Research Article

Scenario-Based Teaching Design of International Trade Practice Based on Deep Learning

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In the context of the fourth global industrial revolution, the trading environment of international trade is undergoing profound changes. In today’s deep integration of globalization, the teaching mode of economic application courses—international trade practice situational teaching mode—is bound to change. This article sorts out the problems existing in the curriculum from the perspectives of the integration of the practical curriculum, the cohesion of the trade process, and the teaching concepts and methods. On the basis of deep learning, a situational teaching design process of international trade practice is constructed.

1. Introduction

The development trend of society, economy, science and technology, and culture in the 21st century and the process of China’s economic integration into economic globalization have made China’s demand for various types of talents continue to change, and the requirements for talent specifications continue to increase, which objectively requires continuous reform of higher education [1]. In order to meet the needs of China’s higher education reform and development, we should further strengthen curriculum construction and improve teaching quality. Continuously improve, refine, enrich, and develop the connotation of the curriculum, increase the reform of teaching content and methods, make curriculum construction and teaching reform a process of mutual matching, dynamic development, and continuous deepening, and give play to teaching reform and curriculum construction. It emphasize on both theory and practice teaching in order to comprehensively improve the comprehensive quality of students. The simulation teaching system of international trade [2, 3] is designed and developed based on the simulation of international trade practice [4–6]. Simulate the whole process of generating, transmitting, receiving, reviewing, and feedback on a full set of documents involved in international trade practice from the perspective of time and business sequence. The main object of its simulation is the business, documents, and document delivery of all relevant enterprises, functional departments, and institutions in international trade practice. Among them, business simulation is carried out according to the actual situation of various enterprises, institutions, and relevant rules, which is the simulation of the actual business. Document simulation in international trade is realized by electronic paper documents [7, 8], which is the reproduction of various paper documents currently used in international trade practice [9]. Document delivery simulates the traditional transmission methods of various documents, such as fax, mail, direct delivery, and so on.

The training goal of the international economics and trade major is to cultivate foreign economic and trade talents with theoretical analysis and practical operation ability [10, 11]. Therefore, it is very important to cultivate the practical business ability of foreign trade in this major [12]. In the teaching operation, due to the extremely limited ability of enterprises to accept students’ professional internships, general enterprises are reluctant to let students go to the enterprise due to business secrets and other reasons. In order to enable students of this major to combine theoretical knowledge with practice and internalize book knowledge into students’ practical ability, it is
necessary to set up a centralized and independent practice link that simulates actual business in the school. The importance of practical teaching lies in the students’ ability to use the knowledge learned in the classroom, through hands-on operation, simulation experiments, and personal experience. International trade practice [13, 14] is a core main course of international economics and trade, and it is also a highly practical course. Much knowledge is only described by teachers in language, and students will feel very abstract and difficult to understand, but after the practical operation, abstract problems become tangible things that can be seen and touched, and students can easily understand them. On the other hand, practical teaching also strengthens students’ ability to analyze and solve practical problems.

“International Trade Practice Course Design” is an important practical teaching link arranged after the “International Trade Practice” course, which is required by professional education. Its teaching purpose is to make students familiar with and understand the specific operation procedures of actual foreign trade business through the simulation operation of this practical link on the basis of mastering the basic principles, basic knowledge, and basic skills and methods of engaging in international trade practice so as to enhance some perceptual knowledge and further understanding, consolidation, and deepening of the international trade practice theories and methods that have been learned, improve students’ ability to identify, analyze, and solve problems. This largely solves the problem of difficult professional practice for students. In the specific operation of international goods trading practice, students can quickly become familiar with international market research of import and export, formulation of export marketing plans, inquiries, offers, counteroffers, drafting export contracts, reviewing letters of credit, and drafting various documents. Master various basic skills be familiar with such as export documents, familiar with the operation mode of international trade logistics, capital flow, and business flow, understanding the different positions of different parties in international trade, the specific work and interaction they face, and learn how foreign trade companies use various methods. The idea of achieving the best benefit, understand the macroeconomic phenomena such as supply and demand balance, reasonable competition, and learn to use it rationally. In the course design, students can give full play to their subjective initiative, truly master and absorb the knowledge learned in the classroom, and lay a good foundation for entering the workplace in the future.

