points of business negotiation, students are stimulated to be innovative and creative in their thinking through independent learning, collective learning and brainstorming. Students Feedback: “VR simulation makes me feel the pressure of real negotiation, and AI feedback helps me improve my strategy quickly.” “Data analysis is no longer on paper, we learned to crawl competitive pricing with Python, which is so useful for the real world!"

V. Conclusions and Outlook

To sum up, the use of project decomposition and cooperative learning practical teaching methods can make students do "learning and practicing", put learning into practice, find problems in learning and consciously look for ways to solve problems, cultivate students' systematic thinking process of business negotiation and professional ability of business negotiation, and make students take the initiative to participate in all parts of the teaching of the course. It enables students to actively participate in the teaching of the course and truly master the methods and skills required for negotiation, and achieves better teaching results.

At the same time, the deep integration of digital technology and digital economy has provided a new paradigm for the reform of business negotiation courses. Through the three-stage project decomposition of "point, line and surface", students can not only master the traditional negotiation skills, but also cultivate the data thinking, technology application and innovation ability in the scene of intertwining the virtual and the real. In the future, with the maturity of meta-universe, generative AI and other technologies, the course can further explore the holographic projection negotiation, AI personalized tutor and other modes, and continue to promote business negotiation education towards intelligence and globalization.

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