In recent years, deep learning research has become a popular choice for some educators, but these researches mostly stay at the theoretical level; that is, conceptual research on deep learning, feature research, and empirical research are very scarce. As we all know, teaching is not only a science, but also an art. Teaching is a creative and unpredictable activity, because teaching activities are faced with living individuals, and teaching only at the theoretical level is untenably becoming a priority.

2. Related Technologies

2.1. Related Concepts

2.1.1. Deep Learning. Compared with shallow learning, deep learning avoids shallow, fragmented, and isolated classroom teaching. In the more than 40 years since the concept of deep learning was proposed, different scholars have developed their own views on the concept of deep learning, mainly including the following:

Chinese scholar Zhang Sujuan believes that deep learning should focus on cultivating student’s creativity, criticality, and critical thinking. This requires teachers to study the curriculum standards, carry out knowledge learning and ability training at the same time when designing teaching content, and acquire the ability to acquire knowledge while acquiring knowledge. However, Zhang Sujuan’s scholars overemphasized the cultivation of geographical thinking ability, which weakened the development of students’ geographical methods and emotional attitudes and values.

American Keith Sawyer’s definition of deep learning focuses on learners’ connection between new and old knowledge. He believes that deep learning is to summarize new knowledge into the original knowledge system by finding adaptive patterns and methods [15] and develop a new understanding of knowledge and a process of comprehensive reflection in the process.

Jiahou believes that the premise of deep learning is “understanding.” Students should treat new knowledge and new ideas critically and summarize them into their own cognitive structure through their own understanding. Such knowledge can be flexibly transferred to various situations so as to solve the corresponding problem. It can be seen that Jiahou’s definition of deep learning emphasizes the initiative of students, and the process of deep learning should reflect the subjectivity of students, but whether students can learn actively and reflect the status of subjectivity is affected by many factors, such as the role of teachers, whether the teaching environment provides favorable conditions.

Through the above analysis, the author believes that the concept of deep learning can be understood as follows: from the perspective of the learning roles, deep learning emphasizes the subjectivity of learners, and at the same time emphasizes the leadership guidance of teachers; from the perspective of learning form, deep learners are necessary. Knowledge is deeply processed to promote long-term memory of knowledge; from the perspective of the learning process, deep learning requires learners to actively devote themselves to the learning process; from the perspective of the learning experience, deep learning focuses on stimulating the learners’ intrinsic motivation to learn. Learners generate learning satisfaction and make learning an enjoyable experience.

In fact, deep learning and shallow learning are not two completely opposite concepts. Deep learning is sometimes based on shallow learning, while deep learning is the reprocessing of shallow learning and the development of shallow learning. The relationship is shown in Figure 1.
2.1.2. Instructional Design. Teaching design was first produced in the combat training of soldiers in the World War II and then gradually applied to school teaching.

Instructional design is a bridge between theory and practice. In instructional design, teachers are designers. Teachers design learning activities according to course requirements and the characteristics of students so as to meet the requirements of teaching and learning. Different scholars have different views on teaching design. For example, how to overcome scholars think that teaching design is a systematic process, a process of systematic transformation of theory into teaching objectives, teaching methods, teaching evaluation, and other teaching links. In their "Principles of Teaching System Design," Yang Jiumin and Fan Guanjun advocated that teaching design should be based on learning theory, teaching theory, and communication theory and evaluate and revise teaching design through systematic methods.

Through the above propositions, teaching design can be understood as the use of systematic methods, based on pedagogical theory, psychological theory, communication theory, and so on, through media tools, according to the requirements of the curriculum to reasonably design all aspects of the teaching process so as to achieve teaching the purpose and the process of discovering teaching problems and solving teaching problems. Figure 2 is the instructional design process diagram.

2.1.3. Higher-Order Thinking. Higher-order thinking refers to thinking, in which thinking activities occur at a higher cognitive level, also known as high-level thinking [16]. Higher-order thinking originated from Bloom’s taxonomy of cognitive goals, and then Anderson divided educational goals into knowledge goals and cognitive goals on the basis of Bloom’s classification of cognitive goals. Cognitive goals include creation, evaluation, analysis, application, comprehension, and memory (Figure 3).

From the cognitive level, analyzing, evaluating, and creating goals belong to higher-order thinking, while remembering, understanding, and applying goals belong to lower-order thinking. To cultivate students’ higher-order thinking, it is necessary to transform students’ learning methods and increase the depth of knowledge learning and understanding. Therefore, the cultivation of higher-order thinking focuses on students’ “learning” rather than teachers’ “teaching.” Therefore, only by changing the traditional teaching methods can teachers indirectly cause changes in students’ learning methods so that students can learn to learn autonomously and construct themselves, thereby promoting the occurrence of deep learning and the cultivation of advanced thinking ability.

2.2. Theoretical Basis

2.2.1. General Systems Theory. System theory advocates the use of systematic methods, ideas, and viewpoints to study and solve problems because, in the view of system theory, everything in the world exists systematically, so the object of study should be regarded as a system as a whole and in the form of a system. Seek solutions to the problem. Therefore, the guidance of system theory to teaching design is to take education and teaching as a system as a whole, to integrate all elements of teaching design in teaching design, to use systematic methods to order the whole process, and to provide a mode of teaching design. The development of systems theory has broadened the vision of instructional design, making instructional design not only focus on internal structural objects, but also on social systems closely related to education, which also provides support for the richness and rationality of instructional design.

2.2.2. Information Dissemination Theory. Information dissemination theory mainly studies the laws of information dissemination in nature and summarizes the common points of information dissemination in nature. Because the educational process is also a special information dissemination process, the dissemination theory is suitable for the study of education. In the process of dissemination of educational information, the characteristics of the information recipients, the age, gender, and personality of the students
should be considered, and the structure and sequence of the information should be considered. After rational organization, it should be more in line with the psychology of the information recipients. The number of information should not be too much or too little. Too much will easily “overload,” and too little will make it difficult to concentrate students’ attention. Only by considering these comprehensively can the quality of information dissemination be guaranteed.

2.2.3. Learning Theory. Learning theory is a psychological theory that mainly studies the nature of human learning and explores the formation mechanism of learners’ learning process. Since instructional design mainly creates a learning environment according to the actual needs and characteristics of learners, the research results of learning theory have practical significance for the research on the instructional design of educators.

(1) Constructivist Learning Theory. China’s basic education reform is influenced by the constructivist learning theory. The theory originated in the 1980s, and its main views are mainly reflected in three aspects. First, the dynamic nature of knowledge is emphasized in terms of knowledge. First, deep learning believes that knowledge is flexible, the elaboration of things is not objective, and learners need to conduct specific analysis according to actual problems; second, deep learning believes that knowledge requires a certain carrier, the learners need to use a certain “intermediary” to complete the deep understanding of knowledge. Second, pay attention to the learning situation in learning. Constructivism believes that students need a certain situation when they actively
construct and process knowledge. This situation must be related to social life, and knowledge that has not been lived is not easy to be internalized by students. Third, pay attention to the existing experience structure of students in terms of students, which emphasizes the need to pay attention to the connection between before and after knowledge when carrying out instructional design, take students’ previous experience as a starting point, and on this basis guide students to build new knowledge, thereby doing deep learning.

(2) Learning the Pyramid Theory. The learning pyramid theory originated in the mid-1940s and was proposed by the American scholar Edgar Dyer based on the research results of the Maine National Training Laboratory. Influence of quantity [17], the structure of the learning pyramid theory is shown in Figure 4 below.

Starting from the top of the tower and descending in order, the learners’ learning styles continued to change, and they were at higher and higher cognitive levels. The results showed that the students remembered more and more content after two weeks. The first way of learning is “listening to talk”; that is, the traditional teacher tells the students to listen, and there is little interaction between teachers and students. The effect of this learning method can be imagined. The experimental results also prove that the learners’ memory content after two weeks is only 5%, the second allows learners to read, and the knowledge retention rate reaches 10%, the third learning method mobilizes a variety of senses, and the learning effect becomes better, but the retention rate is 20%, and the learning effect of demonstration is better; the knowledge retention rate is 30%. The learning effect of discussion, practice, and immediate application and transfer to others is better, and the knowledge retention rate after two weeks reaches 50%, 75%, and 90%.

Therefore, Dell classifies learning according to the different learning effects of learners in different ways. Learning methods with a learning effect of less than 30% are called passive learning, while those with a learning effect of more than 50% (discussion, practice, and teaching to others) are called active learning. For active learning, the research results of the learning pyramid theory have proved the importance of active learning, so the theory provides theoretical support for the idea that instructional design should change the way students learn.

3. Research Ideas and Methods

3.1. Research Ideas

3.1.1. Determine the Topic and Consult the Literature. First, determine the topic, and then collect literature on deep learning on the one hand, and review and organize related literature on deep learning strategies and deep learning cognitive process models based on allosteric models on the other hand.

3.1.2. Investigation and Research to Find Problems. Through the questionnaire analysis of students and teachers, the current situation of deep learning in international trade in senior high schools is understood [16, 18], and the problems existing in deep learning of international trade are discovered [15, 17, 19].

3.1.3. Implement and Verify the Effectiveness of the Integrated Instructional Design. Aiming at the problems existing in the situational teaching of international trade practice, the deep learning strategy based on the allosteric model constructs the teaching process and combines with the cognitive process model of deep learning to supplement and improve to construct a more scientific and reasonable integrated teaching design. Carry out teaching practice in the practice school, and verify the effectiveness of the integrated teaching design according to the teaching effect [20].

3.1.4. Summarize and Draw Conclusions. Through the analysis and summary of the data and interview results, conclusions are drawn to provide teaching references for front-line teachers.

The specific research ideas are shown in Figure 5.

3.2. Research Methods

3.2.1. Literature Research Method. By collecting, arranging, and reviewing a large number of relevant literature materials, we can form a holistic understanding of the current research on the teaching design of international trade units based on deep learning and comprehensively grasp the deep learning strategies based on allosteric models and the cognitive process model of deep learning. It lays a theoretical foundation for the construction of integrated teaching design ideas.

3.2.2. Investigation Method. Drawing on other people’s questionnaires and according to the concepts and characteristics of deep learning, we design questionnaires for teachers and students, respectively, and then conduct surveys. Through the statistical analysis of the questionnaire data, we can understand the current situation of deep learning in international trade and find out the problems existing in deep learning of teachers and students so as to promote the deep learning of students in a targeted manner.

3.2.3. Case Study Method. Select the content in the textbook of International Trade, adopt the integrated teaching design idea to promote students’ in-depth learning to design and analyze relevant cases, and analyze and illustrate the effectiveness of the teaching design.

3.2.4. Experimental Method. Select multiple classes with similar levels, apply the designed teaching cases to actual classroom teaching activities, and compare with the conventional teaching mode of the control class to test the effectiveness of the deep learning teaching design [21].
3.3. Unit Instructional Design

3.3.1. The Meaning of Unit Instructional Design. To understand unit instructional design, we must first understand what unit instruction is. Xiao-Ping believes that unit teaching refers to a teaching method that focuses on a certain unit, allowing students to promote their cognitive transfer through various inquiry activities, improve students’ problem-solving and other higher-order thinking skills, and develop a spirit of active inquiry. Li Yingkui believes that the scope of unit teaching should not be limited by the "teaching unit" in the textbook, but should cover the teaching theme composed of some related knowledge points or several lessons. The whole teaching theme is interconnected and interacting organisms [22]. The "unit" cannot be equated with the "teaching unit" of the textbook because the "unit" can also be a "teaching theme" composed of several "units" of the textbook. The subject of International Trade is a relatively systematic subject, and most teachers of International Trade will recognize the "unit" from the perspective of content, that is, tend to the connotation of "teaching material unit." In the actual teaching process, it is possible to refer to the established structure of the textbook and use a chapter directly as a unit or appropriately reorganize the content and combine it into a new unit, which is more conducive to the formation of students' knowledge system [23].

Regarding the unit teaching design, Professor Zhong Qiquan believes that the unit teaching design should be grasped as a whole, taking the content with a certain theme as the core as an organic whole, through the formulation of unit teaching objectives, the design of unit teaching plans, and the unit evaluation, to complete complex teaching activities. Different from the class design, the unit teaching design emphasizes the systematic and procedural content of the unit, starting from the cognitive law and the logical sequence of psychological development, and arranges the teaching content reasonably [24]. In the process of unit teaching implementation, not only should we focus on imparting knowledge points of the system, but also on promoting the smooth completion of the unit goals so as to achieve high-quality teaching.

3.3.2. The Model of Unit Instructional Design. The effective implementation of unit teaching design is inseparable from the unit teaching mode. Although the model of unit instructional design has not yet been developed, the "ADDIE model" has been recognized by most scholars. "ADDIE model" consists of five parts, namely, score, design, development, practice, and evaluation. Among them, “analysis” refers to the systematic analysis of students, teaching materials, learning conditions, and so on; "design" refers to the design of class hours and unit teaching objectives, selection of appropriate teaching methods and strategies, and reasonable planning of the teaching sequence; and "development" is to carry out the unit instructional design [25]. "Implementation" means implementing the unit teaching plan that has been designed. "Evaluation" refers to the evaluation of students’ learning effects and teachers’ reflection on their own teaching. The above five elements influence each other and connect with each other, and the specific relationship is shown in Figure 6.

![Figure 4: Structure diagram of learning pyramid theory.](image-url)
3.3.3. Principles of Unit Instructional Design. In the teaching design of the international trade unit based on deep learning, teachers should pay attention to the following principles and apply them flexibly in order to better promote students’ deep learning.

(i) Systematic Principle. Each part of teaching design is not only relatively independent but also mutually restricting and interdependent. It is an organic system. Although their center is the optimization of the teaching effect, the roles of each part in the whole system are not the same. In addition, the classroom teaching design should be based on the whole, and each part should be coordinated and unified with the teaching system so as to realize the optimization of the whole teaching system.

(ii) Procedural Principle. In teaching design, the former part constrains the latter part, and at the same time the latter part depends on and affects the former part, and the order cannot be reversed. For example, it is more scientific only after the analysis of learning situation and the analysis of teaching materials have been determined. For another example, after determining the major and difficult points, choosing appropriate teaching methods and guiding students to adopt appropriate learning methods will be more conducive to teachers’ teaching and students’ learning [26].

(iii) Diversity Principle. When organizing unit teaching activities, teachers should select appropriate
teaching activities according to the teaching content, and all teaching activities should be conducive to deepening students’ understanding of knowledge and experience. At the same time, we should pay attention to the diversity of activity forms and strive to use various forms of activities to achieve our goals.

(iv) Feasibility Principle. In addition, the instructional design also needs to follow the feasibility principle. First of all, the purpose of teaching design is to better guide specific teaching practices, so teaching design must follow operability, and teachers need to carefully design feasible teaching activities. Secondly, the teaching design should comprehensively consider the subjective and objective conditions, in which the subjective conditions involve the level of teachers and the specific conditions of the students; the objective conditions should consider factors, such as regional differences and teaching equipment.

3.4. Construction of Instructional Design Process

3.4.1. Deep Learning Cognitive Process Model. Mu Yanjin and Duan Jinju proposed a deep learning cognitive process model based on Gagne’s teaching theory [20] of nine sections and other related cognitive models, as shown in Figure 7.

This model is the basis of deep learning instructional design, and each process is explained below: the motivation stage is the process of stimulating students’ learning motivation; the preparation stage is the stage of stimulating students’ existing knowledge and establishing connections with new knowledge; the comprehension stage and the attention in cognitive psychology corresponds to selective perception. At this stage, learners are required to focus their attention on stimuli related to their own learning goals; the acquisition stage is the process of encoding information and storing it in short-term memory; maintaining the recall stage is the process of retrieving the information in the long-term memory. The learner usually solves well-structured problems in this stage; that is to say, the learner only needs to work on structural problems. Knowledge can be transferred and applied in a new context; the information stored in the creative phase is reconstructed for use in the process of solving ill-structured problems.

3.4.2. Integrated Instructional Design Process. By analyzing the deep learning teaching process based on the allosteric learning model and the cognitive process model of deep learning constructed above, it can be seen that the teaching processes of the two are mostly corresponding. The author believes that if the start-up strategy is used in the preparation stage to better link the old and new knowledge, a more complete and scientific deep learning integrated instructional design process will be constructed, and the “design” in the ADDIE model of unit instructional design will be improved. The specific teaching process design is shown in Figure 8.

(1) Stimulate the Engine and Improve the Learning Initiative. Deep learning is a kind of active learning, which requires learners to actively participate, and learning motivation is the engine to stimulate and maintain students’ learning activities. Therefore, stimulating students’ learning motivation is the initial link. Only when students’ motivation to learn is fully stimulated, students will be willing to participate in the learning process and learn actively.

(2) Activate Old Knowledge and Establish Connections. Deep learning is learning based on original knowledge. Therefore, with the help of the advance organizer prepared in advance, a certain connection can be established between the original old knowledge in students’ minds and the new knowledge to be learned, which is conducive to students’ understanding of new knowledge and construction.

(3) Multiple Confrontations, Deconstructing the Original Concept. Before students learn new knowledge, the knowledge that already exists in their minds may have a certain impact on the learning of new knowledge. This knowledge can be confronted between students and students, students and teachers, students and the original knowledge and experience, and students and new information so that students can discover the problem by themselves and then deconstruct the original concept, which is conducive to the follow-up knowledge learning.
(4) **Use Mind Assistants and Formal Systems to Increase Engagement.** Different from the traditional teaching method, the integrated teaching process emphasizes the flexible use of various thinking assistants and formal systems, such as role-playing and model construction, which can improve the participation of students and better implement the students' dominant position. In the process of participating in various activities, students will also have a deeper understanding of knowledge, complete the construction and transformation of knowledge, and promote the occurrence of students' deep learning.

(5) **Call and Reorganize to Improve Problem-Solving Ability.** This process is mainly oriented to problem solving. For well-structured problems, students only need to call out the knowledge stored in their minds; while for some poorly structured problems, students need to create knowledge stored in their minds. Reorganization: whether it is a simple transfer of knowledge or a higher level of creation, it is beneficial to improve students’ ability to solve real situational problems.

(6) **Form a Conceptual System for Evaluation.** Fragmented and isolated knowledge is “inert knowledge,” which is not integrated with the original knowledge but is simply accepted by the brain and therefore cannot be used. Students' learning should not be “fragmented” learning but should be systematic learning. In the teaching process, teachers should guide students to gradually form a conceptual system, and this process can also be used as a way to evaluate whether students’ deep learning occurs.

In addition, teachers should ensure that the entire teaching process is carried out in an atmosphere full of trust. Only when students feel trust can they express their opinions boldly, which will help teachers understand students’ thoughts and discover the students’ learning process.
Existing problems: at the same time, in the process of expressing themselves boldly, the students also improved their various abilities, such as language expression.

4. Conclusion

The course design of the course project “International Trade Business Process” is very effective in the course implementation process. Through job-oriented course design based on job requirements, students have clear learning goals and effectively improve the effectiveness of teaching; through some case analysis and scenario simulation, students have a clearer career plan for this major and can better plan their own career; through intensive training such as practical training, students’ professional ability has been greatly improved, and has been well received by employers.

Data Availability

The dataset can be accessed upon request to the corresponding author.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

References


